2017 CONSTRUCTION SEASON AS-BUILT REPORT

TAILINGS STORAGE FACILITY

MEADOWBANK GOLD PROJECT NUNAVUT

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EXECUTIVE SUMMARY

The 2017 construction season at Meadowbank was conducted from June 26 to October 11, 2017. It consisted in the construction of Stage 3 for Saddle Dams 3, 4, and 5, and the preparation of the north abutment of Central Dike. Construction was completed in general accordance with the requirements of the Design and Technical Specifications developed by Golder for each structure.

The data collected from the quality assurance (QA) and quality control (QC) program during the construction of Stage 3 of Saddle Dams 3, 4, and 5, and the preparation of the north abutment of Central Dike were used to confirm that the construction of each structure was completed in compliance with the Drawings and Technical Specifications. This includes earthwork construction such as foundation preparation and fill placement as well as the installation of the geosynthetics.

During the course of the work, one design change and thirteen field adjustments were applied to take into account the existing site conditions and to optimize construction activities.

DOCUMENT CONTROL

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SECTION 1.0 – INTRODUCTION

The 2017 construction season of the South Cell of the Tailings Storage Facility (TSF) at Meadowbank was conducted from June 26 to October 11, 2017, and consisted of the construction of stage 3 of Saddle Dams 3, 4, and 5, and the preparation of the north abutment of Central Dike.

This as-built report for the 2017 construction season presents a summary of the Technical Specifications, the construction activities, the QA/QC activities, as well as the overall information used to produce the as-built drawings. This report was prepared with input from a number of contributors in a collaborative effort between Agnico Eagle Mines Limited (AEM) and Golder Associés Ltée (Golder).

The work done in the previous stages of Central Dike and Saddle Dams 3, 4, and 5 is described in the respective construction summary as-built reports.

1.1 Roles and Responsibilities

The Drawings and Technical Specifications for Central Dike and Saddle Dams 3, 4, and 5 were developed by Golder and reviewed by the AEM Meadowbank Engineering Team (MET) and by the Meadowbank Dike Review Board (MDRB). Qamanittuaq SANA (SANA) was contracted by AEM for the work of the 2017 construction season of the South Cell. The Owner Representative from AEM was responsible for managing and planning the construction. Golder was responsible for the quality assurance (QA) program and provided technical review of the work to ensure that the structures were constructed according to the Technical Specifications (Technical Specifications) and Construction Drawings (Drawings). The quality control (QC) program (with the exception of aspects related to geosynthetics) was carried out by GHD consultant (GHD), under the direction of AEM. GHD monitored the construction to ensure that the work and materials met the Technical Specifications. The geosynthetics were installed by subcontractor ZTG Geosynthetics (ZTG) under the direction of SANA. The geomembrane QC was also done by ZTG.

Table 1 presents a summary of the general roles and responsibilities for each of the parties involved during the 2017 construction season. This table also includes the key companies and the key personnel that contributed to the various construction activities.

Table 1: Roles, Responsibilities and Key Personnel for the South Cell 2016 Construction Season

Company	Role	Responsibility	Key Personnel	Position
Agnico Eagle Mines Meadowbank Division	Owner	Manage and plan the construction Act as Owner's Representative Provide survey and as-built drawings	Patrice Gagnon Alexandre Lavallée	Geotechnical Supervisor
			Julie Bélanger Pierre McMullen (Asst.)	Engineering Superintendent
			Denis Gosselin Roch Chabot Jeremy Kancir (Asst.)	Construction Supervisor
			François Gravel-Grenier Samuel Kiley-Morin	Surveyor (AEM sub-contractor)
Qamanittuaq SANA	Contractor	Carry out 2017 South Cell construction activities Provide survey and as-built drawings	Guillaume Tremblay	Project Director
			Christopher Gilbert Jeannot Gagnon	Project Manager
			Pierre-Luc Babin Sabin Larouche	SANA Foreman/Surveyor
			Francis Pépin Marc-André Blackburn	Surveyor
Golder Associés Ltée	Structure designer	QA program during construction Technical review of construction work	Yves Boulianne	Project Director and Dike Designer
			Michael Nadon	Project Manager and QA Engineer
			Marion Habersetzer	QA Engineer
GHD	Sub-contractor of the Owner	Carry out QC program and construction monitoring	Daniel Pedneault	Project Manager
			Hugues Potvin Sébastien Blackburn Cédrick Fillon-Tremblay Pierrick Trecasse	QC Representative
ZTG Geosynthetics	Sub-contractor of the Contractor (SANA)	Geosynthetics installation and QC testing	Jean-Marc Brunet	Projects Director
			Stéphane Côté	Field Supervisor
			Marion Ferret	QC Representative (geosynthetics)

1.2 Definitions of Terms Used in this Document

The following table presents the definition of the terms used in this report.

Table 2: Definition of Terms

Term	Definition
AEM	Agnico Eagle Mines, Owner.
As-built drawing	Document showing no new concept. It is the graphical representation of a built structure showing the real measurements, installed instruments and objects. It is not a final plan and can be seen as an inventory of what was built for reference.
Approval	A written engineering or geotechnical opinion, related to the progress and completion of the Work.
Coarse Filter – Zone 3	Material produced from processing of NON-AG and PAG rockfill and meeting the Technical Specifications.
Compacted Till – Zone 1	Reworked till satisfying the Technical Specifications. The Technical Specifications refer to compacted till (0-150 mm) and compacted sieved till (0-50 mm).
Contractor	Qamanittuaq SANA. On-site representative of the construction company contracted by the Owner to successfully carry out the scope of work as defined in the Technical Specifications.
Designer	Golder Associés Ltée.
Dike	Earthwork made of rockfill and natural soil to retain water and tailings.
Downstream and Upstream	The downstream direction represents the downward direction of water flow in a valley or in the direction of a slope. Upstream is defined as the opposite of downstream. For a dike, downstream is the direction of flow from the dike and upstream represents what is retained by the structure.
Field Laboratory	Area and facilities provided for QC and QA testing at Meadowbank.
Fine Filter – Zone 2	Material produced from processing of NON-AG and PAG rockfill and satisfying Technical Specifications.
Fine Rockfill	Processed rockfill satisfying Technical Specifications.
Geotextile	Non-woven geotextile, minimum 500 g/m^2, GSE NW16 or equivalent.
Ice-Poor Soils	Frozen soils that contain less than 10% visible ice and having a water content of less than 20%. No visible ice lenses.
Ice-Rich Soils	Frozen soils that contain more than 10% visible ice and/or having a water content greater than 20%. Ice lenses may be present.

Term	Definition
Liner Installer	ZTG Geosynthetics. Subcontractor under the responsibility of the Contractor and responsible for the installation of geotextile and LLDPE geomembrane.
LLDPE Geomembrane	Linear low-density polyethylene geomembrane satisfying Technical Specifications.
Low Quality Till	Till-like material having relative low permeability.
Owner	Agnico-Eagle Mines Limited, Meadowbank Division (AEM)
Owner's Representative	Person(s) employed by the Owner in order to oversee the project works and the Owner's interests. The primary point of contact for the Designer and the Contractor.
PAG / NON-AG	PAG: A material that has been geochemically classified as being potentially acid generating. NON-AG: A material that has been geochemically classified as not being acid generating.
QA Engineer	Responsible for QA activities.
Quality Assurance (QA)	A planned system of inspection and testing to documents, to the satisfaction of the Owner, the Engineer, other stakeholders and regulators, that the Work comply with the design, Drawings and Technical Specifications. Quality Assurance forms a subset of the Quality Assurance program. Quality Assurance comprises of inspections carried out during Quality Control that includes verifying and assessing materials and workmanship necessary to determine and document the quality of the constructed facility. Quality Assurance refers to the measures taken by the Quality Assurance organization and the Engineer to assess whether the Contractor is in compliance with the design, Drawings and Technical Specifications.
Quality Control (QC)	A planned system of inspection, testing and documentation carried out by the Contractor during construction to ensure that the Work is being performed and completed in a manner that complies with the Drawings and Technical Specifications. The Contractor is responsible for the Quality Control of all Work performed by him and all Work performed by any Subcontractor under contract with him.
QC Representative	Person or company hired by the Owner and under the supervision of the Owner's Representative to collaborate with the Contractor to ensure QC testing and inspection of all work done by the Contractor.
Rockfill – Zone 4	NON-AG rockfill, expected to be run-of-mine material requiring little to no processing and satisfying the Technical Specifications.
Tailings Deposition Fingers	Engineered elements designed by the Owner to facilitate the deposition of tailings from the crest of Central Dike while protecting the structure.
Till	Naturally-occurring well-graded soils consisting of sizes ranging from clay to boulders.
TSF	Tailings Storage Facility

Term	Definition
Work	All activities associated with the construction of Central Dike, and Saddle Dams 3, 4, and 5.
Working Platform	Surface of fill and/or excavated surface from which the work is conducted.

1.3 Description of the Built Structures

The South Cell of the Meadowbank TSF consists of four permanent perimeter structures: Central Dike, Saddle Dam 3, Saddle Dam 4, and Saddle Dam 5. Central Dike is located in the southeastern end of the South Cell and adjacent to the western limits of the North Portage Pit. Saddle Dam 3 is located in the northwestern corner of the South Cell and is designed to merge with Saddle Dam 2. Saddle Dam 4 is located in the southwestern corner of the South Cell and is designed to merge with Saddle Dam 5, which merges with the southern end of Central Dike. Figure 1 shows a plan view of the South Cell.

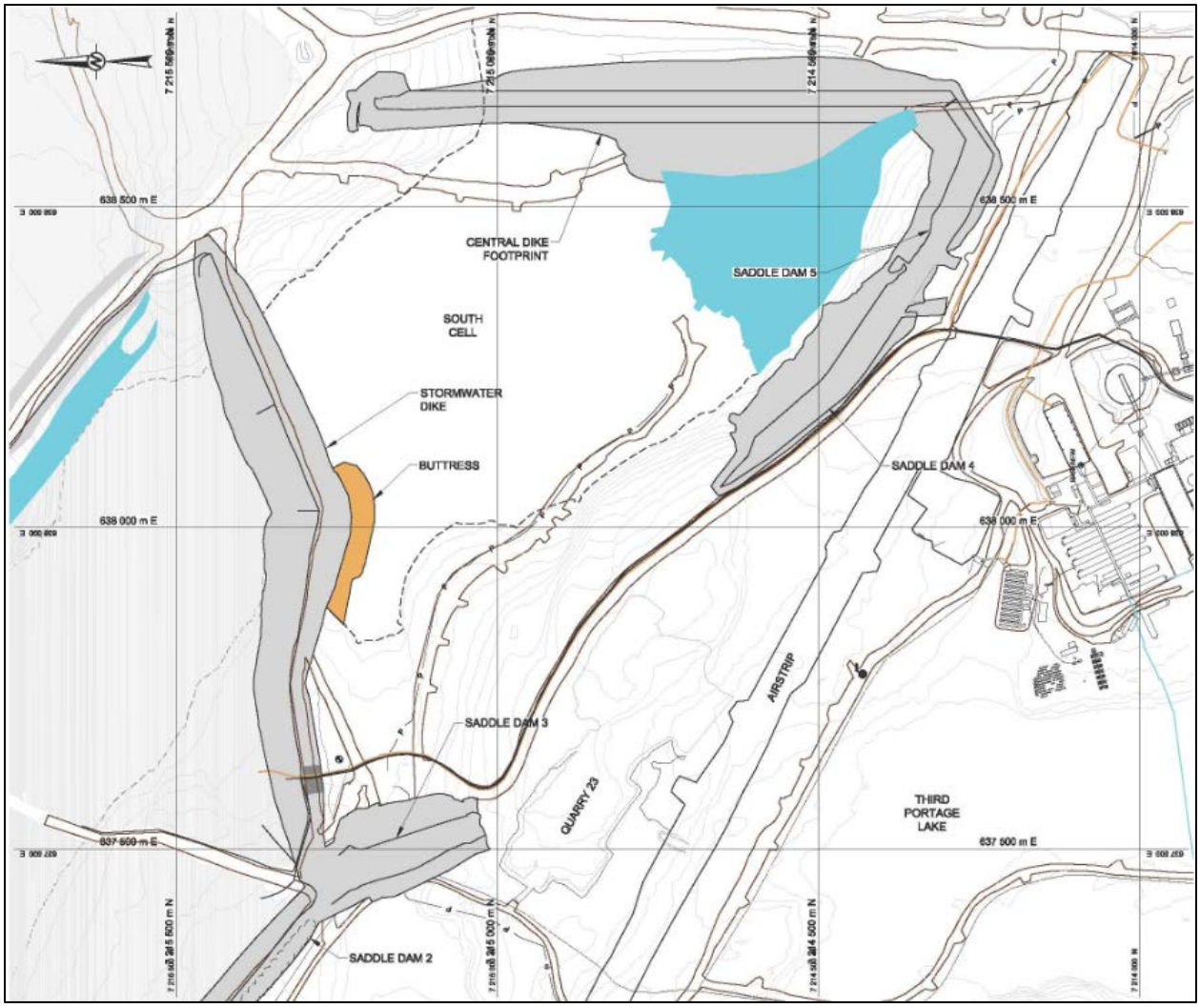


Figure 1: Layout of the South Cell of the Meadowbank Tailings Storage Facility

1.3.1 Preparation of the North Abutment of Central Dike

Central Dike is designed and constructed as a zoned rockfill dam with filter zones, an impervious upstream liner, and a liner tie-in key trench. The central part of the dike was constructed in 2012 and 2013 with a centreline liner tie-in key trench. In 2013, the design was modified for the south and north abutment to have an upstream toe liner tie-in key trench. The Central Dike cross-section consists of a rockfill embankment constructed from run-of-mine waste rock, placed in lifts and compacted, with the upstream face at a 3H:1V slope from elevation (El.) 110 m to El. 130 m and 2H:1V above El. 130 m. The downstream face is at a 1.5H:1V slope. The upstream face of Central Dike is comprised of two granular filter zones (Zone 2 and 3) and a linear low-density polyethylene (LLDPE) liner extending along the upstream foundation. The filter zones act as the bedding to prevent damage to the liner and as a filter designed to prevent tailings migration and internal erosion. An upstream till liner tie-in key trench excavated to bedrock and filled with compacted till (Zone 1) is located along the upstream area of the structure. The bulk part of Central Dike consists of coarse rockfill (Zone 4). A cofferdam is included with Central Dike as part of the upstream face.

During construction in 2017, the north abutment of Central Dike was raised from a crest El. of 143 m to a crest El. of 145 m (downstream toe ranging from El. 142 m to El. 145 m approximately). The length of the dike was extended from 890 m to 900 m (from Sta. 0+090 to 0+990).

1.3.2 Stage 3 of Saddle Dams 3, 4, and 5

Saddle Dams 3, 4, and 5 are designed and constructed as zoned rockfill dams with filter zones, low permeability upstream liners, and upstream toe liner tie-in key trenches. The Saddle Dams 3, 4, and 5 cross-sections consist of a rockfill embankment, constructed from run-of-mine waste rock, placed in lifts and compacted. The upstream face is designed at a 3H:1V slope and the downstream faces are designed at a 1.5H:1V slope. The upstream faces of Saddle Dams 3, 4, and 5 are comprised of two granular filter zones (Zone 2 and 3) and an LLDPE liner extending along the upstream foundation. The filter zones act as the bedding to prevent damage to the liner and as a filter designed to prevent tailings migration and internal erosion. A liner tie-in key trench excavated to bedrock and filled with compacted till (Zone 1) is located along the upstream area of the structures. The bulk part of the Saddle Dams 3, 4, and 5 consists of coarse rockfill material (Zone 4).

During stage 3 construction in 2017, Saddle Dam 3 was raised from a crest El. of 143 m to a crest El. of 145 m (downstream toe ranging from El. 134 m to El. 145 m approximately). The length of the dike was extended from 200 m to 245 m (from Sta. 20+569 to 20+814).

During stage 3 construction in 2017, Saddle Dam 4 was raised from a crest El. of 143 m to a crest El. of 145 m (downstream toe ranging from El. 134 m to El. 145 m approximately). The length of the dike was extended from 310 m to 367 m (from Sta. 40+096 to 40+463).

During stage 3 construction in 2017, Saddle Dam 5 was raised from a crest El. of 143 m to a crest El. of 145 m (downstream toe ranging from El. 134 m to El. 145 m approximately). The length of the dike was extended from 185 m to 255 m (from Sta. 40+550 to 40+805).

1.4 Construction Drawings and Technical Specifications

The Construction Drawings and Technical Specifications of Central Dike were developed by Golder in 2012 prior to the beginning of construction. In 2013, a change in design was made to modify the original central liner tie-in key trench under the dike to an upstream liner tie-in key trench.

The Construction Drawings and Technical Specifications for Saddle Dams 3, 4, and 5 were developed by Golder prior to the start of the 2015 construction season.

Tables 3, 4, 5, and 6 below present the available versions of the Design Reports, Technical Specifications, and Drawings in chronological order.

Table 3: List of Design Reports for Central Dike and Saddle Dams 3, 4, and 5

Document Number	Date	Rev	Title
Doc 1349 11-1221-0035	06/11/2012	1	Detailed design report for Central Dike
Doc 1504 1416081	05/12/2015	0	Detailed design report for Saddle Dams 3, 4, and 5

Table 4: List of Technical Specifications for Central Dike and Saddle Dams 3, 4, and 5

Document Number	Date	Rev	Title
Doc. 1327 11-1221-0035	07/03/2012	0	Meadowbank Gold Project Central Dike Construction Technical Specifications
Doc. 1498 14-16081	04/30/2015	0	Meadowbank Gold Project Saddle Dams 3, 4 and 5 Construction Technical Specifications

Table 5: List of Construction Drawings for Central Dike

Drawing Number	Date	Rev	Title
CD-01	03/07/2012	0	CENTRAL DIKE LOCATION MAP AND DRAWING INDEX
CD-02	03/07/2012	0	CENTRAL DIKE PROJECT SITE PLAN
CD-03	03/07/2012	0	CENTRAL DIKE GENERAL LAYOUT PLAN OF THE TSF
CD-04	03/07/2012	0	CENTRAL DIKE GENERAL ARRANGEMENT PLAN
CD-05	03/07/2012	0	CENTRAL DIKE PLAN, PROFILE AND QUANTITIES STA 0+000 TO 0+400
CD-06	03/07/2012	0	CENTRAL DIKE PLAN, PROFILE AND QUANTITIES STA 0+400 TO 0+800
CD-07	03/07/2012	0	CENTRAL DIKE PLAN, PROFILE AND QUANTITIES STA 0+800 TO 1+135
CD-08	03/07/2012	0	CENTRAL DIKE TYPICAL SECTION – WITH COFFERDAM
CD-09	03/07/2012	0	CENTRAL DIKE TYPICAL SECTION – ABUTMENT PORTIONS

Drawing Number	Date	Rev	Title
CD-10	03/07/2012	0	CENTRAL DIKE TYPICAL DETAILS – SHEET 1 OF 2
CD-11	03/07/2012	0	CENTRAL DIKE TYPICAL DETAILS – SHEET 2 OF 2
CD-12	03/07/2012	0	CENTRAL DIKE AND SADDLE DAM 5 CONNECTION DETAILS
CD-13	03/07/2012	0	CENTRAL DIKE TAILINGS MIGRATION CONTINGENCY PLAN
CD-14	03/07/2012	0	CENTRAL DIKE CONSTRUCTION SEQUENCE
CD-15	03/07/2012	0	CENTRAL DIKE CROSS-SECTIONS
CD-16	03/07/2012	0	CENTRAL DIKE INSTRUMENTATION PLAN AND SECTION
CD-01	07/12/2013	1	CENTRAL DIKE LOCATION MAP AND DRAWING INDEX
CD-04	07/12/2013	1	CENTRAL DIKE GENERAL ARRANGEMENT PLAN
CD-08	07/12/2013	1	CENTRAL DIKE TYPICAL SECTION – WITH COFFERDAM
CD-09	07/12/2013	1	CENTRAL DIKE TYPICAL SECTION – NORTH ABUTMENT PORTIONS
CD-09A	07/12/2013	1	CENTRAL DIKE TYPICAL SECTION – SOUTH ABUTMENT PORTIONS
CD-12	07/12/2013	1	CENTRAL DIKE KEY TRENCH TO UPSTREAM LINER TIE-IN TRANSITION DETAILS – SHEET 1 OF 2
CD-12A	07/12/2013	1	CENTRAL DIKE KEY TRENCH TO UPSTREAM LINER TIE-IN TRANSITION DETAILS – SHEET 2 OF 2

Table 6: List of Construction Drawings for Saddle Dams 3, 4, and 5

Drawing Number	Date	Rev	Title
SD 3,4&5-01	04/30/2015	0	LOCATION MAP AND DRAWING INDEX
SD 3,4&5-02	04/30/2015	0	PROJECT SITE PLAN
SD 3,4&5-03	04/30/2015	0	GENERAL ARRANGEMENT PLAN
SD 3,4&5-04	04/30/2015	0	SADDLE DAM 3 PLAN, PROFILE AND QUANTITIES

Drawing Number	Date	Rev	Title
SD 3,4&5-05	04/30/2015	0	SADDLE DAM 4 PLAN, PROFILE AND QUANTITIES
SD 3,4&5-06	04/30/2015	0	SADDLE DAM 5 PLAN, PROFILE AND QUANTITIES
SD 3,4&5-07	04/30/2015	0	TYPICAL CROSS-SECTION AND DETAILS
SD 3,4&5-08	04/30/2015	0	STAGED CONSTRUCTION SEQUENCE
SD 3,4&5-09	04/30/2015	0	SADDLE DAM 3 CROSS-SECTIONS
SD 3,4&5-10	04/30/2015	0	SADDLE DAM 4 CROSS-SECTIONS
SD 3,4&5-11	04/30/2015	0	SADDLE DAM 5 CROSS-SECTIONS
SD 3,4&5-12	04/30/2015	0	INSTRUMENTATION PLAN AND SECTION – SADDLE DAM 3
SD 3,4&5-13	04/30/2015	0	INSTRUMENTATION PLAN AND SECTION – SADDLE DAM 4
SD 3,4&5-14	04/30/2015	0	INSTRUMENTATION PLAN AND SECTION – SADDLE DAM 5
SD 3,4&5-15	04/30/2015	0	SUMP LOCATIONS AND DETAILS

1.5 As-Built Drawings

Table 7 presents the as-built drawings for the 2017 construction season of the TSF South Cell. The surveying and the as-built drawings were done by AEM and SANA and verified by Golder. The as-built drawings for the 2017 construction of the South Cell are included in Appendix A.

Table 7: List of As-Built Drawings for the Preparation of the North Abutment of Central Dike and Stage 3 of Saddle Dams 3, 4, and 5

Drawing Title	Date	Rev	Structure
CENTRAL DIKE AS BUILT 2017 PLAN VIEW	14/10/2017	0	CENTRAL DIKE (1/3)
CENTRAL DIKE AS BUILT 2017 SECTION VIEW (0+100)	14/10/2017	0	CENTRAL DIKE (2/3)
AS BUILT CENTRAL DIKE 2017 SECTION VIEW (0+150)	14/10/2017	0	CENTRAL DIKE (3/3)
SD 3 AS BUILT 2017 PLAN VIEW	14/10/2017	0	SADDLE DAM 3 (1/6)
SD 3 AS BUILT 2017 SECTION VIEW 20+600	14/10/2017	0	SADDLE DAM 3 (2/6)
SD 3 AS BUILT 2017 SECTION VIEW 20+650	14/10/2017	0	SADDLE DAM 3 (3/6)
SD 3 AS BUILT 2017 SECTION VIEW 20+700	14/10/2017	0	SADDLE DAM 3 (4/6)
SD 3 AS BUILT 2017 SECTION VIEW 20+750	14/10/2017	0	SADDLE DAM 3 (5/6)
SD 3 AS BUILT 2017 SECTION VIEW 20+800	14/10/2017	0	SADDLE DAM 3 (6/6)
SD4 AS BUILT 2017 PLAN VIEW	13/10/2017	0	SADDLE DAM 4 (1/9)
SD4 AS BUILT 2017 SECTION VIEW 40+150	13/10/2017	0	SADDLE DAM 4 (2/9)
SD4 AS BUILT 2017 SECTION VIEW 40+200	13/10/2017	0	SADDLE DAM 4 (3/9)
SD4 AS BUILT 2017 SECTION VIEW 40+250	13/10/2017	0	SADDLE DAM 4 (4/9)
SD4 AS BUILT 2017 SECTION VIEW 40+300	13/10/2017	0	SADDLE DAM 4 (5/9)
SD4 AS BUILT 2017 SECTION VIEW 40+350	13/10/2017	0	SADDLE DAM 4 (6/9)
SD4 AS BUILT 2017 SECTION VIEW 40+400	13/10/2017	0	SADDLE DAM 4 (7/9)
SD4 AS BUILT 2017 SECTION VIEW 40+450	13/10/2017	0	SADDLE DAM 4 (8/9)
SD4 AS BUILT 2017 SECTION VIEW 40+500	13/10/2017	0	SADDLE DAM 4 (9/9)
SD5 AS BUILT 2017 PLAN VIEW	14/10/2017	0	SADDLE DAM 5 (1/5)
SD5 AS BUILT 2017 SECTION VIEW 40+550	14/10/2017	0	SADDLE DAM 5 (2/5)
SD5 AS BUILT 2017 SECTION VIEW 40+600	14/10/2017	0	SADDLE DAM 5 (3/5)
SD5 AS BUILT 2017 SECTION VIEW 40+650	14/10/2017	0	SADDLE DAM 5 (4/5)
SD5 AS BUILT 2017 SECTION VIEW 40+700	14/10/2017	0	SADDLE DAM 5 (5/5)

1.6 Technical Memoranda – Design Changes

Design changes and field adjustments have occurred during the 2017 construction season to adapt the initial design to the field conditions encountered during construction. These design changes and adjustments were implemented by the Designer (Golder) in partnership with AEM and were documented in technical memoranda. Relevant design changes memoranda from past construction years were applied to the 2017 construction season. Tables 8 and 9 list the technical memoranda that discuss field adaptation or modification from the initial Technical Specifications and Drawings relevant to the 2017 Construction Season listed in chronological order. The technical memoranda issued during the 2017 construction season can be found in Appendix B. For the other design change technical memoranda, refer to past as-built reports.

Table 8: List of Design Change Memoranda Relevant to the 2017 Construction Season of Central Dike

Doc Number	Date	Rev	Title
Doc 1102 120528	05/16/2012	0	Material placement over LLDPE geomembrane, Central Dike.
Doc 1103 120528	05/28/2012	0	Placement of fill material over LLDPE geomembrane and underlying geotextile, Central Dike.
Doc 1363 11-1221-0035	06/18/2012	0	Response to the contractor proposed work for placement of fill material over LLDPE geomembrane, Central Dike.
Doc 1385	09/18/2012	0	Central Dike – non-acid generating cover for dike closure.
Doc 1453 1312210034	04/24/2014	0	2013 Central Dike design changes.
Doc 1466 1403762	06/01/2014	0	Central Dike inverse filter details for an upstream toe liner tie-in.
Doc 1469 1403762	06/06/2014	0	Central Dike design changes in the fine filter sample frequency.
Doc 1143 1403762	06/08/2014	0	Site instruction for the use of a CAT 307 excavator for placement of material over LLDPE geomembrane, Central Dike.
Doc 1470 1403762	06/09/2014	0	Central Dike design changes, geomembrane protection cover.
Doc 1471 1403762	06/17/2014	0	Central Dike south abutment key trench and transition to the upstream toe liner tie-in details between Sta. 0+800 and 0+850.
Doc 1472 1403762	06/19/2014	0	Summary of placement of fill material.
Doc 1479 1403762	08/11/2014	0	Central Dike rockfill quality recommendations.
Doc1518 1528661	07/24/2015	0	Recommendations on the use of ultramafic rockfill on Central Dike above El. 133 m.
Doc 1544 1656047	08/01/2016	0	Presentation of a new particle size envelope for the sieved compacted till.
Doc 1545 1606047	10/17/2016	0	Technical update about the placement of good quality NON-AG rockfill on Central Dike.

Table 9: List of Design Change Memoranda Relevant to the 2017 Construction Season of Saddle Dam 3, 4, and 5

Doc Number	Date	Rev	Title
Doc 1514 1528661	09/09/2015	0	Saddle Dam 3, 4, 5 Design changes for upstream toe liner tie-in in backfill.
Doc 1515 1528661	09/10/2015	0	Saddle Dam 3 construction over faulted zone.
Doc 1564 1777687	11/30/2017	1	Design change for the LLDPE geomembrane protection on the upstream slope of Saddle Dam 3.

SECTION 2.0 – SUMMARY OF TECHNICAL SPECIFICATIONS REQUIREMENTS

The Technical Specifications and Requirements for the main work activities for Central Dike and the Saddle Dams are summarized below.

2.1 Excavation and Foundation Preparation

The technical requirements for the foundation preparation of Central Dike and the Saddle Dams include:

- Stripping of the footprints to provide suitable surface for rockfill and granular fill placement, including removal of boulders, organic soils, soft soils and ice-rich soils, including blasting.
- Preparation of foundation surfaces for LLDPE geomembrane installation, where applicable.
- Excavation of upstream toe liner tie-in.

Stripping and excavation must be carried out in accordance with their respective Drawings and Technical Specifications, using the necessary water control measures required for safe and effective operation.

Temporary drainage and pumping systems must be provided, operated, and maintained as required to direct water away from the surface excavation areas and the toe of the dikes during construction.

Foundation approval must be completed and documented before placing granular material above the foundation.

2.2 Fills Materials and Placement

Central Dike and the Saddle Dams are made of six different zones of fill materials. The general technical Technical Specifications for each fill material zone are described below. The material gradation limits are summarized in Table 10.

Table 10: Material Gradation Limits

Grain Size (mm)	Percent Passing by Mass (%)			
	Compacted Till (Zone 1)	Compacted Sieved Till (Zone 1)	Fine Filter (Zone 2)	Coarse Filter (Zone 3)
200	-	-	-	100
152.4	100	-	-	86-100
50	-	100	-	-
76.2	90-100	-	-	35-100
25.4	75-91	85-100	-	5-40
20	-	-	100	-
12.7	65-84	75-94	50-100	0-18
4.76	53-73	63-83	23-68	0-9
2	-	-	-	0-5
0.425	33-48	43-58	0-20	-
0.075	20-35	30-45	0-15	-

2.2.1 Zone 1 – Compacted Till and Compacted Sieved Till (Zone 1)

Compacted till must be an unfrozen mix of silty sand and gravel with a maximum particle size of 150 mm. Compacted sieved till is a material specified to be placed within 0.5 m of the LLDPE geomembrane for its protection. This material has a maximum particle size of 50 mm. Compacted till and compacted sieved till must be well-graded, plastic and have a certain fine content (percent of material by mass passing No. 200 sieve). This material must be free of organic material, debris, cinders, ash, refuse, snow, ice, and other deleterious materials subject to approval of the Owner's Representative.

The maximum loose horizontal lift thickness of compacted till is 0.5 m. The placement water content of the compacted till must be at 0% to 3% above the optimum water content (ASTM D698). Compaction must be carried out using a 10-T smooth drum compactor. The use, or non-use, of vibration during compaction will be based on the results of field trials. Placement and compaction of the compacted till must result in a homogeneous low hydraulic conductivity zone. The density of the compacted till material is expected to be about 95% of standard Proctor maximum density (ASTM D698).

Compacted sieved till placed over and within 0.5 m of the LLDPE geomembrane shall:

- Be placed in loose lifts having a thickness of 0.5 m using an excavator with a maximum mass of 20 T. Direct dumping of compacted till onto the LLDPE geomembrane is not allowed.
- Be compacted with a single pass of the track of an excavator having a maximum mass of 20 T and not using a roller compactor.
- Not be trafficked by any light, heavy, or haulage equipment other than that above.
- Be to the satisfaction of the Owner's Representative.

2.2.2 Zone 1A – Low Quality Till

Low quality till is constituted of unfrozen silty sand and gravel. The material must be well-graded and have a gradation ranging between 0 and 500 mm. Low quality till must be free of boulders, organic material, debris, cinders, ash, refuse, snow, ice, and other deleterious materials. This material is part of the Saddle Dam 3, 4, and 5 design, but not of the Central Dike design.

The maximum loose lift thickness for the low-quality till shall be 1.0 m. Placement equipment shall traffic the material uniformly parallel and perpendicular to the lift front advancement to aid the compaction. Compaction of low quality till shall be carried out using a 10-T smooth drum roller vibratory compactor with a minimum of 4 passes parallel to the axis of the Saddle Dams and to the satisfaction of the Owner's Representative.

2.2.3 Zone 2 – Fine Filter

Fine filter is made of crushed NON-AG or PAG rockfill processed to satisfy the gradation limits. Fine filter shall be free of organic material, debris, cinders, ash, refuse, snow, ice, and other deleterious material subject to the satisfaction of the Owner's Representative.

The maximum loose lift thickness of fine filter is 0.5 m. Compaction of fine filter must be carried out using a 10-T smooth drum vibratory roller compactor with a minimum of 4 passes parallel to the axis of the structure.

2.2.4 Zone 3 – Coarse Filter

Coarse filter is made of crushed NON-AG or PAG rockfill processed to satisfy the gradation limits. Coarse filters shall be free of organic material, debris, cinders, ash, refuse, snow, ice, and other deleterious material.

The maximum loose lift thickness of the coarse filter is 0.5 m. Coarse filter shall be placed and compacted to avoid disturbing the underlying materials. Compaction of the coarse filter shall be carried out using a 10-T smooth drum vibratory roller compactor with a minimum of 4 passes parallel to the axis of the structure and to the satisfaction of the Owner's Representative.

2.2.5 Zone 4A/4B – Coarse Rockfill

Coarse rockfill must be made of sound, hard, durable, well-graded rock fragments free from ice, frozen chunks, organic matter, debris and other deleterious materials. Coarse rockfill must have a maximum particle size of 1.3 m. All rockfill shall be geochemically classified by the Owner prior to placement.

Coarse rockfill classified Zone 4A must be comprised of NON-AG or PAG rockfill material. Coarse rockfill classified Zone 4B must be comprised of NON-AG rockfill material only and be placed in the zones shown on the drawings and areas prioritized by the Owner's Representative. NON-AG rockfill may be used instead of PAG rockfill but only at the direction of the Owner's Representative.

The maximum loose lift thickness for coarse rockfill is 2 m. Placement equipment shall traffic the material uniformly parallel and perpendicular to the lift front advancement to aid in compaction. Coarse rockfill shall be placed and compacted to avoid disturbance of the underlying materials. Compaction of coarse rockfill shall be carried out using a fully-loaded haul truck with a minimum of 4 passes parallel to the axis of the structure. Alternatively, a 10-T smooth drum roller vibratory compactor with a minimum of 6 passes parallel to the axis of the structure can be used. Compaction shall be to the satisfaction of the Owner's Representative.

2.2.6 Zone 5 – Fine Rockfill

Fine rockfill is made of sound, hard, durable, well-graded rock fragments free from ice, frozen chunks, organic matter, debris, and other deleterious materials. Fine rockfill must be well graded and have a gradation ranging between 0 and 300 mm. NON-AG and PAG rockfill may be used for the fine rockfill at the direction of the Owner's Representative.

The maximum loose lift thickness for fine rockfill is 0.5 m. Placement equipment shall traffic the material uniformly parallel and perpendicular to the lift front advancement to aid in compaction. Compaction of fine rockfill shall be carried out using a 10-T smooth drum roller vibratory compactor with a minimum of 4 passes parallel to the axis of the structure and to the satisfaction of the Owner's Representative.

2.3 Liner Tie-In Key Trench

The Technical Specifications for the construction of the liner tie-in key trench of Central Dike and the Saddle Dams include the following activities:

- Excavation of the liner tie-in key trench that may involve blasting and the use of a hydraulic hammer.

- Preparation of the bedrock surface at the base of the liner tie-in key trench. This includes removal of soft material and ponding water, bedrock mapping and the filling of exposed bedrock discontinuities. The filling of bedrock discontinuities for piping and erosion protection is done by the application of slush grout for Central Dike or a fine filter and bentonite mix for Saddle Dams 3, 4, and 5.
- Preparation of liner tie-in key trench surfaces for LLDPE geomembrane placement.
- Backfilling of the liner tie-in key trench with compacted till and erosion protection cover.

2.4 Geosynthetics

The Central Dike and Saddle Dams Technical Specifications define the technical requirements for installation of the non-woven geotextile (minimum mass per unit area of 500 g/m^2). The work covered by the Technical Specifications includes the purchase, fabrication (if needed), supply, transport, storage, testing, and installation of the geotextile.

The LLDPE geomembrane placed on the upstream face and within the tie-in key trench must be a micro spike geomembrane (1.5 mm-thick, textured on both sides) or an approved equivalent. The work covered by the Technical Specifications includes the purchase, supply, transport, storage, installation, and testing of the LLDPE geomembrane.

SECTION 3.0 – SUMMARY OF CONSTRUCTION ACTIVITIES AND SCHEDULE

This section describes the construction steps performed during the 2017 construction season to build Central Dike and Saddle Dams 3, 4, and 5. This section also includes the schedule for the work done on each structure.

3.1 Central Dike North Abutment Preparation – Schedule and Construction Steps

The preparation of the north abutment of Central Dike was done from August 6 to October 11, 2017, and comprised the following major work items:

- Foundation preparation and approval (excavation of soft sediment and ice rich soils);
- Fill placement, compaction, and slope profiling (rockfill and upstream filter placement);
- Inverse filter material placement and compaction;
- Bedrock cleaning, mapping, and slush grouting within the upstream toe liner tie-in;
- Compacted till placement and compaction in the upstream toe liner tie-in;
- Geotextile and LLDPE geomembrane installation;
- Placement and compaction of erosion protection cover of the upstream toe liner tie-in.

The work procedures followed during the construction of these work items are discussed in the following subsections.

Selected photographs of the work progress taken throughout the construction season are shown in Appendix C1.

Table 11 presents the construction schedule for the main work items for the preparation of the north abutment of Central Dike.

Table 11: Schedule for the Construction Activity for the preparation of the north abutment of Central Dike

Activity	Beginning	End
Foundation preparation and approval	August 6, 2017	August 13, 2017
Inverse filter placement and compaction	August 18, 2017	August 18, 2017
Placement, compaction and profiling of rockfill on the crest from El. 143 m to El. 145 m (1.5:H d/s, 2H:1V u/s)	August 18, 2017	August 19, 2017
Placement, compaction and profiling of filter material on the upstream 2H:1V slope from El. 143 m to El. 145 m	August 26, 2017	August 27, 2017
Bedrock cleaning and mapping within the upstream toe liner tie-in	August 22, 2017	September 2, 2017
Slush grouting and placement of compacted till in the upstream toe liner tie-in as the geosynthetics foundation	September 4, 2017	September 4, 2017
Final profiling of the 2H:1V upstream slope before geosynthetics installation	September 13, 2017	September 23, 2017
Geosynthetics installation on the upstream 2H:1V slope	September 27, 2017	September 30, 2017
Placement and compaction of compacted till layers and erosion protection material over the geosynthetics in the	September 30, 2017	October 11, 2017

Activity	Beginning	End
upstream toe liner tie-in of the north abutment (compacted till, fine filter, coarse filter, fine rockfill)		

3.1.1 Drilling and Blasting

No drilling and blasting was required during the preparation of the north abutment of Central Dike.

3.1.2 Foundation Preparation

Foundation preparation was done on the north abutment for the extension of the structure for a dike footprint going from El. 143 m to El 145 m (including the rockfill embankment and the inverse filter area).

The foundation preparation consisted of the removal of the foundation soil to the bedrock surface below El. 145 m. The material was removed by excavator (Komatsu 450) and then loaded into 100-T haul trucks (CAT 777). The unsuitable material was hauled to the waste dump.

Before the placement of fill materials over the dike foundation, the foundation surface was inspected and then accepted by the Owner's Representative, the QC Representative and the QA Engineer. The parties verified that the foundation to be approved was competent, dry and free of contamination or ice. The approved foundation area was then surveyed by SANA and AEM surveyors. The foundation preparation approval process before the placement of fill materials was performed 2 times during the preparation of the north abutment of Central Dike. A foundation approval form was filled out each time. Refer to Appendix G for the completed foundation approval forms.

There were 2,971 m^3 of material excavated during the foundation preparation of the north abutment of Central Dike.

3.1.4 Placement of Rockfill for Embankment Raise to El. 145 m

The lift of rockfill had a thickness of 2 m and was placed by a dozer (D8). The rockfill was composed of good quality NON-AG. To avoid segregation, the rockfill was dumped on a flat surface and then pushed on the slope. The lift was compacted with 8 passes of a 10-T smooth-drum vibratory roller compactor. After compaction, the slope of the lift was profiled with an excavator. The downstream slope was profiled with a 1.5H:1V slope while the upstream rockfill slope was profiled with a 2H:1V slope.

A total of 2,368 m^3 of good quality NON-AG rockfill were placed on Central Dike during preparation of the north abutment.

3.1.5 Filter Placement on Foundation and on the Upstream Slope

The inverse filter was placed over the approved foundation of the northern abutment. It consisted of a 0.5-m-thick lift of fine filter covered by a 0.5-m-thick lift of coarse filter. Bedrock depressions were filled with fine filter and stamped in place with the excavator bucket. The width of the inverse filter placement was done for a crest at a final elevation of El. 145 m. Well graded aggregates made of sound good quality material were used on Central Dike. The material was placed by an excavator in a way to prevent segregation. Compaction of each lift was completed by 4 passes of a 10-T smooth-drum compactor in vibratory mode and the material was wetted to promote compaction.

During material placement on the 2H:1V upstream slope, fine and coarse filters were placed with the bucket of the excavator in 0.5-m-thick horizontal lifts compacted against the rockfill. Coarse material was placed first and raised against the rockfill and then the fine filter material was placed. The width of each lift was such that the thickness of the material perpendicular to the slope was 0.5 m.

After the placement of each 0.5-m-lift of fine and coarse filter, the compaction of both materials was done with 4 passes of a smooth-drum compactor in vibratory mode. When the elevation of the upstream filter reached the rockfill elevation, the slope of the fine filter was profiled with the bucket of an excavator to obtain a continuous 2H:1V upstream slope.

There were 353 m^3 of coarse filter and 368 m^3 of fine filter placed on Central Dike during the preparation of the north abutment.

3.1.6 Upstream Toe Liner Tie-In Key Preparation

The upstream toe liner tie-in on the north abutment was marked in the field and excavated to bedrock. The upstream toe-line tie-in was built in backfill for the preparation of the north abutment, whereas the rest of the upstream toe-line tie-in on Central Dike was previously partly built in excavation.

Once the first 5-m wide strip of key trench was cleaned out to good quality bedrock, the bedrock was cleaned using an excavator, handwork and compressed air. The objective of the bedrock cleaning was to expose the bedrock discontinuities and to remove the residual soils. Following the bedrock cleaning, the QA Engineer performed bedrock mapping over the whole area in segments of 10 m. After the bedrock mapping, a foundation approval was completed for the upstream toe liner tie-in area. Refer to Appendix G for the completed foundation approval forms.

Slush grouting was performed on the totality of the cleaned and mapped 5-m-wide strip of the upstream toe liner tie-in. The slush grout recipe by volume consisted of a mix of 1.5 parts of cement (type 50, sulfate resistant), 1 part of sand and 1 to 1.5 parts of water. This mix was adjusted on the field for consistency and yielded satisfactory results. The slush grout was applied with brooms to fill all the surfaces and discontinuities within the upstream toe liner tie-in. The grout was quickly covered by a thin lift of compacted sieved till to fill local bedrock depressions. This approach allowed a better contact between these two materials before the grout dried. This thin lift was compacted with the bucket of the excavator on the surface, and with a P-10000 compactor or a jumping-jack type compactor in the bedrock depressions. The CAT 345 excavator was used for this operation.

A 0.5-m-thick lift of compacted sieved till (0-50 mm) was then applied on the slush grouted area and over the in situ material beyond the upstream toe liner tie-in. The compacted sieved till was well graded and taken directly from the haul truck with the excavator to avoid contamination. The compaction and water content of the placed material was controlled by the QC Representative with a portable nuclear gauge. Compaction was done with a 10-T smooth-drum compactor in vibratory mode.

3.1.7 Geosynthetics Installation

Geosynthetics installation included the placement of a geotextile above the fine filter and part of the sieved till bedding and the installation of a LLDPE geomembrane above the geotextile. The geotextile and the LLDPE geomembrane were installed by the subcontractor, ZTG. No geosynthetics were allowed to be installed when it was raining. When not being used, the geomembrane rolls were stored on a smooth fine filter surface that was covered with geotextile. Stoppers generally made of sandbags were placed to secure the rolls in place.

Before the installation of the geosynthetics on the upstream slope and the upstream toe liner tie-in, the geosynthetics bedding was prepared. The upstream fine filter face was smoothed out by an excavator with a roller attachment without using vibration. Surfaces made of fine filters on the upstream slope and sieved till in the upstream toe liner tie-in were then approved by the Owner's Representative, the QC Representative, and the QA Engineer. It was verified that the surfaces were smooth, dry and would not damage the geosynthetics. The fine filter lying over the geomembrane placed during the previous construction season near the base of the upstream toe liner tie-in was cleaned up in some areas. Each surface was surveyed by AEM and SANA, and a geosynthetics bedding surface approval form was filled out. Refer to Appendix G for the completed approval forms.

The geotextile and the LLDPE geomembrane were buried in a 0.5-m-deep anchor trench excavated into the upstream side of the rockfill crest within the coarse filter. The anchor trench was backfilled after the installation of the geosynthetics, once all QC tests passed. The geotextile was not placed farther than 0.5 m horizontally within the upstream toe liner tie-in, while the LLDPE geomembrane was installed horizontally 3 m inside the upstream toe liner tie-in.

The geotextile panels were mostly seamed with the dual hot wedge welding equipment using a minimum overlap of 0.45 m. When wedge seams were not practical (such as for patches) the geotextiles were bonded with a heat gun. The geotextiles were visually inspected during installation to make sure that the overlap was sufficient and that the panels were not damaged.

The LLDPE geomembrane panels were mostly seamed with the dual hot wedge welding equipment. When wedge seams were not practical (such as for seaming the new with the existing liner or for patches), the LLDPE geomembranes were bonded with extrusion filet seams. The LLDPE geomembranes were visually inspected during installation to make sure that the overlap was sufficient and that the panels were not damaged.

After its installation, the LLDPE geomembrane surface was visually inspected and approved by the Owner's Representative and the QA Engineer. A geosynthetics approval form was completed after the installation of the LLDPE geomembrane. Refer to Appendix G for the completed approval forms.

A total of 604 m^2 of geotextile and 604 m^2 of LLDPE geomembrane were installed for the preparation of the north abutment of Central Dike.

3.1.8 Protection Cover of the Upstream Toe Liner Tie-In

Once the geosynthetics installation was completed, three 0.5-m-thick lifts of compacted sieved till were placed over the upstream toe liner tie-in with the excavator (for a total of 2 m of till including the 0.5-m-base bedding under the LLDPE geomembrane). Before the placement of compacted till over the geomembrane, the bituminous geomembrane placed in 2016 to protect the northern extremity of the upstream toe liner tie-in was removed. The compacted sieved till base bedding was scarified outside the geomembrane footprint to ensure good contact with the next lifts.

The first lift of compacted till in direct contact with the geomembrane was made of compacted sieved till (0-50 mm) and was only compacted with the excavator bucket. The compacted sieved till was well graded and taken directly from the haul truck with the excavator to avoid contamination. Only the compactor was allowed to traffic over the geomembrane where there was at least 1 m of material over it. The second and third lifts above the geomembrane were made of compacted till (0-150 mm) and were compacted with the 10-T smooth drum compactor. The compaction of each lift was controlled with a portable nuclear gauge by

the QC Representative and met the Technical Specifications. The placement and compaction of till was only allowed when there was no rain. Haul trucks were not allowed to traffic over the compacted till material.

A 2-m erosion protection cover was placed over the compacted sieved till of the upstream toe liner tie-in with the CAT 345 excavator. The erosion protection cover consisted of 0.5 m of fine filter, 0.5 m of coarse filter and 1 m of fine rockfill. The fine filter and coarse filter lift were made of UM rockfill and were placed with an excavator and compacted with 4 passes of a 10-T smooth-drum compactor in vibratory mode. The fine rockfill consisted of UM rockfill that was mechanically sorted to remove boulders of more than 0.5 m in diameter. The fine rockfill lift was compacted with 6 passes of the 10-T smooth-drum compactor in vibratory mode. During the compaction of the erosion protection cover, the compactor stayed at safe distance from the upstream slope LLDPE to avoid damaging it.

There were 913 m^3 of compacted sieved till, 282 m^3 of fine filter, 307 m^3 of coarse filter, and 542 m^3 of fine UM rockfill placed on Central Dike during the preparation of the north abutment.

3.2 Saddle Dam 3 – Schedule and Construction Steps

The construction of Stage 3 of Saddle Dam 3 was done from June 26 to October 11, 2017, and comprised the following main work items:

- Site preparation (including water management and access roads);
- Foundation preparation and approval (excavation of soft sediment and ice rich soils);
- Fill placement, compaction and slope profiling (rockfill and upstream filter placement);
- Inverse filter material placement and compaction on north and south abutments foundation;
- Bedrock cleaning, mapping and slush grout within the upstream toe liner tie-in;
- Compacted till placement and compaction in the upstream toe liner tie-in;
- Placement and compaction of the protection cover over the geosynthetics in the upstream slope.

The work procedures followed during the construction of these work items are discussed in the following subsections.

Selected photographs of the work progress taken throughout the construction season are shown in Appendix C2.

Table 12 presents the construction schedule for the main work items for the construction of Stage 3 of Saddle Dam 3.

Table 12: Schedule for the Construction Activity for Stage 3 of Saddle Dam 3

Activity	Beginning	End
Foundation preparation and approval	June 26, 2017	August 11, 2017
Inverse filter placement and compaction on the foundation of the north and south abutment	August 15, 2017	August 18, 2017
Placement, compaction, and profiling of rockfill to El. 145 m (slope of 1.5:H d/s, 3 H:1V u/s)	July 28, 2017	August 24, 2017
Placement, compaction and profiling of filter material on the upstream 3H:1V slope to El. 145 m	August 26, 2017	September 3, 2017

Activity	Beginning	End
Bedrock cleaning and mapping within the upstream toe liner tie-in	August 30, 2017	September 9, 2017
Slush grouting of the major discontinuities and placement of compacted sieved till in the upstream toe liner tie-in as the geosynthetics foundation	September 9, 2017	September 10, 2017
Placement and compaction of compacted till layers and protection cover over the geosynthetics in the upstream slope	September 8, 2017	October 11, 2017

3.2.1 Drilling and Blasting

Eleven operations of drilling and blasting were required for Saddle Dam 3 Stage 3 construction, eight for the preparation of the foundation between May 27 and July 10, and two additional blasts for the construction of the sump on the downstream side on September 15 and 19. The schedule was adapted to allow for the ground to thaw and be excavated as it was possible to do so.

3.2.2 Site Preparation

The two main access roads for hauling material that were used to get to the Saddle Dam 3 area were the Saddle Road access starting at the portion of West Road in front of the Portage Pit Central Dump and leading to Saddle Dam 3 and Saddle Dam 4 along the airstrip, as well as the access from the Saddle Road to the All Weather Access Road (AWAR) built in 2016 and passing on the downstream side of SD3.

Water management occurred before and during the construction season to remove water that accumulated on the downstream area within the lowest points.

3.2.3 Foundation Preparation

Foundation preparation was done on both abutments for the extension of the structure for a dike footprint from a crest El. of 143 m to El. 145 m (including the rockfill embankment and the upstream toe liner tie-in area) as well as on the downstream side to permit widening of the rockfill slope for a downstream dike footprint at El. 150 m.

Foundation preparation consisted of the removal of unsuitable material down to competent bedrock, except for the faulted area crossing Saddle Dam 3 from the upstream to downstream side (between Sta. 20+580 and 20+620). In this sector, the foundation preparation was done to the ice poor competent in situ soil (El. 135 m) as inferred during the July 2015 characterization drilling campaign.

During foundation preparation, water was managed with pumps to avoid accumulation within the prepared zones.

The material was removed (CAT 345) and then loaded into 100-T haul trucks (CAT 777). The unsuitable material was hauled to the waste dump.

Before the placement of fill material over the dike foundation, the foundation surface was accepted by the Owner’s Representative, QC Representative, and the QA Engineer. The approved foundation areas were surveyed by SANA and AEM. The foundation preparation approval process before the placement of fill

material was conducted 9 times during the construction of Stage 3 of Saddle Dam 3. The completed approval forms are presented in Appendix G.

There were 46,872 m^3 of material excavated during the foundation preparation of Stage 3 of Saddle Dam 3.

3.2.4 Placement of Rockfill for Embankment Raise to El. 145 m

Placement of rockfill for Stage 3 of Saddle Dam 3 started with the widening of the rockfill footprint on the downstream side by placing 2-m-thick lifts of rockfill from El. 135 m (approx.) to El. 145 m above the approved foundation. Once the downstream rockfill lift reached El. 143 m, the entire rockfill embankment was raised to Stage 3 crest elevation (El. 145 m) by adding one additional 2-m-thick lift.

Ultramafic rockfill was used entirely for the Saddle Dam 3 construction as allowed by the Technical Specifications. Each lift of rockfill had a maximum thickness of 2 m and was placed by a dozer (D8). The rockfill was dumped on a flat surface of the lift and then pushed on the slope to avoid segregation. Each lift was compacted with a 10-T smooth-drum vibratory compactor with 8 passes for the first lift and 6 passes for the subsequent lifts. After compaction, the slope of each lift was profiled with an excavator. The downstream slope was profiled with a 1.5H:1V slope while the upstream rockfill slope was profiled with a 3H:1V slope.

The UM rockfill was heterogeneous and well graded with some loads containing more fine particles. Each lift of UM rockfill was scarified with a loader or a grader before the placement of the next lift to obtain a better contact between each lift due to the deterioration of the UM caused by the haul trucks and the compactor.

A total of 49,171 m^3 of ultramafic rockfill was placed on Saddle Dam 3 during Stage 3 construction.

3.2.5 Filter Placement on Foundation and on the Upstream Slope

The inverse filter was placed on the approved foundation of the southern and northern abutment. It consisted of a 0.5-m lift of fine filter covered by a 0.5-m lift of coarse filter. If required, bedrock depressions were filled with fine filter and stamped in place with the excavator bucket. The inverse filter was installed for a dike footprint at El. 145 m. The width of the inverse filter placement was done for a crest at a final elevation of El. 145 m. Competent aggregates made of good quality rocks were used for the inverse filter of Saddle Dam 3. It was verified that the material was well graded, hard, and sound, and that the placement technique was done in a way to limit segregation. Compaction of each lift was completed by 4 passes of a 10-T smooth drum roller compactor in vibratory mode and the material was wetted to promote compaction.

During the placement of the 3H:1V upstream slope, fine and coarse filters were raised in compacted lifts against the rockfill. Aggregates made of UM were used for the filter placed on the upstream slope. The filter materials were placed in 0.5-m thick horizontal lifts using the bucket of an excavator. Coarse material was placed first and raised against the rockfill and then fine filter material was placed. A maximum height difference of 2 m was maintained between the rockfill and the upstream filter. This sequence continued as rockfill was placed higher on the slope. The width of each lift was such that the thickness of the material perpendicular to the slope be at 0.5 m. After the placement of each 0.5-m-thick lift of fine and coarse filter, the compaction of both materials was done with 4 passes of the smooth drum compactor in vibratory mode. Afterwards, the slope of the fine filter was profiled with the bucket of an excavator to obtain a smooth and continuous 3H:1V upstream slope in preparation for future geosynthetics installation.

Both abutments were built in final configuration at 145 m, as it is understood that no further raises of Saddle Dam 3 are planned.

There were 990 m^3 of coarse filters and 858 m^3 of fine filters placed on Saddle Dam 3 during Stage 3 construction.

3.2.6 Upstream Toe Liner Tie-In Key Preparation

The south and north abutments of the upstream toe liner tie-in were marked out in the field and excavated to bedrock.

Once competent bedrock was reached, the first 5-m-wide strip along the upstream toe liner tie-in was cleaned out to good quality bedrock. The bedrock within the 5-m-wide strips of both abutments was cleaned using handwork and compressed air. The objective of this cleanup was to expose the residual soils and to clean and expose the discontinuities. After the completion of the bedrock cleaning within the upstream toe liner tie-in, the QA Engineer performed bedrock mapping of the whole upstream toe liner tie-in in segments of 10 m. After the bedrock mapping, a foundation approval was completed for each upstream toe liner area. Completed approval forms are located in Appendix G.

Slush grouting was performed in selected areas of the cleaned and mapped 5-m-wide strip of the upstream toe liner tie-in where open discontinuities greater than 10 mm were observed. The slush grout recipe by volume consisted of a mix of 1.5 parts of cement (type 50, sulfate resistant), 1 part of sand and 1 to 1.5 parts of water. This mix was adjusted on the field for consistency and yielded satisfactory results.

Compacted sieved till (0-50 mm) was then placed in the 5-m-wide strip of the upstream toe liner tie-in area for future geosynthetics installation. First, a thin lift was placed to fill the bedrock depressions and to cover the slush grout before it dried. This thin lift was compacted with the bucket of the excavator on the surface, and with a P-10000 compactor or a jumping-jack type compactor in the bedrock depressions. Then, a 0.5-m-thick lift was placed. The sieved till was placed by the CAT 345 in a way to limit segregation and to prevent contamination. The compaction and water content of the compacted sieved till was controlled by the QC Representative with a portable nuclear gauge. Compaction was done with a 10-T smooth-drum compactor in vibratory mode.

A small portion of the different components of the erosion protection cover (consisting of 0.5 m of fine filter, 0.5 m of coarse filter and 1 m of fine rockfill) was placed up to El. 142 m on the slope of the upstream toe-liner tie-in on the south extremity of SD3. The purpose was to connect the erosion protection cover to the south abutment at El. 142 m without encroaching on the upstream toe liner tie-in footprint. The rest of the tie-in will be completed next year.

There were 668 m^3 of compacted sieved till, 9 m^3 of coarse filters, and 13 m^3 of fine filters placed on Saddle Dam 3 during Stage 3 construction.

3.2.7 Protection Cover of the Upstream Liner

No geosynthetics installation was done during Stage 3. Only a protection cover for LLDPE geomembrane and the current erosion protection were placed.

Regarding the protection cover for the LLDPE geomembrane, the latest deposition plan issued by AEM showed that free water will be in direct contact with the geomembrane liner. In order to protect the LLDPE geomembrane from the water ponding, protection cover was placed directly over the liner.

The proposed configuration included the placement of a 2.0-m-thick layer of till, including a 0.5 m-thick layer of sieved till (0-50 mm) directly against the LLDPE liner followed by a 1.5-m-thick layer of low quality till (0300 mm). A 1.0-m-thick layer of fine rockfill (0-500 mm) was placed directly against the 2.0-m-thick layer of till. The lifts of sieved till and low quality till were placed in lifts with a vertical thickness of 0.5 m. The sieved till was compacted with the bucket of the excavator only. The low quality till was compacted with 4 passes of a 10-T smooth-drum compactor in vibratory mode. The fine rockfill consisted of UM rockfill that was mechanically sorted to remove boulders of more than 0.5 m in diameter. The fine rockfill lift was placed in lifts with a vertical thickness of 2 m. The lifts were compacted with 8 passes (first lift) and then 6 passes (second lift) of a 10-T smooth-drum compactor in vibratory mode.

For the protection cover of the current erosion protection, a 1.0-m-thick layer of fine rockfill (0-500 mm) was placed directly against the erosion protection. The fine rockfill consisted of UM rockfill that was mechanically sorted to remove boulders of more than 0.5 m in diameter. The fine rockfill lift was placed in lifts with a vertical thickness of 2 m. The lifts were compacted with 8 passes (first lift) and then 6 passes (second lift) of a 10-T smooth-drum compactor in vibratory mode.

Damage to the LLDPE liner occurred during placement of the sieved till at El. 142 m (Sta. 20+620 m approximately). The zone was cleared of till material and the damage was repaired by the liner installer during their presence on the site. After the repairs, water ponded in the cleared section and froze. Since it was judged that removing the ice patch either by mechanical means or heating could cause damage to the LLDPE, this section of sieved till will be completed during next year's construction season, after the ice has thawed and water has been pumped out.

There were 522 m^3 of compacted sieved till, 1,537 m^3 of low quality till, and 16,633 m^3 of fine UM rockfill placed on Saddle Dam 3 during Stage 3 construction for the erosion protection cover.

3.3 Saddle Dam 4 – Schedule and Construction Steps

The construction of Stage 3 of Saddle Dam 4 was done from June 26 to October 11, 2017, and consisted of the following main work items:

- Site preparation (including water management and access roads);
- Foundation preparation and approval (excavation of soft sediment and ice rich soils);
- Fill placement, compaction and slope profiling (rockfill and upstream filter placement);
- Inverse filter material placement and compaction on north and south abutment foundation;
- Bedrock cleaning, mapping and slush grouting within the upstream toe liner tie-in;
- Compacted till placement and compaction in the upstream toe liner tie-in;
- Geotextile and LLDPE geomembrane installation;
- Placement and compaction of protection cover in the upstream toe liner tie-in.

The work procedures followed during the construction of these work items are discussed in the following subsections.

Selected photographs of the work progress taken throughout the construction season are shown in Appendix C3.

Table 13 presents the construction schedule for the main work items for the construction of Stage 3 of Saddle Dam 4.

Table 13: Schedule for the Construction Activity for Stage 3 of Saddle Dam 4

Activity	Beginning	End
Foundation preparation and approval	June 26, 2017	July 18, 2017
Placement, compaction and profiling of rockfill to El. 145 m (slope of 1.5:H d/s, 3 H:1V u/s)	July 26, 2017	August 16, 2017
Inverse filters placement and compaction on the foundation	August 13, 2017	August 17, 2017
Placement, compaction and profiling of filter material on the upstream 3H:1V slope to El. 143 m	August 18, 2017	August 26, 2017
Bedrock cleaning and mapping in the upstream toe liner tie-in	August 20, 2017	August 31, 2017
Slush grouting of the major discontinuities and placement of compacted sieved till in the upstream toe liner tie-in for the geosynthetics bedding	August 31, 2017	September 9, 2017
Final profiling of the upstream 3H:1V slope in preparation for geosynthetics installation	August 26, 2017	September 21, 2017
Geosynthetics installation on the upstream slope	September 22, 2017	September 26, 2017
Placement and compaction of the compacted till layers and its protection cover in the upstream toe liner tie-in of the abutments	September 28, 2017	October 11, 2017

3.3.1 Drilling and Blasting

No drilling and blasting was required for Saddle Dam 4 Stage 3 construction. The schedule was adapted to allow for the ground to thaw and to be excavated as it was possible to do so.

3.3.2 Site Preparation

Two main access roads for hauling material were used to get to the Saddle Dam 4 area. One of these accesses was built using rockfill material during the 2015 construction season and was prepared per the Technical Specifications within the dike footprint to El. 150 m. The other access, identified as “pig launcher road,” was removed for foundation approval and rebuilt afterwards. The access roads were slightly adjusted to connect with the dike crest that was raised by 2 m. The access roads start from the saddle road and go northeast for about 75 m.

Water management occurred before and during the construction season to remove water that accumulated on the downstream area within the lowest points.

3.3.3 Foundation Preparation

Foundation preparation was conducted on both abutments for the extension of the structure for a dike footprint going from El. 143 m to El 145 m (including the rockfill embankment and the upstream toe liner tie-in area). Foundation approval was also completed for the widening of rockfill embankment toward the downstream side for a dike footprint at El. 150 m.

The foundation preparation consisted of the removal of unsuitable material until competent bedrock was reached. During the foundation preparation, water was managed with pumps to avoid accumulation within the prepared zones. The material was removed by excavator (CAT 345) and then loaded into 100-T haul trucks (CAT 777). The unsuitable material was hauled to the waste dump.

Before the placement of fill material over the dike foundation, the foundation surfaces were inspected and accepted by the Owner's Representative, the QC Representative, and QA Engineer. The approved foundation area was then surveyed by SANA and AEM. The foundation preparation approval process before the placement of fill material was done 4 times during the construction of Stage 3 of Saddle Dam 4. Completed approval forms are presented in Appendix G.

There were 24,297 m^3 of material excavated during the foundation preparation of Stage 3 of Saddle Dam 4.

3.3.4 Placement of Rockfill for Embankment Raise to El. 145 m

Placement of rockfill for Stage 3 of Saddle Dam 4 started by widening the rockfill slope on the downstream side by placing two 2-m-thick lifts of rockfill to El. 137 m and then 1.5-m-thick lifts of rockfill from El. 137 m to El. 143 m above the approved foundation. Once the rockfill lift on the downstream side reached El. 143 m, the elevation of the entire rockfill embankment was raised to Stage 3 crest elevation (El. 145 m) by performing one additional 2-m-thick lift.

Ultramafic rockfill was used for the entirety of the Saddle Dam 4 Stage 3 construction as allowed by the Technical Specifications. Each lift of rockfill had a maximum thickness of 2 m and was placed by a dozer (D8). The rockfill was dumped on a flat surface and then pushed on the slope to avoid segregation. Each lift was compacted with a 10-T smooth-drum vibratory roller compactor with 8 passes for the first lift and 6 passes for the subsequent lifts. After compaction, the slope of each lift was profiled with an excavator. The downstream slope was profiled with a 1.5H:1V slope while the upstream slope was profiled with a 3H:1V slope.

The UM rockfill was heterogeneous and well graded with some loads containing more fine particles. Each lift of UM rockfill was scarified with a loader or a grader before the placement of the next lift to have a better contact between each lift due to the deterioration of the UM caused by the haul trucks.

A total of 76,390 m^3 of ultramafic rockfill was placed on Saddle Dam 4 during the Stage 3 construction.

3.3.5 Filter Placement on Foundation and on the Upstream Slope

The inverse filter was placed on the approved foundation of the eastern and western abutments. It consisted of a 0.5-m-lift of fine filter covered by a 0.5-m-lift of coarse filter. Bedrock depressions were filled with fine filter and compacted with the excavator bucket.

The inverse filters were installed for a dike footprint at El. 145 m. The width of the inverse filter was built for a crest at a final elevation of El. 145 m. Competent aggregates were used for the inverse filters of Saddle Dam 4. The material was well graded, hard, and sound, and the placement was done in a way to limit segregation. Compaction of each lift was completed by 4 passes of a 10-T smooth drum compactor in vibratory mode and the material was wetted to promote compaction.

The segment of the inverse filters between Sta. 40+430 to 40+440 was in contact with a steep bedrock face (from approx. El. 142.5 to 143.5 m). Due to the good quality of the bedrock in that sector, the gap was filled

with rockfill instead of fine filter once a minimum length of inverse filter of 6 m had been placed at the base of the bedrock face.

During the placement of the 3H:1V upstream slope, fine and coarse filters were raised in compacted lifts against the rockfill. Aggregates made of UM were used for the filter placed on the upstream slope. The filter materials were placed in 0.5-m-thick horizontal lifts placed with the bucket of the excavator. Coarse material was first raised against the rockfill and then fine filter material was placed. The width of each lift was such that the thickness of the material perpendicular to the slope was 0.5 m. After the placement of each 0.5-m lift of fine and coarse filter, the compaction of both materials was done with 4 passes of a smooth-drum compactor in vibratory mode. Afterwards, the slope of the fine filter was profiled with the bucket of an excavator to obtain a smooth and continuous 3H:1V upstream slope in preparation for the geosynthetics installation. The abutments were built in final configuration at 145 m, as it is understood that no further raise of Saddle Dam 4 is planned.

There were 1,678 m^3 of coarse filter and 1,321 m^3 of fine filter placed on Saddle Dam 4 during Stage 3 construction.

3.3.6 Upstream Toe Liner Tie-In Key Preparation

The upstream toe liner tie-in for the east abutment and the west abutment was marked out in the field and excavated to bedrock.

Once competent bedrock was reached, a 5-m wide strip along the upstream toe liner tie-in was cleaned out to good quality bedrock. The bedrock within the 5-m strip was cleaned using handwork and compressed air. The objective of this cleaning was to remove the residual soils and to expose the bedrock discontinuities. After the completion of the bedrock cleaning in the upstream toe liner tie-in, the QA Representative performed bedrock mapping of the whole upstream toe liner tie-in in segments of 10 m. After the bedrock mapping, a foundation approval was completed for each upstream toe liner tie-in area. Refer to Appendix G for the completed approval forms.

Slush grouting was performed in selected areas of the cleaned and mapped 5-m-wide strip within the upstream toe liner tie-in where open discontinuities greater than 10 mm were observed. The slush grout recipe by volume consisted of a mix of 1.5 parts of cement (type 50, sulfate resistant), 1 part of sand and 1 to 1.5 parts of water. This mix was adjusted on the field for consistency and yielded satisfactory results. The slush grout was applied with a broom to make sure the open discontinuities of the upstream toe liner tie-in were filled in.

Compacted sieved till (0-50 mm) was then placed in the 5-m-wide strip of the upstream toe liner tie-in area before the geosynthetics installation. First, a thin lift was placed and compacted with the excavator bucket to fill the bedrock depressions and to cover the slush grout before it dried. This thin lift was compacted with the bucket of the excavator on the surface, and with a P-10000 compactor or a jumping-jack type compactor in the bedrock depressions. Particular care was given to a fault zone crossing through the upstream toe liner tie-in (Sta. 40+578 m/o.s. -36.4 to -40.4 m [approx.]). A maximum thickness of 300 mm was used to fill in the hole left by the cleaning of the fault.

Then, a lift of 0.5 m was placed all over the upstream toe liner tie-in. The compacted sieved till was placed by the CAT 345 in a way to limit segregation and to prevent contamination.

The compaction and water content of the compacted till was controlled by the QC Representative with a portable nuclear gauge. Compaction was done with a 10-T smooth-drum compactor in vibratory mode.

3.3.7 Geosynthetics Installation

Geosynthetics installation included the placement of a geotextile above the fine filter (on the upstream slope) and the compacted sieved till bedding and the installation of a LLDPE geomembrane above the geotextile. The geotextile and the LLDPE geomembrane were installed by the subcontractor, ZTG. No geosynthetic was allowed to be installed when it was raining. When not being used, the geomembrane rolls were stored on a surface with a smooth fine filter subgrade that was covered with geotextile. Stoppers generally made of sandbags were placed to secure the rolls in place.

Before the installation of the geosynthetics on the upstream slope and in the upstream toe liner tie-in, the geosynthetics bedding was prepared. The upstream fine filter face was smoothed by an excavator with a roller attachment. Surfaces made of fine filter on the upstream slope and compacted sieved till in the upstream toe liner tie-in were then approved by the Owner's Representative, the QC Representative, and the QA Engineer. It was verified that the surfaces were smooth, dry, and would not damage the geosynthetics. Each surface was surveyed by AEM and SANA, and a geosynthetics bedding surface approval form was filled out. The completed approval forms are presented in Appendix G.

The geotextile and the LLDPE geomembrane were buried in a 0.5-m-deep anchor trench excavated into the upstream side of the rockfill crest within the coarse filter. The anchor trench was backfilled after the installation of the geosynthetics, once the QC tests successfully passed. The geotextile was not placed further than 0.5 m horizontally in the upstream toe liner tie-in while the LLDPE geomembrane was installed horizontally 3 m inside the upstream toe liner tie-in.

The geotextile panels were mostly seamed with the dual hot wedge welding equipment with a minimum overlap of 0.45 m. When wedge seams were not practical (such as for patches), the geotextiles were rather bonded with a heat gun. The geotextiles were visually inspected during installation to make sure that the overlap was sufficient and that the panels were not damaged.

The LLDPE geomembrane panels were mostly seamed with the dual hot wedge welding equipment. When wedge seams were not practical (such as for seaming the new with the existing liner or for patches) the LLDPE geomembranes were bonded with extrusion filet seams. The LLDPE geomembranes were visually inspected during installation to make sure that the overlap was sufficient and that the panels were not damaged.

Per Technical Specifications, no horizontal weld was allowed on geomembrane placed on slopes with more than a 5% incline, except on small localized patches to repair defects. The decision was taken by the Owner's Representative to carry out one horizontal seam on the upstream 3H:1V slope to optimize the quantity of LLDPE available on site during the 2017 construction season. The seam was located approximately at Sta. 40+170 m. Refer to Section 5.4 for further discussions on this field adjustment.

After its installation, the LLDPE geomembrane surface was visually inspected and approved by the Owners Representative and the QA Engineer. A geosynthetics approval form was completed after the installation of the LLDPE geomembrane and can be found in Appendix G.

A total of 3,579 m^2 of geotextile and 3,579 m^2 of LLDPE geomembrane were installed for Stage 3 of Saddle Dam 4 construction.

3.3.8 Protection Cover of the Upstream Toe Liner Tie-In

To provide suitable erosion protection, a verification was done to ensure that the whole foundation of the erosion protection layers was excavated to bedrock, so that the fine filter and coarse filter layer was seated on bedrock.

Once the geosynthetics installation was completed in the upstream toe liner tie-in, three 0.5-m-thick lifts of compacted sieved till were placed over the LLDPE geomembrane, for a total of 2 m of compacted sieved till including the 0.5-m bedding under the LLDPE. The compacted sieved till was well graded and taken directly from the haul truck with the excavator to avoid contamination. Low quality till was initially placed on the upstream slope of the toe-liner tie-in before switching to sieved till, due to excessive moisture in the low-quality till. Only the compactor was allowed to traffic over the geomembrane where there was at least 1 m of material over it. The compaction of the first lift over the geomembrane was done with the excavator bucket. The remainder of the till lift was compacted with the 10-T smooth drum compactor. The compaction of each lift was controlled with a portable nuclear gauge by the QC Representative to ensure it met the Technical Specifications. The placement and compaction of till was only allowed when there was no rain. Haul trucks were not allowed to pass over the compacted till material.

A 2-m erosion protection cover was placed over the compacted till of the upstream toe liner tie-in with the CAT 345 excavator. The configuration of the erosion protection on Saddle Dam 4 consisted of 0.5 m of fine filter, 0.5 m of coarse filter and 1 m of fine UM rockfill. The fine filter and coarse filter lift were made of UM rock and were placed with an excavator and compacted with 4 passes of 10-T smooth-drum compactor in vibratory mode. The fine rockfill consisted of UM rockfill that was mechanically sorted to remove boulders of more than 0.5 m in diameter. The fine rockfill lift was placed with an excavator. The fine rockfill lift was compacted with 6 passes of a 10-T smooth-drum compactor in vibratory mode. During the compaction of the erosion protection cover, the compactor stayed at safe distance from the upstream slope LLDPE to avoid damaging it.

There were 1,550 m^3 of compacted sieved till, 30 m^3 of low quality till, 600 m^3 of fine filter, 671 m^3 of coarse filter, and 595 m^3 of fine UM rockfill placed on Saddle Dam 4 during Stage 3 construction.

3.4 Saddle Dam 5 – Schedule and Construction Steps

The construction of Stage 3 of Saddle Dam 5 was done from June 26 to October 11, 2017, and consisted of the following main work items:

- Site preparation (including water management and access roads);
- Foundation preparation and approval (excavation of soft sediment and ice rich soils);
- Fill placement, compaction and slope profiling (rockfill and upstream filter placement);
- Inverse filter materials placement and compaction on the west abutment foundation;
- Bedrock cleaning, mapping and slush grouting within the upstream toe liner tie-in;
- Compacted till placement and compaction in the upstream toe liner tie-in;
- Geotextile and LLDPE geomembrane installation;
- Placement and compaction of erosion protection cover over the LLDPE geomembrane in the upstream toe liner tie-in.

The work procedures followed during the construction of these work items are discussed in the following subsections.

Selected photographs of the work progress taken throughout the construction season are shown in Appendix C4.

Table 14 presents the construction schedule for the main work items for the construction of Stage 3 of Saddle Dam 5.

Table 14: Schedule for the Construction Activity for Stage 3 of Saddle Dam 5

Activity	Beginning	End
Foundation preparation and approval	June 26, 2017	July 11, 2017
Placement, compaction and profiling of rockfill to El. 145 m (slope of 1.5:H d/s, 3H:1V u/s)	July 3, 2017	August 17, 2017
Inverse filter placement and compaction on the foundation	August 12, 2017	August 13, 2017
Placement, compaction and profiling of filter material on the upstream 3H:1V slope to El. 145 m	August 18, 2017	August 23, 2017
Bedrock cleaning and mapping of the upstream toe liner tie-in	August 23, 2017	August 25, 2017
Slush grouting of the discontinuities and placement of till in the upstream toe liner tie-in for the geosynthetics foundation	August 31, 2017	September 8, 2017
Final profiling of the 3H:1V upstream slope in preparation for geosynthetics installation	August 23, 2017	September 22, 2017
Geosynthetics installation on the 3H:1V upstream slope	September 26, 2017	September 28, 2017
Placement and compaction of compacted till and its protection cover over the LLDPE geomembrane in the upstream toe liner tie-in of the west abutment (compacted till, fine filter, coarse filter, fine rockfill)	September 30, 2017	October 11, 2017

3.4.1 Drilling and Blasting

No drilling and blasting was required for Saddle Dam 5 Stage 3 construction. The schedule was adapted to allow the ground to thaw and to be excavated as it was possible to do so.

3.4.2 Site Preparation

Saddle Dam 5 was accessed by using the access located next to the pig launcher station.

Water management occurred before and during the construction season to remove water that accumulated on the downstream area within the lowest points.

3.4.3 Foundation Preparation

Foundation preparation was done on the west abutment for the extension of the structure for a dike footprint going from El. 143 m to El 145 m (including the rockfill embankment and the upstream toe liner tie-in area).

Foundation approval was also done on the downstream side to widen the rockfill embankment toward the downstream side corresponding to a dike footprint at El. 150 m.

The foundation preparation consisted of the removal of the unsuitable material until competent bedrock was reached. The material was removed by excavator (CAT 345) and then loaded into 100-T haul trucks (CAT 777). The unsuitable material was hauled to the waste dump.

Before the placement of fill material over the dike foundation, the exposed surface was inspected and then accepted by the Owner's Representative, QC Representative, and QA Engineer. The approved foundation area was then surveyed by SANA and AEM. The foundation preparation approval process before the placement of fill materials was performed 4 times during the construction of Stage 3 of Saddle Dam 5. A foundation approval form was filled out each time. The completed approval forms are located in Appendix G.

There were 11,729 m^3 of material excavated during the foundation preparation of Stage 3 of Saddle Dam 5.

3.4.4 Placement of Rockfill for Embankment Raise to El. 145 m

Placement of rockfill for Stage 3 of Saddle Dam 5 started by widening the rockfill slope on the downstream side by placing two 2-m-thick lifts of rockfill to El. 137 m and then 1.5-m-thick lifts of rockfill from El. 137 m to El. 143 m above the approved foundation. Once the rockfill lifts on the downstream side reached El. 143 m, the elevation of the rockfill embankment was raised to Stage 3 crest elevation (El. 145 m) by performing one additional 2-m-thick lift.

Ultramafic rockfill was used entirely for the Saddle Dam 5 construction as allowed by the Technical Specifications. Each lift of rockfill had a maximum thickness of 2.0 m and was placed by a dozer (D8). The rockfill was dumped on a flat surface and then pushed on the slope to avoid segregation. Each lift was compacted with a 10-T smooth-drum vibratory compactor with 8 passes for the first lift and 6 passes for the subsequent lifts. After compaction, the slope of each lift was profiled with an excavator. The downstream slope was profiled with a 1.5H:1V slope while the upstream rockfill slope was profiled with a 3H:1V slope.

The UM rockfill was heterogeneous and well graded with some loads containing more fine particles but was generally well graded. Each lift of UM rockfill was scarified with a dozer or a loader before the placement of the next lift to have a better contact between each lift due to the deterioration of the UM caused by the haul trucks.

A total of 46,101 m^3 of ultramafic rockfill was placed on Saddle Dam 5 during Stage 3 construction.

3.4.5 Filter Placement on Foundation and on the Upstream Slope

The inverse filter was placed on the approved foundation of the west abutment. It consisted of a 0.5-m lift of fine filter covered by a 0.5-m lift of coarse filter. Bedrock depressions were carefully filled with fine filter and compacted with the excavator bucket.

The width of the inverse filter placement was done for a crest at a final elevation of El. 150 m. Competent aggregates were used for the inverse filter of Saddle Dam 5. The material was well graded, hard, sound and placed in a way to limit segregation. Compaction of each lift was completed by 4 passes of a 10-T smooth drum compactor in vibratory mode and the material was wetted to promote compaction.

During placement of filter layers on the 3H:1V upstream slope, fine and coarse filters were raised in compacted lifts against the rockfill. The filter materials were placed in 0.5-m-thick horizontal lifts with the bucket of the excavator. Coarse material was raised against the rockfill and then fine filter material was placed against the coarse filter. A maximum height difference of 2 m was kept between the rockfill and the upstream filter, and the sequence continued as rockfill was placed higher on the slope. The width of each lift was such that the thickness of the material perpendicular to the slope was 0.5 m. After the placement of each 0.5-m lift of fine and coarse filter, the compaction of both materials was done with 4 passes of a 10-T smooth-drum compactor in vibratory mode. Afterwards, the slope of the fine filter was profiled with the bucket of an excavator to have a smooth and continuous 3H:1V upstream slope, in preparation for the geosynthetics installation. The east abutment was built in steps to be connected to Central Dike as it will be raised to El. 145 m later.

There were 709 m^3 of coarse filter and 712 m^3 of fine filter placed on Saddle Dam 5 during Stage 3 construction.

3.4.6 Upstream Toe Liner Tie-In Key Preparation

The upstream toe liner tie-in for the west abutment was marked out in the field and excavated to bedrock.

Once competent bedrock was reached, a 5-m-wide strip along the upstream toe liner tie-in was cleaned out to good quality bedrock. The bedrock within the 5-m strip of the west abutment was cleaned using handwork and compressed air. The objective of this cleaning was to remove the residual soils and expose the bedrock discontinuities. After the completion of the bedrock cleaning in the upstream toe liner tie-in, the QA Representative performed bedrock mapping of the whole upstream toe liner tie-in in segments of 10 m. After the bedrock mapping, a foundation approval was completed for the upstream toe liner area and can be found in Appendix G.

Slush grouting was performed in selected areas of the cleaned and mapped 5-m-wide strip of the liner tie-in key trench where open discontinuities greater than 10 mm were observed. The slush grout recipe by volume consisted of a mix of 1.5 parts of cement (type 50, sulfate resistant), 1 part of sand and 1 to 1.5 parts of water. This mix was adjusted on the field for consistency and yielded satisfactory results.

Compacted sieved till (0-50 mm) was then placed in the 5-m wide strip of the upstream toe liner tie-in area before the geosynthetics installation. First, a thin lift was placed and compacted with the excavator bucket to fill the bedrock depressions and to cover the slush grout before it dried. This thin lift was compacted with the bucket of the excavator on the surface, and with a P-10000 compactor or a jumping-jack type compactor in the bedrock depressions. Then, a lift of 0.5 m was placed. The compacted sieved till was placed by the CAT 345 in a way to limit segregation and to prevent contamination.

The compaction and water content of the compacted till was controlled by the QC Representative with a portable nuclear gauge and was visually adequate. Compaction was done with a 10-T smooth-drum compactor in vibratory mode.

3.4.7 Geosynthetics Installation

Geosynthetics installation included the placement of a geotextile above the fine filter and the compacted sieved till bedding and the installation of a LLDPE geomembrane above the geotextile. The geotextile and the LLDPE geomembrane were installed by ZTG. No geosynthetics were allowed to be installed when it was raining. When not being used, the geomembrane rolls were stored on a surface with a fine filter

subgrade covered with geotextile. Stoppers generally made of sandbags were placed to secure the rolls in place.

Before the installation of the geosynthetics on the upstream slope and in the upstream toe liner tie-in, the geosynthetics bedding was prepared. The upstream fine filter face was smoothed by an excavator with a roller attachment. Surfaces made of fine filter on the upstream slope and compacted sieved till in the upstream toe liner tie-in were then approved by the Owner's Representative, the QC Representative, and the QA Engineer. It was verified that the surfaces were smooth, dry, and would not damage the geosynthetics. Each surface was surveyed by AEM and SANA, and a geosynthetics bedding surface approval form was filled out. Refer to Appendix G for the completed approval forms.

The geotextile and the LLDPE geomembrane were buried in a 0.5-m-deep anchor trench excavated into the upstream side of the rockfill crest within the coarse filter. The anchor trench was backfilled after the installation of the geosynthetics. The geotextile was not placed further than 0.5 m horizontally in the upstream toe liner tie-in while the LLDPE geomembrane was installed horizontally 3 m inside the upstream toe liner tie-in.

The geotextile panels were mostly seamed with the dual hot wedge welding equipment with a minimum overlap of 0.45 m. When wedge seams were not practical (such as for patches), the geotextiles were rather bonded with a heat gun. The geotextiles were visually inspected during installation to make sure that the overlap was sufficient and that the panels were not damaged.

The LLDPE geomembrane panels were mostly seamed with the dual hot wedge welding equipment. When wedge seams were not practical (such as for seaming the new with the existant liner or for patches), the LLDPE geomembranes were bonded with extrusion filet seams. The LLDPE geomembranes were visually inspected during installation to make sure that the overlap was sufficient and that the panels were not damaged.

Per Technical Specifications, no horizontal welds were done on geomembrane placed on slopes with more than a 5% incline, with the exception of small localized patches to repair defects.

On the southern extremity of SD5, in preparation for the connection with Central Dike at El. 145, the last panel of LLDPE liner has been temporarily covered with fine filter material and plywood panels to protect it from the wind until the liner is completed and fully seamed next year.

After the installation, the LLDPE geomembrane surface was visually inspected and approved by the Owner's Representative and the QA Engineer. A geosynthetics approval form was completed after the installation of the LLDPE geomembrane and can be found in Appendix G.

A total of 1,047m^2 of geotextile and 1,047 m^2 of LLDPE geomembrane was installed for Stage 3 of Saddle Dam 5 construction.

3.4.8 Protection Cover of the Upstream Toe Liner Tie-In

To provide suitable erosion protection, a verification was done to ensure that the whole foundation of the erosion protection layers was excavated to bedrock, so that the fine filter and coarse filter layer was seated on bedrock.

Once the geosynthetics installation was completed in the upstream toe liner tie-in, three 0.5-m-thick lifts of compacted sieved till were placed over the LLDPE geomembrane, for a total of 2 m of compacted sieved

till including the 0.5-m bedding under the LLDPE. The compacted sieved till was well graded and taken directly from the haul truck with the excavator to avoid contamination. Low-quality till was initially placed on the upstream slope of the toe-liner tie-in before switching to sieved till, due to excessive moisture in the low-quality till. Only the compactor was allowed to traffic over the geomembrane where there was at least 1 m of material over it. The compaction of the first lift over the geomembrane was done with the excavator bucket. The remainder of the till lift was compacted with the 10-T smooth drum compactor. The compaction of each lift was controlled with a portable nuclear gauge by the QC Representative to ensure it met the Technical Specifications. The placement and compaction of till was only allowed when there was no rain. Haul trucks were not allowed to pass over the compacted till material.

A 2-m erosion protection cover was placed over the compacted till of the upstream toe liner tie-in with the CAT 345 excavator. The configuration of the erosion protection on Saddle Dam 5 consisted of 0.5 m of fine filter, 0.5 m of coarse filter and 1 m of fine UM rockfill. The fine filter and coarse filter lift were made of UM rock and were placed with an excavator and compacted with 4 passes of 10-T smooth-drum compactor in vibratory mode. The fine rockfill consisted of UM rockfill that was mechanically sorted to remove boulders of more than 0.5 m in diameter. The fine rockfill lift was placed with an excavator. The fine rockfill lift was compacted with 6 passes of a 10-T smooth-drum compactor in vibratory mode. During the compaction of the erosion protection cover, the compactor stayed at safe distance from the upstream slope LLDPE to avoid damaging it.

There were 1,483 m^3 of compacted sieved till, 272 m^3 of low quality till, 486 m^3 of fine filter, 471 m^3 of coarse filter, and 976 m^3 of fine UM rockfill placed on Saddle Dam 5 during Stage 3 construction.

SECTION 4.0 – QA/QC PROGRAM AND RESULTS

4.1 General

During the 2017 construction season of the South Cell, a daily construction meeting was held every morning on the construction site with all parties present on site (AEM, SANA, Golder, GHD, ZTG). This meeting was used to review the progress of the last 24 hours, plan for the next 24 hours and to discuss and resolve problems encountered during the construction. Minutes from these meeting were taken by AEM and are presented in Appendix D.

The QA program was carried out by Golder during the preparation of the north abutment of Central Dike and Stage 3 of Saddle Dams 3, 4, and 5. The content of the QA program is defined in the Technical Specifications and includes foundation preparation, fill placement, and geosynthetics installation. The QA team consisted of QA Engineers working on approximately 2-week rotations. A QA Engineer was present full time on site from June 26 to October 12, 2017. No QA activities were performed during night shifts. Daily and weekly reports were prepared by the QA personnel to document the QA activities performed during the construction of Stage 3 of Saddle Dams 3, 4, and 5, and the preparation of the north abutment of Central Dike. These QA daily and weekly reports are presented in Appendix E.

GHD carried out the QC program defined in the Technical Specifications for all construction activities except for the geosynthetics installation. The GHD QC team worked under the supervision of AEM and consisted of a QC representative on day shift from June 28 to October 11, 2017, and a QC representative on night shift from June 28 to August 20, 2017. The daily reports prepared by the on-site QC Representatives to document the QC activities are presented in Appendix F.

The geosynthetics installation QC activities were carried out by the geosynthetics installation crew (ZTG) under the supervision of SANA.

The Owner's representative and the QA Engineer routinely conducted visual inspection of the work done during the construction of Stage 3 of Saddle Dam 3, 4, and 5, and the preparation of the north abutment of Central Dike. Review of the work procedures was done on a daily basis and corrections were made if necessary. Photographs of the work progress and activities were taken every day. A selection of photographs taken throughout the construction season are presented in Appendix C.

Daily surveys were conducted by SANA and AEM to ensure that limits and grades were followed correctly during construction. These surveys were reviewed by the QA Engineer.

4.2 Foundation Approval

As part of the QA/QC program, the foundations were approved before placing any material over natural soil and before the installation of geosynthetics on a bedding surface. The objective of the foundation approval process was to ensure that the foundation was prepared per the Technical Specifications. The approval was done by the Owner's Representative, the QA Engineer and the QC Representative. It was verified that the foundation to be approved was competent, dry, free of contamination or ice and that:

- The clearing and stripping was adequate.
- The foundation excavation and the removal of unsuitable foundation materials was adequate.
- The preparation of the bedrock surface within the upstream toe liner tie-in was adequate.
- The bedding surface conditions for geomembrane placement were smooth and flat.

For each foundation approval, the limit of the approved area was surveyed, and a foundation approval form was signed by the surveyor, the Owner's Representative, the QA Engineer, and the QC Representative. Each foundation approval form included a sketch and picture of the approved foundation area as well as the filled inspection item checklist. Table 15 presents a summary of the foundation approvals done during the 2017 construction season of the South Cell. These foundation approvals forms are presented in Appendix G. Geosynthetics were installed on all structures except Saddle Dam 3 in 2017.

Table 15: Summary of Foundation Approval for the 2017 Construction Season of South Cell

Structure	# of Foundation Approval for Fill Placement	# of Foundation Approval for Geosynthetics Bedding
Central Dike	3 (FND-CD-135 to FND-CD-137)	1 (FND-CD-138)
Saddle Dam 3	9 (FND-SD3-22 to FND-SD3-36)	-
Saddle Dam 4	10 (FND-SD4-26 to FND-SD4-33 and FND-SD4-35 to FND-SD4-36)	1 (FND-SD4-34)
Saddle Dam 5	6 (FND-SD5-12 to FND-SD5-16 and FND-SD5-18)	1 (FND-SD5-17)

4.3 Geosynthetics Installation

QC testing of the geosynthetics installation was done by ZTG under the supervision of the QA Engineer. QC testing was done during the assembly and the installation. QC testing during installation included welding calibration (AM and PM), air pressure tests on every seam, vacuum box testing of each extrusion weld, and destructive weld integrity tests every 150 m of welding. The QA Engineer assisted to a minimum of 20% of the vacuum box testing and 100% of the other QC tests to ensure that they were done according to Technical Specifications.

The QC report from the geomembrane installer (ZTG) is presented in Appendix H. This document presents the layout of the geosynthetics installation, the results of the geosynthetics QC testing, and the manufacturer data sheets. All of the installed geomembrane passed the QC testing.

After the completion of the geomembrane installation, the Owner's Representative, the QA Engineer, and the ZTG QC Representative completed an inspection of the installation to approve the installation. The inspection was done to ensure the following:

- The geomembrane was not damaged (cracks or rips) and was smooth and flat.
- The welding and patches were done properly.
- The QC testing was completed and passed all tests.

After each geosynthetic approval, the limit of the approved area was surveyed and a geosynthetic approval form was signed by the surveyor, the Owner's Representative, the QA Engineer, and the QC Representative. Each geosynthetic approval form included a sketch and picture of the approved area and the filled-out inspection item checklist. Table 16 presents a summary of the geosynthetic approval done during the 2017 construction season of the South Cell. The completed geosynthetic installation approval form for the construction of Stage 3 of Saddle Dams 4 and 5 and the preparation of the north abutment of Central Dike are included in Appendix G.

Table 16: Summary of Geosynthetic Approval for the 2017 Construction Season of South Cell

Structure	# of Geomembrane Approval
Central Dike	1 (LLDPE-CD-30)
Saddle Dam 4	1 (LLDPE-SD4-003)
Saddle Dam 5	1 (LLDPE-SD5-003)

4.4 Material Placement

During material placement, the quality of the material and the placement technique were routinely reviewed. It was ensured that the placement technique limited segregation, that the material quality was visually acceptable, and that the maximum allowable lift thickness was not exceeded.

During placement of fine filter and coarse filter on the upstream slope, it was visually verified that the coarse filter completely wrapped the fine filter.

During rockfill placement, it was verified by the QC Representative and QA Engineer that the rockfill was well graded, did not contain oversized particles and was placed in the correct area of the dike. For the placement of UM rockfill, special attention was taken to observe whether the material was competent and was not predominantly formed of fine particles and rock powder.

4.4.1 Laboratory Testing

Samples of compacted till (sieved and unsieved), fine filter, and coarse filter were taken by the QC Representative and the QA Engineer during construction per the sampling intervals defined in the Technical Specifications. The QA Engineer reviewed the QC Representative sampling technique and laboratory procedures to ensure that proper techniques were being used. The QA Engineer took and tested one sample for every five samples taken by the QC Representative.

The fine filter and coarse filter samples were tested for particle size distribution (ASTM C136) to ensure that the gradation limits of the Technical Specifications were met. The samples of compacted till (sieved and unsieved) were tested for particles size distribution (ASTM C136), water content (ASTM D2216), and standard Proctor (ASTM D698). The particles size distribution tests were done to ensure that the gradation limits of the Technical Specifications were met.

A standard Proctor test was done on the 0-50 mm fraction of the low quality till stockpile material (0-300 mm) and corrected to define the optimal dry density and water content. This result was also used for the compacted sieved till, as the two materials have a similar gradation for the 0-50 mm fraction. This Proctor test was supplemented by reference board testing in the field. At the beginning of till placement, the results from the portable nuclear gauge testing indicated that the material was too dry, while visual observation of the material seemed to indicate appropriate water content. It was suggested that in situ measurement of the water content were influenced by the proximity of the dry bedrock when readings were taken on thin lifts of till placed directly on the bedrock. Stockpiles were tested with the portable nuclear gauge before transportation of the material to ensure that its moisture was acceptable (measured values not recorded).

The results of gradation testing on compacted till (zone 1 - sieved and unsieved) indicate that the material was well graded and mostly met the Technical Specifications, except for the stockpile at the SANA crusher

(sieved from low quality till), which was lower in fine particles but still acceptable as the material was well-graded. The placed material was also visually acceptable.

The results of gradation testing on fine filters (zone 2) indicate that the material was well graded and met the Technical Specifications in the stockpile and in situ. The placed material was visually acceptable.

The results of gradation testing on coarse filter (zone 3) indicate that the material was well graded. Some samples were 5 to 10% finer than allowed by the Technical Specifications below the 12.5 mm fractions. The material was still accepted by the QA Engineer and QC Representative as it was visually adequate, and it was judged that this difference would not negatively impact the performance of the filter.

The results of the QC and QA laboratory testing of the material used during the construction of Stage 3 of Saddle Dam 3, 4, and 5, and the preparation of the north abutment of Central Dike are presented in Appendices I and J. Table 17 indicates the number of samples tested during the 2017 construction season of the South Cell. The sampling of SD4 and SD5 for laboratory testing was joined given their proximity and the limited quantities of material placed during construction. The sampling requirements of the Technical Specifications were met during the 2017 construction season.

Table 17: Summary of Field Laboratory Testing During South Cell 2017 Construction Season

Sample Location	Material	# Samples QC	# Samples QA
Stockpile	Low-Quality Till Stockpile 0-300 mm	1 PSD + 1 PSD on fine fraction (0+20 mm) 2 WC 1 Proctor	-
	Compacted Sieved Till Stockpiles 0-50 mm	6 PSD 6 WC	1 PSD 1 WC
	Fine Filter (zone 2)	3 PSD 3 WC	-
	Coarse Filter (zone 3)	3 PSD 3WC	1 PSD 1 WC
Saddle Dam 3	Low-Quality Till (used for erosion protection of the liner)	-	-
	Compacted Sieved Till (zone 1)	2 PSD 2 WC	1 PSD 1 WC
	Fine Filter (zone 2)	1 PSD 1 WC	1 PSD 1 WC

Sample Location	Material	# Samples QC	# Samples QA
	Coarse Filter (zone 3)	1 PSD 1 WC	1 PSD 1 WC
Saddle Dams 4 and 5	Compacted Sieved Till (zone 1)	3 PSD 3 WC	1 PSD 1 WC
	Fine Filter (zone 2)	3 PSD 3 WC	1 PSD 1 WC
	Coarse Filter (zone 3)	1 PSD 1 WC	1 PSD 1 WC
Central Dike	Compacted Sieved Till (zone 1)	1 PSD 1 WC	1 PSD 1 WC
	Fine Filter (zone 2)	1 PSD 1 WC	1 PSD 1 WC
	Coarse Filter (zone 3)	1 PSD 1 WC	1 PSD 1 WC

Note: Particle size distribution (PSD) per ASTM C136-06, Water Content (WC) testing per ASTM D2216 and Standard Proctor (Proctor) testing per ASTM D698

4.4.2 Control of Compaction

The QC Representative was present at all times during material compaction to supervise the process. The compaction of the fine filter, coarse filter and rockfill was verified visually, and it was ensured that a sufficient number of compactor passes were done. The overlap of the passes and the compactor speed was continuously verified by the QC Representative.

The compaction of each lift of each of the first two compacted sieved till material (0-50 m) was controlled by the QC Representative on the field with a portable nuclear gauge. The number of compactor passes was adjusted on the field until 95% of the standard proctor optimal dry density was reached. The overlap of the passes and the compactor speed were verified by the QC Representative.

The optimal dry density of the compacted sieved till material was obtained as the maximum value obtained from the Standard Proctor laboratory test and two compaction reference boards. The maximum optimal dry density obtained was 2,050 kg/m^3 for a water content of 9%. However, 9% moisture was difficult to achieved in the field, as sieved till would become excessively soft to compact. Better results were achieved by watering only slightly the sieved till during placement from the stockpiles.

During the compaction reference board testing, a test pad made of compacted sieved till was constructed in the field and compacted by the 10-T smooth-drum compactor in vibratory mode. After each pass of the

compactor, the dry density and water content was measured with the portable nuclear gauge. This method was used to determine the optimal dry density and how many passes of a compactor would be required to achieve it.

Results from the field measurement of the dry density and water content are summarized in Table 18 and are presented in Appendix I. A degree of compaction higher than 95% of the optimal was achieved for all compacted sieved till material (Zone 1) placed during the 2017 construction season of the South Cell. It should be noted that some of the water content tests taken on Saddle Dam 4, Saddle Dam 5, and Central Dike were done several days after placement of the sieved till and thus yielded results lower than the probable realistic water content at the time of placement.

Table 18: Summary of Portable Nuclear Gauge Field Testing During South Cell 2017 Construction Season

Sample Location	Material	Water Content %	Water content % Mean	Dry Volumetric Density Kg/m^3	Dry volumetric density Kg/m^3 Mean	Compaction Rate %	Compaction Rate % Mean
Central Dike	Compacted Sieved Till (reference boards)	5.7 to 7.8	6.75	2,184 to 2,228	2,206	-	-
	Compacted Sieved Till (in place)	5.5 to 8.7	6.69	2,140 to 2,249	2,191.29	98 to 101.2	99.19
Saddle Dam 3	Compacted Sieved Till	5.6 to 8.6	7.16	2,186 to 2,237	2,205.67	98.2 to 100.4	98.2
Saddle Dam 4	Compacted Sieved Till	4.2 to 10	6.43	1,982 to 2,288	2,158.74	96.7 to 104	100.11
Saddle Dam 5	Compacted Sieved Till	4.4 to 10.1	6.42	2,036 to 2,258	2,156.75	97.8 to 101.5	99.5

SECTION 5.0 – DESIGN CHANGES AND FIELD ADJUSTMENTS

Design changes and field adjustments were implemented during the preparation of the north abutment of Central Dike and Stage 3 of Saddle Dams 3, 4, and 5.

Some elements of the design were changed during construction to adapt the design to the encountered field conditions. These changes were implemented by the Designer in collaboration with AEM and were documented in technical memoranda. One design change memorandum was issued for the 2017 construction season. This document is listed in Section 1.6 and can be found in Appendix B.

The design changes of Central Dike and Saddle Dam 3, 4, and 5 that were implemented in previous construction seasons and that were still relevant to the 2017 construction season were carried out. Fifteen design changes documented in technical memoranda were carried out from previous construction seasons to the 2017 construction season. These documents are listed in Section 1.6 and can be found in their respective construction season reports.

Some local field adjustments were made during construction when the encountered conditions were different than the expected conditions. These local adjustments were discussed with the Designer and implemented by the Owner's Representative without requiring a change to the design. Field adjustments were documented in the QA Engineer weekly and daily reports.

5.1 General

Field Adjustment – Modification to Sampling Quantity of Till and Coarse Filter

According to ASTM Standard C136, 60 kg of till and 300 kg of coarse filter should be taken for each particle size distribution test. These quantities were too high to be manually sampled with a bucket and a shovel and tested with the available field laboratory testing equipment. As in the previous construction season, smaller quantities of materials were sampled (10-20 kg of material). Care was taken to obtain representative samples while minimizing segregation and a duplicate was taken when it was believed that segregation during sampling could have impacted the results.

Field Adjustment – Extremities of the Upstream Toe Liner Tie-In

In the previous construction season, the rockfill was built to the desired crest elevation and each layer of the upstream toe liner tie-in was stopped at progressively lower elevation so that the upstream toe liner tie-in would not be higher than the rockfill elevation. This technique resulted in a stair configuration for materials placed in the extremities of each structure that facilitated the extension of the upstream toe liner tie-in without having to dig the inverse filter when raising each structure. However, this technique results in a dike being operational for a lower elevation than the rockfill crest. During the 2017 construction season, the decision was made by the Owner's Representative to close the upstream toe liner tie-in in the extremities of each structure in their final configuration at El. 145 m.

Field Adjustment – Placement of Material in Bedrock Depressions

Localized narrow bedrock depressions were encountered on the foundation of the various structures and created some placement and compaction issues. These local depressions were filled with the proper material (rockfill, fine filter or compacted till) and compacted with the bucket of the excavator after each 0.5 m. Once the local depressions were filled, a layer of 0.5 m of the proper material was put over all

the approved foundation and compacted per the Technical Specifications. This resulted in having a greater thickness of fine filter or compacted till in localized areas of the foundation, which is acceptable.

Field Adjustment – Slush Grouting of Saddle Dam 3, 4, and 5 Upstream Toe Liner Tie-In

Per Technical Specifications, slush grouting of the 5-m-wide cleaned bedrock area of the upstream toe liner tie-in is not required on the Saddle Dams. The Technical Specifications refer to a mix of fine filters plus 10% bentonite by mass above discontinuities greater than 10 mm. On the field it was decided to apply slush grouting in selected areas of the liner tie-in key trench where open discontinuities greater than 10 mm were observed. The slush grout recipe by volume consisted of a mix of 1.5 parts of cement (type 50, sulfate resistant), 1 part of sand and 1 to 1.5 parts of water. This mix was adjusted on the field for consistency and yielded satisfactory results. This substitution is more robust than the requirement of the Technical Specifications and was approved by the Designer.

Field Adjustment – Use of Sieved Till in Place of Low Quality Till for Upstream Toe Liner Tie-In Construction

It was originally planned to build the upstream toe line tie-in with one first 500-mm-thick lift of compacted sieved till (0-50 mm) as liner bedding, followed by another 500-m-thick lift of compacted sieved till above the liner and 2 other lifts of compacted till (0-150 mm). However, due to excessive moisture in the compacted till (0-150 mm) at the time of placement, it was decided to use only sieved till (0-50 mm) for the 4 lifts of till on all the dikes. This adjustment was discussed with AEM with input from the contractor and provides a more robust design than required by the Technical Specifications; it was thus agreed on by the Designer.

5.2 Central Dike North Abutment Preparation

Field Adjustment – Installation of the Last Panel of LLDPE Liner on the Side of Central Dike

Installation of the LLDPE liner on the north abutment of Central Dike at El. 145 m was done from the extremity of the dike (north) towards the existing part of Central Dike. Due to a shortage of LLDPE, a length of less than a panel width was left uncovered on the side of the existing dike and was only covered with geotextile. The open ends of the LLDPE and geotextile have been secured in place with sand bags and will be continued next year during installation of geosynthetics on the rest of Central Dike raised to El. 145 m. The granular protection layers on the upstream toe liner tie-in have been installed at a distance from this zone to allow for easier welding of the new panels next year.

5.3 Saddle Dam 3 Stage 3

Design Change – Change for the LLDPE Geomembrane Protection on the Upstream Slope of Saddle Dam 3

A design change was done to modify the LLDPE geomembrane protection on the upstream slope of Saddle Dam 3. According to the latest deposition plan issued by AEM, free water will be in direct contact with the geomembrane liner of the Saddle Dam 3 by the third quarter of 2018.

The design of the Saddle Dams structure is based on the design basis that consists of maintaining a tailings beach to keep the pond away from the perimeter structures (Doc 1496 1416081-MTA-RevA – SD3-4-5 Design Basics). A tailings beach is to be provided by operations at all times to protect the LLDPE

geomembrane from the bio-action, wind, ice and to limit seepage through the structures and their foundations.

Following discussion between Golder and AEM, it was agreed that additional material needs to be placed on the upstream slope of Saddle Dam 3 over the LLDPE geomembrane at the locations where water may pond against the dike.

The configuration commonly agreed by Golder and the Meadowbank Engineering Team is presented in technical memorandum 1777687-1564-TM-Rev1, presented in Appendix B. The configuration consists in a 2.0-m-thick layer of till, including a 0.5-m-thick layer of sieved till (0-50 mm) directly against the LLDPE liner followed by a 1.5-m-thick layer of low quality till (0-300 mm). A 1.0-m-thick layer of fine rockfill (Type-5 0-500 mm) was placed directly against the 2.0-m-thick layer of till.

Field Adjustment – Realignment of the South Part of SD3 to Avoid Quarry 23

The current SD3 alignment would not allow to connect the crest at El. 150 m at the south extremity while keeping a safety distance of 15 m between the downstream toe of the dike and the crest of the Quarry 23, corresponding to 3 times the height of the quarry wall, following good practice. Bedrock depth was assessed using test pits to realign SD3 with regard to this constraint. Ultimately, the southern part of the dike had undergone a realignment toward the east (bend angle of 145 degrees) from Sta. 20 + 800 m.

Field Adjustment – Merging of Saddle Dam 2 and Saddle Dam 3

In the absence of official limits for the footprint of Saddle Dam 2, the alignment of the north extremity of Saddle Dam 3 was adjusted to connect with the existing upstream toe-liner tie in of Saddle Dam 2. Foundation bedrock was done for the whole exposed surface, to the toe of Saddle Dam 2. This resulted in a curve in the filters zone, between the existing extremity of Saddle Dam 2 and the part of Saddle Dam 3 that was already modified in 2016 so as to avoid the fault zone.

Field Adjustment – Deep Bedrock Discontinuity within Upstream Toe Liner Tie-In

A deep discontinuity within the cleaned bedrock of the upstream toe liner tie-in was encountered (fault zone) around Sta. 20+570 m. The fractured bedrock in that area was excavated until the fault filling composed of gouge was dense enough to provide a low-permeability surface for grouting. The depression was then slush-grouted and filled with sieved till, which was compacted with a P10000 vibratory plate compactor using a maximum lift thickness of 300 mm.

5.4 Saddle Dam 4 Stage 3

Field Adjustment – Modification to Inverse Filter Extent (Sta. 40+430 to 40+440 m)

The inverse filters between Sta. 40+430 and 40+440 m encountered a steep downward bedrock face of approximately 1 m high (from El. 142.5 to 143.5 m). The bedrock surface in this area was hard and sound with limited thinly open discontinuities. On the basis of a good quality bedrock surface, the QA Engineer and the Owner’s Representative accepted that the inverse filter in this area be limited to 6 m only rather than 10 m as prescribed by the Technical Specifications. The gap at the base of the steep rock face was filled with rockfill without placement of inverse filter.

Field Adjustment – Covering of a Protruding Bedrock Outcrop with Fine Filter

A large outcrop of bedrock that was protruding into the upstream toe liner tie-in zone around Sta. 40+550 m was covered with approximately 300 mm of fine filter to provide a smooth surface for the liner installation. As with the rest of the upstream slope, the fine filter was compacted and smoothed by an excavator with a roller attachment. The surface was approved by all parties before installation of the geomembrane.

Field Adjustment – Horizontal Seams During Geomembrane Installation

To optimize the LLDPE quantity available on site during the 2017 construction season, the decision was made by the Owner's Representative to allow horizontal seaming for one panel on the slope of Saddle Dam 4. Per the Technical Specifications, no horizontal seams are allowed on geomembrane placed on a slope with more than a 5% incline, except for small localized patches to repair defects. The dike Designer considers that horizontal seams should be avoided as they are more susceptible to damage as the highest stress is perpendicular to the slope when tailings weigh downward on the geomembrane.

Field Adjustment – Deep Bedrock Discontinuity within Upstream Toe Liner Tie-In

Two deep discontinuities passing through the cleaned bedrock of the upstream toe liner tie-in was encountered (fault zones) (Sta. 40+578 m/o.s. -36.4 to -40.4 m [approx.]). The fractured bedrock in these areas was removed until the fault filling composed of gouge was dense enough to provide a low-permeability surface for grouting. The depressions were then grouted and filled with sieved till, which was compacted with a P10000 vibratory plate compactor using a maximum lift thickness of 300 mm.

5.5 Saddle Dam 5 Stage 3

Field Adjustment – Southern Extremity of the Rockfill

In preparation of the raise of Central Dike from El. 143 m to El. 145 m, the rockfill was terminated at the southern extremity of SD5 in a stair configuration. This configuration will facilitate the extension of the rockfill of Central Dike at El. 145 m and the merging with SD5.

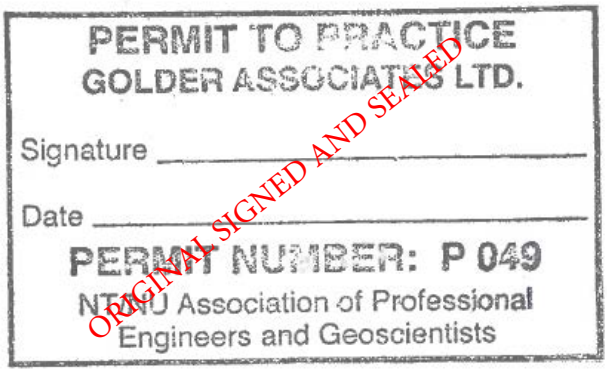
SIGNATURES

ORIGINAL SIGNED

Marion Habersetzer, Jr. Eng. (QC)
Junior geotechnical engineer
For Golder Associates

ORIGINAL SIGNED AND SEALED

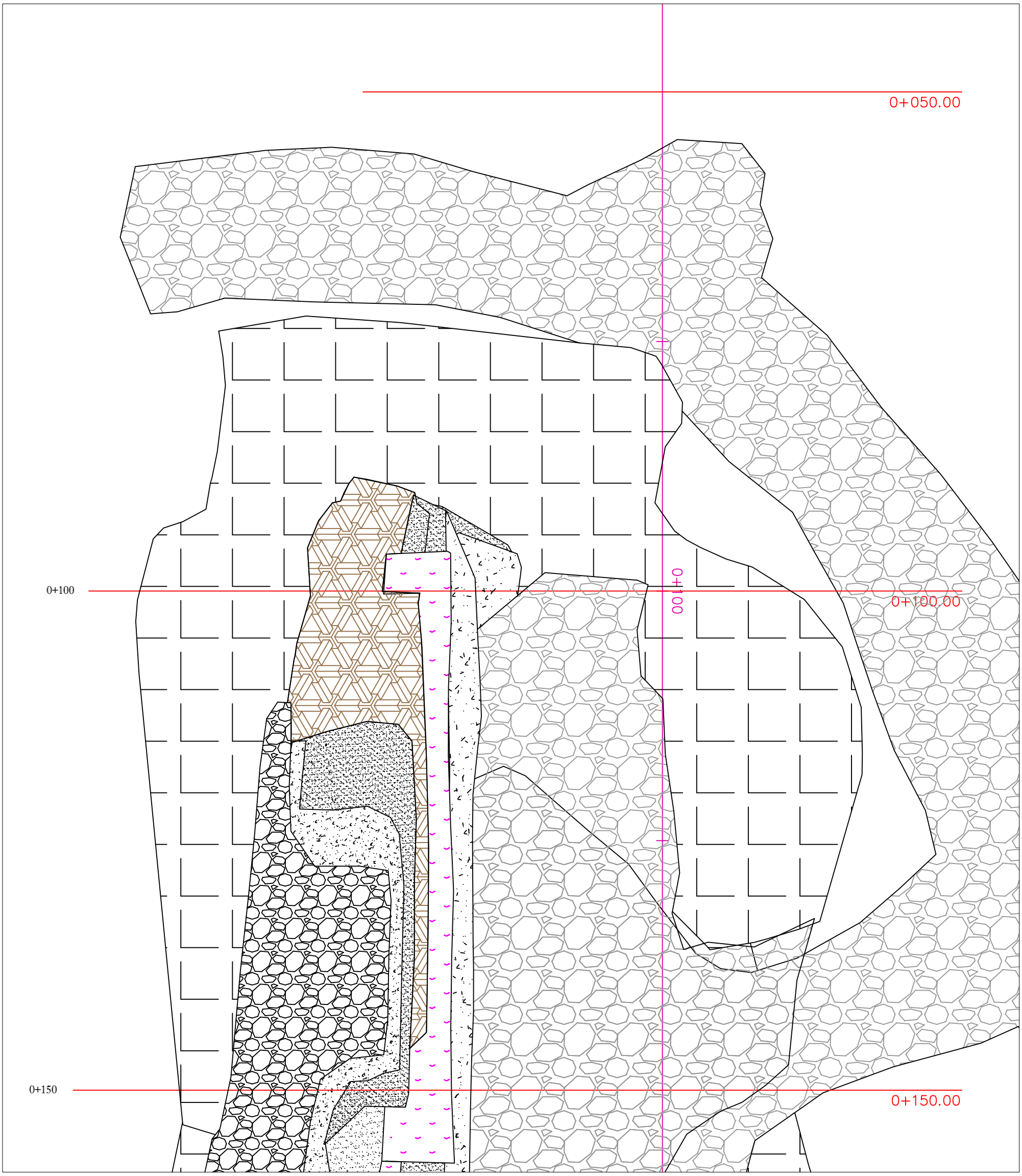
Yves Boulianne, P. Eng. (NU)
Dike Designer, Associate
For Golder Associates



APPENDIX A - AS-BUILT DRAWINGS

APPENDIX A1 - AS-BUILT DRAWINGS
CENTRAL DIKE NORTH ABUTMENT PREPARATION

AS BUILT - CENTRAL DYKE
DYKES CONSTRUCTION
CONTRACT # 11-505



EXCAVATION

ROCKFILL

COARSE FILTER (0-150 MM)

FINE FILTER (0-20 MM)

COMPACTED TILL

LLDPE

PLAN VIEW

CENTRAL DYKE

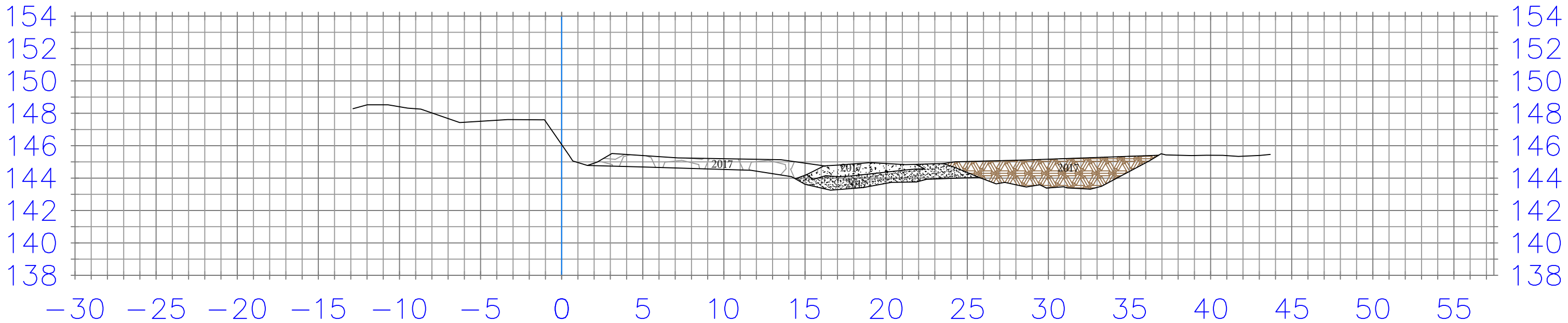
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984246 N.W.T. Limited
D/B/A :
Qamanittuaq
SANA

PREPARED BY :FRANCIS PEPIN
DATE : 14-10-2017
CON-AD-0003

AS BUILT - CENTRAL DYKES
DYKES CONSTRUCTION
CONTRACT # 11-505

CENTRAL DYKES: 0+100



0+100.000

- ROCKFILL
- FINE FILTER (0-20 MM)
- COARSE FILTER (0-150 MM)
- COMPACTED TILL
- LLPDE
- GEOTEXTILE

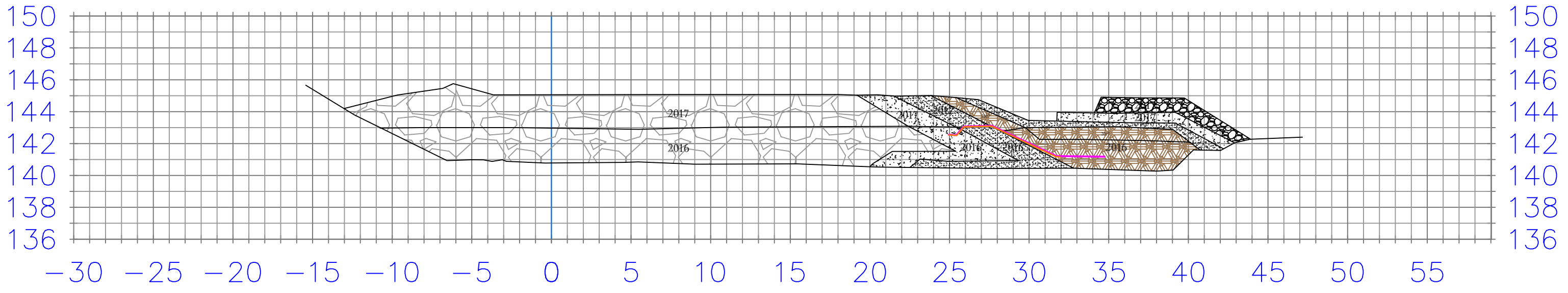
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D/B/A :
Qamanittuaq
SANA

PREPARED BY : FRANCIS PEPIN
DATE :14-10-2017
CON-AD-0003

AS BUILT - CENTRAL DYKES
DYKES CONSTRUCTION
CONTRACT # 11-505

CENTRAL DYKES: 0+150



0+150.000

ROCKFILL

FINE FILTER (0-20 MM)

COARSE FILTER (0-150 MM)

COMPACTED TILL

LLPDE

GEOTEXTILE

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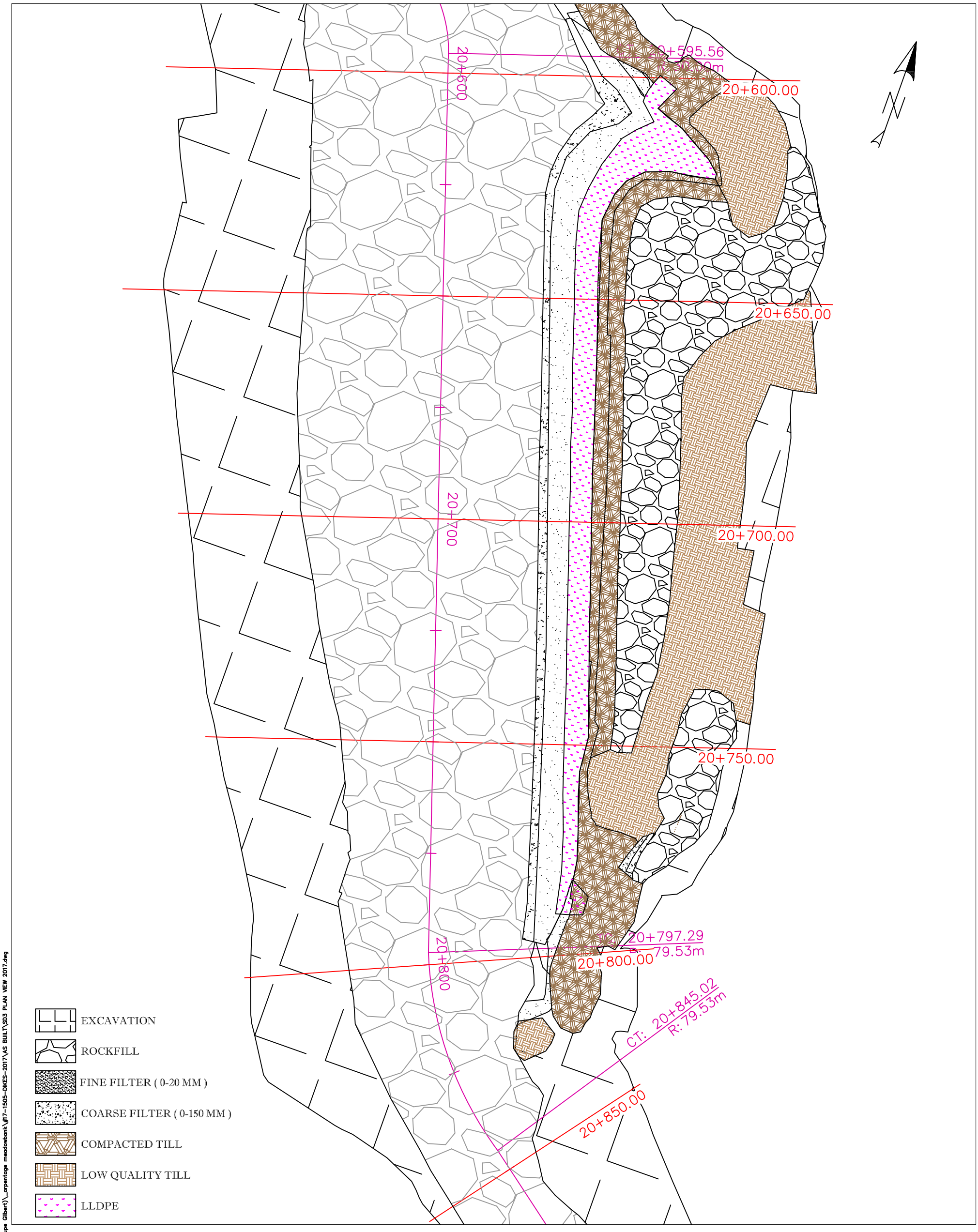
984246 N.W.T. Limited
D/B/A :
Qamanittuaq
SANA

PREPARED BY : FRANCIS PEPIN
DATE :14-10-2017
CON-AD-0003

APPENDIX A2 - AS-BUILT DRAWINGS

SADDLE DAM 3 STAGE 3

AS BUILT - SADDLE DAM 3
DYKES CONSTRUCTION
CONTRACT # 11-505



PLAN VIEW
SADDLE DAM 3

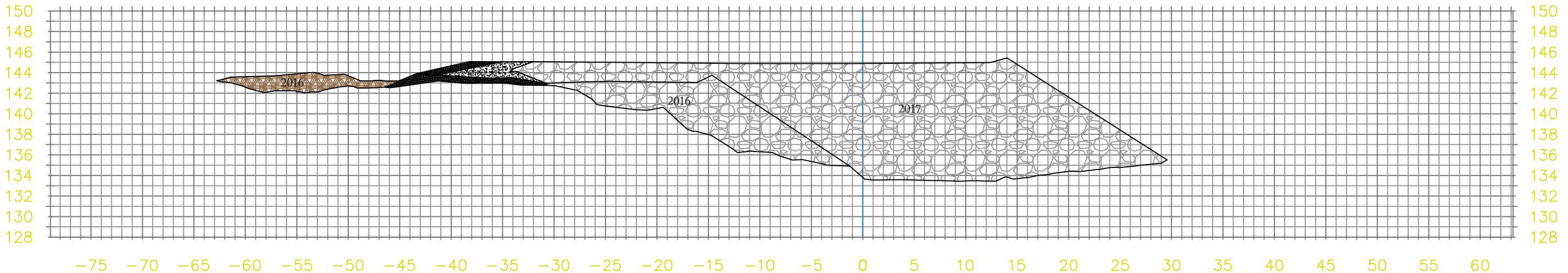
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D/B/A :
Qamanittuaq
SANA

PREPARED BY : FRANCIS PEPIN
DATE : 14-10-2017
CON-AD-0004

AS BUILT - SADDLE DAM 3
DYKES CONSTRUCTION
CONTRACT # 11-505

SADDLE DAM 3 : 20+600



20+600.000

ROCKFILL

FINE FILTER (0-20 MM)

COARSE FILTER (0-150 M)

COMPACTED TILL

LOW QUALITY TILL

LLDPE

GOTEXTILE

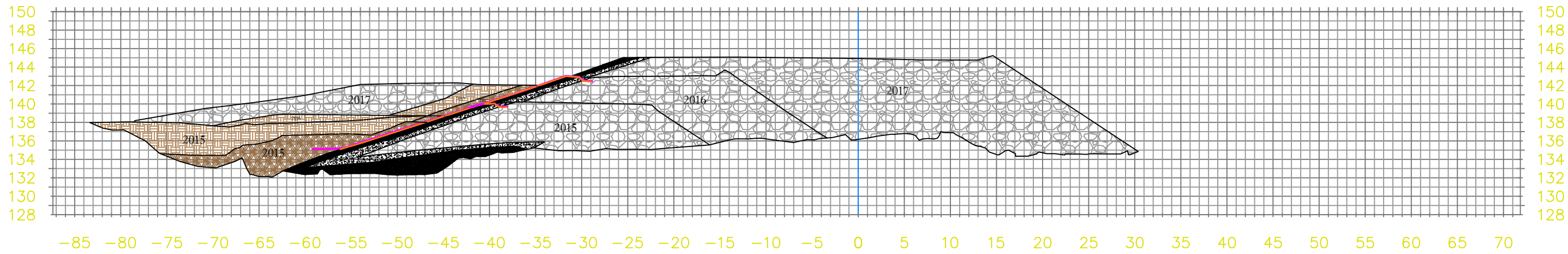
984246 N.W.T. Limited
D/B/A :
Qamanittuaq
SANA

PREPARED BY : FRANCIS PEPIN
DATE : 15-10-2017
CON-AD-0004

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AS BUILT - SADDLE DAM 3
DYKES CONSTRUCTION
CONTRACT # 11-505

SADDLE DAM 3 : 20+650



20+650.000

- ROCKFILL
- FINE FILTER (0-20 MM)
- COARSE FILTER (0-150 M)
- COMPACTED TILL
- LOW QUALITY TILL
- LLDPE
- GOTEXTILE

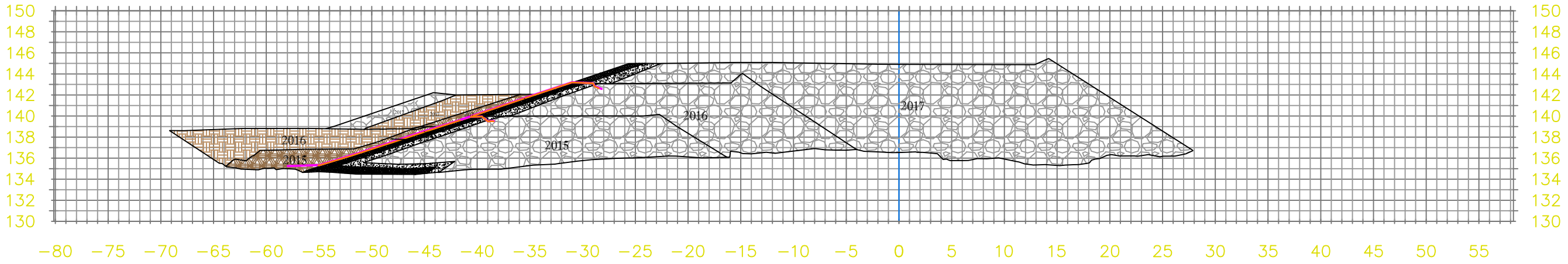
984246 N.W.T. Limited
D/B/A :
Qamanittuaq
SANA

PREPARED BY : FRANCIS PEPIN
DATE : 15-10-2017
CON-AD-0004

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AS BUILT - SADDLE DAM 3
DYKES CONSTRUCTION
CONTRACT # 11-505

SADDLE DAM 3 : 20+700



20+700.000

ROCKFILL

FINE FILTER (0-20 MM)

COARSE FILTER (0-150 M)

COMPACTED TILL

LOW QUALITY TILL

LLDPE

GOTEXTILE

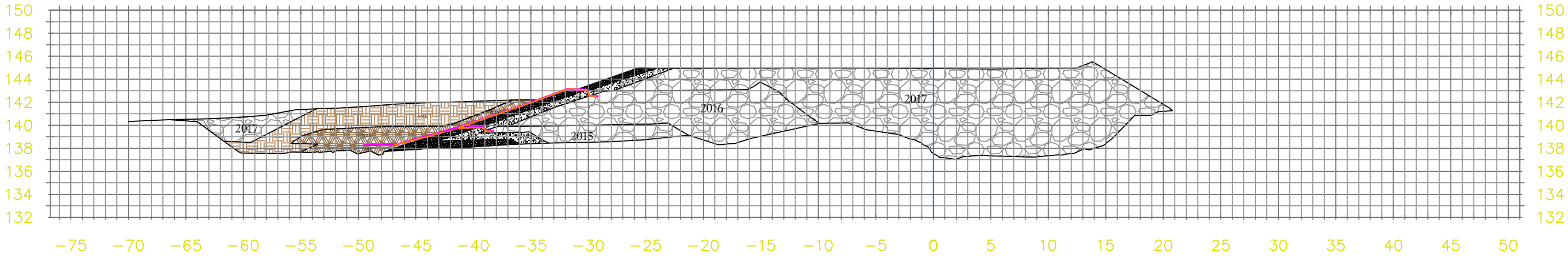
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984246 N.W.T. Limited
D/B/A :
Qamanittuaq
SANA

PREPARED BY : FRANCIS PEPIN
DATE : 15-10-2017
CON-AD-0004

AS BUILT - SADDLE DAM 3
DYKES CONSTRUCTION
CONTRACT # 11-505

SADDLE DAM 3 : 20+750



20+750.000

ROCKFILL

FINE FILTER (0-20 MM)

COARSE FILTER (0-150 M)

COMPACTED TILL

LOW QUALITY TILL

LLDPE

GOTEXTILE

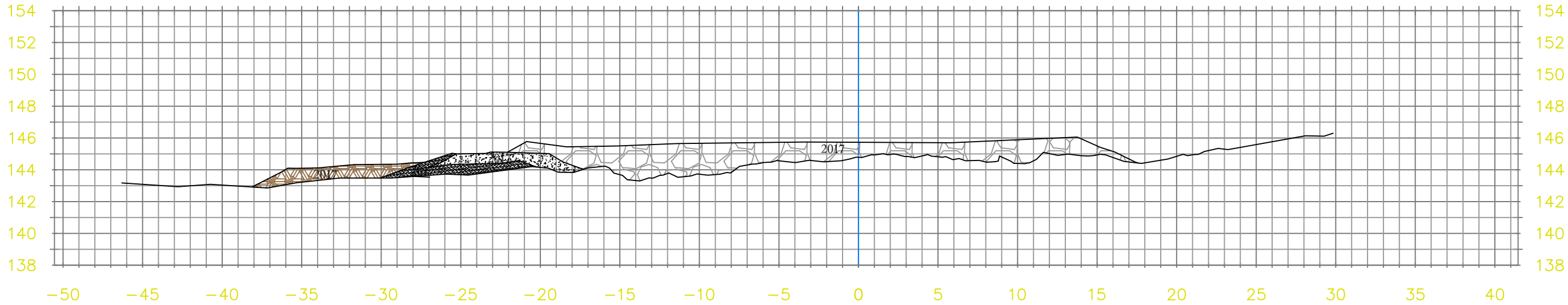
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SANA

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DATE : 15-10-2017
CON-AD-0004

AS BUILT - SADDLE DAM 3
DYKES CONSTRUCTION
CONTRACT # 11-505

SADDLE DAM 3 : 20+800



20+800.000

ROCKFILL

FINE FILTER (0-20 MM)

COARSE FILTER (0-150 M)

COMPACTED TILL

LOW QUALITY TILL

LLDPE

GOTEXTILE

984246 N.W.T. Limited
D/B/A :
Qamanittuaq
SANA

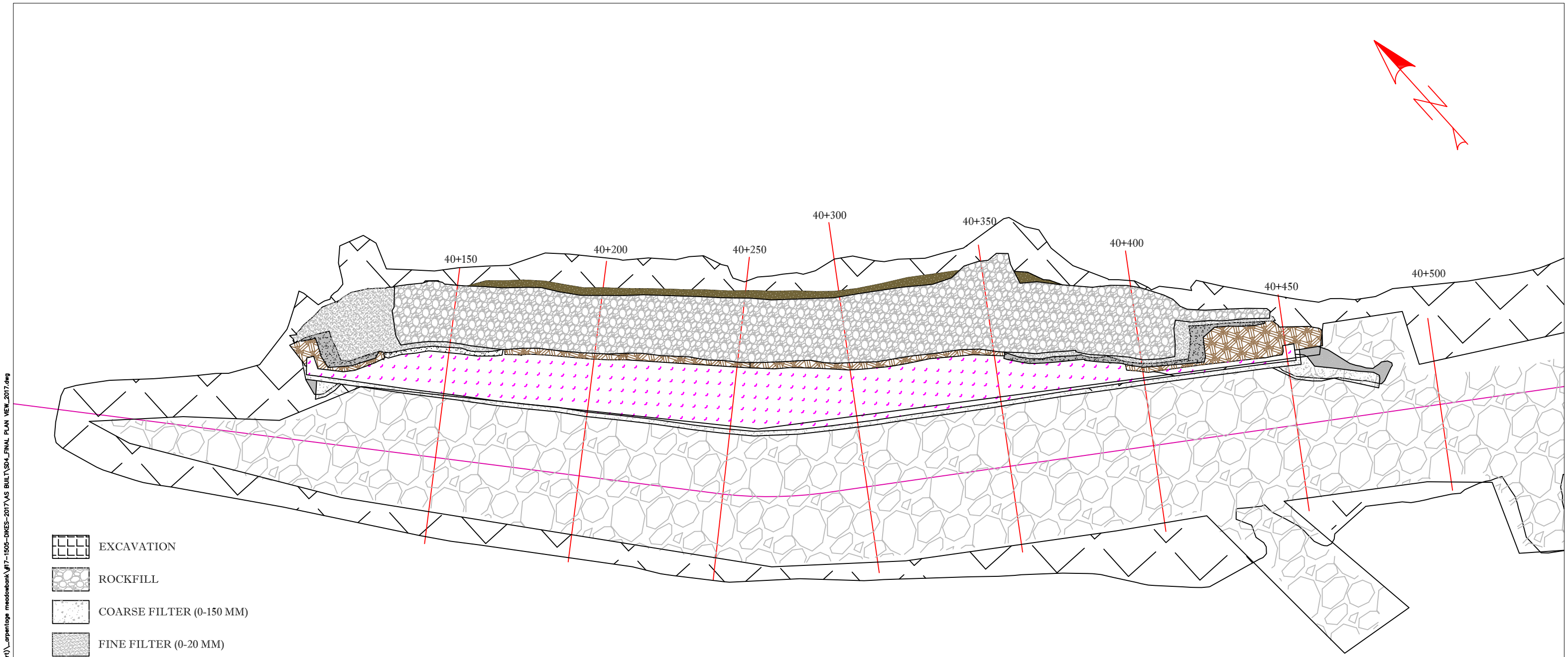
PREPARED BY : FRANCIS PEPIN
DATE : 15-10-2017
CON-AD-0004

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APPENDIX A3 - AS-BUILT DRAWINGS

SADDLE DAM 4 STAGE 3

AS BUILT - SADDLE DAM 4
DYKES CONSTRUCTION
CONTRACT # 11-505



PLAN VIEW
SADDLE DAM 4

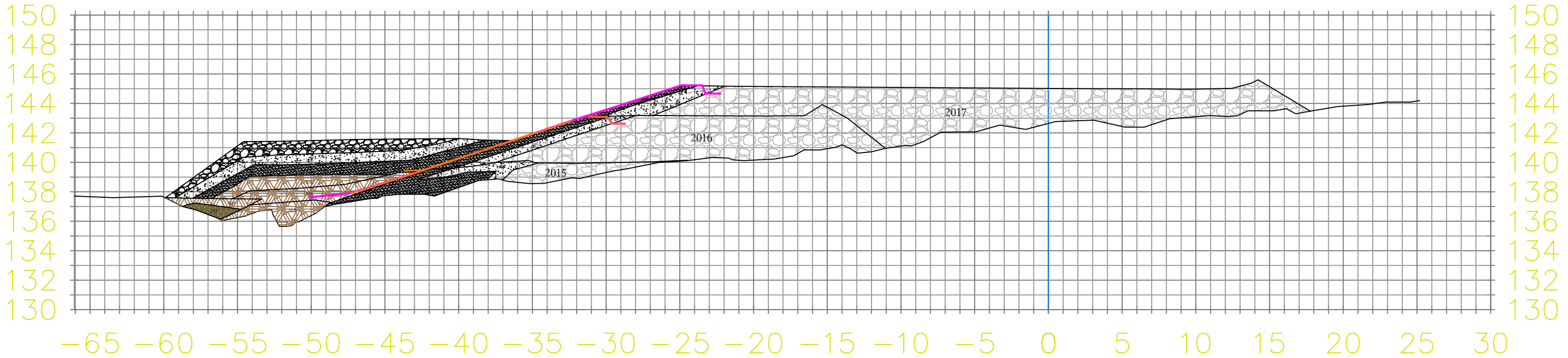
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984246 N.W.T. Limited
D/B/A :
Qamanittuaq
SANA

PREPARED BY : FRANCIS PEPIN
DATE : 13-10-2017
CON-AD-0001

AS BUILT - SADDLE DAM 4
DYKES CONSTRUCTION
CONTRACT # 11-505

SADDLE DAM 4 : 40+150



- ROCKFILL
- COARSE FILTER (0-150MM)
- FINE FILTER (0-20 MM)
- FINE ROCKFILL
- COMPACTED TILL
- LOW QUALITY TILL
- LLPDE
- GEOTEXTILE

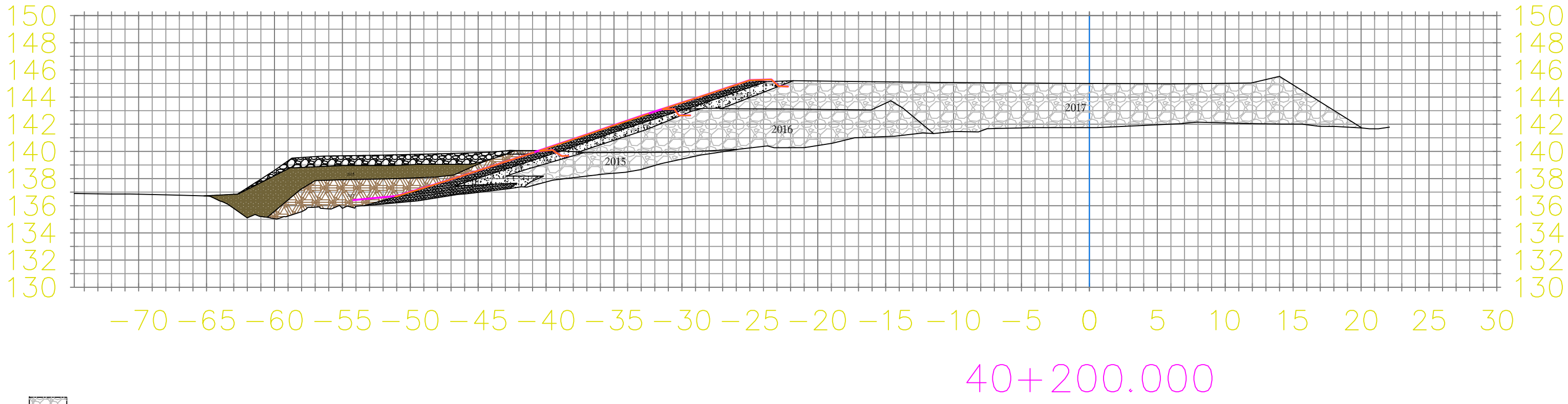
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984246 N.W.T. Limited
D/B/A :
Qamanittuaq
SANA

PREPARED BY : FRANCIS PEPIN
DATE : 13-10-2017
CON-AD-0001

AS BUILT - SADDLE DAM 4
DYKES CONSTRUCTION
CONTRACT # 11-505

SADDLE DAM 4 : 40+200



ROCKFILL

COARSE FILTER (0-150 MM)

FINE FILTER (0-20 MM)

FINE ROCKFILL

COMPACTED TILL

LOW QUALITY TILL

LLPDE

GEOTEXTILE

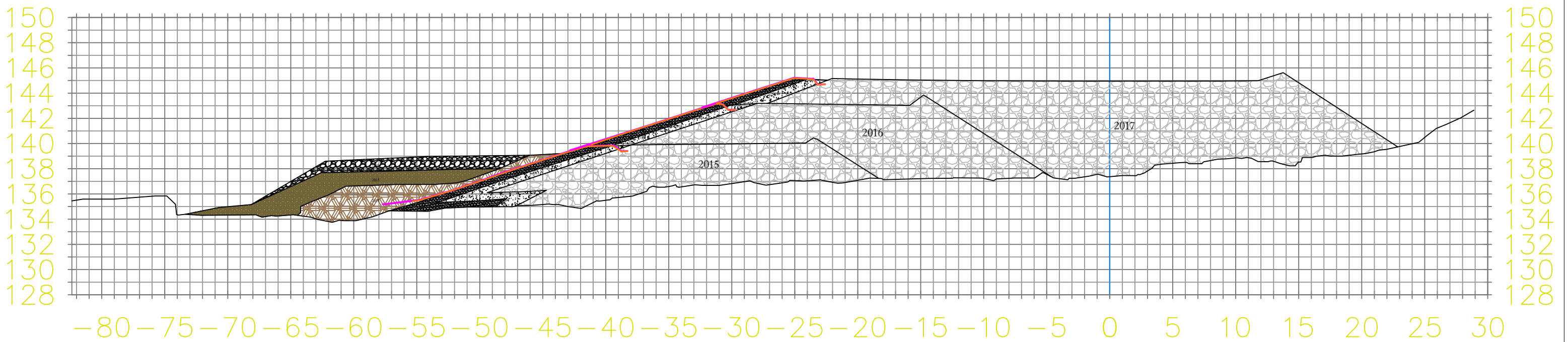
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D/B/A :
Qamanittuaq
SANA

PREPARED BY : FRANCIS PEPIN
DATE : 13-10-2017
CON-AD-0001

AS BUILT - SADDLE DAM 4
DYKES CONSTRUCTION
CONTRACT # 11-505

SADDLE DAM 4 : 40+250



- ROCKFILL
- COARSE FILTER (0-150 MM)
- FINE FILTER (0-20 MM)
- FINE ROCKFILL
- COMPACTED TILL
- LOW QUALITY TILL
- LLPDE
- GEOTEXTILE

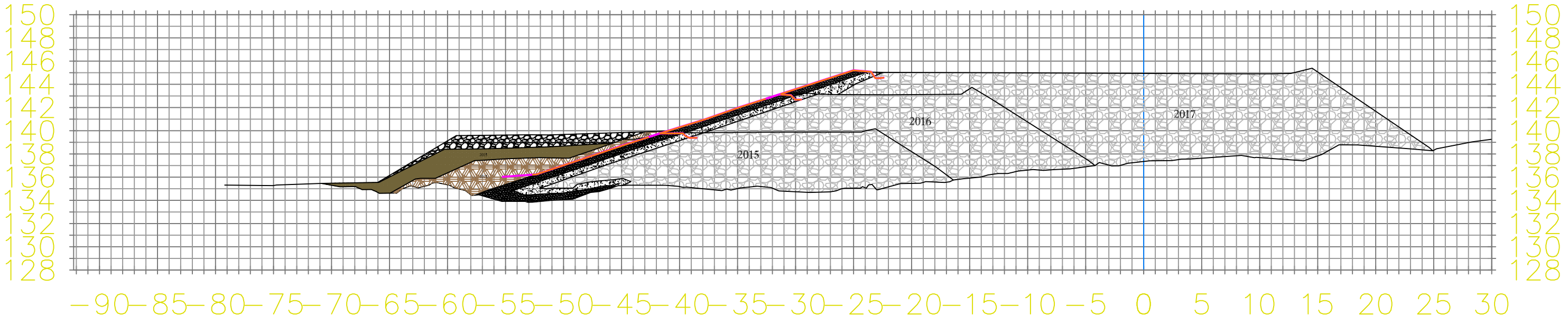
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984246 N.W.T. Limited
D/B/A :
Qamanittuaq
SANA

PREPARED BY : FRANCIS PEPIN
DATE : 13-10-2017
CON-AD-0001

AS BUILT - SADDLE DAM 4
DYKES CONSTRUCTION
CONTRACT # 11-505

SADDLE DAM 4 : 40+300



- ROCKFILL
- COARSE FILTER (0-150 MM)
- FINE FILTER (0-20 MM)
- FINE ROCKFILL
- COMPACTED TILL
- LOW QUALITY TILL
- LLPDE
- GEOTEXTILE

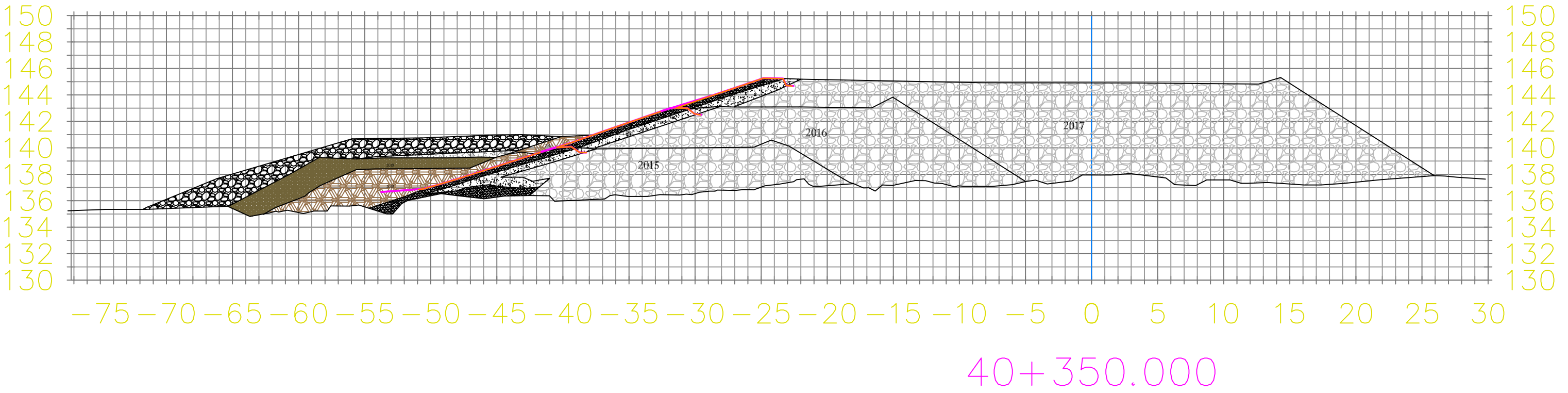
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984246 N.W.T. Limited
D/B/A :
Qamanittuaq
SANA

PREPARED BY : FRANCIS PEPIN
DATE : 13-10-2017
CON-AD-0001

AS BUILT - SADDLE DAM 4
DYKES CONSTRUCTION
CONTRACT # 11-505

SADDLE DAM 4 : 40+350



- ROCKFILL
- COARSE FILTER (0-150 MM)
- FINE FILTER (0-20 MM)
- FINE ROCKFILL
- COMPACTED TILL
- LOW QUALITY TILL
- LLPDE
- GEOTEXTILE

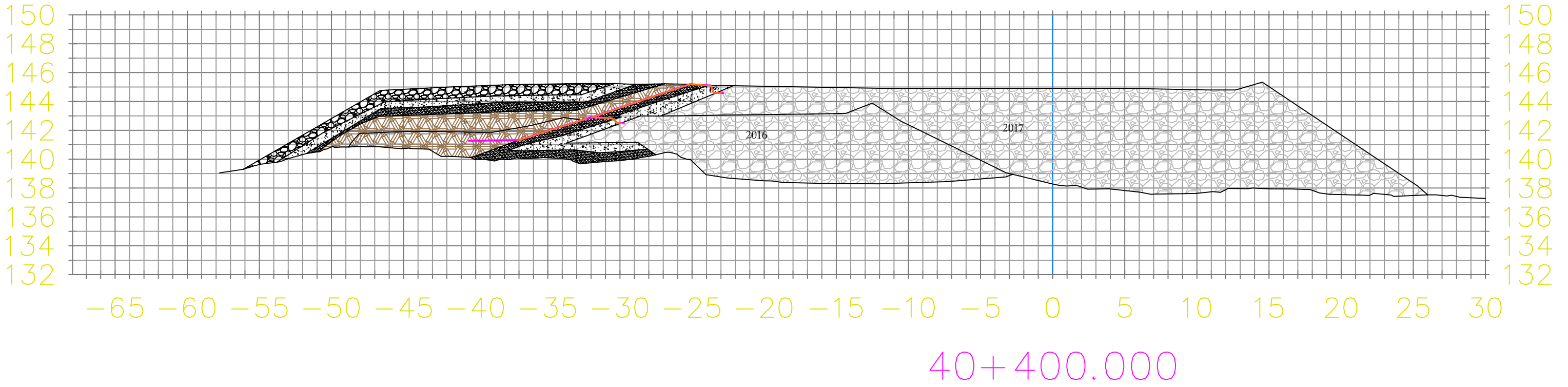
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984246 N.W.T. Limited
D/B/A :
Qamanittuaq
SANA

PREPARED BY : FRANCIS PEPIN
DATE : 13-10-2017
CON-AD-0001

AS BUILT - SADDLE DAM 4
DYKES CONSTRUCTION
CONTRACT # 11-505

SADDLE DAM 4 : 40+400



- ROCKFILL
- COARSE FILTER (0-150 MM)
- FINE FILTER (0-20 MM)
- FINE ROCKFILL
- COMPACTED TILL
- LOW QUALITY TILL
- LLPDE
- GEOTEXTILE

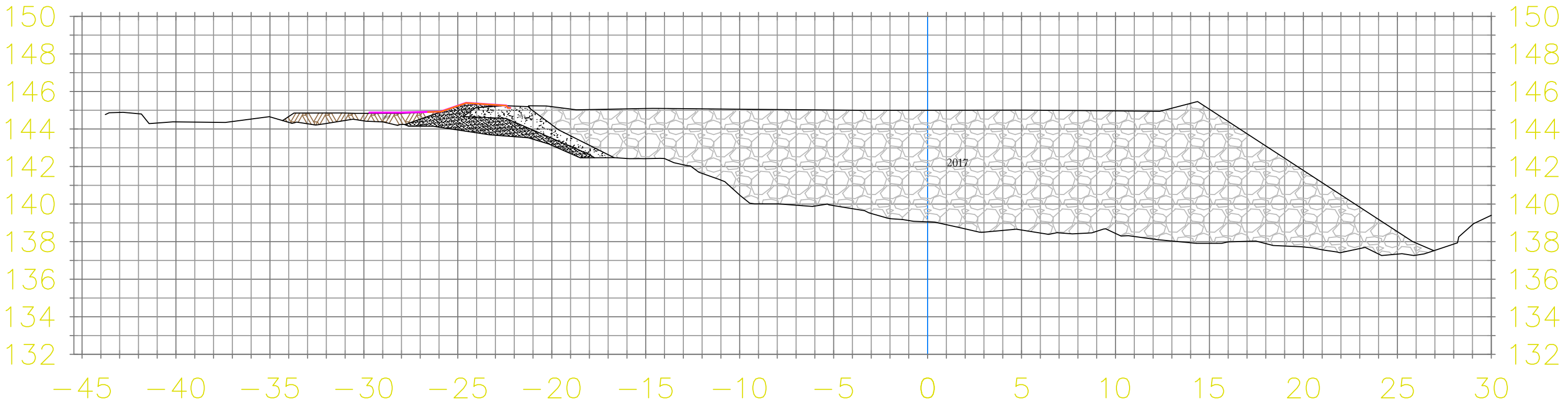
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Qamanittuaq
SANA

PREPARED BY : FRANCIS PEPIN
DATE : 13-10-2017
CON-AD-0001

AS BUILT - SADDLE DAM 4
DYKES CONSTRUCTION
CONTRACT # 11-505

SADDLE DAM 4 : 40+450



- ROCKFILL
- COARSE FILTER (0-150 MM)
- FINE FILTER (0-20 MM)
- FINE ROCKFILL
- COMPACTED TILL
- LOW QUALITY TILL
- LLPDE
- GEOTEXTILE

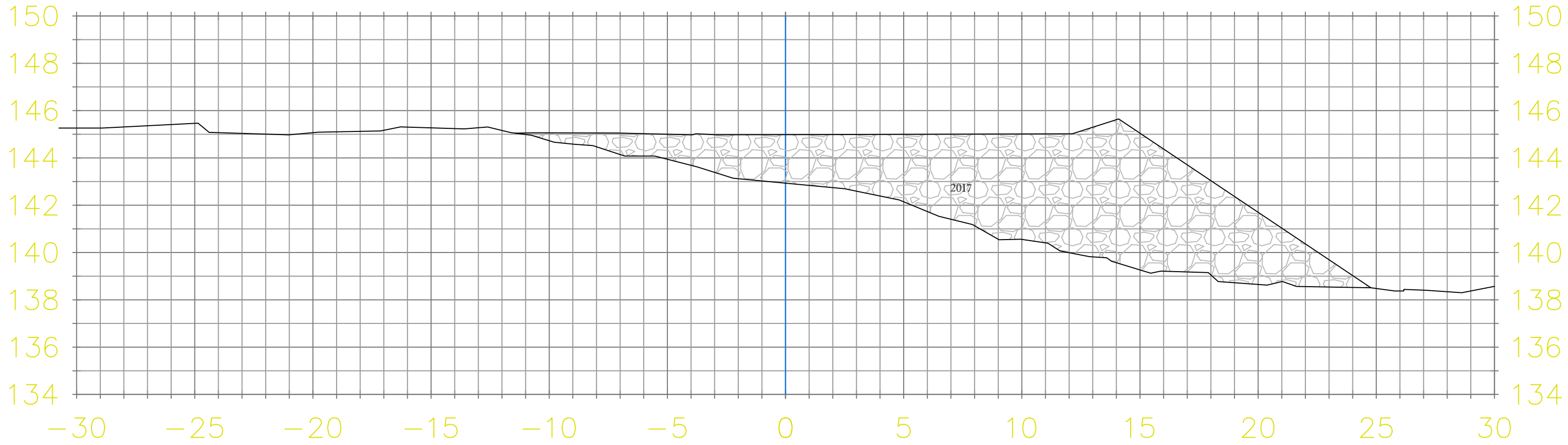
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D/B/A :
Qamanittuaq
SANA

PREPARED BY : FRANCIS PEPIN
DATE : 13-10-2017
CON-AD-0001

AS BUILT - SADDLE DAM 4
DYKES CONSTRUCTION
CONTRACT # 11-505

SADDLE DAM 4 : 40+500



- ROCKFILL
- COARSE FILTER (0-150 MM)
- FINE FILTER (0-20 MM)
- FINE ROCKFILL
- COMPACTED TILL
- LOW QUALITY TILL
- LLPDE
- GEOTEXTILE

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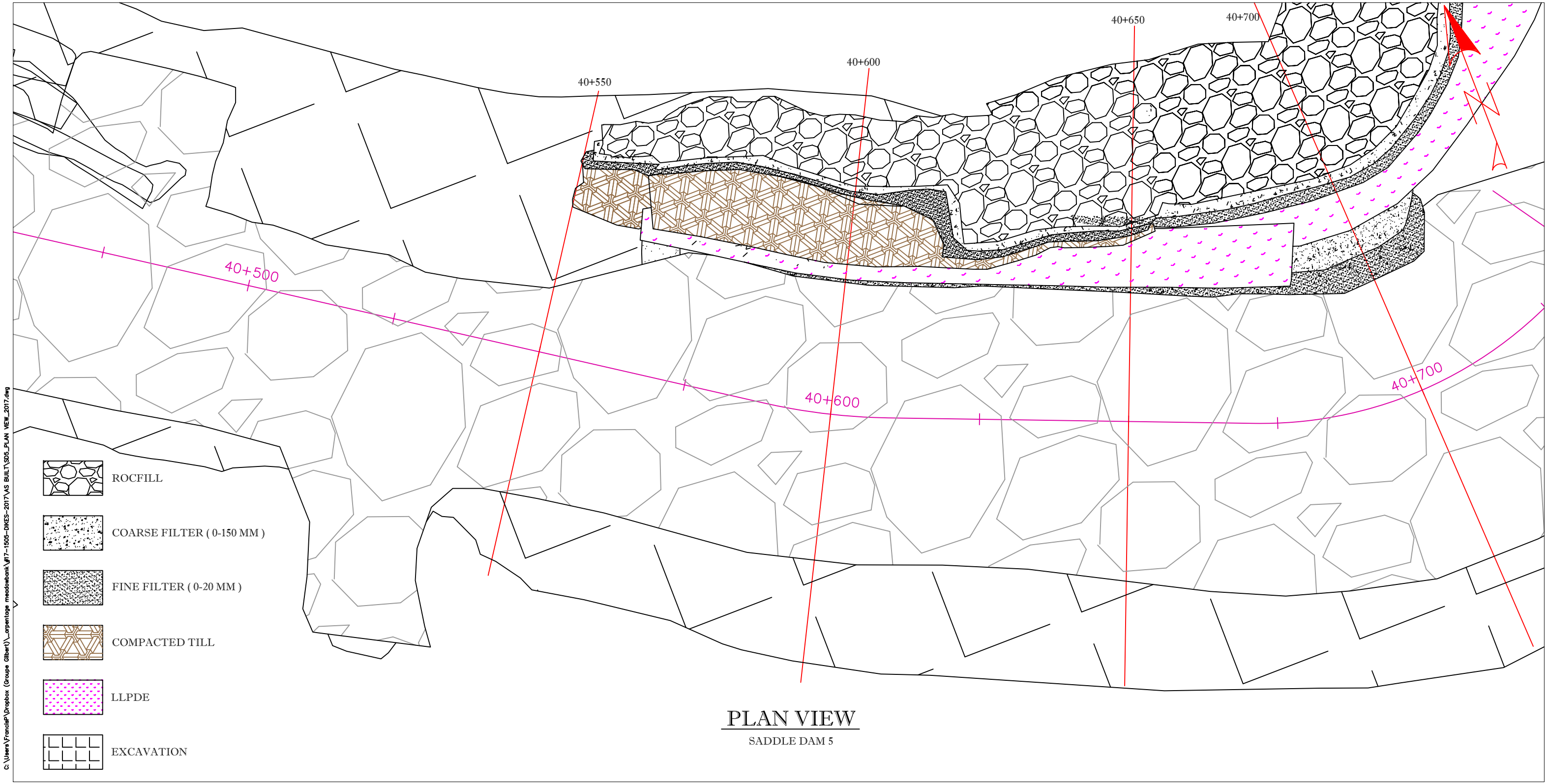
984246 N.W.T. Limited
D/B/A :
Qamanittuaq
SANA

PREPARED BY : FRANCIS PEPIN
DATE : 13-10-2017
CON-AD-0001

APPENDIX A4 - AS-BUILT DRAWINGS

SADDLE DAM 5 STAGE 3

AS BUILT - SADDLE DAM 5
DYKES CONSTRUCTION
CONTRACT # 11-505



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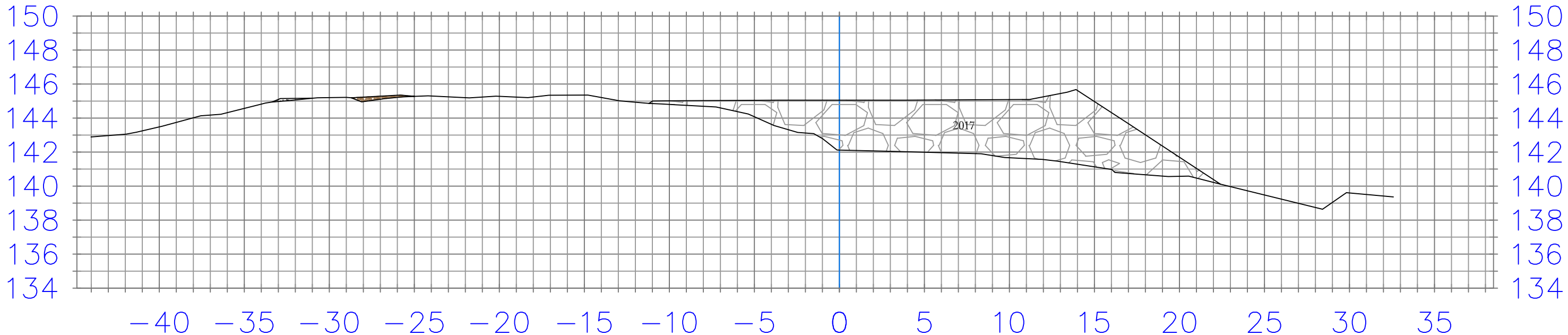
PLAN VIEW
SADDLE DAM 5

984246 N.W.T. Limited
D/B/A :
Qamanittuaq
SANA

PREPARED BY : FRANCIS PEPIN
DATE : 14-10-2017
CON-AD-0002

AS BUILT - SADDLE DAM 5
DYKES CONSTRUCTION
CONTRACT # 11-505

SADDLE DAM 5 : 40+550



ROCFILL

COARSE FILTER (0-150 MM)

FINE FILTER (0-20 MM)

COMPACTED TILL

LLPDE

GEOTEXTILE

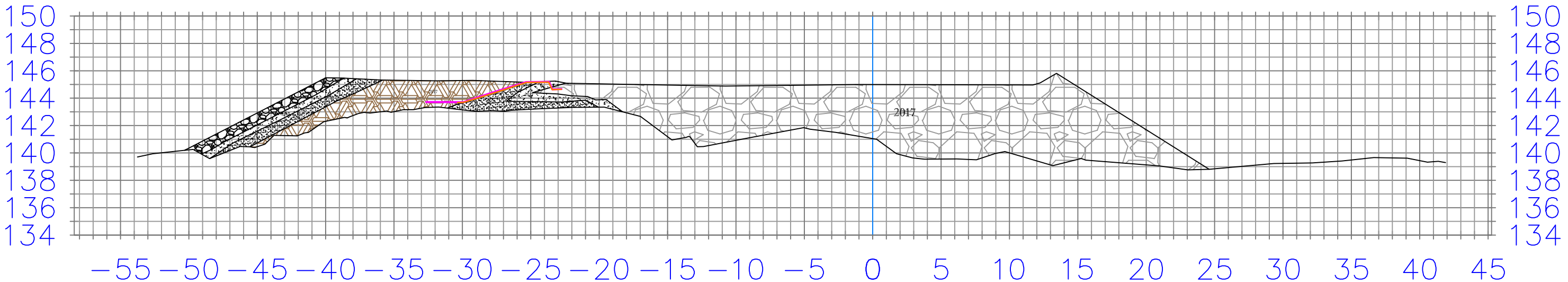
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984246 N.W.T. Limited
D/B/A :
Qamanittuaq
SANA

PREPARED BY : FRANCIS PEPIN
DATE : 14-10-2017
CON-AD-0002

AS BUILT - SADDLE DAM 5
DYKES CONSTRUCTION
CONTRACT # 11-505

SADDLE DAM 5 : 40+600



40+600.000

ROCFILL

COARSE FILTER (0-150 MM)

FINE FILTER (0-20 MM)

COMPACTED TILL

LLPDE

GEOTEXTILE

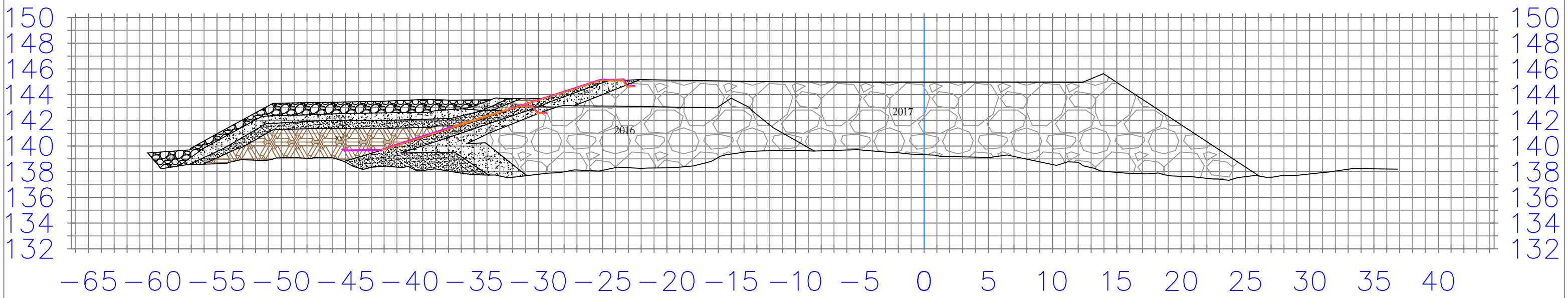
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984246 N.W.T. Limited
D/B/A :
Qamanittuaq
SANA

PREPARED BY : FRANCIS PEPIN
DATE : 14-10-2017
CON-AD-0002

AS BUILT - SADDLE DAM 5
DYKES CONSTRUCTION
CONTRACT # 11-505

SADDLE DAM 5 : 40+650



40+650.000

ROCFILL

COARSE FILTER (0-150 MM)

FINE FILTER (0-20 MM)

COMPACTED TILL

LLPDE

GEOTEXTILE

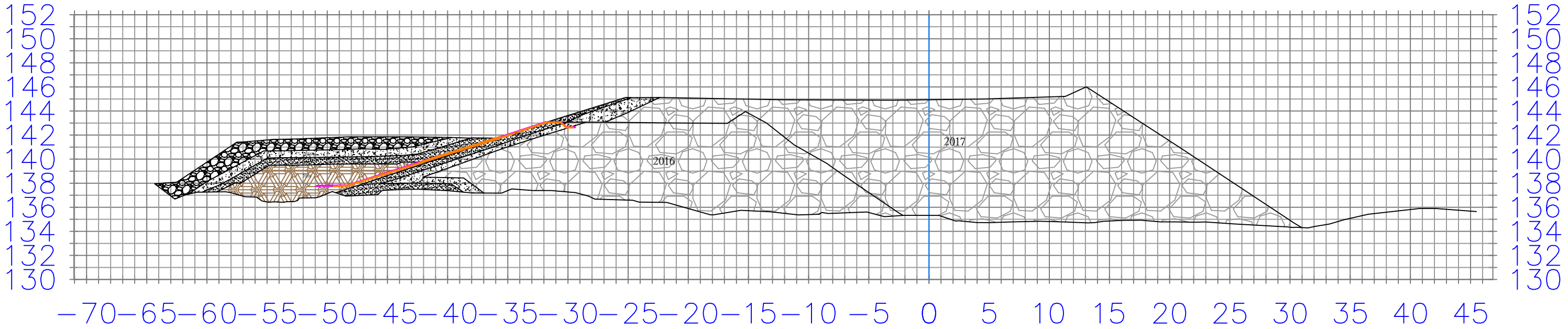
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D/B/A :
Qamanittuaq
SANA

PREPARED BY : FRANCIS PEPIN
DATE : 14-10-2017
CON-AD-0002

AS BUILT - SADDLE DAM 5
DYKES CONSTRUCTION
CONTRACT # 11-505

SADDLE DAM 5 : 40+700



40+700.000

ROCFILL

COARSE FILTER (0-150 MM)

FINE FILTER (0-20 MM)

COMPACTED TILL

LLPDE

GEOTEXTILE

C:\Users\FrancisP\Dropbox (Groupe Gilbert)_arpentage meadowbank\17-1505-DIKES-2017\AS BUILT\505_ASBUILT-2017.dwg

984246 N.W.T. Limited
D/B/A :
Qamanittuaq
SANA

PREPARED BY : FRANCIS PEPIN
DATE : 14-10-2017
CON-AD-0002

APPENDIX B - DESIGN MODIFICATIONS DOCUMENTS

TECHNICAL MEMORANDUM

DATE November 30, 2017 **REFERENCE No.** 1777687-1564-TM-Rev1

TO Patrice Gagnon and Alexandre Lavallée
Agnico Eagle Mines Ltd

CC Michael Groleau, Frédérick Bolduc

FROM Marion Habersetzer and Yves Boulianne **EMAIL** yves_boulianne@golder.com

DESIGN CHANGE FOR THE LLDPE GEOMEMBRANE PROTECTION ON THE UPSTREAM SLOPE OF SADDLE DAM 3

Agnico Eagle Mines Inc. (AEM) requested Golder Associates Ltd. (Golder) to provide a technical opinion regarding the fact that the latest deposition plan shows that free water will be in direct contact with the geomembrane liner of the Saddle Dam 3.

This technical memorandum is reviewing the situation and anticipated conditions, and provides a modified configuration for the LLDPE geomembrane in order to protect it from the water ponding in the South Cell.

Background

Saddle Dam 3 is the South Cell southwestern dike of the Meadowbank Tailings Storage Facilitie (TSF). This structure was raised to El. 145 m during the 2017 construction season. The latest deposition plan, produced by the AEM team from last July 2016, assumed the water level be at El. 141 m in the third quarter of 2018. Currently, the water level is reaching El. 134.5 m and a portion of the LLDPE geomembrane on the upstream slope of Saddle Dam 3 (Sta. 20+600 to 20+680 m approximately) comes in direct contact with the water pond.

The design of the Saddle Dams structure is based on the design basis that consists of maintaining a tailings beach to keep the pond away from the perimeter structures (Doc 1496 1416081-MTA-RevA – SD3-4-5 Design Basics). A tailings beach is to be provided by operations at all times to protect the LLDPE geomembrane from the bio-action, wind, ice and to limit seepage through the structures and their foundations.

The tailings design parameters are:

- Minimum tailings beach length of 20 m from the dike's upstream slope; and
- Minimum freeboard between tailings beach and dike crest of 0.5 m and of 1.0 m between dike crest and water pond.

The minimum tailings beach length and freeboard are to be provided at all times during operations.

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Protection Cover for LLDPE Geomembrane on Saddle Dam 3

Following discussion between Golder and AEM (held on April 29th and June 5th), it was agreed that additional material needs to be placed on the upstream slope of Saddle Dam 3 over the LLDPE geomembrane at the locations where water may pond against the dike.

The main aspect to be considered is that it is not a temporary condition as no tailing is finally planned to be placed along Saddle Dam 3. The LLDPE geomembrane needs to be protected and is not a sufficient product to act as a hydraulic dam. For this reason the protection cover required an additional impermeable barrier and a protection against erosion.

The configuration commonly agreed by Golder and the Meadowbank Engineering Team is presented on Figure 1 below. The proposed configuration includes the placement of a 2.0 m-thick layer of Till, including a 0.5 m-thick layer of sieved till (0 - 50 mm) directly against the LLDPE liner followed by a 1.5 m-thick layer of low quality till (0-300 mm). A 1.0 m-thick layer of fine rockfill (0-500 mm) is placed directly against the 2.0 m-thick layer of Till.

Material placement and compaction shall meet all requirements from technical specification of the dike.

Regarding the low quality till, given that the material is less documented than the sieved till, water content and gradation tests shall be performed to ensure the good quality of the material. In order to avoid void caused by the accumulation of coarse particles (honeycomb), extra monitoring shall be performed by the QA/QC for the placement of the low quality till and the maximum layer thickness shall not exceed 0.5 m.

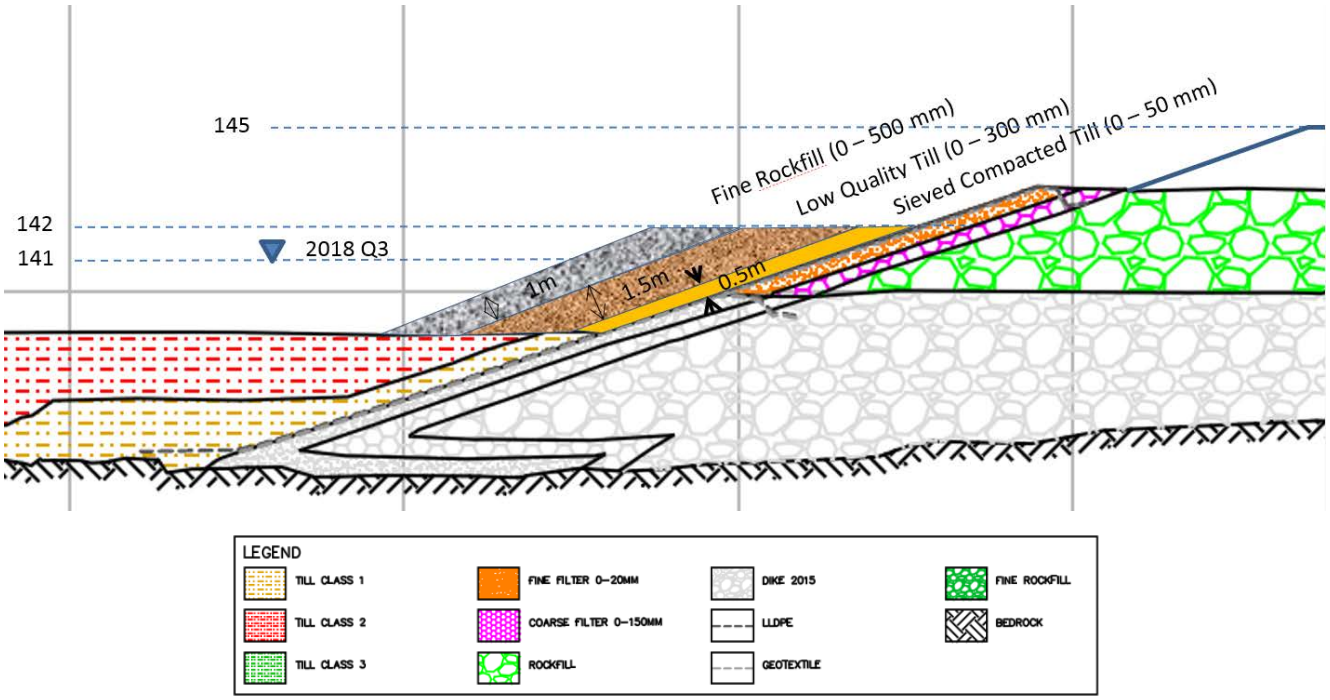


Figure 1: Cross-section for the additional LLDPE geomembrane protection on the upstream slope of Saddle Dam 3

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https://golderassociates.sharepoint.com/sites/13833g/preparation of deliverables/as-built/annexe b - design modifications documents/1777687-1564-tm-rev1 sd3 lldpe cover.docx

Reference

Golder Associés Ltd. 2015. Saddle dams 3, 4 and 5 design basis Meadowbank, project. Ref. no. Doc 1496-14 16081-MTA-RevA.

APPENDIX C - CONSTRUCTION PHOTOGRAPHS

APPENDIX C1 - CENTRAL DIKE NORTH ABUTMENT PREPARATION PHOTOGRAPHS



CD 1770 (4/8/2017) Mixing of the sieved till stockpiles in order to help the thawing. Looking NW from 0+070/-57.



CD 1771 (6/8/2017) Removal of loose rocks and soft and ice-rich soils for foundation preparation from Sta. 0+085 to 0+095 m. Looking SW from 0+080/-60.



CD 1772 (11/8/2017) Removal of loose rocks and soft and ice-rich soils for foundation preparation from Sta. 0+090 to 0+105 m. Looking S from 0+080/-22.



CD 1773 (12/8/2017) View of an ice lens (15 cm) at the surface of the bedrock on the upstream side of the Central Dike footprint. Looking W from 0+100/-9.



CD 1774 (12/8/2017) Removal of loose rocks and soft and ice-rich soils for foundation preparation from Sta. 0+095 to 0+135 m. Looking S from 0+090/-33.



CD 1775 (13/8/2017) Execution of test pits to assess the depth of the natural soil and the thickness of the till layer along the key zone. Looking N from 0+100/-43.



CD 1776 (18/8/2017) Placement of the coarse filter (inverse filter) on the northern part of at El. 145 m from 0+090 to 0+120 m. Looking SE from 0+080/-30.



CD 1777 (19/8/2017) View of the crest of CD at El. 145. The good quality NON-AG rockfill placement is completed. Looking S from 0+080/-20.



CD 1778 (20/8/2017) Compaction of the good quality NON-AG rockfill at El. 145 m from 0+100 to 0+175 m. Looking S from 0+080/-25.



CD 1779 (22/8/2017) Bedrock cleaning of the key trench for the till plug placement from Sta.0+090 to 0+105 m. Looking S from 0+090/-35.



CD 1780 (27/8/2017) Placement of the first 0.5 m thick lift of coarse filter from El. 143 to 143.5 m from Sta. 0+120 to 0+180 m. Looking N from 0+180/-25.



CD 1781 (27/8/2017) Placement of the fourth 0.5 m thick lift of coarse filter from El. 144.5 to 145 m from Sta. 0+100 to 0+180 m. Looking S from 0+080/-36.



CD 1782 (31/8/2017) Bedrock cleaning of the upstream toe liner tie-in with pressurized air stream from Sta. 0+095 to 0+115 m. Looking S from 0+110/-15.



CD 1783 (4/9/2017) Placement of sieved till above the slush grouted cleaned bedrock from Sta. 0+089 to 0+105 m. Looking S from 0+090/-35.



CD 1784 (27/9/2017) View of the placed geotextile on CD from El. 143 to 145 m from Sta. 0+095 to 0+165 m. Looking S from 0+090/-38.



CD 1785 (30/9/2017) View of the placed LLDPE geomembrane on the north part of CD. Looking N from 0+160/-23.



CD 1786 (30/9/2017) View of the excavator placing the second 0.5 m thick lift of sieved till of the upstream toe liner tie-in. Looking S from 0+080/-36.



CD 1787 (1/10/2017) View of the compacted sieved till of the upstream toe liner tie-in from Sta. 40+100 to 40+140 m. Looking S from 0+080/-36.



CD 1788 (2/10/2017) Removal of the thin frozen layer present on the top of the sieved till on the north part of CD. Looking N from 0+160/-23.



CD 1789 (2/10/2017) Placement of a 0.5 m thick lift of till (0-150 mm) from 0+100 to 0+150 m. Looking W from 0+100/-34.



CD 1790 (3/10/2017) Removal of the lift of overly wet 0-150 mm till on the upstream toe liner tie-in from 0+100 to 0+150 m. Looking S from 0+140/-23.



CD 1791 (3/10/2017) Placement a 0.5 m thick lift of sieved till on the upstream toe liner tie-in from 0+100 to 0+150 m. Looking NE from 0+150/-23.



CD 1792 (8/10/2017) Placement of the 0.5 m thick lift of fine filter of the granular protection from Sta. 0+115 to 0+155 m. Looking W from 0+130/-22.



CD 1793 (8/10/2017) Placement of the 0.5 m thick lift of coarse filter of the granular protection from Sta. 0+125 to 0+160 m. Looking NE from 0+165/-27.



CD 1794 (9/10/2017) Placement of the 1 m thick lift of fine UM rockfill of the granular protection from Sta. 0+130 to 0+175 m. Looking E from 0+175/-37.



CD 1795 (11/10/2017) View of Central Dike at the end of the 2017 construction season. Looking S from 0+075/-28.

APPENDIX C2 - SADDLE DAM 3 STAGE 3 PHOTOGRAPHS



SD3 163 (4/7/2017) View of the foundation preparation for the drill and blast. Looking S from 20+570/20.



SD3 164 (4/7/2017) View of the frozen soil (ice/water) on the excavated surface of the downstream side of SD3. Looking N from 20+670/35.



SD3 165 (5/7/2017) View of the drilling activity on the downstream side of SD3 footprint. Looking S from 20+640/26.



SD3 166 (6/7/2017) Preparation for the blast: placement of the mattress over the drilled section. Looking N from 20+690/31.



SD3 167 (8/7/2017) View of the blasted area on the downstream side of SD3. Looking N from 20+700/35.



SD3 168 (9/7/2017) Patch of frozen, ice-rich soil on the northern side of the blasted zone. Looking W from 20+640/42.



SD3 169 (10/7/2017) The footprint of the temporary sump that has been blasted from Sta. 20+590 to 20+600 m. Looking E from 20+580/63.



SD3 170 (11/7/2017) Removal of loose rocks and soft and ice-rich soils near the Quarry 23 from Sta. 20+815 to 20+850 m. Looking NW from 20+845/-31.



SD3 171 (12/7/2017) Scrapping of frozen soil and loading of the material from Sta. 40+590 to 40+620 m. Looking NE from 20+635/-12.



SD3 172 (13/7/2017) Construction of two access ramps from the northern and western sides of the excavation. Looking S from 20+740/21.



SD3 173 (14/7/2017) Orange water is ponding in the southern side of the excavation. Looking N from 20+680/-16.



SD3 174 (15/7/2017) Loading of the excavated material for foundation preparation from Sta. 20+755 to 20+785 m. Looking NE from 20+820/-28.



SD3 175 (15/7/2017) Test pits were executed to assess the depth of the bedrock at the western extremity of SD3. Looking E from 20+880/-55.



SD3 176 (16/7/2017) Loading of the excavated material and clean-up for foundation preparation from Sta. 20+590 to 20+610 m. Looking NW from 20+585/-17.



SD3 177 (17/7/2017) Loading of the excavated material stockpile for foundation preparation from Sta. 20+840 to 20+870 m. Looking W from 20+805/-42.



SD3 178 (18/7/2017) Loading of the excavated material and clean-up for foundation preparation. Looking S from 20+580/0.



SD3 179 (19/7/2017) View of an excavator doing the final clean-up to reach a good quality bedrock on the downstream side of SD3. Looking S from 20+730/15.



SD3 180 (20/7/2017) View of an excavator doing the final clean-up to reach a good quality bedrock on the downstream side of SD3. Looking N from 20+760/4.



SD3 181 (24/7/2017) View of an excavator doing the final clean-up to reach a good quality bedrock on the downstream side of SD3. Looking W from 20+880/-67.



SD3 182 (25/7/2017) View of an excavator doing the final clean-up to reach a good quality bedrock on the downstream side of SD3. Looking NW from 20+881/-41.



SD3 183 (26/7/2017) Excavation of the till like material at the extreme north of SD3 for the connection between SD2 and SD3. Looking N from 20+600/-5.



SD3 184 (26/7/2017) View of one of the two drill holes that have been found in two different blocks on the southern part of SD3. Looking E from 20+845/0.



SD3 185 (26/7/2017) View of an ice lens (30 cm) that was found on a fractured bedrock section of the south part of SD3, probably from frost heave. Looking E from 20+860/-5.



SD3 186 (26/7/2017) Excavated rock downstream of SD3. Notice the rock quality and its blocky pattern, probably from frost heave action due to water infiltration from Quarry 23. From 20+840/-5.



SD3 187 (27/7/2017) Final clean-up of the dike footprint to reach a good quality bedrock from Sta. 20+700 to 20+735 m. Looking N from 20+755/-15.



SD3 188 (28/7/2017) Final clean-up of the dike footprint to reach a good quality bedrock from Sta. 20+610 to 20+640 m. Looking E from 20+620/-8.



SD3 189 (29/7/2017) Placement of a 2 m-thick lift of UM rockfill from Sta. 20+595 to 20+620 to cover the fault zone. Looking NW from 20+615/-14.



SD3 190 (29/7/2017) Final clean-up of the dike footprint to reach a good quality bedrock from Sta. 20+625 to 20+660 m. Looking SW from 20+615/-14.



SD3 191 (30/7/2017) Loading of the excavated material with an excavator from Sta. 20+800 to 20+870 m. Looking E from 20+815/25.



SD3 192 (30/7/2017) Placement of a 2 m-thick lift of UM rockfill from Sta. 20+705 to 20+770 m. Looking SE from 20+780/18.



SD3 193 (30/7/2017) Final clean-up of the dike footprint to reach good quality bedrock from Sta. 20+800 to 20+860 m. Looking E from 20+815/26.



SD3 194 (30/7/2017) Placement of a 2 m-thick lift of UM rockfill from Sta. 20+620 to 20+680 m. Looking N from 20+695/-15.



SD3 195 (31/7/2017) Compaction of the 2.0 m-thick lift of UM rockfill with a compactor from Sta. 20+785 to 20+650 m. Looking N from 20+755/-15.



SD3 196 (31/7/2017) Scarification of the UM rockfill from Sta. 20+595 to 20+740 m. Looking NE from 20+650/16.



SD3 197 (31/7/2017) Final clean-up of the dike footprint to reach good quality bedrock from Sta. 20+820 to 20+845 m. Looking SE from 20+860/14.



SD3 198 (1/8/2017) Placement of a 2.0 m-thick lift of UM rockfill at El. 137 m from Sta. 20+595 to 20+615 m. Looking E from 20+620/47.



SD3 199 (1/8/2017) Final clean-up of the dike footprint to reach good quality bedrock from Sta. 20+800 to 20+880 m. Looking E from 20+800/22.



SD3 200 (1/8/2017) View of visible ice lenses in a fracture of the bedrock on the south part of the SD3 footprint. Looking E from 20+880/22.



SD3 201 (1/8/2017) Compaction of the 2.0 m-thick lift of UM rockfill at El. 137 m from Sta. 20+680 to 20+770 m. Looking N from 20+790/5.



SD3 202 (2/8/2017) Final clean-up of the dike footprint to reach good quality bedrock from Sta. 20+805 to 20+840 m. Looking E from 20+805/8.



SD3 203 (2/8/2017) Profiling the slope of the north part of the downstream side of SD3 from El. 135 to 137 m from Sta. 20+580 to 20+650 m. Looking N from 20+610/22.



SD3 204 (3/8/2017) Placement of a 2 m-thick lift of UM rockfill from El. 137 m to 139 m from Sta. 20+605 to 20+660 m. Looking E from 20+660/49.



SD3 205 (4/8/2017) Compaction of the first 2.0 m-thick lift of UM with a compactor from Sta. 20+795 to 20+895 m. Looking SE from 20+800/-5.



SD3 206 (4/8/2017) Profiling of the slope on the downstream side of SD3 from El. 137 to 139 m from Sta. 20+440 to 20+720 m. Looking S from 20+680/26.



SD3 207 (4/8/2017) Placement of a 2 m-thick lift of UM rockfill from Sta. 20+855 to 20+880 m. Looking E from 20+800/4.



SD3 208 (5/8/2017) Placement of a 2 m-thick lift of UM rockfill from El. 139 to 141 m from Sta. 20+620 to 20+675 m. Looking S from 20+555/9.



SD3 209 (5/8/2017) Removal of loose rocks and soft and ice-rich soils for foundation preparation from Sta. 20+790 to 20+820 m. Looking SW from 20+760/-11.



SD3 210 (6/8/2017) Removal of loose rocks and soft and ice-rich soils for foundation preparation from Sta. 20+855 to 20+880 m. Looking E from 20+840/-17.



SD3 211 (6/8/2017) Compaction of the 2-m thick lift of UM rockfill at El. 141 m from Sta. 20+580 to 20+740 m. Looking NW from 20+595/-18.



SD3 212 (6/8/2017) Removal of the old access road and stockpiling of reusable materials. Looking N from 20+915/-22.



SD3 213 (7/8/2017) Removal of loose rocks and soft and ice-rich soils down to the frozen soil with an excavator. Looking E from 20+850/-7.



SD3 214 (7/8/2017) Removal of loose rocks and soft and ice-rich soils from Sta. 20+575 to 20+580 m. Looking N from 20+590/3.



SD3 215 (8/8/2017) View of a drill hole on the upstream foundation of SD3 (south side). Looking E from 20+805/9.



SD3 216 (8/8/2017) Scarification of the UM rockfill at El. 141 m from Sta. 20+580 to 20+770 m. Looking S from 20+755/-5.



SD3 217 (8/8/2017) Profiling of the downstream slope of SD3 from El. 141 to 143 m from Sta. 20+580 to 20+745 m. Looking N from 20+745/20.



SD3 218 (8/8/2017) Removal of loose rocks and soft and ice-rich soils from Sta. 20+770 to 20+820 m. Looking S from 20+765/-12.



SD3 219 (9/8/2017) Final clean-up of the dike footprint to reach good quality bedrock from Sta. 20+575 to 20+580 m. Looking SW from 20+575/-7.



SD3 220 (9/8/2017) View of an ice lens (40 cm) on the bedrock at the junction between SD2 and SD3. Looking NE from 20+570/-9.



SD3 221 (9/8/2017) Placement of a 2 m thick lift of UM rockfill from El. 141 to 143 m from Sta. 20+640 to 20+715 m. Looking N from 20+710/-24.



SD3 222 (10/8/2017) Compaction of the 2 m thick lift of UM rockfill at El. 143 m from Sta. 20+575 to 20+765 m. Looking SW from 20+580/16.



SD3 223 (11/8/2017) Final clean-up of the dike footprint to reach good quality bedrock and loading of the excavated material from Sta. 20+780 to 20+800 m. Looking S from 20+780/-9.



SD3 224 (11/8/2017) View of an ice lens (30 cm) at the surface of the bedrock on the downstream side of the SD3 footprint. Looking E from 20+795/5.



SD3 225 (12/8/2017) Scarification of the UM rockfill and removal of safety berms at El. 143 m from Sta. 20+575 to 20+780 m. Looking N from 20+775/-7.



SD3 226 (14/8/2017) Profiling of the downstream slope of SD3 from El. 141 to 143 m from Sta. 20+580 to 20+745 m. Looking N from 20+720/17.



SD3 227 (15/8/2017) Placement of a 2 m thick lift of UM rockfill with a dozer from El. 143 to 145 m from Sta. 20+710 to 20+760 m. Looking N from 20+700/-28.



SD3 228 (15/8/2017) Placement a 0.5 m thick lift of fine filter (inverse filter) from Sta. 20+800 to 20+ 815 m. Looking N from 20+780/-20.



SD3 229 (16/8/2017) Placement of a 0.5 m thick lift of fine filter (inverse filter) from Sta. 20+580 to 20+600. Looking S from 20+560/-20.



SD3 230 (16/8/2017) View of the fine/coarse filter (inverse filter) placed and compacted on the upstream side of SD3. Looking N from 20+830/-28.



SD3 231 (16/8/2017) View of the unsheltered remains of LLDPE geomembrane on the north part of SD3. Notice that some rolls are well anchored in the granular material.



SD3 232 (17/8/2017) Compaction of the coarse filter (inverse filter) from 20+580 to 20+610 m. Looking SE from 20+560/-8.



SD3 233 (17/8/2017) Excavation of a ditch from the northern part of SD3 dike toe in order to connect to the sump nearby. Looking S from 20+580/44.



SD3 234 (18/8/2017) View of SD3 done with the rockfill at El. 145 m. Looking S from 20+540/-30.



SD3 235 (20/8/2017) Profiling of the upstream slope (3H:1V) from 20+700 to 20+780 m. Looking N from 20+785/-27.



SD3 236 (21/8/2017) Profiling of the downstream slope (1.5H:1V) on the north part of SD3. Looking N from 20+620/-20.



SD3 237 (21/8/2017) View of an instrumentation pipe coming from the rockfill through the upstream slope of SD3 that will be modified. Looking N from 40+660/-24.



SD3 238 (23/8/2017) Profiling of the upstream slope of from E. 143 to 145 m from Sta. 20+610 to 20+640 m. Looking N from 20+640/-18.



SD3 239 (24/8/2017) View of the profiled upstream slope on SD3 from Sta. 20+750 to 20+580 m. Looking N from 20+790/-16.



SD3 240 (24/8/2017) View of the thermistor pipe being modified on the upstream slope of SD3 (Sta. 20+640/-25 m). Looking W from 20+640/-30.



SD3 241 (28/8/2017) Preparation for the compaction of the first 0.5 m thick lift of fine/coarse filters (material is being wetted) on SD3. Looking N from 20+810/-35.



SD3 242 (29/8/2017) Placement of the third 0.5 m thick lift of coarse filter from El.143.5 to 144 m Looking S from 20+720/-21.



SD3 243 (31/8/2017) Bedrock cleaning of the upstream toe liner tie-in from 20+810 to 20+840 m in prevision of the pressurized air stream cleaning. Looking S from 20+800/-47.



SD3 244 (1/9/2017) Placement of the fourth 0.5 m thick lift of coarse filter from El. 144.5 to 145 m. Looking N from 20+820/-24.



SD3 245 (1/9/2017) Profiling of the upstream slope (3H:1V) from 20+680 to 20+800 m. Looking N from 20+720/-25.



SD3 246 (1/9/2017) Bedrock cleaning of the upstream toe liner tie-in of SD3 with pressurized air stream from 20+815 20+830 m. Looking S from 20+810/-28.



SD3 247 (2/9/2017) Bedrock cleaning of the upstream toe liner tie-in of SD3 with pressurized air stream from Sta. 20+560 to 20+590 m. Looking W from 20+590/-40.



SD3 248 (2/9/2017) Removal of the loose rocks on the upstream toe liner tie-in from Sta. 20+815 to 20+830 m. Looking NW from 20+850/-36.



SD3 249 (3/9/2017) Profiling of the upstream slope (3H:1V) of SD3 from 20+780 to 20+800 m. Looking NW from 20+850/-36.



SD3 250 (6/9/2017) Excavation of the permanent sump on the downstream side of SD3 down to the frozen till from Sta. 20+600 to 20+640 m. Looking N from 20+630/17.



SD3 251 (7/9/2017) Excavation of the permanent sump on the downstream side of SD3 down to the frozen till from Sta. 20+615 to 20+650 m. Looking NW from 20+680/13.



SD3 252 (8/9/2017) Bedrock cleaning of the upstream toe liner tie-in with pressurized air stream from Sta. 20+570 to 20+590 m. Looking NE from 20+605/-34.



SD3 253 (8/9/2017) Placement 0.5 m-thick lift of Compacted Sieved Till at El. 142 m over the LLDPE geomembrane from Sta. 20+640 to 20+740 m. Looking E from 20+750/-25.



SD3 254 (8/9/2017) Cleaning of the upstream slope. Looking S from 20+785/-25.



SD3 255 (9/9/2017) Placement of a 0.5 m-thick, 1.5 m wide lift of second class till over the Compacted Sieved Till lift from Sta. 20+675 to 20+735 m. Looking NE from 20+740/-8.



SD3 256 (9/9/2017) Grouting of the fractured zones in the bedrock surface from Sta. 20+572 + 20+599 m. Looking SW from 20+570/-37.



SD3 257 (9/9/2017) Placement of the 0.5 m thick lift of sieved till above the till covering the slush grout from 20+570 to 20+595 m. Looking SW from 20+590/-43.



SD3 258 (9/9/2017) Compaction of the lift of sieved till above the till covering the slush grout from 20+570 to 20+595 m. Looking E from 20+580/-24.



SD3 259 (10/9/2017) Drilling of the first blast pattern for the sump preparation from Sta. 20+605 to 20+620 m. Looking NW from 20+820/-32.



SD3 260 (10/9/2017) Grouting of the entire cleaned bedrock surface from Sta. 20+797 to 20+817 m. Looking W from 20+825/-38.



SD3 261 (10/9/2017) Placement of a thin lift of till to fill the depressions and to allow a good contact before the grout dries. Looking SW from 20+840/-39.



SD3 262(10/9/2017) Compaction of the wetted sieved till lift on the south extremity of SD3. Looking SW from 20+785/-34.



SD3 263 (10/9/2017) Compaction of the wetted sieved till lift on the north extremity of SD3. Looking N from 20+600/-37.



SD3 264 (11/9/2017) Placement of a 0.5 m thick, 1.5 m wide lift of low quality till at El. 140 m from Sta. 20+640 to 20+745 m. Looking W from 20+700/-60.



SD3 265 (11/9/2017) Removal of a section of low quality till at El. 139.5 m that was too wet for compaction from Sta. 20+635 to 20+640 m. Looking NE from 20+740/-52.



SD3 266 (12/9/2017) Placement of a 0.5 m thick, 1.5 m wide lift of low quality till at El. 140.5 m from Sta. 20+620 to 20+745 m. Looking S from 20+670/-40.



SD3 267 (13/9/2017) Placement of a 1.5 m thick, 1 m wide lift of fine UM rockfill at El. 140.5 m from Sta. 20+635 to 20+750 m. Looking N from 20+750/-42.



SD3 268 (13/9/2017) Completion of the 0.5 m thick lift of compacted sieved till up to El. 142 m from Sta. 20+680 to 20+750 m. Looking W from 20+600/-25.



SD3 269 (14/9/2017) Placement of a 0.5 m high, 1.5 m thick lift of low quality till at El. 141 m from Sta. 20+670 to 20+735 m. Looking S from 20+630/-25.



SD3 270 (15/9/2017) Placement of a 0.5 m high, 1.5 m thick lift of low quality till at El. 141 m from Sta. 20+630 to 20+680 m. Looking N from 40+840/-52.



SD3 271 (16/9/2017) Removal of blast mats and excavation of the blasted material to prepare the next blast pattern from Sta. 20+620 to 20+635 m. Looking NW from 20+655/14.



SD3 272 (16/9/2017) Digging of small trenches with the excavator to drain the water ponding on the compacted surfaces. Looking NE from 20+720/-35.



SD3 273 (16/9/2017) Placement of a 0.5 m high, 1.5 m thick lift of low quality till at El. 141.5 m from Sta. 20+620 to 20+650 m. Looking W from 20+645/-69.



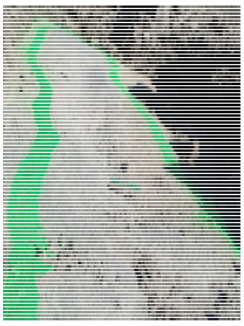
SD3 274 (17/9/2017) Drilling of the first blast pattern for the sump preparation from Sta. 20+620 to 20+635 m. Looking NW from 20+640/16.



SD3 275 (17/9/2017) Placement of a 0.5 m high, 1.5 m thick lift of low quality till at El. 142 m from Sta. 20+630 to 20+720 m. Looking E from 20+720/-33.



SD3 276 (17/9/2017) Placement of a 1.5 m high, 1 m thick lift of fine UM rockfill at El. 142 m from Sta. 20+650 to 20+735 m. Looking S from 20+715/-28.



SD3 277 (17/9/2017) Damaged LLDPE liner on the north part of SD3. Looking N from 20+620/-49.



SD3 278 (19/9/2017) Placement of a 1.5 m high, 1 m thick lift of fine UM rockfill at El. 142 m from Sta. 20+625 to 20+670 m. Looking W from 40+650/-61.



SD3 279 (20/9/2017) View of the first blast of the sump of SD3. Looking W from 20+650/-16.



SD3 280 (20/9/2017) Placement of a 2.0 m thick lift of fine UM rockfill up to El. 140 m from Sta. 20+620 to 20+660 m. Looking E from 20+660/-42.



SD3 281 (21/9/2017) Removal of the compacted sieved till layer underneath the LLDPE geomembrane where the liner was damaged by the compactor. Looking NE from 20+620/-40.



SD3 282 (22/9/2017) View of the reparation of the liner that was damaged by the compactor on the north part of SD3. Looking NE from 20+620/-40.



SD3 283 (22/9/2017) Excavation of the blasted material of the SD3's permanent sump (Sta. 20+620 to 20+635 m). Looking E from 20+380/-20.



SD3 284 (23/9/2017) Excavation of the blasted material of the SD3's sump (Sta. 20+620 to 20+635 m). Looking NW from 20+655/-14.



SD3 285 (24/9/2017) Excavation of the blasted material of the SD3's sump (Sta. 20+620 to 20+635 m). Looking NW from 20+655/-14.



SD3 286 (25/9/2017) Excavation of the blasted material of the SD3's sump (Sta. 20+620 to 20+635 m). Looking NW from 20+655/-14.



SD3 287 (27/9/2017) Excavation of the channel between the old and the new sump with the "tramack hammer" and an excavator from 20+580 to 20+620 m. Looking SW from 20+575/-10.



SD3 288 (28/9/2017) View of the permanent sump at SD3. Notice the channel between the old and the new sump. Looking S from 20+570/20.



SD3 289 (29/9/2017) Sloping of the south ditch of the downstream dike toe of SD3. Looking SW from 20+620/-17.



SD3 290 (30/9/2017) View of the hole that was dig for the LLDPE geomembrane repair. Looking NE from 20+620/-40.



SD3 291 (1/10/2017) Placement of a 2.0 m thick lift of fine UM rockfill up to El. 142 m on the north extremity of SD3 from 20+620 to 20+660 m. Looking N from 20+680/-42.



SD3 292 (8/10/2017) View of the hole in the repair patch on SD3 (approx. Sta. 20+780 m). Looking NW from 20+780/-31.



SD3 293 (8/10/2017) Placement of the remaining layers of till plug and granular protection from Sta. 20+770 to 20+790 m. Looking SE from 20+750/-50.



SD3 294 (9/10/2017) Placement of the 1 m thick, 2 m high lift of fine UM rockfill from Sta. 20+735 to 20+780 m. Looking SW from 20+615/-60.



SD3 295 (10/10/2017) Compaction of the 1 m thick, 2 m high lift of fine UM rockfill of the erosion protection from 20+620 to 20+660 m. Looking SW from 20+620/-73.



SD3 296 (11/10/2017) View of SD3 at the end of the 2017 construction season. Looking SW from 20+600/-41.

APPENDIX C3 - SADDLE DAM 4 STAGE 3 PHOTOGRAPHS



SD4 105 (27/6/2017) View of the excavated footprint of the downstream side of the SD4 from Sta. 40+430 to 40+020. Looking NW from 40+430/20.



SD4 106 (29/6/2017) Excavation of the loose rocks and soft and ice-rich soils. Looking NE from 40+480/30.



SD4 107 (30/6/2017) Loading of the excavated material in view of the foundation approval. Looking E from 40+480/30.



SD4 108 (1/7/2017) Loading of the excavated material in view of the foundation approval. Looking W from 40+370/-19.



SD4 109 (1/7/2017) Excavation of the loose rocks and soft and ice-rich soils. Looking NE from 40+450/-37.



SD4 110 (2/7/2017) Removal of the old access road in view of the foundation approval. Looking NW from 40+580/-20.



SD4 111 (2/7/2017) Final clean-up of the footprint in view of the foundation approval. Looking E from 40+370/-14.



SD4 112 (3/7/2017) Loading of the excavated material for the foundation approval. Looking NE from 40+550/-24.



SD4 113 (7/7/2017) Compaction of the first UM rockfill lift. Looking NE from 40+525/0.



SD4 114 (9/7/2017) Loading of the excavated material for the foundation approval. Looking NW from 40+365/19.



SD4 115 (9/7/2017) Placement of a 1 m lift of UM rockfill. Looking SE from 40+340/15.



SD4 116 (9/7/2017) View of mud coming at the surface of the UM rockfill at isolated spots during compaction. Looking N from 40+295/-2.



SD4 117 (9/7/2017) Removal of the muddy UM rockfill spots with an excavator. Looking NW from 40+315/-1.



SD4 118 (10/7/2017) View of water ponding on the compacted UM rockfill. Looking SW from 40+325/3.



SD4 119 (10/7/2017) Loading of the excavated material for the foundation approval. Looking E from 40+380/3.



SD4 120 (11/7/2017) View of water ponding on the compacted UM rockfill. Looking S from 40+315/6.



SD4 121 (12/7/2017) Placement of a 1 m thick lift of UM rockfill from Sta. 40+295 to 40+330 m. Looking E from 40+330/18.



SD4 122 (13/7/2017) Final clean-up of the dike footprint in view of a foundation approval. Looking W from 40+230/-14.



SD4 123 (14/7/2017) Loading of the excavated material for the foundation approval. Looking S from 40+430/1.



SD4 124 (15/7/2017) Final clean-up of the dike footprint in view of a foundation approval. Looking S from 40+420/8.



SD4 125 (18/7/2017) Placement of a 1.5 m thick lift of UM rockfill from Sta. 40+290 to 40+230 m. Looking SE from 40+740/30.



SD4 126 (19/7/2017) Placement of a 1.5 m thick lift of UM rockfill from Sta. 40+240 to 40+230 m. Looking SE from 40+200/-20.



SD4 127 (20/7/2017) Placement of a 1.5 m thick lift of UM rockfill from Sta. 40+460 to 40+540 m. Looking NE from 40+480/60.



SD4 128 (22/7/2017) Final clean-up of the dike footprint in view of a foundation approval. Looking N from 40+260/-29.



SD4 129 (23/7/2017) Placement of a 2.0 m thick lift of UM rockfill from Sta. 40+420 to 40+460 m. Looking S from 40+420/0.



SD4 130 (23/7/2017) Final clean-up of the dike footprint in view of a foundation approval. Looking NW from 40+158/15.



SD4 131 (26/7/2017) Placement of a 2.0 m-thick lift of UM rockfill with a dozer from El. 137 to 139 m from Sta. 40+270 to 40+410 m. Looking E from 40+280/31.



SD4 132 (27/7/2017) Scarification of the UM rockfill at El. 139 m from Sta. 40+240 to 40+210 m. Looking E from 40+380/54.



SD4 133 (27/7/2017) View of the UM rockfill containing high fine particles. Looking SW from 40+580/-13.



SD4 134 (28/7/2017) Placement of a 1.5 m thick lift of UM rockfill from El. 140 to 141.5 m from Sta. 40+480 to 40+620 m. Looking SW from 40+570/-5.



SD4 135 (31/7/2017) Placement of a 1.5 m thick lift of UM rockfill from El. 140 to 141.5 m from Sta. 40+420 to 40+450 m. Looking W from 40+430/-21.



SD4 136 (2/8/2017) Placement of a 1.5 m thick lift of UM rockfill from El. 140 to 141.5 m from Sta. 40+290 to 40+410 m. Looking W from 40+355/-13.



SD4 137 (3/8/2017) Compaction of the 1.5 m-thick lift of UM rockfill at El. 141.5 m with a compactor from Sta. 40+290 to 40+410 m. Looking NE from 40+400/7.



SD4 138 (3/8/2017) Scarification of the UM rockfill at El. 141.5 m from Sta. 40+300 to 40+470 m. Looking SE from 40+360/11.



SD4 139 (3/8/2017) Profiling the downstream slope of SD4 from El. 138.5 to 141.5 m from Sta. 40+440 to 40+600 m.. Looking N from 40+670/11.



SD4 140 (3/8/2017) Removal of the safety berms on the downstream side of SD4 at El. 141.5 m from Sta. 40+300 to 40+520 m. Looking N from 40+520/26.



SD4 141 (4/8/2017) Sloping of the downstream side of SD4 from Sta. 40+305 to 40+420 m. Looking W from 40+510/22.



SD4 142 (5/8/2017) Compaction of the 1.5 m-thick lift of UM rockfill at El. 141.5 m from Sta. 40+235 to 40+310 m. Looking E from 40+230/34.



SD4 143 (6/8/2017) Placement of a 1.5 m-thick lift of UM rockfill from El. 141.5 to 143 m from Sta. 40+540 to 40+600 m. Looking W from 40+640/61.



SD4 144 (7/8/2017) Placement of a 1.5 m-thick lift of UM rockfill from El. 141.5 to 143 m from Sta. 40+370 to 40+460 m. Looking S from 40+425/5.



SD4 145 (8/8/2017) Compaction of the 1.5 m thick lift of UM rockfill at El. 143 m from Sta. 40+345 to 40+420 m. Looking SW from 40+430/11.



SD4 146 (9/8/2017) Compaction of the 1.5 m thick lift of UM rockfill at El. 143 m from Sta. 40+180 to 40+345 m. Looking SW from 40+220/-14.



SD4 147 (10/8/2017) Profiling of the downstream slope of SD4 from El. 141.5 to 143 m from Sta. 40+165 to 40+550 m. Looking S from 40+450/34.



SD4 148 (10/8/2017) Compaction of the UM rockfill from Sta. 40+165 to 40+425 m. Looking N from 40+370/14.



SD4 149 (10/8/2017) Placement of a 2 m thick lift of UM rockfill from El. 143 to 145 m from Sta. 40+560 to 40+600 m. Looking S from 40+545/-17.



SD4 150 (12/8/2017) Placement of a 2 m thick lift of UM rockfill from El. 143 to 145 m from Sta. 40+360 to 40+450 m. Looking SW from 40+420/-27.



SD4 151 (13/8/2017) Compaction of a 2 m thick lift of UM rockfill at El. 145 m from Sta. 40+430 to 40+520 m. Looking N from 40+530/10.



SD4 152 (13/8/2017) Placement of a 2 m thick lift of UM rockfill from El. 143 to 145 m from Sta. 40+265 to 40+325 m. Looking S from 40+420/-22.



SD4 153 (13/8/2017) Placement of two 0.5 m thick lift of fine filter (inverse filter) from Sta. 40+430 to 40+485 m. Looking NW from 40+475/-20.



SD4 154 (14/8/2017) Placement of two 0.5 m thick lift of fine filter (inverse filter) from Sta. 40+430 to 40+485 m. Looking N from 40+440/-28.



SD4 155 (14/8/2017) Placement of a 2 m thick lift of UM rockfill from El. 143 to 145 m from Sta. 40+120 to 40+190 m. Looking SE from 40+165/15.



SD4 156 (15/8/2017) Placement a 0.5 m thick lift of fine filter (inverse filter) from Sta. 40+100 to 40+ 120 m. Looking SE from 40+090/-20.



SD4 157 (15/8/2017) Profiling of the the downstream slope of SD4 (1.5H:1V) from El. 143 to 145 from Sta. 40+440 to 40+520 m Looking NW from 40+500/15.



SD4 158 (18/8/2017) Placement of a 0.5 m thick lift of fine/coarse filter up to El. 143.5 m from Sta. 40+420 to 40+520 m. Looking S from 40+410/-20.



SD4 159 (20/8/2017) Bedrock cleaning of the key trench from Sta. 40+560 to 40+580 m. Looking E from 40+580/-30.



SD4 160 (22/8/2017) Placement of the second 0.5 m thick lift of coarse filter from El. 143.5 to 144 m from Sta. 40+420 to 40+300 m. Looking E from 40+280/-20.



SD4 161 (22/8/2017) Bedrock cleaning of the key trench from Sta. 40+090 to 40+105 m. Looking E from 40+090/-40.



SD4 162 (22/8/2017) Compaction of the second 0.5 m thick lift of fine/coarse filters at El. 144 m from Sta. 40+120 to 40+440 m Looking E from 40+220/-24.



SD4 163 (22/8/2017) View of the modified thermistor pipe that came from rockfill through the upstream slope of SD4 (Sta. 40+290/-25 m). Looking E from 40+280/-25.



SD4 164 (23/8/2017) Placement of the third 0.5 m thick lift of coarse filter from El. 144 to 144.5 m from Sta. 40 +290 to 40+120 m. Looking E from 40+210/-20.



SD4 165 (24/8/2017) Placement of the fourth 0.5 m thick lift of fine filter from El. 144.5 to 145 m from Sta. 40+270 to 40+440 m. Looking E from 40+290/-24.



SD4 166 (25/8/2017) Bedrock cleaning on the southern part of the upstream toe liner tie-in with pressurized air stream Looking W from 40+320/25.



SD4 167 (25/8/2017) Placement of the fourth 0.5 m thick lift of fine filter from El. 144.5 to 145 m from Sta. 40+120 to 40+270 m. Looking W from 40+480/-23.



SD4 168 (26/8/2017) View of the upstream slope of SD4. The filters and the profiling are completed (from 20+120 to 20+440 m). Looking W from 40+420/-23.



SD4 169 (26/8/2017) Modification of the upstream slope from Sta. 40+570 to 40+600 m. Looking W from 40+605/-36.



SD4 170 (27/8/2017) Bedrock cleaning of the upstream toe liner tie-in of SD4 between 40+420 to 40+465 m. Looking N from 40+605/-31.



SD4 171 (28/8/2017) Bedrock cleaning of the upstream toe liner tie-in of SD4 between 40+420 to 40+465 m. Looking E from 40+420/-32.



SD4 172 (30/8/2017) View of the faulted zone on the upstream toe liner tie-in of SD4 being generously slush grouted. Looking S from 40+574/-40.



SD4 173 (30/8/2017) View of the fault zone on the upstream toe liner tie-in of SD4 being filled with sieved compacted till. Looking NW from 40+582/-30.



SD4 174 (31/8/2017) Placement of the 0.5 m thick lift of sieved till over the cleaned bedrock of the upstream toe liner tie-in. Looking E from 40+418/-35.



SD4 175 (3/9/2017) View of the upstream toe liner tie-in of the western part of SD4 being generously "slush grouted" from Sta. 40+098 + 40+106 m. Looking N from 40+106/-20.



SD4 176 (14/9/2017) Excavation of the geosynthetics crest tie-in trench from Sta. 40+105 to 40+250 m. Looking S from 40+250/-24.



SD4 177 (18/9/2017) Damaged existing LLDPE geomembrane on SD4. Looking E from 40+170/-30.



SD4 178 (19/9/2017) Excexcavation of the geosynthetics crest tie-in trench from Sta. 40+250 to 40+440 m. Looking W from 40+440/-25.



SD4 179 (19/9/2017) Scarification of the till plug outside the liner footprint from Sta. 40+100 to 40+110 m. Looking S from 40+110/-24.



SD4 180 (19/9/2017) LLDPE geomembrane damaged by the compactor on the western part of SD4. Looking W from 40+100/-32.



SD4 181 (21/9/2017) Clean-up of the existing LLDPE geomembrane with pressurized air stream. Looking E from 40+380/-20.



SD4 182 (22/9/2017) View of the geotextile placed over the upstream fine filter slope on the west part of SD4 from Sta. 40+100 to 40+190 m. Looking W from 40+190/-23.



SD4 183 (22/9/2017) View of the LLDPE geomembrane placed over the geotextile on the west part of SD4 from Sta. 40+100 to 40+190 m. Looking E from 40+100/-26.



SD4 184 (23/9/2017) View of the bad weather (snow) on the September 23rd that explained the geosynthetics installation delay. Looking W from 40+190/-23.



SD4 185 (23/9/2017) View of the LLDPE geomembrane placed over the geotextile on the west part of SD4 from Sta. 40+190 to 40+220 m. Looking W from 40+225/-23.



SD4 186 (24/9/2017) Placement of the LLDPE geomembrane on SD4 from Sta. 40+220 to 40+315 m. Looking W from 40+320/-22.



SD4 187 (25/9/2017) Placement of the LLDPE geomembrane on SD4 from Sta. 40+315 to 40+455 m. Looking W from 40+460/-23.



SD4 188 (26/9/2017) Completion of the extrusion seaming at the eastern part of SD4, from Sta. 40+400 to 40+415 m. Looking W from 40+420/-33.



SD4 189 (28/9/2017) Compaction of the second 0.5 m thick lift of sieved till of the upstream toe liner tie-in. Looking NW from 40+120/-23.



SD4 190 (29/9/2017) Excavation on the upstream side of SD4 from Sta. 40+390 to 40+440 m. Looking SW from 40+440/-36.



SD4 191 (4/10/2017) Removal of the frozen till layer from Sta. 40+410 to 40+450 m. Looking S from 40+385/-18.



SD4 192 (4/10/2017) Placement of the first 0.5 m thick lift of sieved till over the LLDPE geomembrane from Sta. 40+410 to 40+450 m. Looking SE from 40+410/-29.



SD4 193 (5/10/2017) Placement of the second 0.5 m thick lift of sieved till over the LLDPE geomembrane from Sta. 40+400 to 40+430 m Looking NE from 40+430/-17.



SD4 194 (5/10/2017) View of the cracks in the compacted sieved till layer (approx. El. 145 m). Looking SW from 40+440/-36.



SD4 195 (6/10/2017) Compaction of the first 0.5 m thick lift of sieved till over the LLDPE liner. Looking N from 40+125/-20.



SD4 196 (6/10/2017) Placement of the 0.5 m thick lift of the granular protection from Sta. 40+390 to 40+445 m Looking NW from 40+450/-33.



SD4 197 (6/10/2017) Placement of the 0.5 m thick lift of the granular protection from Sta. 40+390 to 40+435 m. Looking NW from 40+415/-25.



SD4 198 (7/10/2017) Placement of the 0.5 m thick lift of fine filter of the granular protection from Sta. 40+400 to 40+425 m. Looking SE from 40+390/-25.



SD4 199 (7/10/2017) Completion of the 0.5 m thick lift of sieved till over the LLDPE liner from Sta. 40+115 to 40+120 m. Looking N from 40+150/-23.



SD4 200 (8/10/2017) Placement of the 0.5 m thick lift of fine filter of the granular protection from Sta. 40+110 to 40+130 m.. Looking N from 40+155/-23.



SD4 201 (8/10/2017) Placement of the 0.5 m thick lift of coarse filter of the granular from Sta. 40+395 to 40+420 m. Looking SE from 40+395/-17.



SD4 202 (10/10/2017) Placement of the 1 m thick lift of fine UM rockfill of the granular protection from Sta. 40+105 to 40+130 m. Looking N from 40+170/-24.



SD4 203 (11/10/2017) View of SD4 at the end of the 2017 construction season. Looking NW from 40+405/-46.

APPENDIX C4 - SADDLE DAM 5 STAGE 3 PHOTOGRAPHS



SD5 043 (27/6/2017) Excavation of the loose rocks and soft and ice-rich soils. Looking W from 40+720/-50.



SD5 044 (28/6/2017) Excavation of the loose rocks and soft and ice-rich soils. Looking SE from 40+540+15.



SD5 045 (29/6/2017) Excavation of the loose rocks and soft and ice-rich soils. Looking SE from 40+540/0.



SD5 046 ((30/6/2017)) Placement of a 1 m thick lift of UM rockfill with a dozer. Looking SW from 40+620/10.



SD5 047 (5/7/2017) Loading of the excavated material of the foundation preparation. Looking E from 40+630/23.



SD5 048 (6/7/2017) Placement of a 1 m thick lift of UM rockfill. Looking W from 40+750/-10.



SD5 049 (8/7/2017) Loading of the excavated material of the foundation preparation, clean-up of the dike footprint and compaction of the UM rockfill lift Looking E from 40+640/8.



SD5 050 (10/7/2017) Final clean-up of the footprint with an excavator to reach a good quality bedrock Looking E from 40+695/-24.



SD5 051 (11/7/2017) Final clean-up of the footprint with an excavator to reach a good quality bedrock. Looking S from 40+350/-21.



SD5 052 (17/7/2017) Placement of a 1.5 m thick lift of UM rockfill from Sta. 40+740 to 40 +700 m up to El. 135 m. Looking N from 40+735/36.



SD5 053 (18/7/2017) View of the 10 tonne compactor compacting the first 1.5 m thick lift of UM rockfill. Looking NW from 40+740/30.



SD5 054 (21/7/2017) View of a dozer placing a 2 m-thick lift of UM rockfill from Sta.40+660 to 40+720 m Looking W from 40+680/18.



SD5 055 (22/7/2017) View of a dozer placing a 2 m-thick lift of UM rockfill from Sta.40+720 to 40+740 m. Looking NW from 40+720/43.



SD5 056 (24/7/2017) View of a dozer placing a 2 m-thick lift of UM rockfill from El. 137 to 139 m from Sta.40+680 to 40+740 m. Looking NW from 40+720/43.



SD5 057 (25/7/2017) View of a dozer placing a 2 m-thick lift of UM rockfill from El. 137 to 139 m from Sta.40+700 to 40+720 m. Looking NW from 40+750/60.



SD5 058 (27/7/2017) Placement of a 1.5 m-thick lift of UM rockfill with a dozer from El. 138.5 to 140 m from Sta. 40+660 to 40+725 m. Looking NW from 40+750/60.



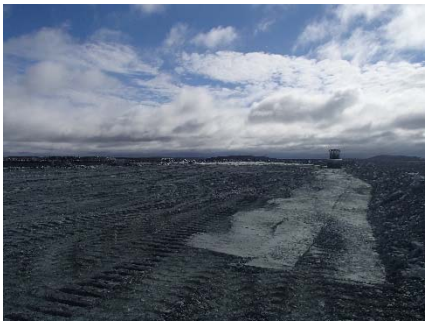
SD5 059 (28/7/2017) Compaction of a 1.5 m-thick lift of UM rockfill with a compactor (6 passes) at El. 140 m from Sta. 40+640 to 40+735 m. Looking N from 0+710/9.



SD5 060 (2/8/2017) Scarification of the UM rockfill at El. 141.5 m from Sta. 40+590 to 40+730 m. Looking E from 40+700/13.



SD5 061 (2/8/2017) View of oversized boulders (larger than 1.3 m) on the edge of the lift on SD5. Looking S from 40+700/9.



SD5 062 (7/8/2017) Compaction of the 1.5 m thick lift of UM rockfill at El. 143 from Sta. 40+600 to 40+740 m. Looking S from 40+615/9.



SD5 063 (8/8/2017) Scarification of the UM rockfill on the downstream side of SD5 at El. 143 m from Sta. 40+600 to 40+745 m. Looking S from 40+535/5.



SD5 064 (11/8/2017) Placement of a 2 m thick lift of UM rockfill with a dozer from El. 143 to 145 m from Sta. 40+600 to 40+730 m. Looking S from40+600/-8.



SD5 065 (12/8/2017) Placement of the first 0.5 m thick lift of fine filter (invert filter) with an excavator at El. 143.8 m from Sta. 40+560 to 40+620 m. Looking N from 40+580/-34.



SD5 066 (12/8/2017) Placement of a 0.5 m thick lift of coarse filter (invert filter) with an excavator at El. 144.3 m from Sta. 40+550 to 40+580 m. Looking S from 40+550/-30.



SD5 067 (13/8/2017) Placement of a 0.5 m thick lift of coarse filter (inverse filter) with an excavator at El. 144.7 m from Sta. 40+580 to 40+620 m. Looking S from 40+580/-30.



SD5 068 (17/8/2017) View of the sloping of the upstream side of SD5 (3H:1V) from El. 143 to 145 m with an excavator between Sta. 40+580 to 40+730 m. Looking W from 40+730/-22.



SD5 069 (19/8/2017) Placement of the fourth 0.5 m thick lift of coarse filter with an excavator from El. 144.5 to 145 m from Sta. 40+620 to 730 m. Looking W from 40+725/-30.



SD5 070 (20/8/2017) Placement of the fourth 0.5 m thick lift of fine filter with an excavator from El. 144.5 to 145 m from Sta. 40+620 to 40+730 m. Looking E from 40+600/-25.



SD5 071 (23/8/2017) Profiling of the upstream slope of SD5 with an excavator from El. 144.5 to 145 m. Looking W from 40+740/-27.



SD5 072 (24/8/2017) View of the bedrock cleaning of the key trench for the till plug placement with pressurized air stream on SD5. Looking N from 40+610/-20.



SD5 073 (24/8/2017) Bedrock cleaning of the upstream toe liner tie-in with pressurized air stream from 40+650 to 40+620 m. Looking E from 40+540/-27.



SD5 074 (31/8/2017) View of the slush grouted cracks and the placement of the sieved till above the slush grout from 40+600 to 40+620. Looking W from 40+620/-30.



SD5 075 (18/9/2017) Clean-up of the existing LLDPE liner with shovels and pressurized air stream from Sta. 40+635 to 40+720 m. Looking N from 40+670/-24.



SD5 076 (19/9/2017) Placement of fine filter in order to correction the upstream slope.of SD5. Looking W from 40+420/-37.



SD5 077 (20/9/2017) Excavation of the geosynthetics crest tie-in trench from Sta. 40+665 to 40+710 m. Looking S from 0+580/-13.



SD5 078 (20/9/2017) Scarification of the till plug outside the liner footprint with an excavator from Sta. 40+550 to 40+620 m Looking E from 40+580/-13.



SD5 079 (26/9/2017) Placement of the LLDPE geomembrane on SD4 from Sta. 40+550 to 40+770 m. Looking W from 40+550/-25.



SD5 080 (28/9/2017) View of the vacuum box testing on SD5. Looking E from 40+635/-27.



SD5 081 (29/9/2017) Excavation on the downstream side of SD5 in view of a foundation approval. Looking W from 40+630/-40.



SD5 082 (30/9/2017) Placement of the first 0.5 m thick lift of till 0-150 mm of the upstream toe liner tie-in from Sta. 40+500 to 40+610 m. Looking w from 40+630/-25.



SD5 083 (1/10/2017) View of the placed material on SD5: sieved till (0-50 mm), till (0-150 mm) and fine filter. Looking W from 40+635/-25.



SD5 084 (2/10/2017) Placement of the first 0.5 m thick lift of sieved till over the LLDPE geomembrane. Looking W from 40+625/-25.



SD5 085 (3/10/2017) Placement of the first 0.5 m thick lift of sieved till over the LLDPE geomembrane from 40+550 to 40+560 m. Looking E from 40+620/-21.



SD5 086 (3/10/2017 Placement of the 0.5 m thick lift of sieved till over the LLDPE geomembrane from Sta. 40+610 to 40+675 m. Looking S from 40+610/-34.



SD5 087 (3/10/2017) Placement of the 0.5 m thick lift of fine filter of the granular protection from Sta. 40+560 to 40+630 m. Looking S from 40+580/-42.



SD5 088 (4/10/2017) Placement of the 0.5 m thick lift of coarse filter of the granular protection from Sta. 40+560 to 40+630 m. Looking SE from 40+550/-30.



SD5 089 (5/10/2017) Placement of the 1 m thick lift of fine rockfill of the granular protection from Sta. 40+560 to 40+620 m. Looking SE from 40+550/-29.



SD5 090 (6/10/2017) Scarification of the frozen layer of compacted sieved till from Sta. 40+570 to 40+ 630 m. Looking N from 40+605/-31.



SD5 091 (6/10/2017) Placement of the second 0.5 m thick lift of sieved till over the LLDPE liner from Sta. 40+570 to 40+ 630 m. Looking S from 40+605/-31.



SD5 092 (7/10/2017) Placement of the 0.5 m thick lift of fine filter of the granular protection from Sta. 40+610 to 40+640 m. Looking N from 40+650/-31.



SD5 093 (7/10/2017) View of the tracks left by the truck on the top layer of compacted sieved till. Looking NE from 40+620/-22.



SD5 094 (7/10/2017) Placement of the 0.5 m thick lift of coarse filter of the granular protection from Sta. 40+615 to 40+640 m. Looking NW from 40+645/-44.



SD5 095 (11/10/2017) View of SD5 at the end of the 2017 construction season. Looking S from 40+610/-37.

APPENDIX D - CONSTRUCTION MEETING MINUTES

Name acronyme

AEM: AL: Alexandre Lavallée
PG: Patrice Gagnon
DG: Denis Gosselin
RC: Roch Chabot
JK: Jeremy ~~Kinley~~ Kanor
FGG: Francois Gravel-Grenier (Geolocation)
SK: Samuel Kinley (Geolocation)

SANA: SL: Sabin Larouche
PLB: Pierre-Luc Babin
RS: Raphael Simmard
JG: Jeannot Gagnon
CG: Christopher Gilbert
GT: Guillaume Tremblay
SC: Serge Coté
FP: Francis Pepin

RC: René Collard
CT: Carl Tremblay
MR: Mathieu Roy

QA: MN: Michael Nadon
MH: Marion Ha
YB: Yves Boulianne

QC: CFT: Cedrick Fillion-Tremblay
SB: Sebastien Blaellburn
PT: Pierick Treclasse
GB: Guyaume Beauchamp
HP: Hugues Potvin

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: June 28th 2017

Time: 8h00

Presents:

AEM: PG - RC - JK - FG (dislocation)

SANA: GT - CB -

QA: MN

QC: HP

Health & Safety:

No concerns

Daily Advance:

SANA: Clean-up SD 4-5 with 345

Equipment: 365 SANA → 29th No night shift →

Drill → 29th → Sump to design

365 → SD3 fault → drill

QA:

OWNER:

General Planning/Comments:

SANA:

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: June 29th 2017

Time: 8h00

Presents:

AEM: JK - DG

SANA: ←

QA: MN

QC: AP

Health & Safety: Dusty outside → water the roads

Coactivity with E&I removing pipe

Daily Advance:

SANA: Scraping foundation at SD-4-5 near old reclaim access

Foundation approval SD-5

QA:

OWNER:

General Planning/Comments:

SANA: - Remove water ponds by E&I

- Start removing till from foundation

- Start padding for access for marking

QA:

- Drill not before Saturday, miss hole dealt with during weekend

OWNER:

Report By: [signature]

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: June 29th 2017

Time: 8h00

Presents:

AEM: PG - JK -

SANA: GT - CG - PLB

QA: MN

QC: HP

Health & Safety:

- Dust control with water
- Safety meeting about radio communication in trucks

Daily Advance:

SANA:

- Excavation SD 4-5 soft sediment between 2 accesses
- Soft sediment haulage ≈ 500 m³
- Pad for access ≈ 350 m³

QA:

OWNER:

General Planning/Comments:

SANA: Drill + test SD3 on Monday afternoon → Sump

Continue loading till SD4-5

Continue muck pads SD4-5

QA: Holes in membranes at SD5 from pipes movements

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: July 1st 2017

Time: 8h00

Presents:

AEM: PG - JK - FGG

SANA:

QA: MN

QC: HP

Health & Safety: Dust

Water bottle will be installed in the trailer

Daily Advance:

SANA: Scraping / excavation SD4 downstream & upstream (Till excavation)

Till haulage to NC → 4,200m³ (total) ~~5,000m³~~

Enter muck rockfill → 1000m³ placed on first lift

QA:

FDN approval #14 at SD-5

OWNER:

General Planning/Comments:

SANA: Miss hole at SD-3 with water truck, blaster

Remove material at SD-3

Try to muck with 120 at SD-3

QA: Blast pattern for dump

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: January 2nd 2017

Time: 8h00

Presents:

AEM: PG - JK - FGG

SANA: GT - CG

QA: MN

QC: HP

Health & Safety:

- Dust
- Work card on shovel operator not signed for 2nd night in a row

Daily Advance:

SANA: - Excavation with 120 SD4 - 4,200 m³ January (5,100 Wenco)
- Scraping till & clearing foundation
- Backfill 90 m³

QA:

OWNER: - Miss hole cleared by blaster at SD-3

General Planning/Comments:

SANA: - Excavation at 505 South with 365 + 345
- Backfill at 505 South
- Ripping SD-3

QA:

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: July 3rd 2017

Time: 8h00

Presents:

AEM: PG - JK - FGG

SANA: PLB

QA: MN

QC: HP

Health & Safety: Issue with loading trucks procedure

Daily Advance:

SANA: Continue till excavation ~~4,300 m³~~ 911 m³

Continue scraping bedrock SD-5 SD-4

Muck placement SD5 50 m³

QA: Pumping at SD4

OWNER:

General Planning/Comments:

SANA: Clean up SD-4 with 365

Shift change SANA today

SD3 ripping material

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: July 4th 2017

Time: 8h00

Presents:

AEM: PG-JK - FGG

SANA: GT - CG - PLB - FC

QA: MH - MN

QC: HP

Health & Safety:

- Dust
- Procedures drill & blast to be followed closely

Daily Advance:

SANA: - Excavation 1,372m³ SD4 with 365

- Cleaning SD3 + SD4 + SD5
- Pad Helico → DONE

QA:

- Pumping SD4

OWNER: Spill dozer (environment) will be managed today

General Planning/Comments:

SANA: - Continue excavation SD4 + SD3 with dozer

- Muck placement this afternoon
- Drill & blast testing

QA:

- SD4 downstream approval to be checked

OWNER: - Check planning of equipment with Mine

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: July 4th 2017

Time: 8h30

Presents:

AEM: PG - JK - FGG -

SANA: GT - CG - SC - Observateur -

QA: MN - MH

QC: HP

Health & Safety:

- Speed limit on site - Trench is deep at SD3 be careful
- Spill report to be done -

Daily Advance:

SANA: - Continue excavation at SD4
- Muck 3 loads at SD5
- SD3 clean blast pattern, expose bedrock, rebuild access, drill

QA:
- SD4 final clean-up

OWNER:

General Planning/Comments:

SANA: excavation SD5 when trucks available
- drill SD3, SD4
- SD4 pump water hole to acceptation

QA:

OWNER: Depot FGL Sunday or Monday

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: July 6th 2017

Time: 8h00

Presents:

AEM: PG - JK

SANA: SC - PLB

QA: MN - MH

QC: HP

Health & Safety:

- Blast SD3
- Tool box meeting done

Daily Advancer

SANA: - Clean-up SD4 - SD5 (1800T Wenco)

- excavation with 365 at pig launcher
- clean-up pig launcher with 365

QA:

- pumping SD5

OWNER:

General Planning/Comments:

SANA: - Pumping SD-4 to approve foundation

- Foundation approved SD4 - SD5 along
- Continue till haulage at SD4 - SD5 between accesses

QA:

- Start muck + dozer + compactor SD-3

OWNER: - Blast SD-3 + planning for next blast

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: July 7th 2017

Time: 8h00

Presents:

AEM: PG - FB - JK - FGG

SANA: CG - PLB - SG

QA: MH - MN

QC: HD

Health & Safety: Blast clearance notice issue → *Supervisor on night shift*

365 operator with open door
Flips & fall hazard as it is training

Daily Advance:

SANA: Blast at SD3, excavate sump

SD4 muck placement, SD3 muck placement + compaction

SD4-5 till haulage, SD3 excavation

QA:

OWNER:

General Planning/Comments:

SANA: SD3 blast + prep of next blast
Sump excavation
SD3 compaction + SD4
Pumping at North cell

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: July 8th 2017

Time: 8hrs

Presents:

AEM: PG - Jk - Charlie - FGG

SANA: SC - PLB

QA: MH + MN

QC: HP

Health & Safety:

- Speed on site 30 km/h
- Reporting to Baker Lake on Ch 14 on ALVAB
- Haul truck incident + bootlegs incident
- PPE in good shape mandatory

Daily Advance:

SANA:
- Drill & blast SD3 → postponed to today
- Excavation SD3 → clean up
- Ripper SD3
- SD4/5 compaction
- Excavation SD4 between daccesses

QA:

OWNER:

General Planning/Comments:

SANA:
- Continue excavation till SD-5
- Final clean-up SD5 d/s
- Compaction SD-5 continue if operator
- Blast SD3
- Clean-up next SD3

QA:
- SD4 compaction need to be done soon

OWNER:
- SD-2 Approval back in 2012-2013

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: June 9th 2017

Time: 8h00

Presents:

AEM: PG - JK - FGG

SANA: PLB - SC - LPC

QA: MN - MH

QC: HP

Health & Safety:

- Blast 15h30 SD-3
- PPE must be wear at all time
- Eletrical inspection

Daily Advance:

SANA:
- Install pump 6" to empty NC pond + piping
- Clean up SD 5 South part
- Clean up SD4 between 2 accesses
- loading SD4-5 hauled to NC
- SD3 clean-up, Scraping ~~South~~ North end + blast prep

QA:

OWNER:

General Planning Comments:

SANA:
- Clean up SD5 final South end
- Blast SD3 + boulder
- Clean-up North SD3
- Loading SD-4 (till)
- Compaction at SD5

QA:

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: July 10th 2017

Time: 9h00

Presents:

AEM: PG - JK - FGG

SANA: PLB - SC

QA MH + MN

QC: HP

Health & Safety:

- SOP Mine today at 3h30 * Shift change today
- Blast at 3h30 & E5 12645
- Speed limit 30 KM/h signs

Daily Advance:

SANA: - Muck till SD5 - SD4 } 5,133T
- Haulage till SD3

- SD4 foundation repairs at water venue in station 40+300, mud scraping replaced with fresh muck
- Compaction at SD4 - SD5

QA:

OWNER:

General Planning/Comments:

SANA:
- Continue mucking till at SD4
- After blast → 36E at SD3
- Clean up final at SD5 South with 34E once mats installed on blast
- Clean up - SD4
- pumping NC with 6" pump

QA: - dig limits were put on the field for SD4 - SD5

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: July 11th 2017

Time: 8h00

Presents:

AEM: PG - JK - FGG - SAM

SANA: PLB - JG - CG - RS

QA: MH

QC: PT

Health & Safety:

- No concerns

Daily Advance:

SANA: SD3 clean-up bedrock + haulage till
SD3 blast sump - pumping
SD4 till clean-up + haulage till
SD5 clean-up + haulage till

QA:

OWNER:

General Planning/Comments:

SANA: - Clean-up pig launcher area finalization of SD5 South
- Continue clean-up SD3
- Sump excavation SD3
- Start rockfill SD-4 - SD5

QA: Make sure to have doger & compactor + operator before rockfill placement

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: July 12th 2017

Time: 8h00

Presents:

AEM: AL - DG - FGG - SK

SANA: PLB

QA: MH

QC: PJ

Health & Safety:

- 3 les working with door open.

Daily Advance:

SANA:
- -> SD3 cleanup / no loading / scapping
- -> SD3 sump excavated. 1' of muck around. Final.
- -> SD5 found approval near CD.
- -> SD4 cleaning in P.g launcher area
- -> NC pond was pumped.

QA:

OWNER:

General Planning/Comments:

SANA:
- -> SD4 to be capped up to inverse filter
- -> SD3 material removal. Hauling till. Continue on night shift.
- -> SD5 backfill to 135, Compaction.
- -> SD4 cleanup when 345 will be backfill.
- -> SD4 expose old p.g launcher pad.

QA/QC
- -> SD4 cleanup/capping between the 2 access.
- -> Till piles could be ~~drove~~ drill / moved to make sure ready when needed.

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: July 8th, 2017

Time: 8h00

Presents:

AEM: AL, DG, FB, SK

SANA: JG, RS, PLB

QA: MH

QC: PT

Health & Safety:

→ Careful when walking near equipment. Keep 15m from equipment. Keep good communication.

→ Many new haul truck drivers. Drivers used wrong channel. Refresh of procedure was done and will be done on next crew change.

Daily Advance:

SANA: → SD3 ripper clean-up.

→ SD3 loading truck near fault zone.

→ SD3 melting near stockpile.

→ SD5 small capping. Access created from CD.

→ SD4 cleaning between the 2 access. Mater. placed. compaction

QA: → SD3 pumper started

OWNER: → Low qt. of available muck from Portage

General Planning/Comments:

SANA: → Pumping at SD6 with SANA pump.

→ 365 cleaning/loading SD3.

→ Continu pumping SD3 with ET

→ Cleanup access/or remove / at SD3.

→ Approach of level SD4

→ Clean pig launcher access. SD4

→ Finishing pumping NC

QA:

OWNER: → Need to define bottom of excavation in fault zone

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: July 14th, 2017

Time: 8h00

Presents:

AEM: AL, SK, DG,

SANA: RS, JG, PLB

QA: MH

QC: PT

Health & Safety:

→ Nothing to report from SANA
→ Careful walking d/s SD3, some steep slope
→ SK fell when worked on stock pile, Scratched his knee. This morning.
→ Make sure to give blast clearance SD3

Daily Advance:

SANA: → SD3 ripping. (near SD2). Close access near Quarry23.
→ SD3 create access ramp. Excavation continued.
→ SD3 sump pumped by BI
→ SD4 → 345 final cleanup. west.
→ NC was pumped / not much left.

QA: → 3½ h of compaction at SD4

OWNER:

General Planning/Comments:

SANA: → Move 6" pump to SD6
→ Cleanup 2 piles at SD4 / piz launcher ramp
→ Final cleanup with 345 at SD4
→ 365 will go to SD3 after SD4.
→ if available, dozer ripping at SD3

QA: → Determine bottom of excavation at SD3 with owner rep.

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: July 15th 2017

Time: 8h00

Presents:

AEM: AL, DG, FGG

SANA: PLB, RS, JG, FP

QA: MH

QC: PT

Health & Safety:

-> HS meeting (Every Sunday) to be done with AEM, Qc, QA and SANA repres.
SANA will do their own safety meeting with their crew.
-> Need to clarify night shift supervisor for 345 op + Qc.
-> Careful for trip and fall.
-> Respect rocket signalization.

Daily Advance:

SANA: SD4 final Cleaning near pig launcher area.
-> Old access removed. (Pig launcher)
-> Cleaning west of SD4
-> 365 moved to SD3
-> Pumping Started with SANA eq. in SD3 area

QA:

OWNER:

General Planning/Comments:

SANA: -> Check SD3 alignements / pit test 15m from quarry
-> Excavation / loading SD3
-> SD4 found approval between access
-> SD4 Cleanup west.
-> NC pumping continue.

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: July 16th, 2017

Time: 8h00

Presents:

AEM: AL, SK,

SANA: PLB, FP, JS

QA: MH

QC: PT

Health & Safety:

→ Rain make slipping condition / careful trip / fall.

Daily Advance:

SANA: → Finish SD4 excavation. Still small portion
→ SD4 found. approval done. / SD5 also
→ SD3 cleaning / loading
→ ~~Off~~ Pumping SD4 area continue
→ Planning for SD3 south realignement. with SANA Surveyor.

QA:

OWNER:

General Planning/Comments:

SANA: → SD3 continue excavation / ripping / pumping
→ If muck available, finish lift 135 at SD5 + SD4 west
→ Continue preposition for SD4/SD5/CD abutment.

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: July 17th, 2017

Time: 8h00

Presents:

AEM: AL, DG, ~~PM~~ SK, JM

SANA: PLB, JG, RS

QA: MH

QC: PT

Health & Safety:

→ Work card responsability → Denis G. respon. for geoloc.

→ Fred. Boldue respon. QA/QC

→ Radio silence on mine openc.. when blast.

→ Slippery condition

→ Water infiltration in worker boot.

Daily Advance:

SANA: →SD3 excavation. final cleaning ~~North~~ South of thermistor.

→SD3 cleaned up near southern abutm.

→Ripping/cleaning north of SD3.

→Pumping SD6 continued.

QA:

OWNER:

General Planning/Comments:

SANA: → SD3 cleaning (near Guerry 23)

→ Continue final cleaning south SD3

→ SD5 been fill to 135 (if mesh curvilinear)

→ Pumping SD3, NC.

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: July 18th, 2017

Time: 8h00

Presents:

AEM: AL, DG, SK

SANA: RS, SL, JG

QA: MN

QC: PT

Health & Safety:

→ Mine department employees were refreshed on specificity of handling on dike.
→ Need to sort paint can in different garbage.

Daily Advance:

SANA: → SD3 excavation / cleaning
→ SD5 completion

QA:

OWNER:

General Planning/Comments:

SANA: → RF placement at SD4
→ SD3 excavation / cleaning
→ SD5 mucking of till pile (Possibility of stockpiling at SD3)

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: July 14th 2017

Time: 9h00

Presents:

AEM: JK

SANA: SL, JG, RS

QA: MW

QC: JT

Health & Safety:

- ~~PAINTING can on the pipe next to the shore is near spill~~
- Keep a safety distance from heavy equipment
- Very slippery surface because of the rain
- About the painting can → a container is available near SANA's office to throw it away

Daily Advance:

SANA:

Last 24hrs: - Compaction SD5
- Finish backfill on SD5
- Start backfill on SD4
- Clean-up foot-print SD3 + loading of Till

QA:

Last 24hrs: - 365 is in the pit → backfill on SD4
- Clean-up on SD3
- Compaction on SD4

OWNER:

General Planning/Comments:

SANA:

Discussion: • The channel on SD3 for the sumps is being planned. More news to come
• SANA's Surveyor is working on the new alignment of SD3. We'll have news during the week

QA: • Compaction on SD4 needs to be done Today.

OWNER:

Report By: Michael Wouden

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: July 20th, 2017

Time: 8h00

Presents:

AEM: AL, SM, SK, JK

SANA: RS, SL

QA: MN

QC: PT

Health & Safety:

Q

Daily Advance:

SANA: SD3 Clearing 345

SD4 backfill 40+040 → 40+180 + compact.

345 loading in pit.

SD4 till loading (night shift)

QA: \

OWNER:

General Planning/Comments:

SANA: → SD5 till loading

→ SD4 backfill + compact.

→ 345 clean up SD3

→ trench / sump planning

QA: \

OWNER: \

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: July 21 2017

Time: 8h00

Presents:

AEM: AL - SK, JK

SANA: RS, SL, JG

QA: MN

QC: PT

Health & Safety:

→ Wear mask when dusty. Check if fit test needed

Daily Advance:

SANA: SD5 excavation with 345
SD4 40+190 40+030 fill + new lift 40+540 → 40+465
SD3 cleanup 345
SD4 compact.
SD5 clean till pile

QA: SD4 clean till pile

OWNER:

General Planning/Comments:

SANA: SD4 excavat. 365
SD4 backfill + compact.
SD5 lift 2m.
SD3 cleanup
SD4 clean till.

QA:

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: July 22, 2017

Time: 8h00

Presents:

AEM: AL- SK, SK

SANA: SL,

QA: MN

QC: PT

Health & Safety:

→A haul truck was going too fast on dike → SK communicate with his supe.
→Dusty road.
→Fit test to done QA, QC, Surveyer.

Daily Advance:

SANA: SD4 excavation.
SD4 backfill and excavation
SD5 backfill 40+443 → 40+723 first lift (elev 137)
SD3 cleanup
SD4/5 compaction

QA:

OWNER:

General Planning/Comments:

SANA: SD5 backfill. Start a new lift.
SD4 excavation
SD3 sump excavation (deeper)
SD3 cleanup.

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: July 23, 2017

Time: 8h00

Presents:

AEM: AL-JK-SK

SANA: SL, JG, RS

QA: MN

QC: PT

Health & Safety:

-> Respect speed limit when driving on road

-> Forbidden to have electronic equipm. on dike

Daily Advance:

SANA: SD4 excavat. completed

SD3 excavation but 336 went down (mechanical)

SD3 Cleanup

SD5 backfill 40+723 → 40+748 (2m) elev. 137

SD4 cleanup with 345 (night)

QA: SD5 backfill (nigh)

OWNER:

General Planning/Comments:

SANA: SD4 Cleanup / backfill

SD3 excavation (336 or 345)

SD5 compaction

SD5 backfill

QA:

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: July 24th, 2017

Time: 8h00

Presents:

AEM: AL, SK, JI

SANA: JG, RS, SL

QA: MN

QC: GB, PT

Health & Safety:

→ Check your fire extinguisher

Daily Advance:

SANA: SD3 excavation restarted.
SD4 cleanup finish + found. approval
SD5 sloping with 3:1
SD4 backfill
SD4/5 compaction

QA:

OWNER:

General Planning/Comments:

SANA: SD4 backfill
SD3 excavation
SD3 cleanup / access.

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: July 25th, 2017

Time: 8h00

Presents:

AEM: AC, FGB, JIL

SANA: SL, FP, CJ

QA: MN

QC: SP

Health & Safety:

→ Lot of rain, slipping roads.

→ New truck driver lack of experience.

Daily Advance:

SANA: →SD3 excavation + clean up

→SD4 back fill 1st lift 40+280 →40+080 + compaction

→SD5 compaction

QA:

OWNER:

General Planning/Comments:

SANA: →SD3 excavation + clean up

→SD5 backfill

→SD4 backfill

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: July 26th 2017

Time: 8h 30

Presents:

AEM: PG - JK - FGG

SANA: SC - SL -

QA: MN

QC: SB

Health & Safety:

- Spill on packer 10L hydraulic fluid
- Not touching on wire and piping at all time under no consideration

Daily Advance:

SANA: - Haul till SD3 + clean bedrock
- Backfill SD5 + compaction
- Till at NC laydown to smooth
- Backfill muck at SD4

QA: - Rock at SD3 was ever blasted → ice lenses present deep

OWNER:

General Planning/Comments:

SANA: - Excavation till SD3
- Excavation at SD3 connection
- Backfill at SD4 + compaction
- Slope SD5

QA:

OWNER: Till at CD need to be moved

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: July 27th 2017

Time: 8h00

Presents:

AEM: PG - FGG

SANA: CG - SL

QA: MN

QC: SB

Health & Safety:

- Make sure to have good communication
-

Daily Advance:

SANA: - Excavation till at SD3 + connection SD2
- Slope SD5
- Completion SD5
- Clean up bedrock SD3
- Muck at SD4 lift 139.6

QA:

OWNER:

General Planning/Comments:

SANA: - Continue Rockfill SD5 + completion lift 140.5
- Continue clean-up SD3
-

QA: Continue lifts SD5 → 140 m
SD4 → 141.5 m

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: July 28 '17

Time: 9h00

Presents:

AEM: PG - JFB - FGG

SANA: CG - SC - SL

QA: MH

QC: SB

Health & Safety:

- Conctinity at SD3 - communication is priority
- Workcard of surveyor →

Daily Advance:

SANA:
- Excavation SD3 - SD2 connection
- Bedrock clean-up 345 at SD3 + FDN Approval
- Muck backfill SD5 - SD3
- Compaction SD4 + Scarification
- Backfill SD5

QA:

OWNER: Muck quality

General Planning/Comments:

SANA:
- Start excavation fault SD3 + muck on top
- Backfill SD4 - SD5
- Compaction
- Pumping SD5
- bedrock cleaning SD3

A:

NER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: July 29th 2017

Time: 8h00

Presents:

AEM: PG - JFB - FGG

SANA: SL - SC - CG

QA: MH

QC: SB

Health & Safety:

- Wear PPE at all time
- Eye contact with excavator
- Cyanide convoy this weekend

Daily Advance:

SANA: - Excavation fault SD3 with 345, backfilled + compacted
- Clean up bedrock at SD3
- Muck + compaction at SD4 - SD5

QA:

OWNER: FDW - 93 at SD3

General Planning/Comments:

SANA: - Finish fault excavation SD3 + backfill + compaction
- backfill SD4 + compaction
- backfill SD5 + compaction

QA:

OWNER: - Make sure to perform channel to join the dump with fault

Report By: AG

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: July 30th 2017

Time: 8h00

Presents:

AEM: PG - JFB - FGG

SANA: SL - SC

QA: MH

QC: SB

Health & Safety:

- Cyanide transportation today of tomorrow
- Use 3 points contact when climbing

Daily Advance:

SANA:
- Haul till 365 →
- backfill fault area + compaction
- muck placement SD5 - SD4 + compaction
- Plant mats moved to East Road

QA:

OWNER:

General Planning/Comments:

SANA:
- Excavation SD3 + clean up + backfill
- backfill SD5 with muck
-
- Pipe was moved out of SD3

QA:

OWNER: We lose 365 today for 3-4 days to the pit

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: July 31st 2017

Time: 8h00

Presents:

AEM: PG - JFB - FGG

SANA: SL

QA: MH

QC: SB

Health & Safety:

- Review of Mandatory topics
-

Daily Advance:

SANA: -365 Excavation until noon then pit
- backfill SD3 + compaction lift 135.7
-345 bedrock clean-up
- SD5 finalize 141.5
- SD4 backfill lift 141.5

QA:

OWNER:

General Planning/Comments:

SANA: - backfill lift SD3 135.7 + compaction
- " " 141.5 SD4
- ripping SD3 with grader

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Aug 1st 2017

Time: 8h00

Presents:

AEM: PG - JFB - FGG

SANA: PLB - SC

QA: MH

QC: SB

Health & Safety:

- Co-activity at SD3
- Small spill at SD3 ground
- Cyanide convoy today

Daily Advance:

SANA: - SD3 clean-up of South foundation
- " lift 137 + compaction
- SD4 backfill + compaction
- ripping SD3 + compaction

QA:

OWNER:

General Planning/Comments:

SANA: - SD3 complete backfill 137 lift + compaction
- " continue clean-up
- Continue lift at 141.5 at SD4

QA: * QA-QC went in Pit to show operator what material is needed *

OWNER: * SD3 instrument to be carefully monitored on next lift

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Aug 2nd 2017

Time: 8h00

Presents:

AEM: PG - JFB - FGG

SANA: CG - SC - PLB

QA: MH

QC: SB

Health & Safety:

- Always wear your PPE
- 3 point contact when entering and exiting équipment
- Coactivity at SD

Daily Advance:

SANA: - Complete backfill B7 m SD3 + compaction
- Clean up Foundation South SD3 for approval
- pump water
- Start lift 141.5 m at SD4

QA:

OWNER:

General Planning/Comments:

SANA: - Continue backfill 141.5 40+360 to 00 at SD4
- Sloping at SD4 - SD5
- clean up SD3 fdn, compaction, sloping North area,

QA:

OWNER: Make sure to compact muck under talus - slope d/s

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Aug 3rd 2017

Time: 8h00

Presents:

AEM: PG - JFB - FGG

SANA: SC - PLB - SL - CG

QA: MH

QC: SB

Health & Safety:

- Review of topics mandatory - sign off sheet
- Dust on roads

Daily Advance:

SANA:
- SD3 clean-up foundation South + pumping water
- SD3 sloping on North
- SD3 compaction, scarification lift 137 m
- SD3 Start lift at 139
- SD4 continue lift 141.5m (100m long), sloping + scarification

QA:
- SD4 end bumper at 140 to remove

OWNER:

General Planning/Comments:

SANA:
- SD4 Remove boulders, sloping + compaction
- SD3 complete lift 139 with muck, compaction, sloping
- SD3 start South muck placement
- SD5 sloping + compaction under bumper
- SD4 complete 141.5 lift

QA:

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Aug 4th 2017

Time: 8h00

Presents:

AEM: PG - FB - RC

SANA: PLB - SC

QA: MH

QC: SB

Health & Safety:

- Speed limit to be respected
- Make sure to have enough space for dozer
- Berms on construction site

Daily Advance:

SANA:
- SD3 finish lift 139 North, + compaction + sloping
- " backfill South end + compaction
- " backfill instrument TH
- SD4 sloping + berm compaction + scarification + remove boulder bumper
- SD5 "

QA:

OWNER:

General Planning/Comments:

SANA:
- SD3 sloping + compaction + scarification lift 139, start lift 141
- SD4 backfill 141.5 + compaction + sloping + scarification
- CD North Till moving + mixing
-

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Aug 5th 2017

Time: 8hoo

Presents:

AEM: PG - RC - FGG

SANA: PLB - SC

QA: MH

QC: SB

Health & Safety:

- Speed on site
- Pre-op inspection to be completed
- Extinguisher were verified
- Safety berms

Daily Advance:

SANA: - SD3 : Complete compaction 139 lift, sloping 139 lift, + scarification
- start excavation with 450 the old accesso
- South access compacted + scarification
- Start lift 141
- SD4 : finish lift 141.5 + compaction + sloping + pump d/s pond SD4

QA:

- Access to 0-6" tight

OWNER: - Mix up of till at SD

General Planning/Comments:

SANA: SD3 : - Continue excavation of access → haulage to DC
- " backfill 141 + compaction + sloping + scarification
- Compaction of new ramp
-

SD4 : finaling compaction 141
Start backfill 143

QA:

Till SD : finish mixing till & maybe start excavation

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Aug 6th 2017

Time: 8h00

Presents:

AEM: PG - RC - FGG

SANA: PLB - SC

QA: MH

QC: SB

Health & Safety:

- Speed on site, slippery conditions
- Pit was closed to thunderstorm 2 hours last night

Daily Advance:

SANA: SD3 :- haulage of old access ramp to North Cell
- fix pump access of pump
- finished lift 141 backfill
-

SD4 : 141.5 lift finished compaction + scarification
pump water on d/s
start 143 lift

QA:

OWNER: Till CD : mixed to 90%
excavation start

General Planning/Comments:

SANA: SD3 : continue access excavation
finish lift 141 + compaction + sloping + scarification
clean bedrock at South

SD4 : continue lift 143 towards SD5
keep 2 accesses

QA:

CD : finish till mixing and maybe start

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Aug 7th 2017

Time: 8h00

Presents:

AEM: PG - RC

SANA: PLB - SC

QA: MH

QC: SB

Health & Safety:

- Incident at SD4 : haul truck went off road while backing-up
- Road is slippery

Daily Advance:

SANA: SD3 : excavation access moved towards East
- finished 141 lift + completion

SD4 : Continue lift 143 towards SD5

QA: CD : Excavation of till

OWNER:

General Planning/Comments:

SANA: SD3 :- scarification, sloping, compaction ~~CD~~
- foundation clean-up at North CD
- finalize access

Pit E : till preparation

SD4 :- Continue at 143 backfill toward west

QA:
- sloping d/s
- compaction start at SD5

OWNER: SD3 : D/S slope along AWAR

Report By: [signature]

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Aug 8th '17

Time: 8h30

Presents:

AEM: PG - RC - SK

SANA: PLB -

QA: MH

QC: CFT

Health & Safety:

- Bumpers: make sure they are high enough
- Coactivity

Daily Advance:

SANA: SD3 : excavation of old access at South
clean-up of SD2 connexion at North
SD4 : backfill 143 + compaction + sloping lift 141

Till Pit E : start mixing till

QA:

OWNER:

General Planning/Comments:

SANA: SD3 : start lift 143
approval North & South excavation foundation
remove bumper + compaction, scarification + sloping

SD4 : finish lift 143 + compaction +

QA: SD5 : remove bumper for compaction

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Aug 9th 2017

Time: 8h00

Presents:

AEM: AL - DG - SK

SANA: PLB, JG, RS

QA: MH

QC: CFT

Health & Safety:

→ No AED in trailer

Daily Advance:

SANA: SD3 : - Cleanup final North / South abutment.
- Rockfill 4th lift to 143
- Sloping - compact under bumper - Scarifying.

SD4 - Rockfill to 143 completed.
- Compaction

QA: Other : - Pad at portage for till

OWNER:

General Planning/Comments:

SANA: SD4-5 : 1 shovel avail. → inverse filter

SD3 : complete 143 1 lift
- Excavation approval North/South abutment.

SD4 → compaction

QA:

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Aug 10, 2017

Time: 8h00

Presents:

AEM: AL, DG, SK

SANA: PLB, RS, GT, JG

QA: MH

QC: CFT

Health & Safety:

→ No AED will be available this season. Supervisor must have CPR training

→ Blast ES

→ Master station for SANA should be in "Mine" depart.

Daily Advance:

SANA: - SD3: - Completed 143 lift
- Backfill around thermistance
- Found. appeared. North + South. No more at North.

SD4: - lift started (145)
- Removal of bumper for compaction. Compact started

QA:
- Scarification
- Slope between 2 access

OWNER:

General Planning/Comments:

SANA: SD3: - compaction lift 143.
- Scarification

SD4: - compaction under bumper
- Sloping
- Backfill lift 145.

QA:

Other: Mixing till at Portage/Goose

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Aug 11th, 2017

Time: 8h00

Presents:

AEM: AL, DG, SK

SANA: PLB, JG, GT

QA: MH

QC: CFT

Health & Safety:

→ Blast Vault 12h45

→ Near miss review. ~~Do not~~ Respect signs.

→ Muster station reminded to SANA

Daily Advance:

SANA: SD4-5: lift 145 backfill (low product due to BAC11 down in E5)

SD3: - compact. lift 143

- excavation, panel approved

Other - Rehandling of till at Portage.

QA:

OWNER:

General Planning/Comments:

SANA: SD3: - Complete approval for 145 footprint

- Compaction lift 143

SD4-5: complete lift 145

: inverse filter SD5/4

QA: Other : - Send till (Portage) to crusher

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Aug 12th, 2017

Time: 8h00

Presents:

AEM: AL, FB, DG, SK

SANA: RS, PLB, JG, GT

QA: MH

QC: CFT

Health & Safety:

→ Accident in the pit. Grade control work close to truck got injured by flying rocks.

→ Slipery condition. Clean your mirror.

Daily Advance:

SANA: SD3 :- Finalized found. (to 145). Approved
- Finalized compact. 143 l.ft.
- Created new access to SD3.

SD4/5 : l.ft 145 continue

QA: CD : - till stockpile reclaimed / unfrozen
- Excavation North abutment
- Foundat. approval North CD

OWNER:

General Planning/Comments:

SANA: SD3 : - Scarification + bumper removal
- Sloping / inverse filter.

SD4/5 : - Backfill 145
- Compaction
- Slope upstream

QA: - inverse filter

CD : - continue excavat.
- inverse filter

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Aug 13th, 2017

Time: 8h00

Presents:

AEM: AC, DG, SL

SANA: PLB, JG, GT, BS

QA: M+I

QC: CFT

Health & Safety:

→ More topics to be discussed this afternoon
→ Bloat ES lunch
→ Dusty SD4
→ Make sure pre-op check is done properly

Daily Advance:

SANA: SD3 : → compact. under bumper
→

SD4-5 → RF to 145 + compact.
SD5 : → inverse filter,
→ compact (need to use SANA comp.

QA: CP : → Clearing footprint 145
→ Till mixing

OWNER:

General Planning/Comments:

SANA: SD3 : → Sloping
SD4 : → Inverse filter
→ RF 145
→ Compact. 145
→ Sloping
QA: → Bumper
CD : → Approval found.

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Aug. 14th, 2017

Time: 8h00

Presents:

AEM: AL, DG, SIL

SANA: PLB, RS, GT, JG

QA: MH

QC: CFT

Health & Safety:

→ Crew change: New crew will be updated on HS topics from yesterday

Daily Advance:

SANA: SD3: - Sloping 143

SD4: - Backfill 145
- inverse filter

QA: CD: - final Cleanup / approved
- Move pipe for deposition point

other: - screening with backhoe (<300mm)

OWNER:

General Planning/Comments:

SANA: SD3: - Sloping

SD4: - inverse filter
- Backfill 145
- Compact. under bumper

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Aug 15th, 2017

Time: 8h30

Presents:

AEM: AL, DS

SANA: SL, JG, RS

QA: MN

QC: CFT

Health & Safety:

→ Mine inspector visit
→ Respect speed limit.

Daily Advance:

SANA: SD4: Backfill 145 completed (except over inv. filt.)
SD3: Backfill 145 started
SD4: Inverse filter + Sloping.
SD5: Sloping D/S
SD4: compaction

QA:

OWNER:

General Planning/Comments:

SANA: SD3: - Backfill 145 filt.
- inverse filt.

SD4: - complete inverse filter
- Sloping

QA: - compaction. RF + inv. filt.
- RF over inv. filt.

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Aug 16th 2017

Time: 8h00

Presents:

AEM: DG

SANA: SL - RS

QA: MN

QC:

Health & Safety:

- Tool box with crew change (SANA)
- The importance of the berms on the dike was reiterated.

Daily Advance:

SANA:

Last 24hrs : Rockfill Placement SD3 EL.145m
Fine filter (INUV) SD3
SD4 - fine/coarse filter (INUV) Final
SD4 - Sloping (1.5/1 et 3/1)

QA:

SD4 - compaction Fine/coarse + UM Rockfill

Next 24hrs : SD3 → Rockfill placement + compaction
→ fine filter + coarse filter + compaction

OWNER:

CD → invern filter + compaction

General Planning/Comments:

SANA:

Discussion : • A talk about the quality of the UM Rockfill took place. The material is too fine, and a coaching with the RH 120 will occcure.
• SANA asked if the 307 excavator is up for the till plug cleaning.

QA:

OWNER:

Report By: Mathieu Nadeau

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Aug 17th 2017

Time: 8h00

Presents:

AEM: AL, DG

SANA: SL, JG, RS

QA: MN

QC:

Health & Safety:

→ Mine inspect. visit yesterday. No concern on dike constr.
→ Spill SD3 dozer 4h
→ Blast pit A 18h30

Daily Advance:

SANA: SD3 : Backfill to 145 + instrum(th) protection & inverse filter + compact.
SD4 : Slope correction U/S

~~Other : instrument.~~

QA:

OWNER:

General Planning/Comments:

SANA: SD3 : → Backfill 145 + Slopiag → complete inverse filter + compact. | + well on D/S sump
SD4 : → Slope D/S → compact. inv.

QA: CD : → inverse filter

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Aug 8th, 2017

Time: 8h00

Presents:

AEM: AL, DG,

SANA: SL, JG, SC

QA: MN

QC: –

Health & Safety:

→ Respect speed limit.

→ 3 pt. contact.

→ Blast phaser

Daily Advance:

SANA: SD3: - Backfill 145
- Complete inverse filter North.
- Sump work

CD: - inverse filter 0-3"

SD4: - Sloping D/S

QA: SD3: compaction inverse filter

OWNER:

General Planning/Comments:

SANA: SD3: - Pumping Sump
- Backfill complete 145

SD4: - Pumping Sump
- Inverse filter on slope

QA: CD: - inverse filter
- Rock fill complete.
-

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Aug 19th, 2017

Time: 8h00

Presents:

AEM: AL, DG,

SANA: SL, SC

QA: MN

QC: CFT

Health & Safety:

→ Make sure being seen while working around equip.

→ Blast 12h45 Vault

Daily Advance:

SANA: SD3: Backfill completed to 145 + pumping D/S.

SD4: Slope filter. / Sloping D/S completed.

- Pumping D/S

CD: Backfill to 145 North abutm. completed

- inverse filter

QA:

SD5: Slope filter

c

OWNER:

General Planning/Comments:

SANA: SD3: Sloping

SD4: compact. invers.

- Slope filter

QA:

OWNER: → SD3 sump design (final)

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Aug 20th, 2017

Time: 8h00

Presents:

AEM: AL. DG

SANA: ~~SG~~. SC,

QA: MN

QC: CFT

Health & Safety:

→ Preop check. Properly perform inspection

→ Wear proper PPE

→ Q Blast.

Daily Advance:

SANA: → SD5 = ~~[redacted]~~ filter 0-6" + 0-3/4" + compact.

→ SD4 : completion

→ SD5 : Key trench clean up

→ CD : Slope U/S + D/S

QA:

OWNER:

General Planning/Comments:

SANA: SD5 : filter + comp. of filter

SD4 : filter

SD3 : Slope

CD : completion

No work after 12h00 AM.

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Aug 31, 2017

Time: 3h00

Presents:

AEM: AL, SK, DS

SANA: JG, SL, SC,

QA: MN

QC: CFT

Health & Safety:

-> Blast pit A 12h45

-> Careful with the compressor near the edge of the slope

-> Dusty. Water truck needed.

Daily Advance:

SANA: SD5 : filter completed + compacted. / final

SD4 : filter (Slope)

CD : till handling + compact. of RF

SD3 : Sloping. + compaction

QA:

OWNER:

General Planning/Comments:

SANA: SD4 : filter (Slope) + compaction

- Complete pumping of sump.

SD3 : Sloping

QA:

OWNER: -> check incl. in slope. of SD3

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Aug 22, 2017

Time: 8h00

Presents:

AEM: AL, DG, FGG

SANA: SC

QA: MN

QC: SB

Health & Safety:

-> Blast Vault 1244 -

-> Dusty condition

-> Fox was seen inside Nova camp.

-> Respect speed limit (30 km/h) on dike

-> need JHA for blow pipe

Daily Advance:

SANA: SD4 : filter + compaction

SD3 : Slope D/S

SD4 & complete key trench cleaning with wheel loader/tractor

SD4 : Sump dried/pumped.

QA:

OWNER:

General Planning/Comments:

SANA: SD4 : filter + compact.

CO : cleanup Key trench

SD4/5 : blowing in key trench

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Aug 23rd 2017

Time: 8h00

Presents:

AEM: PG - JK -

SANA: SC - SL - CG -

QA: MN

QC: SB

Health & Safety:

- JHA for blow pipe presented to workers
- Safety meeting held with SANA workers

Daily Advance:

SANA: SD4 : filter 0-6" & 0-3/4", completed, finished key trench clean up with backhoe

QA:

OWNER:

General Planning/Comments:

SANA: SD4 : filter at SD4, slope 3/4,

SD5 : blowing key trench

SD3 : sloping D/S

QA:

OWNER: Shift change SANA

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 24 Aug '17

Time: 8h30

Presents:

AEM: DG-VK-JK-~~FGG~~

SANA: CG-SL

QA: MN

QC: SB

Health & Safety:

- Blow pipe ongoing at SD3
- Dust on roads

Daily Advance:

SANA: SD4: 0 3/4" - 0-6" slopes filters, Compaction

SD3: sloping upstream

SD5: blow pipe + clean-up

QA:

OWNER:

General Planning/Comments:

SANA: SD4: filters in slope + compaction

SD3: d/s slope

SD5: till mixing & aeration

QA:

SD5: key trench cleaning with blow pipe

OWNER:

Report By: [signature]

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Aug 25th

Time: 8h00

Presents:

AEM: PG - FGG

SANA: SC - SL

QA: MN

QC: SB

Health & Safety:

- Blast Pit E 12445
- Black out next Tuesday
- Blow pipe PPE & safety perimeter

Daily Advance:

SANA: SD4 : filters 11 x 0"4" + 11 x 6-6" + Compaction

SD3 : sloping D/S

SD5 : blow pipe on key trench

QA:

OWNER: Instrument moved done on SD4 - SD3

Filters at SD3 will be done this year

General Planning/Comments:

SANA: SD4 finish filters on up stream slope
SD3 start filters
SD5 finish blowpipe
SD4 start blow pipe on SE abutment

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Aug 26th 2017

Time: 8h00

Presents:

AEM: PG

SANA: SL - CG

QA: MN

QC: SB

Health & Safety:

- Blow pipe ongoing at SD 4
- Dust on site

Daily Advance:

SANA: SD4: complete filters + compaction
clean-up key trench

SD5: ~~start~~ finish Key trench

QA: Mapping at SD5 started

OWNER:

General Planning/Comments:

SANA: SD4: clean up key trench
SD5:
CD: filters on North abutment

QA:

OWNER: Sump design at SD3

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Aug 27th 2017

Time: 8h00

Presents:

AEM: PG

SANA: SL - SC

QA: MN

QC: SB

Health & Safety:

- Blast 12:45 Vault
- Blow pipe →

Daily Advance:

SANA: SD4 : clean-up blow pipe key trench started additional work
SD5 : "
SD4 : finished filters in slope
CD : started filters

QA:

Compaction of new area of SD4 - SD5

OWNER:

General Planning/Comments:

SANA: CD : continue filters in slope
SD4 : " key clean-up

QA:

OWNER: 3 weeks meeting at 1pm

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Aug 28th 2017

Time: 8h00

Presents:

AEM: PG - FGG

SANA: SH - SC

QA: MN

QC: BB

Health & Safety:

- Blast Phaser Pit 18h45
- Blow pipe + grout

Daily Advance:

SANA: CD : finish filters 0-3/4" + 0-6" + compaction

SD4 : key clean-up

QA: if we change Stockpile it needs to be advise 2 days ahead of time

OWNER:

General Planning/Comments:

SANA: SD3 : Start filters in slope
SD4 : clean-up at west abutment
CD : blow-pipe + key clean-up

QA: More clean-up as roots were present in some cracks

OWNER: Stake the sump at SD3

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Aug 29th/17

Time: 8h00

Presents:

AEM: PG - FGG

SANA: PLB - CG - RS

QA: MN

QC: SB

Health & Safety:

- Dusty on the road
- Rock when cleaning

Daily Advance:

SANA: SD3 : fitter 0-3/4" x 0-6" 300m³ + 250m³

SD4 : clean up key trench

CD : finish fitter + compaction

QA:

OWNER:

General Planning/Comments:

SANA: SD3 : continue fitters

SD3 : key trench clean-up

SD4 : clean up key trench completion

QA: CD : key trench cleaning start at North Abutment

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Aug 30th 2017

Time: 6h30

Presents:

AEM: PG - FGG

SANA: RS - PLB

QA: MN

QC: SB

Health & Safety:

- Tool box meeting held at SANA
- Speed on roads around dikes

Daily Advance:

SANA: SD4 : key trench clean-up completion → fault removed teramap

CD : instruments

SD3 : filters in slope u/s 0 3/4" & 0-6"

QA: Key cleanup

OWNER:

General Planning/Comments:

SANA: SD3 : finish 0-3/4" → 0-6"

SD4 : slush grout + till

CD : maybe key trench clean up

QA:

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Aug 31 ST 2017

Time: 8h00

Presents:

AEM: PG - SK

SANA: PLB - ~~RS~~

QA: MN

QC: SB

Health & Safety: Using the "jumping jack"

Daily Advance:

SANA: SD5 : slush grout + till first layer

~~SD4 : SD slush grout~~

SD3 : finished 1440.5 of fine & coarse in dyke clean-up key trench south

QA:

CD : Elbow pipe

OWNER:

General Planning/Comments:

SANA: SD3 : Continue key trench clean-up

SD5 : finish slush grout & till first layer

SD4 : start on key trench slush + till

QA:

Till pit E : move till

OWNER: CD : Elbow pipe

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3.4.5

AGNICO EAGLE
MEADOWBANK

Date: Sept 1ST '17

Time: 8h00

Presents:

AEM: PG-JK-SK

SANA: RS-PLB

QA: MN

QC: SB

Health & Safety:

- Fog outside + smoke
- Trips & falls → slippery
- Bumpers were fixed

Daily Advance:

SANA: SD4-SD5 : 1st lift of till completed to 90%

SD3 : clean-up key trench

CD : keytrench clean-up + blower

QA:

OWNER: SD3 : fill the over excavation with till secondclass

General Planning/Comments:

SANA: SD3 : 3/4 & 0-6" lifts to 145 + key clean up start up

SD4 : finalize keytrench at west abutment

CD : keytrench final clean-up

QA:

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Sept 2nd 2017

Time: 8h00

Presents:

AEM: PG - SK - JK

SANA: PLB - RS

QA: MN

QC: SB

Health & Safety:

- Report from Mine Inspector received
- Pick up carrying stock in box without tailgate

Daily Advance:

SANA: SD3 : Key trench clean-up South
finish lift 145 + sloping + compaction

CD : finished clean-up

QA: Till : 1742m³ of 2nd class till at crusher stockpile

OWNER:

General Planning/Comments:

SANA: SD3 : final clean-up North
finalization of sloping

SD4 : finish shush grout + till

QA: Till : continue hauling till

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Sept 3rd 2017

Time: 8h00

Presents:

AEM: PG - JK - SK

SANA: CG - PLB - RS - RC

QA: MN

QC: SB

Health & Safety:

- Allergic reactions → epipen
- Extinguisher & safety

Daily Advance:

SANA: SD3 : key trench clean-up → South & North
finish sloping & filters on u/s Slope + compaction

SD Till : 600 m^3 Need to be mixed

T

QA:

OWNER:

General Planning/Comments:

SANA: SD3 : continue final clean-up key trench

SD4 : west abutment till placement
slush grout +

QA: CD :

OWNER: No owner rep. for the week

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Sept 4th 2017

Time: 8h00

Presents:

AEM: PG - SK - JK

SANA: CG - PLB - RC

QA: MN

QC: SB

Health & Safety: No Concerns

Daily Advance:

SANA: SD4 : till plug finished, compacted

SD3 : finished shaping blowpipe North

QA: R+E till : work on access, ± 200m³

OWNER:

General Planning/Comments:

SANA: SD3 : blowpipe N & S abutments

CD : slush grout, till, compaction

QA: Till : more to haul 1200m³ at SANA, work on access

OWNER: Francis as-surveyor on dikes

Report By:

P:\Engineering\05-Construction\03-Tarmigan\Dams\Saddle Dam 3\311*\03-Daily Inspection Reports and Meetings\[QC-Daily Inspection Report.xls]Daily Report

QC INSPECTOR'S DAILY REPORT
SADDLE DAMS 3-4-5
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2017-05-24 Inspector - Day/Night: Alexandre Lavallée

Weather : Cloudy / Baisy

Project: SD5 Contractor: SANA

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities:

Soft Sediment Excavation	☑	Key Excavation	☐	Coarse Filter	☐	Drilling/Blasting	☐
Foundation Preparation	☐	LLDPE/Geotextile	☐	Till	☐		
Water Control	☐	Fine Filter	☐	Rockfill	☐		

Description: - Snow removal near SD5. For culvert to pig launcher.

- Pad preparation for culvert instelation

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: - Excavator CAT-345D

Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

P:\Engineering\05-Construction\05-1 Logs\Dams\Saddle Dam 3,4,5\17-FEB-Daily Inspection Reports and Meetings\QC-Daily Inspection Report .xls]Daily Report

QC INSPECTOR'S DAILY REPORT
SADDLE DAMS 3-4-5
AGNICO-EAGLE MEADOWBANK

AGNICO·EAGLE

Date: 2017-05-25 Inspector - Day/Night: Alexandre Lavallée

Weather : Cloudy / Rainy

Project: SD3-SD5 Contractor: SANA

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities:

Soft Sediment Excavation	☑	Key Excavation	☐	Coarse Filter	☐	Drilling/Blasting	☑ (Prep)
Foundation Preparation	☐	LLDPE/Geotextile	☐	Till	☐		
Water Control	☐	Fine Filter	☐	Rockfill	☐		

Description:
- The contractor prepared the floor for the 1st blast pattern. (SD3)
- The contractor prepared the pad, near SD5 for the culverts that will be used for pig launcher pipes and cables.

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment:
- Excavator CAT - 345D

Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

P:\Engineering\05-Construction\SD-T-alings\Dams\Saddle Dam 3\2017\FB5-Daily Inspection Reports and Meetings\FQC-Daily Inspection Report, etc\Daily Report

QC INSPECTOR'S DAILY REPORT
SADDLE DAMS 3-4-5
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 2017-05-26 Inspector - Day/Night: Alexandre Lavallée

Weather : Cloudy

Project: SD3 Contractor: SANA

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities:

Soft Sediment Excavation	☑	Key Excavation	☐	Coarse Filter	☐	Drilling/Blasting	☑
Foundation Preparation	☐	LLDPE/Geotextile	☐	Till	☐		
Water Control	☐	Fine Filter	☐	Rockfill	☐		

Description:

→ Prepare floor for drilling pattern.

→ Snow removal

→ Drilling of the first blast pattern

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment:

→ Excavator CAT 345D

→ Tamrock drill

Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

QC INSPECTOR'S DAILY REPORT
SADDLE DAMS 3-4-5
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2017-05-27 Inspector - Day/Night: Alexandre Lavallée

Weather: Cloudy

Project: SD3-4-5 Contractor: SANA

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities:

Soft Sediment Excavation	☑	Key Excavation	☐	Coarse Filter	☐	Drilling/Blasting	☑
Foundation Preparation	☐	LLDPE/Geotextile	☐	Till	☐		
Water Control	☐	Fine Filter	☐	Rockfill	☐		

Description:

→ Drill / load / blast the first pattern in SD3.

→ Place blast mat over the pattern

→ Snow removal / Access work

→ 1 load (100 tons) of 3/4" brought to SD5 for culvert

Delays:

Comments (observations, comments, discussions with contractor, ect.):

→ Blast delayed from 15h30 to 16h00

→ Blasting procedure (JHA) presented to SANA and AEM (11h00)

Equipment:

→ CAT 345D

→ Tamrock

Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

QC INSPECTOR'S DAILY REPORT
SADDLE DAMS 3-4-5
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2017-05-23 Inspector - Day/Night: Alexandre Lavallée

Weather : Cloudy

Project: SDB-4-5 Contractor: SANA

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities:

Soft Sediment Excavation	☑	Key Excavation	☐	Coarse Filter	☐	Drilling/Blasting	☑
Foundation Preparation	☐	LLDPE/Geotextile	☐	Till	☐		
Water Control	☐	Fine Filter	☐	Rockfill	☐		

Description:
- → Drill / load / blast the second pattern
- → Place blast mats
- → Snow removal / Access work
- → Culvert installation (SD5)
  - ↳ Placement of aggregates
  - ↳ compaction
  - ↳ placement of rockfill

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment:
- CAT 345D
- Tamrock
- compactor

Manpower:
-

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Aug 5 2017

Time: 8:30 am

Presents:

AEM: Jeremy Kancir

SANA: Rene Collard, Pierre Luc BABIN

QA: N/A

QC: N/A.

Health & Safety:

BARRACADE AT BLOW PIPE.
JHA FOR LINER CREW (FGL)

Daily Advance:

SANA: CD - TILL PLUG COMPLETE.
ES - HAUL TILL 280 m³
SD3 - BLOW PIPE

QA: N/A.

OWNER:

General Planning/Comments:

SANA: SD3. FINISH BLOW PIPE
FINISH TILL AT ES.

QA:

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 6-09-17

Time: 08:00 AM

Presents:

AEM: DG – SKM

SANA: RC / RS / JG

QA:

QC: CF

Health & Safety:

Nothing
Specific Risk Haulage at Portage NPAG w/D
JHA for Liners Crew
JHA for Blow Pipe.

Daily Advance:

SANA: 24h
SD3N Blow Pipe
C/D + SD4 + SD5 Baller + 345
Haul Till E5 → SANA 6200 M³
Cleanup SD3 for Sump

QA:

OWNER:

General Planning/Comments:

SANA: Baller 345 SD4
To seal Till at SANA + To Mine
Cleanup SD3 Drill Prep

QA:

OWNER:

Report By: Denis Gaudreault

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Sept 7th 2017

Time: 8h00

Presents:

AEM: AL, DG, SK

SANA: SG, SL, RS

QA: MH, YB

QC: CFT

Health & Safety:

→ Revision of JHA for bedrock cleaning

→ Portage dump (near fuel farm) reopened. Be aware

→ No blast.

Daily Advance:

SANA: → Drill prep at SD3 (excavation 26 loads)

→ CD Slope compact

→ Till seeding at crusher

QA:

OWNER:

General Planning/Comments:

SANA: → Drill prep. to complete.

→ Seeding till pile.

→ NC dump

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Sept 8th, 2017

Time: 8h00

Presents:

AEM: AL, FB, DG

SANA: SL, RS, FP, JG

QA: MH

QC: CFT

Health & Safety:

-> Perimeter security

-> JHA verification for liner inst.

-> Coactivities of work on site

-> Drilling ground hole for electrical substation (Reclaim + Adria)

->GSL presented pre job assessment. they use

Daily Advance:

SANA: -> Complete drill prep at SD3

-> Shovel moved to ES for sorting 0-300mm

->

QA:

OWNER:

General Planning/Comments:

SANA: -> SD3 protect. layer

-> Sorting 0-300mm ES

-> Blowing found./abut. SD3

QA:

OWNER: -> Pig launcher meeting.

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Sept 9-19

Time: 8:00 AM

Presents:

AEM: DG - SK

SANA: SL - FP - RC - ~~MH~~ - ~~CF~~ - RS

QA: M H

QC: C F

Health & Safety: Nothing special

Spill SD Rd 20L coolant 140 # 1702

Respect Speed limits

Blast 12:45 Phase get Ouers Strong Wind ...

Daily Advance:

SANA: - Till Class 1 SD3 on Liner 26 Loads
- 346 Sort 0-300 ES Class 2
- Blow Rejet SD3 Key
- Compartir Key SD4 - SD5 + C/D
- Relocate SD3 Demat. Pump and line

QA:

OWNER:

General Planning/Comments:

SANA: SD3 Till on liner Class 2 → Cass 2
450 SANA Pad for Till
Sort 0-300 ES 450
SD3 Key Grout

QA:

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Sept 10 2017

Time: 8h00

Presents:

AEM: AL, SK

SANA: SL, RC, RS

QA: MH

QC: CFT

Health & Safety:

-> keep safe dist. from bucket

Daily Advance:

SANA: -> SD3 protect. (Class I) + class II

-> SD3 north slush grouth + till (class I)

-> Seiving 0-300 Portage.

QA:

OWNER:

General Planning/Comments:

SANA: -> final cleaning + Drill at SD3

-> SD3 south abut. Sleugh grout + till

-> SD4 panel for pig launcher

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Sept 11th, 2017

Time: 8h00

Presents:

AEM: AL, DG,

SANA: SL, FP, RC, JG, RS

QA: MH

QC: CFT

Health & Safety:

→ JHA for D/B was provided to Rene C.

Daily Advance:

SANA: - SD3 cleaning (blast bottom)
- SD3 Key trench shlg. grout + till completed - South + North
- Pig launcher pad
- Sealing till crush pil at crusher
- 16 holes drilled.

QA:

OWNER:

General Planning/Comments:

SANA: - SD3 protection (layer (class 2))
- Sieving 0-300mm at Portage.

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 09-12-17

Time: 8:00

Presents:

AEM: DE /

SANA: SC / BC / SL

QA: MH

QC: CFT

Health & Safety:

- Ensure good parking practice
- Last Owned projects

Instal PCR 28 → 110014

Daily Advance:

SANA: Continue protective layer on Liner
775 m3 Labs 2 0-300 Low grad.
17 x 740 10 x 777
+ Compaction SD3 and prep Launch. SD4
Drilling at SD3 Sump 20 Labs (Total 36 Test)

QA:

OWNER:

General Planning/Comments:

SANA: - Prep Launch pad SD4 pad 3/4" 30' x 30' for E+I
- SD3 Continue Low Fill (0-300) to cont. acc. light
- 450 To load + Salt Till at ES
- Drill to continue on SD3 Sump

QA:

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Sept 13th 2017

Time: 8h00

Presents:

AEM: AL, DG

SANA: [illegible], SL, RC, SC

QA: MH

QC: CFT

Health & Safety:

→ Coactivity with mine eq. at SD3

→ Dont park behind other vehicule.

dBlast

Daily Advance:

SANA: → Pig launche pad completed (0-3/4)

→ till low quality

→ Sorting 0-300 + loading till from Portage

→ SD3 drilled 16 holes

QA:

OWNER:

General Planning/Comments:

SANA: → Rockfill pad at SD3 + compaction.

→ Scaling Class I at SANA crusher

→ Sorting 0-300 mm at Portage

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Sept 14 2017

Time: 8h00

Presents:

AEM: AL, DG

SANA: SC, RC, CT, JG

QA: MH

QC: CFT

Health & Safety:

→ Coactivities at SD3

→ No equ. should park around trailer

Daily Advance:

SANA: → Rock fill (protec) at SD3.

→ Till class I for protect. layer.

→ Sorting 0-300 mm at Portage

→ Sorting at SANA crusher

QA:

OWNER:

General Planning/Comments:

SANA: → SD4 trench for liner

→ SD3 drill 15 holes. (11 left for 1st blast)

→ SD3 protect. layer (class I + II)

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Sept 15, 2017

Time: 8h00

Presents:

AEM: AL, DG

SANA: MR, SC, CT, JG

QA: MH

QC: CFT

Health & Safety:

- Blast SD3 15h30.
- Potential for slipery cond. (raining)

Daily Advance:

SANA: SD3 proct. class I completed / started class II
SD4 pig launcher access
SD4 trench for liner ± 150m
SD3 drilling Seq 1 completed. loading night shift

QA:

OWNER:

General Planning/Comments:

SANA: SD3 : - 2nd class Protect
- Blast mat install / Blasting @ 15h30
SD4 : - pig launcher access road
- trench for liner

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Sept 16th, 2017

Time: 8h00

Presents:

AEM: AL, DG

SANA: JG, CT, SC

QA: MH

QC: CFT

Health & Safety:

- TBM meeting held by SANA
- Slippery condition

- 0 blast

Daily Advance:

SANA: SD3:- 2nd Class till.
- Prepare blast. / blast 1st seq.

SD4:- Pig launcher access cleanup

QA:

OWNER:

General Planning/Comments:

SANA: SD3 : - continue 2nd Class till
- Clean up blast. Retrieve blast mat

SD4 : - Finalize pig launcher access

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Sept 17th, 2017

Time: 8h00

Presents:

AEM: AL, DG

SANA: CT, JG

QA: MH

QC: CFT

Health & Safety:

→ Coactivity SD3

→ Inspect. of membrane equip. (on shovel)

Daily Advance:

SANA: SD3: - cleanup of drill pattern
- Drilling 8 holes.
- Class II till. Stripping till that was too wet
* - hole in membrane caused by compaction

SD4: - Access work for flat pad

QA:

OWNER:

General Planning/Comments:

SANA: SD3: - complete class II fill

SD4/5: - Cleanup loose meter over liner for joining with new.

* No work (except drilling) tomorrow (Monday). Crew mobilized to Amaruq road. Only for 1 day.

QA:

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

No Daily Meeting on 18th Crew Change

AGNICO EAGLE
MEADOWBANK

Date: 19-9-17

Time: 08:00 AM

Presents:

AEM: D G

SANA: C T - S C

QA: M H - ~~H S~~

QC: H P

Health & Safety:

Blas E S 12:45

Sun Blinding Coactivity 3 Pair/ Contact

Fire Inst. Walk around

- Kevin Champagne Mini Prod Besserve

Daily Advance:

SANA: ~~To continue NPAG~~

18th. Finaling Class 2 + Back Fill SD3:

Trench SD4

19th. Labor Cleanup liner SD4 + SD5 + CD Blow Pipe

Drill 9h. = 27 holes

QA:

- Rock fill to continue SD3

SD4 trench for liner with Wheel Backhoe

OWNER: SD3 Cleanup oversize

- To Complete Drilling Sump SD3

General Planning/Comments:

SANA: - To look tomorrow correction SD5 Bump + Scarification Befor ZTG arrives.

- To plan to get Geotex tile on site SD4+5

- To plan to move also DPE on SD4+5

QA:

- To Blast Sump SD3

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Sept 20th 2017

Time: 8h00

Presents:

AEM: PG

SANA: SC - CT - CG

QA: MH

QC: HP

Health & Safety:

- Blast at sump_SD3
- Coactivity
- All equipment verified for liner

Daily Advance:

SANA: - Liner anchor trench completed_SD4 - started SD5
- SD5 corrected slope
- scarification of till
- cleaning dikes from boulders

QA:

OWNER:

General Planning/Comments:

SANA: - Continue liner anchor trench SD5
- till plug scarification
-

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING tops stop

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Sept 21 2017

Time: 8h00

Presents:

AEM: PG-JC

SANA: CT-CG-SC

QA: MN

QC: HP

Health & Safety:

- Blow pipe make sure to wear proper PPE
- Coactivity with liner guys

Daily Advance:

SANA:
- Start at SD3 Sump
- Scarification of till plug
- SD5 + CD anchor trench

QA:

OWNER:

General Planning/Comments:

SANA:
- Place SD liner
- Start Sump excavation at SD3
- CD finish anchor trench
- Liner preparation at SD's for liner

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Sept 22nd 2017

Time: 8h00

Presents:

AEM: PG-RC SC (ZTG)

SANA: CG - GT - SC

QA: MN

QC: —

Health & Safety:

- Phaser pit blast 12h45
- Conctivity SD4 with liner + dewatering
- Only one loader on the move with excavator

Daily Advance:

SANA: - Excavation dump SD3 → 28 loads of 740

- Prep for liner SD3 - SD4 - 5

QA:

OWNER:

General Planning/Comments:

SANA: - liner at SD4

- Prep SD5 + CD

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Sept 22nd '17

Time: 8h20

Presents:

AEM: PG - RC (SC → ZTG)

SANA: CG - CT

QA: MH

QC: HP

Health & Safety:

- Blast at Vault 12h45
- Clear arrow
- Be careful slippery on liner

Daily Advance:

SANA:
- Start liner (patch at SD3)
- Continue mucking Ramp SD3
- SD4 start liner → geotextile (900 m²)
-

QA:

OWNER:

General Planning/Comments:

SANA:
- Continue Ramp excavation
- CD corrections find
- remove tearing from the areas of abutment

QA:

OWNER:

Report By: Pat Gagnon

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Sept 24th 2017

Time: 7h00

Presents:

AEM: PG - RC SC (Z+G)

SANA: CG-SC-CT

QA: MN

QC: HP

Health & Safety:

- Frost on tarp, be careful
- Refueling procedure to be reviewed with crew

Daily Advance:

SANA: - 5 panels of liner
- try to repair Vac-box & extruder
- remove tarp from abutments

QA:
- Slope correction CO North

OWNER: - Sump excavation

General Planning/Comments:

SANA: - Sump excavation
- gaiter + liner SD4

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Sept 25th 2017

Time: 7h00

Presents:

AEM: PG - RC SC (ZTG)

SANA: CY -

QA: MN

QC: HP

Health & Safety:

- Fog outside, headlights on - Caution around SD3
- No Hast today

Daily Advance:

SANA: Muck sump → sloping ongoing - SD3

Liner → 900 m² SD4 tested & approved

QA:

OWNER:

General Planning/Comments:

SANA: Muck sump → sloping ongoing - SD3

Liner SD4 (90 panel left)

QA: Need to inspect the anchor of liner

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Sept 26th 2017

Time: 7h00 am

Presents:

AEM: PG, RC

SANA: PLB

QA: MN

QC: HP

Health & Safety:

- Blast: 12h45 pm @ Phaser
- Slippery conditions on LLDPE, watch your footing
- Lots of activity, be aware of your surroundings.
- Respect and language on the radio.

Daily Advance:

SANA: Last 24: SD3: - Digging sump, establish pump pad
SD4: - LLDPE installation. (20 panels)
- Retaining trench backfilled & packed.

QA:

OWNER:

General Planning/Comments:

SANA: Next 24: SD3 - Finish sump, pump pad & clean-up
SD4 - Finish extrusion & testing of LLDPE
SD5 - LLDPE installation.

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Sept 27th 2017

Time: 8h00 am

Presents:

AEM: RC

SANA: PLB

QA: MN

QC: HP

Health & Safety:

- No Blast
- Slippery on LLDPE, watch your footing
- Foggy, headlights on & good vicibility

Env. Spill 35 litres on 740 hyd. (picked-up & disposed of)

Daily Advance:

SANA: Last 24: SD4: LLDPE 16 panel (1200 m²) - extrusion & testing.
SD3: Dig sump (4hrs)
Central D: Brough left over rolls of LLDPE

QA:

OWNER:

General Planning/Comments:

SANA: Next 24: SD4: LLDPE clean-up
SD3 LLDPE clean-up, extrusion & testing.
Central D.: Geotextile & LLDPE
SD5: Packing retaining trench.
SD4: west side access.

QA: SD3:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Sept 28th 2017

Time: 8h00 am

Presents:

AEM: RC

SANA: PLB

QA: MN

QC: HP

Health & Safety:

- No Blast
- Weather issues: Slippery conditions on LLDPE, watch your footing,
- Lots of activity, use good communication.

Daily Advance:

SANA: Last 24: - Spill clean-up
- SD3: Digging sump & trench, rockfill protection in trench.
- SD4: ⊘
- SD5:
- Cent. Dike: Geotextile installation.

QA:

OWNER:

General Planning/Comments:

SANA: 24: SD3: Complete sump, rockfill protection.
& D4: clean-up, build access on west side, till Backfill on west side.
Cent. Dike: LLDPE installation in wind stop.
SD5: extension for LLDPE

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Sept 29 2017

Time: 8h00 am

Presents:

AEM: RC

SANA: PLB, RS, CG

QA: MN

QC: HP

Health & Safety:

Blast: 12h45pm - Phaser.
Weather conditions, Drive to conditions;
AWPR; bumper by the sump or not.

Daily Advance:

SANA: Last 24 : SD3 : Sump correction trench liner.
SD4 : till 3/4", 6" rockfill (50% completed)
SD5: finalized LLDPE, anchor trench packing.
Cent. Dike: LLDPE prep work.

QA:

OWNER:

General Planning/Comments:

SANA: Next 24: SD3: Slope stabalization, Pump pad correction.
SD4: Bedrock clean-up., Rockfill protection
SD5: Bed rock clean-up., Rockfill protection.

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Sept. 30 2017

Time: 8h00 am

Presents:

AEM: RC, FB

SANA: PLB, RS, SC

QA: MN

QC: HP

Health & Safety:

Blast: 12:45 pm - Vault.

- Broken wiggins end cupping, broken weld, small fuel spill.
- Slip, trips & falls, watch your footing.

Daily Advance:

SANA: Last 24: SD3: sump & slope stabilization completed
SD4: clean-up bedrock
SD5: clean-up bedrock.

QA:

OWNER:

General Planning/Comments:

SANA: Next 24: SD3: Till corrections, rockfill
SD4: Till installation.
SD5: Approval
Cent. Dike: LLDPE installation.

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Sept 30 2017

Time: 8h00 am

Presents:

AEM: RC, FB

SANA: PLB, RS

QA: MN

QC: HP

Health & Safety:

Blast: 6h30pm in Vault.

- Snow fall, Slippery ground
- Lots of activity, people on foot, be aware of your surroundings at all time, (pick-up to pick-up contact @ sana)

Daily Advance:

SANA: Last 24h: Help mine Operations with RD maintenance

- SD3: 450m³ of rockfill.
- SD4: till 2nd class.
- SD4: till, 3/4" NPAG.

QA:

OWNER:

General Planning/Comments:

SANA: SD4: SD3 - Rockfill protection

SD4: - till 2nd class.

SD5: - till, till 2nd class, 3/4" NPAG.

Central Dike: till + till 2nd class.

SD4: clean-up mud & wet till

QA: SD5: clean-up mud & wet till

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 10-02-2016

Time: 8h00 ~

Presents:

AEM: RC, FB.

SANA: RS, CG, JG, FP, PLB

QA: MA

QC: HP

Health & Safety:

Blast: 12h45pm ~~Phase~~ Pit E

- Strong wind, snow, bad visibility, Slippery ground

Daily Advance:

SANA: Last 24: SD4-SD5 : 1st & 2nd class till installation.

CD: 1st class installation

QA:

OWNER:

General Planning/Comments:

SANA: Next 24 : 1st class till installation. everywhere.

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Oct 4, 2017

Time: 8h00

Presents:

AEM: AC, DG, FB

SANA: DLB, RS, FP, JG

QA: MH

QC: HP

Health & Safety:

→Weather condition (windy) + Slippery

→Coactivities

→Blast pit A 18h30

Daily Advance:

SANA: → till plug CD (class II not compatible ⇒ removed and replaced by class I)

→ SD5: 10' (lift till compacted.

- 0.3/4" in slope

QA:

OWNER:

General Planning/Comments:

SANA: SD5: continue till and 3/4"

- Protect liner from wind with Tarp-up

CD:

SD4: till class I on liner

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: Oct 5, 2017

Time: 8h00

Presents:

AEM: AL, DG, FB

SANA: BS, PLB, FP

QA: MH

QC: HP

Health & Safety:

-> High wind (gusting up to 90 km/h)
->Wear proper PPE for high wind
-> A loss time accident happened. Pickup driven without seat belt.
->Blast Phase 12h45

Daily Advance:

SANA: -> SD4: east -> 1 lift of glass II (with class I) + compact.
SD5: hanging at u/s for truck safety. 3/4" and 6"

QA:

OWNER:

General Planning/Comments:

SANA: SD4: east: till class II (with class I) 3rd and 4th lift.
SD5: till lift #3 (class II).

QA:

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 6-10-17

Time: 8:00 AM

Presents:

AEM: D G

SANA: R S / P L B / F P / J G /

QA: M H

QC: ~~M H~~ H P

Health & Safety:

- To avoid pushing too fast and remain Focus.
- Slippery (Dfrost mud
- Slip Trip and fall

Blast 12:45 Vault

Daily Advance:

SANA: 24h. - Finish till #1 SD4 east Pit L.
- SD5 97% Back fill finish
-

24h. - SD4 To finish Till Play
QA: - SD5 To finish Till Play
- SD3 Make till + protection

OWNER:

General Planning/Comments:

SANA:

QA:

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING /

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2017-08-07

Time: 8h00

Presents:

AEM: AL, JG

SANA: PLB, RS, JG

QA: MH

QC: HP

Health & Safety:

-Slipping conditions

Blast Phaser 12h45

Daily Advance:

SANA: SD4: west : 2 lifts 1st class
east completed till 3/4" protect. started
SD5 : complete till 3/4" protect. stand.

QA:

OWNER:

General Planning/Comments:

SANA: SD4: Complete 3/4" on 6"
SD5 : "
CD Start 3/4" on 6"

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2017-10-08

Time: 8h00

Presents:

AEM: AL, DG

SANA: PLB, AS, JG, DP, FP

QA: MH

QC: HP

Health & Safety:

→ Loss time accident yesterd. @ tmarvy. Hammer on thumbs.
↳ Medivac. Remember we are in remote site.
→ Locaten operat. complained of back pain.
Blast 12h45 Vault

Daily Advance: → coactivity with SC interd Struct.

SANA: SD4: west → till completed. 3/4" Started
east → complete 3/4" 6" started
SD5: complet 3/4" and 6".

QA:

OWNER:

General Planning/Comments:

SANA: CD: 3/4" an 6".
SD5: ✓
SD4: complete 3/4" an 6".
SD3: till /3/4 and 6"

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2017-10-09

Time: 8h00

Presents:

AEM: AL, DG, FB

SANA: PLB, JG, PP

QA: MH

QC: HP

Health & Safety:

→ Shovel operator needs to review/sign JHA for SC Internal Struct. construct.

→ Slipping condition - Especially near Labor.

→ Blast 1245 Vault

Daily Advance:

SANA: - 3/4" and 6" completed everywhere.
- Fine ~~[illegible]~~ RF

QA:

OWNER:

General Planning/Comments:

SANA: → finish fine rockfill all dikes.
→ Berming on liner.

QA:

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2017-10-10

Time: 8h00

Presents:

AEM: AL, FB, DG

SANA: PP

QA: MH

QC: HP

Health & Safety:

→ Keep focus

→ trip and fall

→ Blast 18h30 pit A

Daily Advance:

SANA: CD: complete RF prot.

SD3: --

SD4: RF protect. ongoing.

QA:

OWNER:

General Planning/Comments:

SANA: SD4: - finish RF protect.

SD5: --

QA:

OWNER:

Report By:

APPENDIX E - QA REPORTING

APPENDIX E1 - QA WEEKLY REPORTS

TECHNICAL MEMORANDUM

DATE July 5, 2017 **REFERENCE No.** 1777687
Doc. 1567 Rev 0

TO Pierre McMullen, Julie Bélanger, Patrice Gagnon, Alexandre Lavallée
Agnico-Eagle Mines Limited Meadowbank Division

CC Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA WEEKLY REPORT FROM JUNE 26 TO JULY 02, 2017 – TSF SOUTH CELL CONSTRUCTION MEADOWBANK (1777687)

This document summarizes QA activities performed by Golder from June 26 to July 2, 2017, inclusively, related to the construction activities of Saddle Dams 3, 4 and 5 (SD) at the Meadowbank mine site.

Unless specified, the construction activities use the centreline of the structures for a dike crest elevation of 150 m for reference (refer to the Drawings). The description of activities refers to the stations and offsets from the centreline (e.g., Sta. 0+500/-50 m). The "+" and "-" symbols indicate the location of the work downstream and upstream of the centreline, respectively.

1.0 GOLDER PERSONNEL ON SITE

Golder personnel on site during this reporting period is summarized in Table 1.

Table 1: Golder Personnel on Site

Name	Comments
Michael Nadon	QA Engineer

2.0 HEALTH AND SAFETY

H&S meetings were held with AEM and FGL/Sana during the daily construction meetings. Minutes from these meetings are recorded and stored in Golder's on-site office. The key H&S elements for the reporting period were as follows:

- Arrival of Michael Nadon as QA manager and Hugues Potvin and Sébastien Blackburn as QC on site on the 26th. SOP course for the QA and QC personnel on the 26-27th to review the site procedure.

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- Dust is an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.
- Co-activity is occurring around Saddle road (haul truck and site service). Pay attention and stay vigilant when working around the construction field.
- A JHA concerning the cleaning of the missholes at Saddle Dam 3 with water has been issues and signed by all concerned.
- While out in the field, maintain a safe distance from the excavator. Be sure you make eye contact with the operator of the excavator before walking around it.
- A safety meeting took place this morning with the haul truck operators. Among others, Jeremy Kancir (AEM constructor supervisor) made sure that every operator uses the proper radio frequency while on the dike site.
- Warm weather: drink sufficient water, find some shade, and, if possible, stay in the pick-up with the air conditioner on while you are out in the field.
- Attention has to be paid when excavating the south-west section of SD4. There are buried cables near this section. After discussion, someone will be delegated for overseeing the task.

3.0 SUMMARY OF MAIN DISCUSSIONS IN CONSTRUCTION MEETINGS

Construction meetings were held daily during the reporting period and were attended by the QA manager. The following items were discussed:

When the QA Manager arrived on site on June 26th:

- SD5: AEM proceeded to the drilling and blasting of the dike footprint on the downstream side of SD5 from Sta. 40+620 to 40+720 for a final elevation at 150 m (there was no QA on site during this operation). Loose rocks and soft and ice-rich soils were being removed from the Saddle Dam footprint.
- SD4: AEM proceeded to the drilling and blasting of the dike footprint on the downstream side of SD4 from Sta. 40+020 to 40+430 for a final elevation at 150 m. Loose rocks and soft and ice-rich soils have been removed from the Saddle Dam footprint (there was no QA on site during this operation). A strip of soft soil on the extreme east of the dike footprint still needed to be removed.
- SD3: AEM was still proceeding to the drilling and blasting of the dike footprint on the downstream side of SD3 for a final elevation at 150 m.

General

- The QA Manager reminded that water ponds present on dikes footprint have to be pumped before any placement of material in order to confirm a good quality bedrock.
- The QA Manager reiterated the specifications about the placement and the compaction of the rockfill on the dike footprint.
- It was discussed that the UM rockfill hauled on July 1st from the pit was too coarse (particle size >1.3 m) for the dike infrastructure. It was mentioned that as soon as the particle size is less than 1.3 m, hauling will restart on the dike.

- A new deposition plan for the south cell of the TSF is about to be issued by AEM. The new plan will guide the decision about the possible installation of LLDPE geomembrane on SD5 and SD4 during the 2017 construction season. More information to come in the next few days.
- It was discussed that Sta. 40+600 m will be used to differentiate SD4 and SD5. As illustrated in the original plans, it is understood that SD4 is contained between Sta. 40+000 to 40+600 m, and SD5 between Sta. 40+600 to 40+800 m.

Saddle Dam 5

- The QA Manager and the surveyor (François Gravel) reviewed the location of the access road placed last spring over non-approved foundation within the upstream side of the footprint of SD5. The access road will need to be removed to prepare the foundation.
- After discussions with the representatives of AEM, Golder and FGL, it has been tolerated that the access road on the downstream side of the SD5 footprint will be placed with an excavator instead of a dozer. However, the placement's thickness should not exceed 1 m.
- It was discussed that the first lift of 1.5 m thick (approx.) of UM rockfill used to fill in the holes of the natural ground on the downstream side of the SD5 footprint will be compacted with a 10-tonne smooth-drum compactor before the placement any other material.
- The QA Manager noticed that a section (Sta. 40+710 to 40+675) of the geomembrane on SD5 is damaged. There are some holes varying from 1 to 15 cm. The holes have been marked by the QA Manager.

Saddle Dam 4

- The QA Manager reminded that the clean-up of the SD4 footprint within the upstream side needs more attention than the downstream side. It has to be excavated until good quality bedrock is reached.

Saddle Dam 3

- A drill is planned to arrive on Monday (July 3rd) to finish the drill and blast on the north side of SD3.
- The current sump on the north part of SD3, which collects water around the dike toe, is located on the downstream dike footprint for a final elevation at 150 m. A new location for the sump is being planned. The new sump will be located beyond the dike footprint. The planning of the new sump will take into account the north-south faulted area on the north part of SD3. More information to come in the next days.
- SD3 alignment will probably need to be adjusted in its southern extension due to the airstrip quarry limit. The QA Manager and the surveyor will investigate in the next few days.

4.0 SUMMARY OF CONSTRUCTION ACTIVITIES AND TEST RESULTS

Periodic QA inspections to monitor the construction activities and progress were performed by the QA Engineer; these are summarized in the tables below.

Table 3: QA Observations for Saddle Dam 5

Activity or Area	Comments
Foundation preparation	■ Removal of loose rocks and soft and ice-rich soils with an excavator to reach a good quality bedrock for the dike footprint from Sta. 40+600 to 20+720 m.
Downstream	■ Placement of a 1.5 m thick (approx.) lift of UM rockfill on the footprint to fill in the holes of the natural ground surface from 40+600 to 40+680 m (o.s. 7 to 22 m). The material is compliant.
Upstream	■ Removal of the old access road and loading of the excavated material for the foundation preparation from Sta. 40+600 to 40+620.
Water management	■ The water in the southern part of the SD5 footprint has been pumped.

Table 4: QA Observations for Saddle Dam 4

Activity or Area	Comments
Foundation preparation	■ Removal of loose rocks and soft and ice-rich soils with an excavator to reach a good quality bedrock for the dike footprint from Sta. 40+540 to 40+600 m (o.s. 15 to 40 m). ■ Removal of loose rocks and soft and ice-rich soils with an excavator to reach a good quality bedrock for the dike footprint from Sta. 40+480 to 40+500 m (o.s. 30 to -25 m). ■ Removal of loose rocks and soft and ice-rich soils with an excavator to reach a good quality bedrock for the dike footprint from Sta. 40+440 to 40+520 m (o.s. -28 to -43 m). ■ Final clean-up with an excavator to reach a good quality bedrock where water had been pumped earlier from Sta. 40+340 to 40+400 m.
Downstream	■ Placement a 1.5 m thick (approx.) lift of UM rockfill on the footprint from 40+540 to 40+600. This placement will be used as an access road. ■ Loading of the excavated material for the foundation preparation from Sta. 40+480 to 40+510 (o.s. 30 to -25 m). ■ Loading of the excavated material for the foundation preparation from Sta. 40+400 to 40+440.
Upstream slope	■ Removal of the old access road and loading of the excavated material for the foundation preparation from Sta. 40+540 to 40+600 m.
Water management	■ The water pound in the cleaned section of the southern part of SD4 (around Sta. 40+430) has been pumped.

Table 5: QA Observations for Saddle Dam 3

Activity or Area	Comments
Downstream	■ The 8 missholes on the downstream side of the northern part of the SD3 footprint have been cleaned with water.

5.0 FOUNDATION APPROVAL

The following foundation approvals were carried out during the reporting period.

Table 6: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
FND-SD5-12	SD5	40+588 to 40+537 (o.s. 22.60 to -9.0 m)	28-06-2017	Approved
FND-SD5-13	SD5	40+580 to 40+705 (o.s. 21.51 to -14.88 m)	29-06-2017	Approved
FND-SD5-14	SD5	40+736 to 40+695 (o.s. 22.11 to -13.3 m)	30-06-2017	Approved

6.0 SAMPLING AND LABORATORY TESTING

No samples were taken during the reporting period.

7.0 PHOTOGRAPHS



Photograph SD5-043: From Sta. 40+720 looking W. Excavation of the loose rocks and soft and ice-rich soils on the downstream side of the SD5 footprint from Sta. 40+720 to 40+620 m. Note the water pond at the extreme east, probably due to ice melting.



Photograph SD5-044: From Sta.40+540/-15 looking SW. Excavation of the loose rocks and soft and ice-rich soils on the downstream side of the SD5 footprint from Sta. 40+540 to 40+620 m (o.s. 15 to 30 m).



Photograph SD5-045: From Sta.40+540/0 looking SE. Excavation of the loose rocks, soft and ice-rich soils on the downstream side of the SD5 footprint from Sta. 40+540 to 40+575 m (o.s. 20 to 40 m). Notice the UM rockfill placement used as an access road.



Photograph SD5-046: From Sta.40+620/10 looking SW. Placement of a 1.5 m thick (approx.) lift of UM rockfill with a dozer on the downstream side of the SD5 footprint from 40+540 to 40+630 m. The material is compliant.



Photograph SD4-105: From Sta.40+430/+20 looking NW. View of the excavation of the loose rocks and soft and ice-rich soils on the downstream side of the SD4 footprint from Sta. 40+430 to 40+020 m. Note the water ponds at the extreme south-west, probably due to ice melting.



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Photograph SD4-106: From Sta.40+480/30 looking NE. Excavation of the loose rocks and soft and ice-rich soils on the downstream side of the SD4 footprint from Sta. 40+480 to 40+500 m (o.s. 30 to -25 m).



Photograph SD4-107: From Sta.40+480/30 looking E. Loading of the excavated material of the downstream side of the SD4 footprint from Sta. 40+480 to 40+510 m (o.s. 30 to -25 m). Notice the water pond on the western part, probably due to ice melting.



Photograph SD4-108: From Sta.40+370/-19 looking W. Loading of the excavated material with the excavator RH-120 on the downstream side of the SD4 footprint from Sta. 40+400 to 40+440.



Photograph SD4-109: From Sta.40+450/-37 looking E. Excavation of the soft/ice-rich soils material on the upstream side of the SD4 footprint from Sta. 40+440 to 40+520 (o.s. -28 to -43 m).



Photograph SD4-110: From Sta.40+580/-20 looking NW. Removal of the old access road and loading of the excavated material for the foundation preparation from Sta. 40+540 to 40+620.



Photograph SD4-111: From Sta.40+370/-14 looking E. View of the excavator doing the final clean-up of the footprint on the downstream side of SD4 to reach a good quality bedrock where water had been pumped earlier from Sta. 40+340 to 40+400 m.

SIGNATURES

GOLDER ASSOCIÉS LTÉE

Reviewed by:

ORIGINAL SIGNED

Marion Habersetzer, Jr.
Eng. QA Engineer

ORIGINAL SIGNED AND SEALED

Yves Boulianne, P.Eng (QC,NU)
Associate, Dike Designer

Attachments: Construction Progress Drawings from AEM as of July 2nd, 2016

MNH/YB/jlm

c:\users\jlacostemccormick\desktop\doc 1567 1777687 rev0 qa weekly report 2017-06-26 to 2017-07-02.docx

TECHNICAL MEMORANDUM

DATE July 27, 2017 **REFERENCE No.** 1777687
Doc. 1567 Rev0

TO Pierre McMullen, Julie Bélanger, Patrice Gagnon, Alexandre Lavallée
Agnico-Eagle Mines Limited Meadowbank Division

CC Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA WEEKLY REPORT FROM JULY 03 TO JULY 09, 2017 – TSF SOUTH CELL CONSTRUCTION MEADOWBANK (1777687)

This document summarizes QA activities performed by Golder from July 3 to July 9, 2017, inclusively, related to the construction activities of Saddle Dams 3, 4 and 5 (SD) at the Meadowbank mine site.

Unless specified, the construction activities use the centreline of the structures for a dike crest elevation of 150 m for reference (refer to the Drawings). The description of activities refers to the stations and offsets from the centreline (e.g., Sta. 0+500/-50 m). The "+" and "-" symbols indicate the location of the work downstream and upstream of the centreline, respectively.

1.0 GOLDER PERSONNEL ON SITE

Golder personnel on site during this reporting period is summarized in Table 1.

Table 1: Golder Personnel on Site

Name	Comments
Michael Nadon	QA Engineer

2.0 HEALTH AND SAFETY

H&S meetings were held with AEM and FGL/Sana during the daily construction meetings. Minutes from these meetings are recorded and stored in Golder's on-site office. The key H&S elements for the reporting period were as follows:

- In order to avoid haul truck collision, haul truck operators have been warned not to park in front of a haul truck that is being loaded.

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- Attention has to be paid when excavating the south-west section of SD4. There are buried cables near this section. After discussion, someone is supposed to be delegated for overseeing the task.
- SANA's health and safety representative will attend the daily construction meeting starting on July 4.
- Concerning the drill and blast on SD3, it was reiterated that each worker involved in this operation needs to ensure that the JHA and the drill and blast procedures are respected.
- The safety guidelines for work around heavy equipment were reiterated.
- A safety share about driving heavy vehicles on haul roads was presented.
- The stockpile at SD3 beside the excavation has reached an important height and small rocks are falling off the slope. It was highlighted that no worker should enter the excavation below the unstable slope.
- Dust is still an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.
- SANA's operators participated in a toolbox and safety meeting on the morning of July 4.
- The sprain hazard associated with walking on unstable ground and stockpiles was reiterated.
- The blast clearance issues experienced on July 6 have been discussed and all departments need to give their clearance by 15:00 for the blasting at 15:30.
- A safety share about the excavators working with the door open was mentioned.
- The rainy weather causes the ground to be slippery and the visibility reduced. Precautions must be taken to avoid slipping while walking or driving.
- There is more unsupervised activity during night shifts than planned. The need to have qualified supervisors during night shifts as well has been highlighted.
- The two QA Managers and the QC personnel were equipped by an AEM hygienist with dust, asbestos and noise samplers to measure the levels of exposure on a typical 12-h day. The hygienist accompanied the QA and QC personnel on the site between 7:15 and 9:00.
- Speed limits for vehicles on Saddle Road have been reiterated: 20 km/h for heavy equipment and 30 km/h for light vehicles.
- It is compulsory to report at every passing of the gate in both directions of "Baker Lake Road" even for short journeys to the Saddle Dams.
- Wear PPE at all time on the construction site and respect speed limits. Be careful when walking on rough surfaces (risk of slips, trips, and falls).
- Electrical wires along the SD4 downstream side need to be relocated. This must be done by qualified personnel only.

3.0 SUMMARY OF MAIN DISCUSSIONS IN CONSTRUCTION MEETINGS

Construction meetings were held daily during the reporting period and were attended by the QA manager. The following items were discussed:

General

- The difficulty to have some good NPAG on the construction field is still an issue. The lack of timing with the mine operation and the oversized particles (>1.3m) mainly explain the situation.
- Pierre-Luc Babin will be SANA's new Surveyor/Foreman for the construction season 2017. Louis-Pierre Collard will be the cross-shift of Pierre-Luc Babin.
- The QA Manager reiterated that where water ponds are present within the footprint of the dike, the water needs to be pumped out before the placement of the rockfill. The rockfill needs to be fully compacted before the water comes back.
- The QA manager reiterated that rockfill needs to be placed in lift of maximum 2 m in thickness, including the depth of the crevices.
- SANA provided the documentation regarding the two sieved till stockpiles north of Central Dike, in order to plan lab testing (gradation and water content). The available quantity is about 3,880 m^3. An excavator will mix each stockpile before a sample is taken for lab testing. The surveyor went to locate and identify the two stockpiles as stockpiles #1 and #2. The plan is attached to this report.
- The QA Manager required the identification of the filter materials' stockpiles in order to take samples for lab testing. An FGL representative accompanied the QA Manager to the SANA crusher site to locate the corresponding stockpiles of NPAG fine filter and coarse filter materials.
- It was discussed that as of next Sunday, "three weeks meetings" will occurred each Sunday with the QA Manager and the representatives of AEM and SANA. "Three weeks meeting" will provide information about the construction schedule and the planning of the work to come.
- The QA Manager accompanied the QC personnel to the SANA crusher site to provide identification of the stockpiles of NPAG fine filter (0-3/4'') and coarse filter (0-6'') materials to be sampled. Lab testing will take place in the next few days.

Saddle Dam 4

- The QA Manager and the Surveyor (AEM) went to survey the SD4-SD5 dike toe on the downstream side. A portion of the access road placed last week on the downstream side SD4 and SD5 is located on a non-approved section (Sta. 40+540 to 40+640 m/o.s. 25 to 30 m). The strip (3 to 5 m width) will be excavated in order to approve the foundation underneath as soon as possible.
- The QA Manager reminded the need to complete and to compact the UM rockfill lift at SD4 before the pumped out water ponds fill again. If this happens, pumping will have to be redone.
- It was discussed with the QA Manager and SANA's foreman that in the absence of an available dozer, the pumped out water pond on the SD4 footprint can be filled with UM rockfill by an excavator, provided the rockfill lift does not exceed 1 m in thickness and is compacted with a smooth-drum compactor shortly after placement (Sta. 40+295 to 40+325 m/o.s. 2 to 10 m).

- After the placement of the UM rockfill on the downstream side of the SD4 footprint from Sta. 40+295 to 40+325 m (o.s. 2 to 6 m), mud was coming at the surface of the rockfill lift during compaction with vibration at some isolated spots over the pumped-out pond, probably because of the mud left after the water had been removed. The muddy rockfill zones have been removed with an excavator and immediately replaced by clean rockfill. The QA Manager confirmed during the excavation that all muddy materials had been cleaned. The clean UM rockfill was compacted with the bucket of the excavator and with the smooth-drum compactor without vibration, to avoid fluid movements within the lift. The next lift is to be compacted with vibration.

Saddle Dam 3

- It was discussed that an access road on SD3 has to be built to give access to the haul truck. It is planned to be done in the next few days, for the hauling of the loose rocks and soft and ice-rich soils generated by the foundation preparation.
- The drilling activities on SD3 started Tuesday (July 4). The blast pattern has been cleaned and 2 drills were present on site. Drill holes maximum depth is about 5.5 m. The water in the sump on the dike footprint was pumped out and the pump removed. The blasting is planned for July 5.
- The access road on SD3 was reworked to give access to the haul trucks.
- Regarding the connection of SD3 to SD2, it was decided that the organic soil and grass observed at the extremity of SD2 will be removed later when the placed rockfill reaches the current ground surface elevation, to prioritize drilling and blasting and subsequent soil removal.
- Large blocks left on the SD3 footprints will be drilled and blasted along with the frozen ground to allow for loading and clearing by an excavator.
- No further blasting will be used after Saturday, July 8, to prepare the foundation on the downstream side of SD3. Only the sump excavation will be done by blasting.
- The limit of the approved SD2 foundation will be identified on site to plan the connection of SD3 to SD2.
- Some large boulders on the downstream side of SD3 are too heavy to be removed by an excavator and are planned to be blasted along with the sump footprint tomorrow.

4.0 SUMMARY OF CONSTRUCTION ACTIVITIES AND TEST RESULTS

Periodic QA inspections to monitor the construction activities and progress were performed by the QA Engineer; these are summarized in the tables below.

Table 2: QA Observations for Saddle Dam 5

Activity or Area	Comments
Foundation preparation	■ Final clean-up of the footprint with an excavator to reach a good quality bedrock from Sta. 40+640 to 40+700 m (o.s. 12 to 29 m).
Downstream	■ Placement of a 1.5 m thick (approx.) lift of UM rockfill to fill in the holes of the natural ground surface from Sta. 40+680 to 40+690 m. The UM rockfill was heterogeneous and contains high fine particles but also contains a good quantity of block- and cobble-sized particles. ■ Placement of a 1.5 m thick (approx.) lift of UM rockfill to fill in the holes of the natural ground surface from Sta. 40+730 to 40+740 m (o.s. 15 to 23 m). The material was compliant. ■ Loading of the excavated material for the foundation preparation from Sta. 40+600 to 40+640 m (o.s. 22 to 24 m). ■ Loading of the excavated material for the foundation preparation from Sta. 40+640 to 40+740 m (o.s. 20 to 24 m). ■ Compaction of the first 1.5 m lift (approx.) of UM rockfill with a 10-tonne smooth-drum compactor with vibration (8 passes) from Sta. 40+535 to 40+740 m (o.s. 11 to 23 m).

Table 3: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream	■ Loading of the excavated material for the foundation preparation from Sta. 40+580 to 40+600 (o.s. -24 to -35 m). ■ Loading of the excavated material for the foundation preparation from Sta. 40+505 to 40+540 m (o.s. -40 to -16 m). ■ Loading of the excavated material for the foundation preparation from Sta. 40+535 to 40+600 m (o.s. 22 to 27 m). ■ Loading of the excavated material stockpile for the foundation preparation from the northern extremity of the UM rockfill lift, from Sta. 40+300 to 40+290 m (o.s. 14 to 21 m). ■ During the night shift of July 6, a placement of a 2 m thick (approx.) lift of UM rockfill was carried out over the approved foundation from Sta. 40+289.9 to

Activity or Area	Comments
	40+419 (o.s. -3.8 to 25.3 m), except in areas covered by water ponds. The material was compliant. ■ Placement of a 1 m lift (approx.) of UM rockfill with an excavator over the zones previously covered by water Sta. 40+295 to 40+325 m (o.s. 2 to 10 m). An adapted procedure was used for placement and compaction (see Section 3.0). ■ Compaction of the first 1.5 m lift (approx.) of UM rockfill with a 10-tonne smooth-drum compactor with vibration (8 passes) (Sta. 40+540 to 40+600 m).
Upstream slope	■ Removal of the old access road and loading of the excavated material for the foundation preparation from Sta. 40+520 to 40+540 m (o.s. -15 to -39 m).
Water management	■ The water ponds on the bedrock of the downstream side have been pumped.

Table 4: QA Observations for Saddle Dam 3

Activity or Area	Comments
Foundation preparation	■ Removal of loose rocks and soft and ice-rich soils with a dozer within the north part of the dike footprint. Work has been limited to a few metres because of a mechanical problem. ■ Removal of loose rocks and soft and ice-rich soils with an excavator up to the frozen soil from Sta. 20+640 to 20+700 m (o.s. 15 to 35 m) in order to set up the drill.
Downstream	■ Drilling and blasting of the frozen soil from Sta. 20+650 to 20+690 m (o.s. 27 to 40 m). ■ The footprint of the new sump has been drilled and prepared for the blasting of July 10 (Sta. 20+600 to 20+590 m/o.s. 42 to 57 m).
Water management	■ The water in the old sump has been pumped. ■ The new sump has been relocated and is in construction (Sta. 20+600 to 20+590 m/o.s. 42 to 57 m).

5.0 FOUNDATION APPROVAL

The following foundation approvals were carried out during the reporting period.

Table 5: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
FND-SD4-26	SD4	40+289.9 to 40+419 (o.s. -3.8 to 25.3 m)	6/07/2017	Approved provided the water ponds are pumped out before placing rockfill
FND-SD4-27	SD4	40+540.5 to 40+636.6 (o.s. 24.9 to 16.9)	6/07/2017	Approved

6.0 SAMPLING AND LABORATORY TESTING

Two samples were taken during the reporting period by the QC.

The gradation performed on sample 372, fine filter from Sana crusher, was compliant. The results obtained on sample 367, coarse filter from Sana crusher, show that a sandy fraction is finer than the gradation limits. Additional care will have to be taken during the loading and handling to minimise segregation. It is judged that the performance of the filter will still be adequate.

Table 6: Samples Taken

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
372	8/07/2017	08/07/2017	Fine filter	Sana crusher site	Gradation	Compliant
367	8/07/2017	09/07/2017	Coarse filter	Sana crusher site	Gradation	Coarse ok, sandy particle out of gradation

7.0 PHOTOGRAPHS



Photograph SD5-047: From Sta. 40+630/23 looking E. Loading of the excavated material for the foundation preparation from Sta. 40+535 to 40+630 (o.s. 22 to 27 m).



Photograph SD5-048: From Sta. 40+750/-10 looking W. Placement of a 1 m thick (approx.) lift of UM rockfill on the downstream side of the SD5 footprint from 40+730 to 40+740 m (o.s. 15 to 23 m).



Photograph SD5-049: From Sta. 40+640/08 looking E. View of the loading of the excavated material of the foundation preparation, final clean-up of the dike footprint and compaction of the UM rockfill lift from Sta. 40+535 to 40+630 (o.s. 22 to 27 m).



Photograph SD4-112: From Sta. 40+550/-24 looking SE. Loading of the excavated material with an excavator for the foundation preparation from Sta. 40+580 to 40+590 (o.s. -24 to -35 m).



Photograph SD4-113: From Sta. 40+750/-10 looking NE. View of the first lift of UM rockfill being compacted with a 10-tonne smooth-drum compactor with vibration (8 passes) from Sta. 40+535 to 40+740 m (o.s. 11 to 23 m).



Photograph SD4-114: From Sta. 40+365/19 looking NW. Loading of the excavated material stockpile for the foundation preparation from Sta. 40+300 to 40+290 m (o.s. 14 to 21 m).



Photograph SD4-115: From Sta. 40+340/15 looking SE. Placement of a 1 m lift (approx.) of UM rockfill over the zones previously covered by water (Sta. 40+295 to 40+325 m (o.s. 2 to 10 m)).



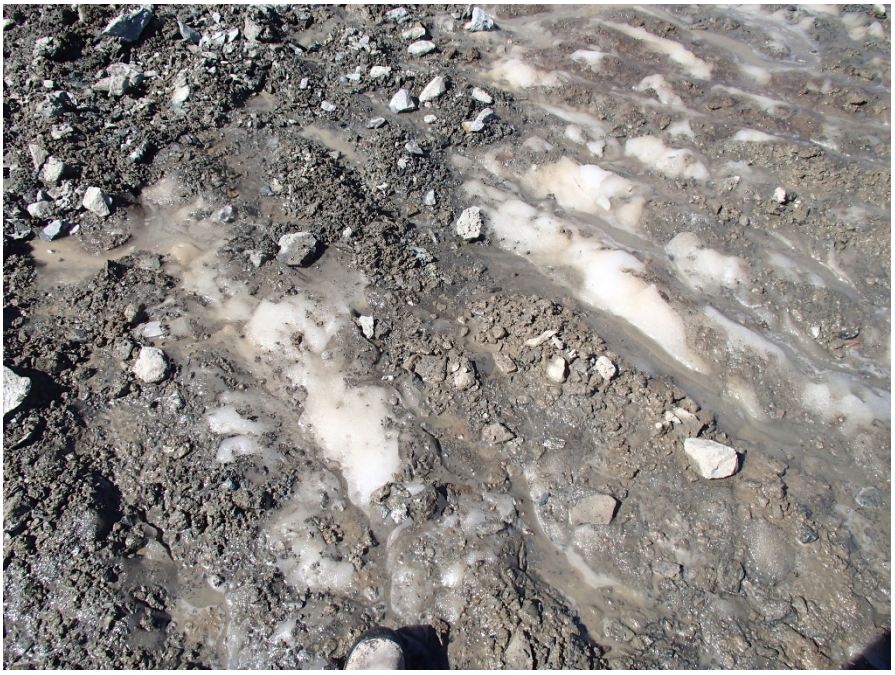
Photograph SD4-116: From Sta. 40+295/-2 looking N. Mud is coming to the surface of the UM rockfill lift at isolated spots (between Sta. 40+295 to 40+325 m (o.s. 2 to 6 m)) during compaction.



Photograph SD4-117: From Sta. 40+315/-1 looking NW. Removal of the muddy UM rockfill spots with an excavator (Sta. 40+295 to 40+325 m (o.s. 2 to 6 m).



Photograph SD3-163: From Sta. 20+570/20 looking S. View of the foundation preparation for the drill and blast. An excavator is removing loose rocks and soft and ice-rich soils up to the frozen soil from Sta. 20+640 to 20+700 m (o.s. 15 to 35 m). Notice: the drill is on the field.



Photograph SD3-164: From Sta. 20+670/35 looking N. View of the frozen soil (ice/water) on the excavated surface of the downstream side of SD3.This section was blasted on July 6.



Photograph SD3-165: From Sta. 20+640/26 looking S. View of the drills drilling the frozen soil on the downstream side of the SD3 footprint.



Photograph SD3-166: From Sta. 20+690/31 looking N. Preparation for the blast on the downstream side of SD3: placement of the mattress over the drilled section (Sta. 20+665 to 40+690 (o.s. 31 to 36 m)).



Photograph SD3-167: From Sta. 20+700/35 looking N. View of the area blasted on July 6 on the downstream side of SD3.



Photograph SD3-168: From Sta. 20+640/42 looking W. Patch of frozen, ice-rich soil on the northern side of the blasted zone.

SIGNATURES

GOLDER ASSOCIÉS LTÉE

Reviewed by:

ORIGINAL SIGNED

Marion Habersetzer, Jr. Eng.
QA Engineer

ORIGINAL SIGNED AND SEALED

Yves Boulianne, P.Eng (QC,NU)
Associate, Dike Designer

Attachments: Construction Progress Drawings from AEM as of July 10, 2017

MH/YB/jlm

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TECHNICAL MEMORANDUM

DATE July 27, 2017 **REFERENCE No.** 1777687
Doc. 1567 Rev0

TO Pierre McMullen, Julie Bélanger, Patrice Gagnon, Alexandre Lavallée
Agnico-Eagle Mines Limited Meadowbank Division

CC Yves Boulianne

FROM Marion Habersetzer, reviewed by Michael Nadon **EMAIL** mhabersetzer@golder.com

QA WEEKLY REPORT FROM JULY 10 TO JULY 16, 2017 – TSF SOUTH CELL CONSTRUCTION MEADOWBANK (1777687)

This document summarizes the QA activities performed by Golder from July 10 to July 16, 2017, inclusively, related to the construction activities of Saddle Dams 3, 4 and 5 (SD) at the Meadowbank mine site.

Unless otherwise specified, the construction activities use the centreline of the structures for a dike crest elevation of 150 m for reference (refer to the Drawings). The description of activities refers to the stations and offsets from the centreline (e.g., Sta. 0+500/-50 m). The "+" and "-" symbols indicate the location of the work downstream and upstream of the centreline, respectively.

1.0 GOLDER PERSONNEL ON SITE

Golder personnel on site during this reporting period is summarized in Table 1.

Table 1: Golder Personnel on Site

Name	Comments
Marion Habersetzer	QA Engineer

2.0 HEALTH AND SAFETY

H&S meetings were held with AEM and FGL/SANA during the daily construction meetings. Minutes from these meetings are recorded and stored in Golder's on-site office. The key H&S elements for the reporting period were as follows:

- Arrival of Pierrick Trecasse and Guyaume Beauchamp as QC on site on July 10. SOP course and mine site induction for new employees (surveyor and QC personnel) on July 10 to review site procedures. Therefore, there was no QC personnel on site from 11:00 to 18:00 on that day.

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- Raphael Simard will be the cross-shift of SANA's health and safety representative Serge Côté.
- Blast notice was given each morning during the daily meeting.
- The hazard associated with the excavator working with the door open was reiterated by the QA Manager.
- It was reiterated that pipes and electrical wires must only be handled by a qualified person.
- The safety guidelines for work around heavy equipment were reiterated.
- Dust is an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.
- The sprain hazard associated with walking on unstable ground and stockpiles was reiterated.
- Speed limits for vehicles on Saddle Road have been reiterated: 20 km/h for heavy equipment and 30 km/h for light vehicles.
- It is compulsory to report at every passing of the gate in both directions of "Baker Lake Road," even for short journeys to the Saddle Dams.
- Wear PPE at all time on the construction site and respect speed limits. Be careful when walking on rough surfaces (risk of slips, trips, and falls).
- It was reiterated that no one should walk within a 15-20 m distance of heavy equipment. If passage is needed and heavy equipment is are a safety hazard even when stopped (e.g. rocks potentially falling from trucks), the foreman should be called to indicate when the area will be clear of equipment.
- New haul truck drivers have arrived and the importance of having the correct radio frequency has been highlighted.
- Heavy traffic damages access roads. Any damaged road should be reported to be repaired quickly.
- Slopes around the excavation at SD3 are steep and unstable, with a risk of tripping and rock falling: no one should walk down these slopes or stand at the bottom until they are safely sloped.
- Methods of measurement must be adapted based on the site conditions. The surveyor and QA Manager have modified their procedures to remain safe at all times when collecting data.
- Any injuries, even minor ones, must be reported within 24 h to the medical team and the supervisor.
- Always wait for the verbal approval of an operator before approaching a heavy equipment.
- Be aware that haul truck tires can burst and pose a safety hazard for workers standing too close to them. A distance of 35 m is advised.
- The situation of the haul trucks from mine production working on the dikes will be mentioned during this week's safety meeting to ensure operators are aware of the specificities and constraints on the dikes.
- Night workers (QC personnel, excavator operator) usually work alone and need to have someone to refer to during their shift, in the absence of a supervisor (until August 1). Workers who are alone should report to dispatch every 2 hours.

- It is reminded that stop and yield signs need to be respected by all and have priority over right of way. Right of way applies when no sign is installed.
- The rain makes the ground muddy and very slippery, with a higher risk of slips and falls. Extra caution must be applied when walking or driving on wet surfaces.

3.0 SUMMARY OF MAIN DISCUSSIONS IN CONSTRUCTION MEETINGS

Construction meetings were held daily during the reporting period and were attended by the QA manager. The following items were discussed:

General

- Jeannot Gagnon will be the cross-shift of SANA's representative Christopher Gilbert.
- Samuel Kiley-Morin will be the cross-shift of AEM surveyor François Gravel-Grenier.
- The AEM representative collected feedback on the rockfill quality. If the rockfill quality changes (blocks larger than 1.3 m or presence of too much fines), the blasting method in the pit may be adjusted to correct it.
- The QA Manager reminded that where water ponds are present within the footprint of the dike, the water needs to be pumped out before the placement of the rockfill. The rockfill needs to be fully compacted before the water comes back. Thus, the dozer and compactor have to be ready when UM rockfill is placed over an area that previously had water ponding.
- The QA manager reiterated that rockfill needs to be placed in lifts of maximum 2 m in thickness, including the depth of the crevices.
- "Three weeks meetings" occur each Sunday with the QA Manager and the representatives of AEM and SANA. "Three weeks meetings" provide information about the construction schedule and the planning of the work to come.
- It is expected that no UM rockfill will be available from Portage Pit over the next few days. The use of NPAG rockfill is considered, if available from a different pit. UM rockfill should be readily available as of the beginning of August.
- The till stockpiles on the north of CD should be mixed soon with an excavator to allow for thawing before sampling for lab testing.
- Regarding the preparation of the two till stockpiles on the north of CD, it is recommended that the 345 excavator strip the thawed material of the surface of the piles on a regular basis. The scrapped till should be placed on another pile and kept sealed to avoid infiltrations.
- The two till stockpiles will be mixed around July 20.
- Old tires and culverts left from the foundation cleanups will be collected by site services.
- When rockfill is available, it will be placed in priority on SD5 to complete the first lift. The next area to be backfilled will be the northern side of SD4.
- Excavation work to prepare the foundation at the three Saddle Dams should be over in about a week.

Saddle Dam 4

- The QA Manager pointed out that water is ponding on the compacted rockfill at SD4 (Sta. 40+320, o.s. 4 m). The water originated from seepage through the low point at the toe of SD4, probably from the transition between the bedrock and the rockfill. The next lift of UM rockfill should be of 2 m in thickness and be compacted swiftly after placement with a 10-tonne smooth-drum compactor with vibrations. If the water pond increases in volume, it will be pumped out before UM rockfill placement.
- The water pond at the surface of the compacted UM rockfill at Sta. 40+320 m (o.s. 4 m) is reaching an UM rockfill stockpile left on the first 1.5 m (approx.) lift at SD4. The QA Manager recommended to place the rockfill stockpile rapidly and to complete the compaction of the stockpile footprint.
- The surveyor delimited on the ground the zone to be cleaned to the bedrock on the upstream footprint of SD4 and at the junction of SD4 and SD5 to facilitate bedrock cleaning.

Saddle Dam 3

- The limit of the approved foundation of SD2 has been marked. The slope will have to be partially excavated for preparation of the foundation of SD3, as the rockfill currently extends further than the approved foundation.
- The exposed bedrock downstream of SD3 is highly fractured and is likely to remain so at depth. A decision must be made about the depth at which the foundation will be placed. The question has been looked into on the field with Alexandre Lavallée.
- Three test pits were excavated to assess the depth of the bedrock at the western extremity of SD3 with Francis Pépin (surveyor) to mark the 15 m limit from the Airstrip Quarry (Quarry 23) crest. The alignment of SD3 will be adjusted consequently.
- The bedrock is being cleaned around the Airstrip Quarry. The SD3 alignment will be optimized once the bedrock is exposed.

4.0 SUMMARY OF CONSTRUCTION ACTIVITIES AND TEST RESULTS

Periodic QA inspections to monitor the construction activities and progress were performed by the QA Engineer; these are summarized in the tables below.

Table 2: QA Observations for Saddle Dam 5

Activity or Area	Comments
Foundation preparation	■ Final clean-up of footprint with an excavator to reach a good quality bedrock on the downstream side of SD5 from Sta. 40+636 to 40+739.5 m (o.s. 0 to 30.5 m).
Downstream	■ Three culverts have been removed with the excavator. ■ Construction of an access ramp at the southern extremity of the downstream side of SD5 for dumping of rockfill.

Activity or Area	Comments
	■ Placement of a 2 m thick (approx.) lift of UM rockfill from Sta. 40+710 to 40+735 m (o.s. 10 to 31 m) with a dozer. The material was compliant.
Water management	■ Water was ponding on the bedrock from Sta. 40+715 to 40+740 m (o.s. 11 to 23 m). Water ponds have been pumped out and mud removed with an excavator from Sta. 40+715 to 40+740 m (o.s. 11 to 23 m) for foundation approval and again before placement of UM rockfill.

Table 3: QA Observations for Saddle Dam 4

Activity or Area	Comments
Foundation preparation	■ Final clean-up of footprint with an excavator to reach a good quality bedrock from Sta. 40+215 to 40+290 m (o.s. -7 to 27 m), from Sta. 40+440 to 40+480 m (o.s. -7 to 6 m) and from. Sta. 40+515 to 40+540 m (o.s. -36 to 30 m).
Downstream	■ Placement of a 0.7 m thick (approx.) lift of UM rockfill on the downstream side of the SD5 footprint from Sta. 40+295 to 40+330 m (o.s. 2 to 14 m). The material came from the stockpile left on the footprint from the last placement and was compliant. ■ Compaction of the first 1.5 m lift (approx.) of UM rockfill with a 10-tonne smooth-drum compactor with vibration (8 passes) from Sta. 40+300 to 40+355 m (o.s. -1 to 14 m) and from Sta. 40+350 to 40+420 m (o.s. 4 to 27 m) to complete compaction of the rockfill placed from the stockpiles and compaction on the current downstream toe of SD4. ■ Removal of loose rocks and soft and ice-rich soils on the downstream side of SD4 from Sta. 40+430 to 40+465 m (o.s. 0 to 23 m). ■ Loading of the excavated material for foundation preparation from Sta. 40+380 to 40+430 m (o.s. 27 to 46 m) and from Sta. 40+520 to 40+540 m (o.s. -8 to 30 m). ■ The access road between SD4 and SD5 (« pig launcher » sector) has been removed.
Water management	■ A water pond has formed at the surface of the compacted UM rockfill at Sta. 40+320 (o.s. 4 m) and was pumped out before placement of UM rockfill. ■ Water is ponding in the excavated area from Sta. 40+340 to 40+420 m (o.s. 32 to 35 m). A sump or ditch is planned to be built at a later time downstream of SD4 to collect the water. ■ Water is ponding on the bedrock from Sta. 40+240 to 40+290 m (o.s. 7 to 14 m) and is being pumped out.

Table 4: QA Observations for Saddle Dam 3

Activity or Area	Comments
Foundation preparation	■ Final clean-up of footprint with an excavator to reach a good quality bedrock from Sta. 20+590 to 20+640 m (o.s. -2 to 40 m) and from Sta. 20+715 to 20+755 m (o.s. -2 to 6 m).
Downstream	■ The footprint of the new sump has been blasted from Sta. 20+590 to 20+600 m (o.s. 42 to 57 m). ■ Ripping and scrapping of frozen soil with a dozer on the downstream side of SD3 from Sta. 20+590 to 20+620 m (o.s. -8 to 11 m). ■ Loading of the excavated material for foundation preparation from Sta. 20+590 to 20+615 m (o.s. 13 to 49 m), from Sta. 20+710 to 20+730 m (o.s. 40 to 47 m) and from Sta. 20+755 to 20+785 m (o.s. -10 to 1 m). ■ Creation of two access ramps from the northern and western sides of the excavation to allow haul trucks to go on the downstream footprint for loading. ■ Removal of loose rocks and soft and ice-rich soils on the downstream side of SD3 with a dozer from Sta. 20+595 to 20+680 m (o.s. -8 to 40 m), with an excavator from Sta. 20+695 to 20+720 m (o.s. 13 to 33 m) and from Sta. 20+750 to 20+775 m (o.s. 11 to 33 m).
Upstream	■ Three test pits were carried out to assess the depth of the bedrock at the southern extremity of SD3. ■ Removal of loose rocks and soft and ice-rich soils along the Airstrip Quarry from Sta. 20+815 to 20+850 m (o.s. -28 to 20 m). ■ Loading of the excavated material for foundation preparation from Sta. 20+795 to 20+840 m (o.s. -26 to -14 m). ■ Removal of pipes to prepare work area for bedrock cleaning.
Water management	■ The sump has been relocated (Sta. 20+590 to 20+600 m, o.s. 42 to 57 m). It has been shaped and UM rockfill placed from Sta. 20+570 to 20+590 m (42 to 49 m) during the night shift. ■ The new sump is in operation to support the dewatering of the SD3 downstream footprint. ■ The large water pond on the northern side of the dike footprint has extended to the area from Sta. 20+595 to 20+640 m (o.s. -2 to 24 m) and pumping is ongoing. ■ Water is ponding in the area from Sta. 20+815 to 20+850 m (o.s. -4 to 20 m).

5.0 FOUNDATION APPROVAL

The following foundation approvals were carried out during the reporting period.

Table 5: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
FND-SD5-15	SD5	Sta. 40+636 to 40+739.5 m (o.s. 11.2 to 30.5 m)	11/07/2017	Approved provided the water ponds are pumped out before placing UM rockfill.
FND-SD4-28	SD4	Sta. 40+417.8 to 40+543.2 m (o.s. -24.1 to 30.8 m)	15/07/017	Approved provided the water ponds are pumped out before placing UM rockfill.
FND-SD4-29	SD4	Sta. 40+020.1 to 40+311.9 m (o.s. -25.7 to 25 m)	15/07/2017	Approved provided the water ponds are pumped out before placing UM rockfill.

6.0 SAMPLING AND LABORATORY TESTING

No sample was taken during the reporting period by the QC.

7.0 PHOTOGRAPHS



Photograph SD5-050: From Sta. 40+695/-24 looking E. Final clean-up of footprint with an excavator to reach a good quality bedrock from Sta. 40+715 to 40+740 m (o.s. 0 to 27 m).



Photograph SD5-051: From Sta. 40+350/21 looking S. Final clean-up of footprint with an excavator to reach a good quality bedrock from Sta. 40+636 to 40+739.5 m (o.s. 11.2 to 30.5 m).



Photograph SD4-118: From Sta. 40+325/3 looking SW. Water is ponding on the first 1.0 m-thick (approx.) lift of compacted UM rockfill (Sta. 40+320 (o.s. 4 m)) (July 10).



Photograph SD4-119: From Sta. 40+380/3 looking E. Loading of the excavated material from Sta. 40+380 to 40+430 m (o.s. 27 to 46 m).



Photograph SD4-120: From Sta. 40+315/6 looking S. The water pond at the surface of the first 1.0 m-thick (approx.) lift of compacted UM rockfill at Sta. 40+320 m (o.s. 4 m) increased in size (July 11).



Photograph SD4-121: From Sta. 40+330/18 looking E. Placement of a 0.7 m thick (approx.) lift of UM rockfill on the downstream side of the SD4 footprint from Sta. 40+295 to 40+330 m (o.s. 2 to 14 m).



Photograph SD4-122: From Sta. 40+230/-14 looking W. Final clean-up of footprint with an excavator to reach a good quality bedrock on the downstream side of SD4 Sta. 40+440 to 40+470 m (o.s. -7 to 6 m) and from Sta. 40+215 to 40+290 m (o.s. 5 to 19 m). Notice the water ponding on the bedrock.



Photograph SD4-123: From Sta. 40+430/1 looking S. Loading of the excavated material stockpile for foundation preparation from Sta. 40+520 to 40+530 m (o.s. -8 to 9 m). Notice the excavator behind doing the final clean-up of the upstream side footprint to reach a good quality bedrock from Sta. 40+420 to 40+480 m (o.s. -3 to 27 m).



Photograph SD4-124: From Sta. 40+420/8 looking S. Final clean-up of footprint with an excavator to reach a good quality bedrock from Sta. 40+520 to 40+540 m (o.s. -3 to 30 m).



Photograph SD3-169: From Sta. 20+580/63 looking E. The footprint of the new sump has been blasted from Sta. 20+590 to 20+600 m (o.s. 42 to 57 m). Notice the large boulders east of the blasted zone.



Photograph SD3-170: From Sta. 20+845/-31 looking NW. Removal of loose rocks and soft and ice-rich soils along the Airstrip Quarry from Sta. 20+815 to 20+850 m (o.s. -28 to 20 m). Notice the water ponding in the area from Sta. 20+815 to 20+850 m (o.s. -4 to 20 m).



Photograph SD3-171: From Sta. 20+635/-12 looking NE. Scrapping of frozen soil with a dozer on the downstream side of SD3 from Sta. 40+590 to 40+620 m (o.s. -8 to 11 m) and loading of excavated material for foundation preparation from Sta. 20+605 to 20+615 m (o.s. 13 to 49 m).



Photograph SD3-172: From Sta. 20+740/21 looking E. Construction of two access ramps from the northern and western sides of the excavation to allow haul trucks to go on the downstream footprint for loading. Notice the highly fractured bedrock.



Photograph SD3-173: From Sta. 20+680/-16 looking W. Orange water ponding in the southern side of the excavation.



Photograph SD3-174: From Sta. 20+820/-28 looking NE. Loading of the excavated material stockpile for foundation preparation from Sta. 20+755 to 20+785 m (o.s. -10 to 1 m).



Photograph SD3-175: From Sta. 20+820/-28 looking NE. Test pits were carried out to assess the depth of the bedrock at the southern extremity of SD3.

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Photograph SD3-176: From Sta. 20+585/-17 looking NW. Loading of the excavated material stockpile for foundation preparation from Sta. 20+590 to 20+610 m (o.s. 20 to 40 m) and final clean-up of footprint with an excavator to reach a good quality bedrock from Sta. 20+590 to 20+640 m (o.s. -2 to 40 m).

SIGNATURES

GOLDER ASSOCIÉS LTÉE

Reviewed by:

ORIGINAL SIGNED

Marion Habersetzer, Jr. Eng.
QA Engineer

ORIGINAL SIGNED AND SEALED

Yves Boulianne, P.Eng (QC,NU)
Associate, Dike Designer

Attachments: Construction Progress Drawings from AEM as of July 16, 2017

MH/YB/jlm

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TECHNICAL MEMORANDUM

DATE July 27, 2017 **REFERENCE No.** 1777687
Doc. 1567 Rev0

TO Pierre McMullen, Julie Bélanger, Patrice Gagnon, Alexandre Lavallée
Agnico-Eagle Mines Limited Meadowbank Division

CC Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA WEEKLY REPORT FROM JUNE 26 TO JULY 02, 2017 – TSF SOUTH CELL CONSTRUCTION MEADOWBANK (1777687)

This document summarizes QA activities performed by Golder from June 26 to July 2, 2017, inclusively, related to the construction activities of Saddle Dams 3, 4 and 5 (SD) at the Meadowbank mine site.

Unless specified, the construction activities use the centreline of the structures for a dike crest elevation of 150 m for reference (refer to the Drawings). The description of activities refers to the stations and offsets from the centreline (e.g., Sta. 0+500/-50 m). The "+" and "-" symbols indicate the location of the work downstream and upstream of the centreline, respectively.

1.0 GOLDER PERSONNEL ON SITE

Golder personnel on site during this reporting period is summarized in Table 1.

Table 1: Golder Personnel on Site

Name	Comments
Michael Nadon	QA Engineer

2.0 HEALTH AND SAFETY

H&S meetings were held with AEM and FGL/Sana during the daily construction meetings. Minutes from these meetings are recorded and stored in Golder's on-site office. The key H&S elements for the reporting period were as follows:

- The rain is an issue, the muddy and very slippery ground cause a high risk of slips and falls. Extra caution must be applied when walking or driving on wet surfaces.

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- A tool box meeting with the mine department took place on July 18 concerning the haul truck drivers working on the dike. Among others, synchronizing the proper radio frequency and applying the appropriate procedure around heavy equipment were reiterated.
- It was reiterated that when a plane is landing, heavy equipment has to stop their activity.
- Regarding working around heavy equipment, it was reiterated that it is important to always keep a safe distance and maintain eye contact with the operator.
- Regarding spray paint cans, a container is available near SANA's office to throw them away.
- The need to wear a mask while working in the lab was discussed. Alexandre Lavallée (AEM) will verify the previous investigation on the subject and will give feedback as soon as possible.
- The speed limit on Saddle road has been reiterated.
- Dust is an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.
- Grader # 4 had a mechanical issue yesterday and a coolant spill (about 30 liters) occurred. The spill was cleaned on the night shift and an incident report was sent to the environmental department this morning.
- It was reminded that electronic devices (iPod, cell phone, etc.) are prohibited on the construction site and sanctions may be applied.
- We had a talk about the importance to have experienced haul truck drivers on the construction site. Jérémy Kancir, AEM foreman, is trying to get the message across to the mine department.

3.0 SUMMARY OF MAIN DISCUSSIONS IN CONSTRUCTION MEETINGS

Construction meetings were held daily during the reporting period and were attended by the QA manager. The following items were discussed:

General

- Michael Nadon arrived on site as the QA Manager on July 17.
- It was discussed that around July 22, the tailings pipe around the sieved compacted till on the north part of CD will be removed. From that moment, the stockpile will be mixed to allow for thawing and sampling for lab testing.
- In order to ensure an appropriate contact between the different UM rockfill lifts, the QA Manager reiterated that it is important to scarify each UM rockfill lift after it has been compacted.
- Jérémy Kancir, from the mine department, attended the daily construction meeting on July 20 to obtain feedback on rockfill hauling and learn about project needs.
- Regarding the placement of UM rockfill lifts, in order to ensure an appropriate contact between a new UM rockfill lift and the profiled UM rockfill of the downstream slope, it was discussed that the dozer will mix the profiled UM rockfill while placing the new lift.

- The QA Manager reminded that a nucleodensimeter will be required to ensure the compaction specifications when till is placed for the upstream toe liner tie-in. A nucleodensimeter should be sent to Meadowbank for mid-August.

Saddle Dam 5

- It was discussed that a ditch will be excavated all along the downstream side of the SD4 and SD5 dike toes in order to help draining the water.
- Regarding the numerous dewatering activities around SD4, the QA Manager proposed to excavate 5 m beyond the footprint of the downstream side of SD4 in order to create a ditch that will help drain the dike footprint. Moreover, it was mentioned that a sump around SD4/SD5 dike toe should be planned soon to help drain the dike footprint.
- The representatives of Golder, SANA and the Owner went on the field to investigate the future site of the SD4 and SD5 sump. The surveyor (AEM) is currently doing a topographic survey to identify the lower point of this section of the dike.
- A discussion about the water management on SD4 and SD5 took place. A ditch all along the two Saddle Dams is planned, as well as two sumps: one for each structure that will be located at their respective low point. The draining plan of SD4 and SD5 will evolve as field work progresses. Ditch excavation is planned to start within a few days.

Saddle Dam 4

- It was discussed that a new access road on SD4 will be built (between Sta. 40+520 to 40+540 m) in order to avoid as much as possible haul truck travelling and allow a safe circulation on the dike.
- The QA Manager reiterated that it is important to compact the UM rockfill swiftly once it is placed when the material is located right above a pumped water pond in order to ensure compaction specifications are met before the water that had been pumped comes back.
- SANA confirmed that the preparation of the bedrock for the upstream toe liner tie-in on the north part of CD and around the connection between SD4 and SD5 is not scheduled to begin before mid-August because of a lack of heavy equipment.

Saddle Dam 3

- The QA Manager will investigate on the till quality required for the SD3 LLDPE cover and will give feedback as soon as possible.
- In order to drain the northern part of the SD3 dike toe, it was discussed that the presence of a ditch going from the dike toe to the sump (east-west) would be significant. The excavation depth from the dike toe to the sump would vary from 0.4 m to 1.5 m (approx.), including a 1% slope toward the sump to ensure natural drainage (see the draft plan attached to this report). Considering that the soil is still frozen, the excavation will be done in the next few days.
- SANA's surveyor issued a draft of the new alignment of SD3 and gave it to all concerned. The actual design of the dike was not suitable according to the latest bedrock depth since it would go straight to Quarry 23. The proposed realignment would allow a minimum of 15 m between the crest of the quarry and the toe of the dike (downstream) and a bend angle of 145 degrees (approx.) (see the plan attached to the report). Moreover,

the dike footprint of SD3 is currently being cleaned and the draft plan might need to be optimized once the bedrock will be exposed. Golder's assessment of the new alignment will come in the next few days.

- The representatives of the Owner, Golder and SANA went for a walk on the southern part of SD3 to figure the SD3 realignment out in regard to remove the current access road. The possibility to use the future dike as an access road is currently being studied. A second field investigation will take place once the dike footprint is cleaned.
- It was discussed that the "tire technique" used for bedrock cleaning is not appropriate for SD3. A lot of loose rocks are present on the dike footprint and it seems that tires are not stiff enough to sufficiently remove residual rocks. The "duck fingers technique" will now be used.
- Regarding the SD3 sump, a meeting between the Owner representatives and Golder is planned soon. So far, it was discussed that the current sump might be used as a channel that will redirect the water toward a new sump that could be located further south, on a portion of the old "Baker Road."
- It was discussed that the till stockpiles on the north of CD won't be mixed before July 29. Currently, the realignment of the southern part of SD3 will be prioritised, and no excavator will be available until the end of this operation.

4.0 SUMMARY OF CONSTRUCTION ACTIVITIES AND TEST RESULTS

Periodic QA inspections to monitor the construction activities and progress were performed by the QA Engineer; these are summarized in the tables below.

Table 3: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	■ Placement of a 1.5 m thick (approx.) lift of UM rockfill up to El. 135 m to fill in the holes of the natural ground surface from Sta. 40+640 to 40 +740 m (o.s. 9 to 37 m). The material was compliant. ■ Placement of a 2.0 m-thick lift of UM rockfill with a dozer up to El. 137 m from Sta. 40+660 to 40+740 m (o.s. -5 to 25 m).Some loads of UM rockfill were heterogeneous and contained a high content of fine particles but also contained a good quantity of block- and cobble-sized particles. The material was accepted. ■ Compaction of the first 1.5 m thick (approx.) lift of UM rockfill at El. 135 m with a 10-tonne compactor (8 passes) from Sta. 40+640 to 40 +740 m (o.s. 3 to 32 m). ■ Compaction of the first 1.5 m thick (approx.) lift of UM rockfill at El. 135 m with a 10-tonne compactor (8 passes) from Sta. 40+600 to 40 +640 m (o.s. 20 to 35 m).

Activity or Area	Comments
	■ Compaction of the 2.0 m-thick lift of UM rockfill at El. 137 m with a 10-tonne compactor (6 passes) from Sta. 40+660 to 40+740 (o.s. -5 to 25 m). ■ Loading of the excavated material for the foundation preparation from Sta. 40+640 to 40+720 m (o.s. 29 to 50 m). ■ Profiling the slope of the downstream side of SD5 from El. 135 to 137 m with an excavator from Sta. 40+680 to 40+740 m.

Table 4: QA Observations for Saddle Dam 4

Activity or Area	Comments
Foundation preparation	■ Final clean-up of the dike footprint with an excavator to reach a good quality bedrock from Sta. 40+030 to 40+260 (o.s. 8 to 27 m).
Downstream	■ Loading of the excavated material for the foundation preparation from Sta. 40+030 to 40+210 m (o.s. 5 to 30 m). ■ Placement of a 1.5 m thick (approx.) lift of UM rockfill to fill in the holes of the natural ground surface with a dozer from Sta. 40 +030 m (o.s. -0 to 5 m) to 40+290 (o.s. -4 to 35 m). The material was compliant. ■ Placement of a 1.5 m thick (approx.) lift of UM rockfill to fill in the holes of the natural ground surface with a dozer from Sta. 40+415 to 40+540 m (o.s. -6 to 35 m). The material was compliant. ■ Placement of a 2.0 m-thick lift of UM rockfill at El. 137 m with a dozer from Sta. 40+420 to 40+460 m (o.s. 10 to 27 m). The material was compliant. ■ Compaction of the 1.5 m thick (approx.) lift of UM rockfill with a 10-tonne compactor (8 passes) from Sta. 40+030 (o.s. 0 to -5 m) to 40+320 (o.s. -5 to 35 m). ■ Compaction of the 1.5 m-thick (approx.) lift of UM rockfill with a 10-tonne compactor (8 passes) from Sta. 40 +415 m to 40+540 m (o.s. -6 to 30 m). ■ Compaction of the 2.0 m-thick lift of UM rockfill at El. 137 m with a 10-tonne compactor (6 passes) from Sta. 40+420 to 40+460 m (o.s. 10 to 27 m).
Water management	■ The water ponding on the bedrock from Sta. 40+240 to 40+290 m (o.s. 7 to 22 m) have been pumped out. ■ Water is ponding in the excavated area from Sta. 40+340 to 40+420 m (o.s. 32 to 35 m). A sump or ditch is planned to be built at a later time downstream of SD4 to collect the water.

Table 5: QA Observations for Saddle Dam 3

Activity or Area	Comments
Foundation preparation	■ Final clean-up of the dike footprint with an excavator to reach a good quality bedrock from Sta. 20+660 to 20+720 m (o.s. -8 to 30 m). ■ Final clean-up of the dike footprint with an excavator to reach a good quality bedrock from Sta. 20+720 to 20+790 m (o.s. 5 to 14 m). ■ Excavation of the loose rocks, soft and ice-rich soils with an excavator on the south part of SD3 from Sta. 20+880 (o.s. -27 to -43 m) to 20+890 m (o.s. -60 to -66 m). ■ Excavation of the loose rocks of the footprint with an excavator to reach a good quality bedrock from Sta. 20+720 to 20+790 m (o.s. 3 to 15 m).
Upstream	■ Loading of the excavated material stockpile for foundation preparation from Sta. 20+840 to 20+870 m (o.s. -34 to -12 m).
Downstream	■ Loading of the excavated material stockpile with an excavator for foundation preparation from Sta. 20+660 to 20+720 m (o.s. 40 to 50 m).
Water management	■ Pumping of the water ponding on the footprint is ongoing.

5.0 FOUNDATION APPROVAL

The following foundation approvals were carried out during the reporting period.

Table 6: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
FND-SD4-30	SD4	Sta. 40+020 to 40+264 m (o.s. 22.54 to 3.22 m)	23-07-2017	Approved provided the water ponds are pumped out before placing UM rockfill.

6.0 SAMPLING AND LABORATORY TESTING

No samples were taken during the reporting period.

7.0 PHOTOGRAPHS



Photograph SD5-052: From Sta. 40+735/36 looking N. Placement of a 1.5 m thick (approx.) lift of UM rockfill from Sta. 40+740 to 40 +700 m (o.s. 9 to 37 m) up to El. 135 m.



Photograph SD5-053: From Sta. 40+740/30 looking NW. View of the 10-tonne compactor compacting the first 1.5 m thick (approx.) lift of UM rockfill at El. 135 m.



Photograph SD5-054: From Sta. 40+680/18 looking W. View of a dozer placing a 2 m-thick lift of UM rockfill from El. 135 to 137 m from Sta. 40+660 to 40+720 m. Notice the compactor behind compacting the UM rockfill lift.



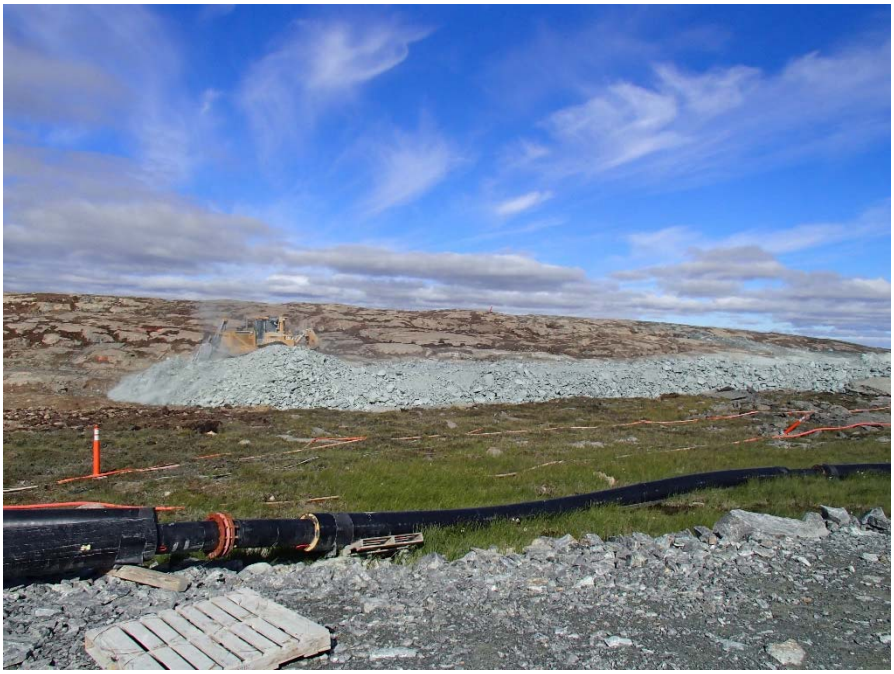
Photograph SD5-055: From Sta. 40+720/43 looking NW. View of a dozer placing a 2 m-thick lift of UM rockfill from El. 135 to 137 m from Sta. 40+720 to 40+740 m.



Photograph SD4-125: From Sta. 40+740/30 looking SE. Placement of a 1.5 m thick (approx.) lift of UM rockfill with a dozer from Sta. 40+290 (o.s. -4 to 35 m) to 40 +230 m (o.s. -4 to 12 m).



Photograph SD4-126: From Sta. 40+200/-20 looking SE. View of the dozer placing a 1.5 m (approx.) lift of UM rockfill on the dike footprint.



Photograph SD4-127: From Sta. 40+200/-20 looking SE. Placement of a 1.5 m thick (approx.) lift of UM rockfill with a dozer from Sta. 40+460 to 40 +540 m (o.s. 20 to 35 m).



Photograph SD4-128: From Sta. 40+260/-29 looking N. Final clean-up of the footprint with an excavator to reach a good quality bedrock on the downstream side of SD4.



Photograph SD4-129: From Sta. 40+420/0 looking S. View of a dozer placing a 2 m-thick lift of UM rockfill from El. 135 to 137 m from Sta.40+420 to 40+460 m.



Photograph SD4-130: From Sta. 40+158/15 looking NW. Final clean-up of the footprint with an excavator to reach a good quality bedrock on the downstream side of SD4 from Sta. 40+120 to 40+030 m.



Photograph SD3-177: From Sta. 20+805/-42 looking W. Loading of the excavated material stockpile for foundation preparation from Sta. 20+840 to 20+870 m (o.s. -34 to -12 m).



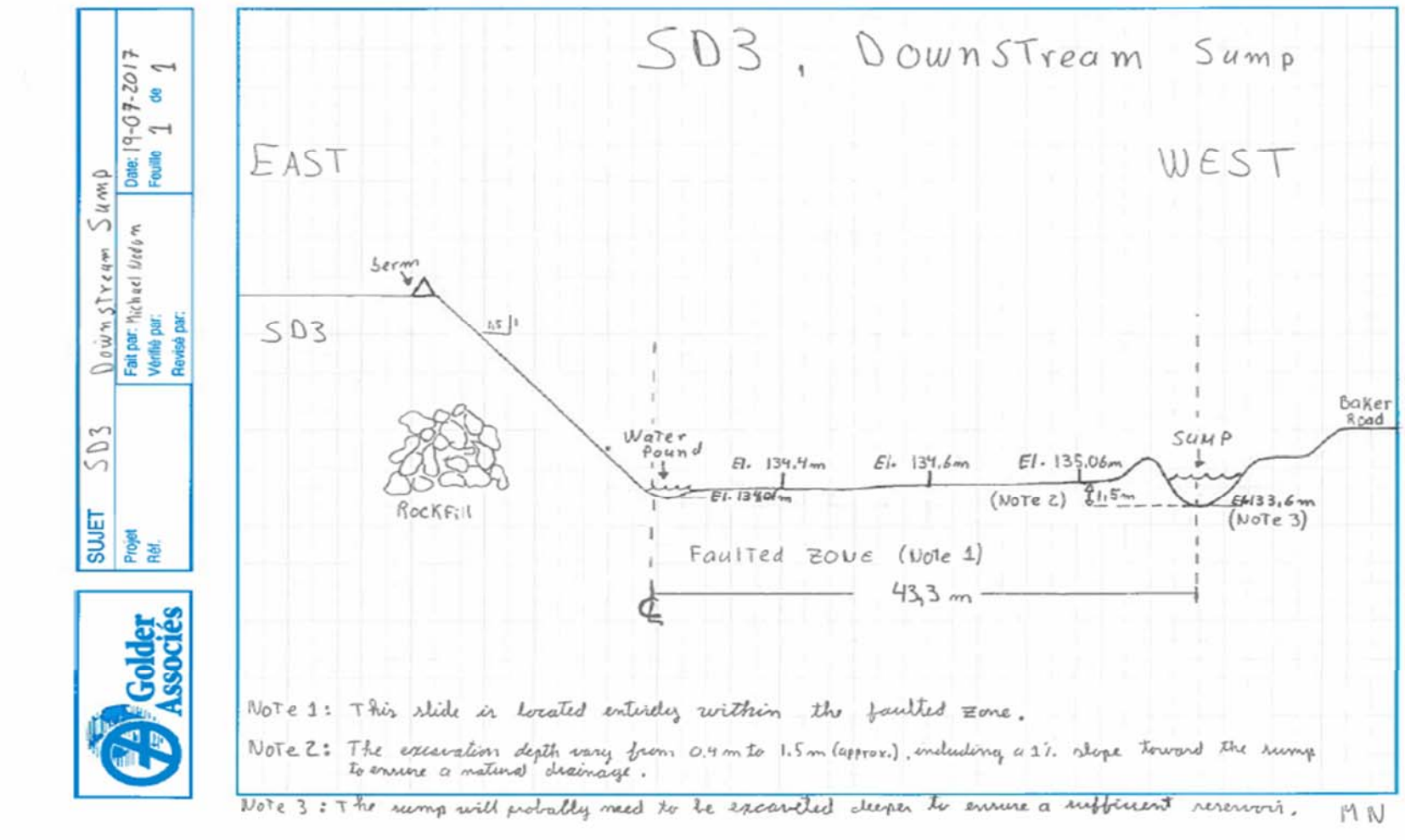
Photograph SD3-178: From Sta. 20+580/0 looking S. View of an excavator doing the final clean-up of the dike footprint to reach a good quality bedrock on the downstream side of SD3, and an excavator loading the excavated material for the foundation preparation.



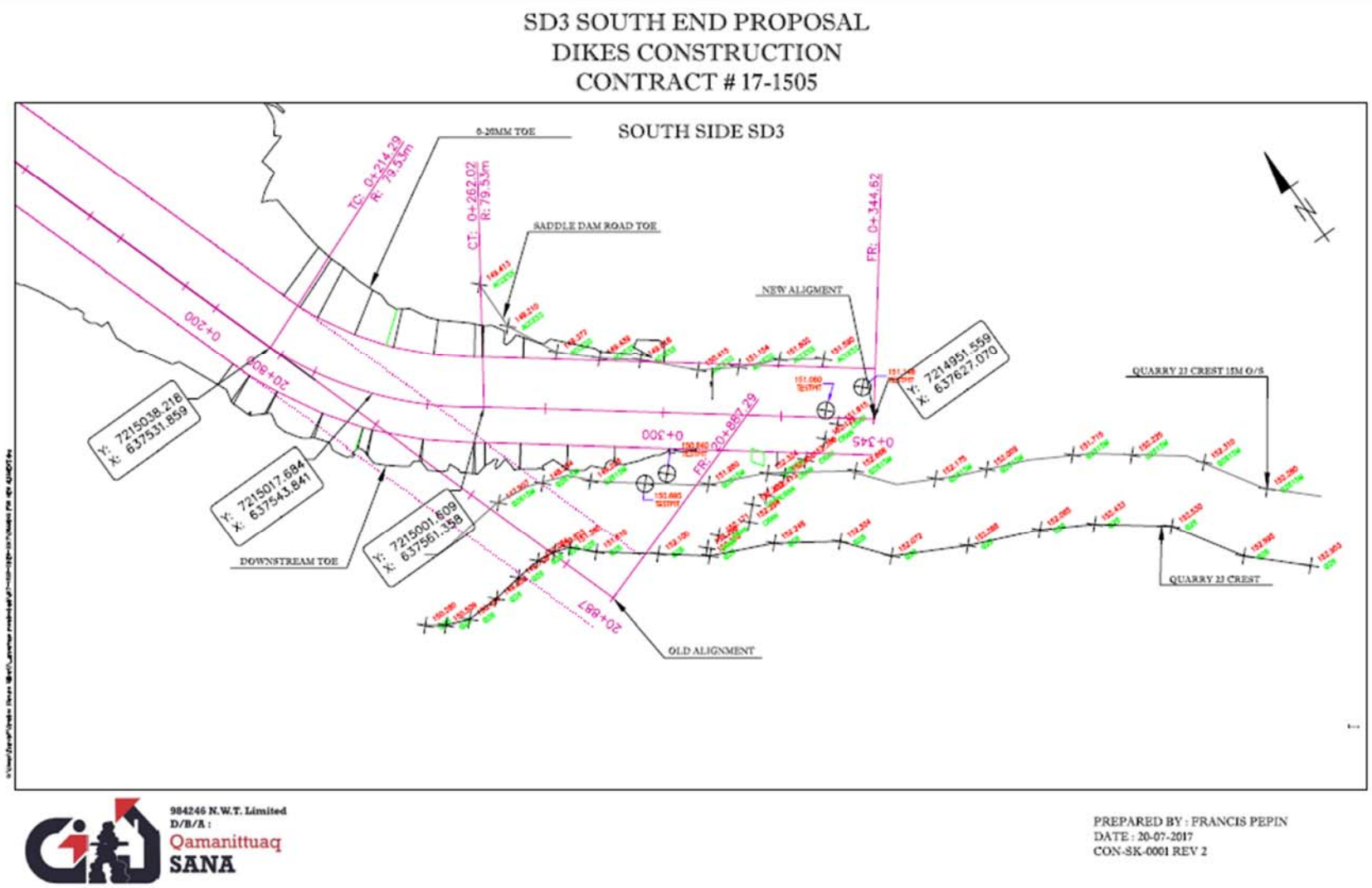
Photograph SD3-179: From Sta. 20+730 looking S. View of an excavator doing the final clean-up of the dike footprint to reach a good quality bedrock on the downstream side of SD3.



Photograph SD3-180: From Sta. 20+760/4 looking N. View of an excavator doing the final clean-up of the dike footprint to reach a good quality bedrock on the downstream side of SD3.



Cross-section of the current sump on SD3, beyond the dike footprint.



SD3 south end proposal of FGL.

SIGNATURES

GOLDER ASSOCIÉS LTÉE

Reviewed by:

ORIGINAL SIGNED

Marion Habersetzer, Jr. Eng.
QA Engineer

ORIGINAL SIGNED AND SEALED

Yves Boulianne, P.Eng (QC,NU)
Associate, Dike Designer

Attachments: Construction Progress Drawings from AEM as of July 23, 2017

MH/YB/jlm

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TECHNICAL MEMORANDUM

DATE July 24, 2017 **REFERENCE No.** 1777687
Doc. 1567 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
Agnico-Eagle Mines Limited Meadowbank Division

CC Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA WEEKLY REPORT FROM JULY 24 TO JULY 30, 2017 – TSF SOUTH CELL CONSTRUCTION MEADOWBANK (1777687)

This document summarizes QA activities performed by Golder from July 24 to July 30, 2017, inclusively, related to the construction activities of Saddle Dams 3, 4 and 5 (SD) at the Meadowbank mine site.

Unless specified, the construction activities use the centreline of the structures for a dike crest elevation of 150 m for reference (refer to the Drawings). The description of activities refers to the stations and offsets from the centreline (e.g., Sta. 0+500/-50 m). The "+" and "-" symbols indicate the location of the work downstream and upstream of the centreline, respectively.

1.0 GOLDER PERSONNEL ON SITE

Golder personnel on site during this reporting period is summarized in Table 1.

Table 1: Golder Personnel on Site

Name	Comments
Michael Nadon	QA Engineer
Marion Habersetzer	QA Engineer

2.0 HEALTH AND SAFETY

H&S meetings were held with AEM and FGL/Sana during the daily construction meetings. Minutes from these meetings are recorded and stored in Golder's on-site office. The key H&S elements for the reporting period were as follows:

- The rain is still an issue; the muddy and very slippery ground causes a high risk of slips and falls. Extra caution must be applied when walking or driving on wet surfaces.

Golder, Golder Associés et le concept GA sur son logo sont des marques de commerce de Golder Associates Corporation.

- During the night shift on July 24, a fire occurred at a drill of Vault pit. It was reiterated that the fire extinguisher inspection is important and has to be done every day at the beginning of the shift.
- The berm on the access road of south the part of SD3 might be enlarged in order to keep a safe distance from the crest of the excavation. SANA's foreman will take a look this morning and give feedback.
- A hydraulic oil spill occurred on July 25 on SD4 (10 liters approx.) on the compactor. The spill has been cleaned and an environmental report sent to all concerned.
- It was reiterated that any task concerning electrical wires or tailings pipes must be done by qualified personnel only.
- It was reiterated to keep a safety distance from heavy equipment and always have eye contact with the operator.
- A talk about the importance of respecting the signs and speed limits on Saddle Road took place.
- There is important heavy equipment coactivity on SD3: personnel on foot (especially the pump operator) must make sure to be visible at all time.
- A small fire start was reported on one of the haul trucks. Fire extinguishers on all machines must be checked: shake the extinguisher and check the gage. Periodic inspections must be performed by qualified personnel.
- The work cards can be left with Patrice Gagnon if the supervisor is unavailable (e.g. crew change).
- It was reiterated that PPE must be worn at all time on the construction field.
- A cyanide convoy is planned to pass on Baker Lake Road tomorrow or on Monday. It is essential for everyone to have the correct radio frequency. It is recommended to avoid Baker Lake Road if possible over the next 2 days to avoid interference with the convoy.
- Dust is an still issue on the construction field on dry days; be vigilant by staying out of the dust cloud near construction activities and road circulation.
- The 3-contact points method must be used when entering or exiting a vehicle or heavy equipment.

3.0 SUMMARY OF MAIN DISCUSSIONS IN CONSTRUCTION MEETINGS

Construction meetings were held daily during the reporting period and were attended by the QA manager. The following items were discussed:

General

- Marion Habersetzer arrived on site as the QA Manager on July 27.
- The activities concerning the realignment of the southern part of SD3 were prioritised during this week.
- The QA Manager spent a moment with the excavator operator of the Pit E (RH 120) to make sure he is aware of the rockfill specifications required on the dikes.
- It was discussed that after the excavation of the southern abutment of SD2, for the foundation preparation and the connection between SD2 and SD3, the 365 excavator might begin to excavate the sump on SD4.

- It was reiterated that the till stockpiles on the north of CD have to be mixed as soon as possible for allow thawing and sampling for laboratory testing.
- From now on, Jeremy Kancir will work as an excavator operator in the pit. If any issue about the rockfill occurs, SANA's foreman (Sabin Larouche) must be contacted.
- The QA Manager indicated on July 28 that the current quality of the UM rockfill has a high fine content and is satisfactory. Any finer load of UM rockfill will be returned as it would no longer be compliant.
- Haul truck activity on the dikes is now conducted in an efficient and satisfactory manner.
- The till stockpiles are now accessible on the north part of Central Dike. When an excavator is available, mixing of the till and coarse filter stockpiles will take place.
- The QA Manager reiterated that rockfill placement must be done in 2 m lifts maximum from the lowest point. There is a large bedrock depression on the SD3 footprint (more than 2 m deep) that requires special attention during backfilling. The surveyor indicates the elevation limits for each lift on the bedrock and existing dikes to facilitate the work of the dozer.
- The 365 excavator will be relocated out of the dikes for several days as of July 30.

Saddle Dam 5

- The in situ, good quality till on SD5 will be collected for later use in till plugs.

Saddle Dam 4

- The QA Manager reiterated that it is important to scarify the north part of SD4 before any placement of rockfill.

Saddle Dam 3

- Regarding the clean-up of the bedrock on the dike footprint of the south part of SD3 (Sta. 20+830 m/o.s. -10 to 10 m to 20+900 m/o.s. -10 to 0 m), the QA Manager noticed some details that suggest this section could have been blasted in the past (see the plan and the photographs attached to the report) or have been drilled for exploration.
  - The rock seems to be of a good quality, but is highly fractured. The fractures seem to follow a blocky pattern and are almost all mechanically caused by the bedrock cleaning with an excavator.
  - Two drill holes have been found in two different block during the excavation of this section confirming that a drilling campaign occurs in this section of the dike footprint.
  - Ice lenses (up to 30 cm) were found all across this section of the dike footprint.
  - Patrice Gagnon has investigated the drill and blast campaign that took place years ago for the conception of Quarry 23 located a few meters beyond the dike footprint. The south part of SD3 would not have been blasted in the past, as no blasting plan, no stemming and no nonel were found. The blocky pattern of the

rock is probably caused by the action of freeze and thaw of the water that could have reached the rock through the drill holes present in this section. The drill holes found are probably exploration holes.

  - For the moment, loose rocks will continue to be removed. In the next days, it will be important to monitor this section of the dike and keep in mind that a reservoir could be formed within the dike footprint as the rock is removed, and thus a draining method need to be established.

- It was discussed that the alignment of SD3 has been officially modified. From now on, the alignment of SD3 will be based on the new document “SD3 south end alignment” issued on July 20 by SANA and approved by the Owner and Golder. The main change concerns the orientation of the south end of SD3, which turns 145 degrees toward the east, and so does the centreline. It has to be understood that the stationing system on SD3 will now be the one based on the new alignment.
- The blast mats have been removed from SD3 to allow better access for the heavy equipment.
- Rockfill placement on SD3 must be conducted in a timely manner in order to ensure continuity of the works after SD4 and SD5 are backfilled.
- The fault area downstream of SD3 has been cleaned until frozen till and fractured bedrock with no visible ice lenses were encountered. Approval and backfilling took place immediately after the excavator has completed the cleanup, to avoid thawing of the foundation.
- The sump must be pumped out as much as possible to allow drainage of the footprint of SD3.
- Due to the excessively high fine content of the UM rockfill, UM rockfill placement was stopped on July 29 on SD3, and resumed with good quality N-AG rockfill for a limited time, until good quality UM rockfill was available again.
- The tailings pipes on the south part of SD3 are being moved.
- The QA Manager highlighted that due to the large quantity of water flowing on the bedrock and at the surface of the frozen foundation on SD3, the second lift of rockfill should be placed and compacted as soon as possible to avoid infiltration and water ponding on the surface.
- During the final clean-up of the bedrock on the downstream side of SD3, a small sector of rockfill was removed, which allowed to confirm that the foundation was still frozen after rockfill had been in place for several days.

4.0 SUMMARY OF CONSTRUCTION ACTIVITIES AND TEST RESULTS

Periodic QA inspections to monitor the construction activities and progress were performed by the QA Engineer; these are summarized in the tables below.

Table 3: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	■ Placement of a 2.0 m-thick lift of UM rockfill with a dozer from El. 137 to 139 m from Sta. 40+650 to 40+750 m (o.s. -5 to 30 m).

Activity or Area	Comments
	■ Compaction of a 2.0 m-thick lift of UM rockfill with a 10 tonne compactor (6 passes) at El. 139 m from Sta. 40+650 to 40+750 m (o.s. -5 to 30 m). ■ Scarification of the UM rockfill at El. 139 m with a grader from Sta. 40+650 to 40+750 m (o.s. -5 to 30 m). ■ Placement of a 1.5 m-thick lift of UM rockfill with a dozer from El. 138.5 to 140 m from Sta. 40+635 to 40+750 m (o.s. -5 to 29 m). The material was compliant. ■ Compaction of a 1.5 m-thick lift of UM rockfill with a compactor (6 passes) at El. 140 m from Sta. 40+635 to 40+750 m (o.s. -11 to 17 m). ■ Scarification of the UM rockfill at El. 140 m with a grader from Sta. 40+635 to 40+750 m (o.s. -5 to 29 m). ■ Placement of a 1.5 m-thick lift of UM rockfill with a dozer from El. 140 to 141.5 m from Sta. 40+635 to 40+730 m (o.s. -16 to 21 m). The material was compliant. ■ Compaction of a 1.5 m-thick lift of UM rockfill with a compactor (6 passes) at El. 141.5 m from Sta. 40+635 to 40+660 m (o.s. 13 to 21 m).

Table 4: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream	■ Placement of a 1.5 m-thick (approx.) lift of UM rockfill with a dozer from Sta. 40+030 to 40+260 m (o.s. 6 to 27 m). ■ Compaction of the 1.5 m-thick (approx.) lift of UM rockfill with a 10-tonne compactor (6 passes) from Sta. 40+030 to 40+260 m (o.s. 10 to 27 m). ■ Placement of a 2.0 m-thick lift of UM rockfill with a dozer from El. 137 to 139 m from Sta. 40+270 to 40+410 m (o.s. -5 to 25 m). The material was compliant. ■ Compaction of the 2.0 m-thick lift of UM rockfill with a compactor (6 passes) at El. 139 m from Sta. 40+320 to 40+410 m (o.s. -5 to 25 m). ■ Scarification of the UM rockfill at El. 139 m from Sta. 40+240 to 40+410 m (o.s. -5 to 20 m). ■ Placement of a 1.5 m-thick lift of UM rockfill with a dozer from El. 140 to 141.5 m from Sta. 40+480 to 40+620 m (o.s. 6 to 21 m). The material was compliant. ■ Compaction of the 1.5 m-thick lift of UM rockfill with a compactor (6 passes) at El. 140 m from Sta. 40+520 to 40+620 m (o.s. 8 to 21 m).
Water management	■ Water is ponding in the excavated area from Sta. 40+340 to 40+420 m (o.s. 32 to 35 m). A sump or ditch is planned to be built at a later time downstream of SD4 to collect the water.

Table 5: QA Observations for Saddle Dam 3

Activity or Area	Comments
Foundation preparation	■ Loading of the till like material with an excavator at the extreme north of SD3 (Sta. 20+570 to 20+590) for the connection between SD2 and SD3. ■ Final clean-up of the dike footprint to reach a good quality bedrock from Sta. 20+625 to 20+660 m (o.s. 14 to 25 m), from Sta. 20+735 to 20+785 m (o.s. -13 to 21 m), and from Sta. 20+800 to 20+860 m (o.s. -19 to 14 m). ■ Final clean-up of the dike footprint to reach a frozen, ice-poor till and fractured bedrock from Sta. 20+700 to 20+735 m (o.s. 1 to 21 m) and from Sta. 20+595 to 20+660 m (o.s. -1 to 35 m).
Upstream	■ Final clean-up of the dike footprint with an excavator to reach a good quality bedrock from Sta. 20+850 to 20+890 m (o.s. -65 to -15 m).
Downstream	■ Loading of the excavated material with an excavator from Sta. 20+595 to 20+660 m (o.s. 19 to 45 m), from Sta. 20+700 to 20+770 m (o.s. 15 to 25 m), and from Sta. 20+800 to 20+870 m (o.s. -29 to 25 m). ■ Construction of a UM rockfill access ramp to the downstream footprint to allow loading of trucks (approx. Sta. 20+620 m). ■ Removal of loose rocks and soft and ice-rich soils on the downstream side of SD3 with an excavator from Sta. 20+615 to 20+650 m (o.s. 30 to 47 m). ■ Placement of a 2 m-thick lift (approx.) of rockfill with a dozer from Sta. 20+595 to 20+680 m (o.s. -1 to 35 m) to cover the foundation as soon as bedrock cleaning was completed. The material was compliant and composed mainly of UM rockfill with a small quantity of N-AG placed around Sta. 20+595. ■ Compaction of the 2 m-thick lift (approx.) of UM and N-AG rockfill with a compactor (8 passes) from Sta. 20+595 to 20+680 m (o.s. -1 to 47 m). ■ Placement of a 2 m-thick lift (approx.) of UM rockfill with a dozer from Sta. 20+705 to 20+770 m (o.s. -9 to 10 m). The material was compliant.
Water management	■ Pumping of the water ponding on the footprint is ongoing. ■ Water is ponding in the excavated area from Sta. 20+800 to 20+815 m (o.s. 8 to 26 m).

5.0 FOUNDATION APPROVAL

The following foundation approvals were carried out during the reporting period.

Table 6: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
FND-SD3-22	SD3	Sta. 20+733.59 to 20+785.02 m (o.s. -12.06 to 27.33 m)	27/07/2017	
FND-SD3-23	SD3	Sta. 20+595.90 to 20+622.64 m (o.s. 3.24 to 30.62 m)	28/07/2017	Frozen foundation. Approved provided the water ponds are pumped out before placing UM rockfill.
FND-SD3-24	SD3	Sta. 20+577.51 to 20+623.47 m (o.s. -4.51 to 33.83 m)	29/07/2017	Frozen foundation. Approved provided the water ponds are pumped out before placing UM rockfill.
FND-SD3-25	SD3	Sta. 20+614.42 to 20+744.43 m (o.s. -7.23 to 33.55 m)	30/07/2017	Partially frozen foundation. Approved provided the water ponds are pumped out before placing UM rockfill.

6.0 SAMPLING AND LABORATORY TESTING

No samples were taken during the reporting period.

7.0 PHOTOGRAPHS



Photograph SD5-056: From Sta. 40+720/43 looking NW. View of a dozer placing a 2 m-thick lift of UM rockfill with a dozer from El. 137 to 139 m from Sta. 40+680 to 40+700 m.



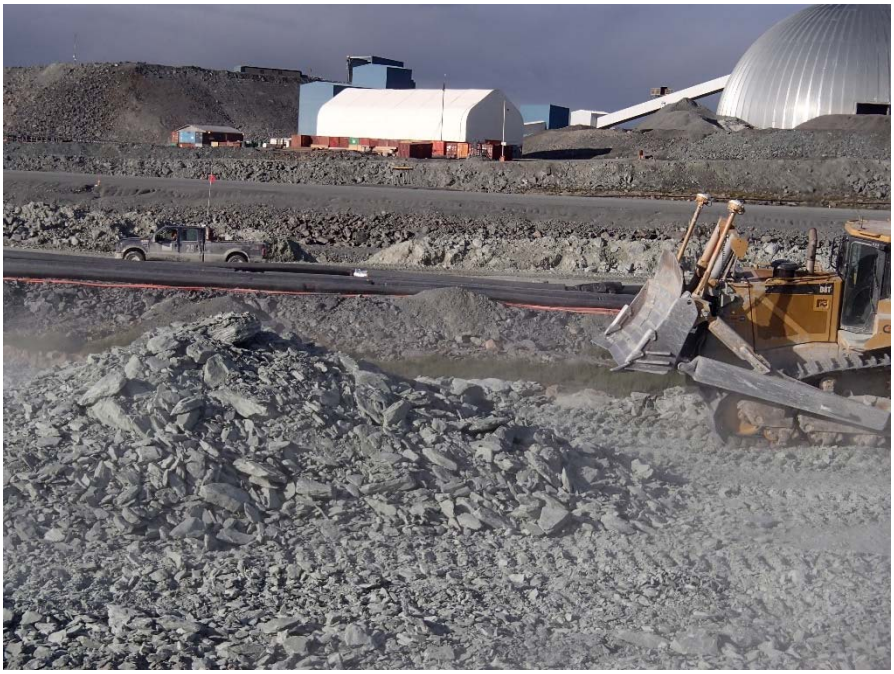
Photograph SD5-057: From Sta. 20+750/60 looking NW. View of a dozer placing a 2 m-thick lift of UM rockfill from El. 137 to 139 m from Sta. 40+700 to 40+740 m.



Photograph SD5-059: From Sta. 40+710/9 looking N. Compaction of a 1.5 m-thick lift of UM rockfill with a compactor (6 passes) at El. 140 m from Sta. 40+640 to 40+735 m (o.s. -11 to 17 m).



Photograph SD4-131: From Sta. 40+280/31 looking E. Placement of a 2.0 m-thick lift of UM rockfill with a dozer from El. 137 to 139 m from Sta. 40+270 to 40+410 m.



Photograph SD4-133: From Sta. 40+580/-13 looking SW. Detail of the current UM rockfill. The material has a high fine content.



Photograph SD4-134: From Sta. 40+570/-5 looking SW. Placement of a 1.5 m-thick lift of UM rockfill with a dozer from El. 140 to 141.5 m from Sta. 40+480 to 40+620 m (o.s. 6 to 21 m).



Photograph SD3-181: From Sta. 20+880/-67 looking W. View of an excavator doing the final clean-up to reach a good quality bedrock on the realigned section of SD3.



Photograph SD3-182: From Sta. 20+880/-41 looking NW. View of an excavator doing the final clean-up to reach a good quality bedrock on the realigned section of SD3.



Photograph SD3-183: From Sta. 20+600/-5 looking N. Excavation of the till-like material with an excavator at the extreme north of SD3 (Sta. 20+570 to 20+590) for the connection between SD2 and SD3.



Photograph SD3-184: From Sta. 20+845/0 looking E. View of one of the two drill holes that have been found in two different block during the excavation of the potentially blasted zone of the south part of SD3.

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Photograph SD3-185: From Sta. 20+860/-5. View of an ice lens (30 cm) that was found on the potentially blasted zone of the south part of SD3. Many other ice lenses were found all across this section of the dike footprint.



Photograph SD3-186: From Sta. 20+840/-5 looking E. View of excavated rock coming from the potentially blasted zone of the south part of SD3. Notice the rock quality and its blocky pattern. The fractures seem to be only mechanical.



Photograph SD3-187: From Sta. 20+755/-15 looking N. Final clean-up of the dike footprint to reach a good quality bedrock from Sta. 20+700 to 20+735 m (o.s. 1 to 21 m).



Photograph SD3-188: From Sta. 20+620/-8 looking E. Final clean-up of the dike footprint to reach a good quality bedrock from Sta. 20+610 to 20+640 m (o.s. 9 to 33 m) and removal of loose rocks and soft and ice-rich soils on the downstream side of SD3 with an excavator from Sta. 20+615 to 20+650 m (o.s. 30 to 47 m).



Photograph SD3-189: From Sta. 20+615/-14 looking NW. Placement of a 2 m-thick lift (approx.) of UM and N-AG rockfill with a dozer from Sta. 20+595 to 20+620 m (o.s. -1 to 31 m) to cover the foundation as soon as bedrock cleaning was completed.



Photograph SD3-190: From Sta. 20+615/-14 looking SW. Final clean-up of the dike footprint to reach a good quality bedrock from Sta. 20+625 to 20+660 m (o.s. 14 to 25 m) and loading of the excavated material with an excavator from Sta. 20+595 to 20+660 m (o.s. 25 to 45 m).



Photograph SD3-191: From Sta. 20+815/25 looking E. Loading of the excavated material with an excavator from Sta. 20+800 to 20+870 m (o.s. -29 to 25 m).



Photograph SD3-192: From Sta. 20+780/18 looking SE. Placement of a 2 m-thick lift (approx.) of UM rockfill with a dozer from Sta. 20+705 to 20+770 m (o.s. -9 to 10 m). Notice the large depression in the bedrock.



Photograph SD3-193: From Sta. 20+815/26 looking E. Final clean-up of the dike footprint to reach good quality bedrock from Sta. 20+800 to 20+860 m (o.s. -19 to 14 m). Water is ponding in the excavated area from Sta. 20+800 to 20+815 m (o.s. 8 to 26 m).



Photograph SD3-194: From Sta. 20+695/-15 looking N. Placement of a 2 m-thick lift (approx.) of UM rockfill with a dozer from Sta. 20+620 to 20+680 m (o.s. 24 to 35 m).

SIGNATURES

GOLDER ASSOCIÉS LTÉE

Reviewed by:

ORIGINAL SIGNED

Marion Habersetzer, Jr. Eng.
QA Engineer

ORIGINAL SIGNED AND SEALED

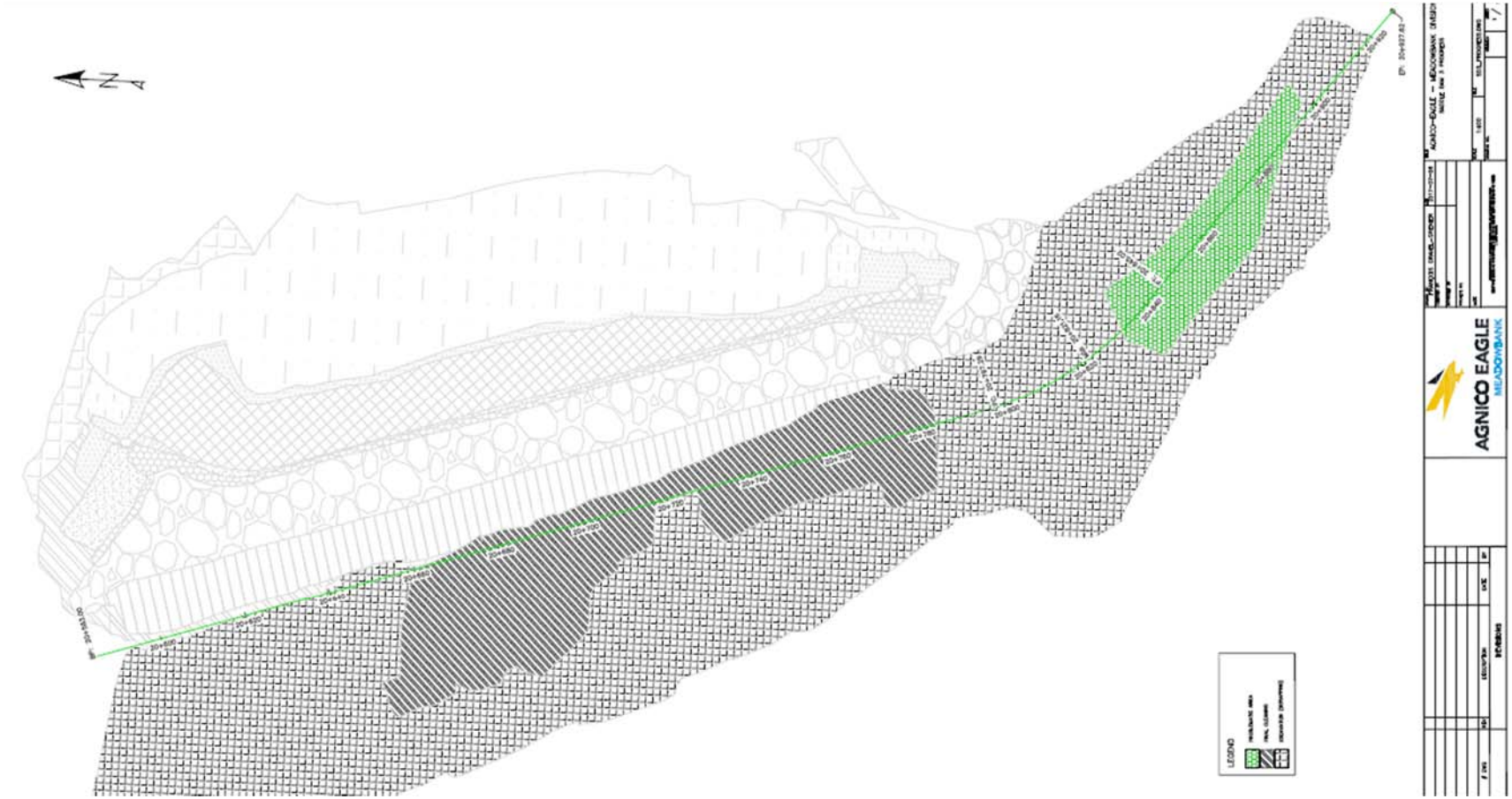
Yves Boulianne, P.Eng (QC,NU)
Associate, Dike Designer

Attachments: View of the potentially blasted zone of the south part of SD3

Construction Progress Drawings from AEM as of July 30, 2017

MH/YB/jlm

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View of the potentially blasted zone of the south part of SD3.

TECHNICAL MEMORANDUM

DATE November 24, 2017 **REFERENCE No.** 1777687
Doc. 1567 Rev 0

TO Pierre McMullen, Julie Bélanger, Patrice Gagnon, Alexandre Lavallée
Agnico-Eagle Mines Limited Meadowbank Division

CC Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA WEEKLY REPORT FROM JULY 31 TO AUGUST 6, 2017 – TSF SOUTH CELL CONSTRUCTION MEADOWBANK (1777687)

This document summarizes QA activities performed by Golder from July 31 to August 6, 2017, inclusively, related to the construction activities of Saddle Dams 3, 4 and 5 (SD) at the Meadowbank mine site.

Unless specified, the construction activities use the centreline of the structures for a dike crest elevation of 150 m for reference (refer to the Drawings). The description of activities refers to the stations and offsets from the centreline (e.g., Sta. 0+500/-50 m). The "+" and "-" symbols indicate the location of the work downstream and upstream of the centreline, respectively.

1.0 GOLDER PERSONNEL ON SITE

Golder personnel on site during this reporting period is summarized in Table 1.

Table 1: Golder Personnel on Site

Name	Comments
Marion Habersetzer	QA Engineer

2.0 HEALTH AND SAFETY

H&S meetings were held with AEM and FGL/Sana during the daily construction meetings. Minutes from these meetings are recorded and stored in Golder's on-site office. The key H&S elements for the reporting period were as follows:

- The importance of performing a good check of the equipment before filling the work card or inspection form was reiterated.

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- It was reiterated that to prevent hand or head injuries, everyone should know how to use the required tools, ask for assistance if in doubt, and wear the appropriate PPE (gloves, hard hat…) at all times on the construction site.
- A leak was detected on the 345 excavator on August 1 and was repaired before it caused a spill.
- A safety meeting and a toolbox meeting for the operators took place on August 2, and touched upon the following subjects: eye safety, 3-point contact, extinguisher inspection, and coactivity.
- There is still important heavy equipment coactivity on SD3 and SD4: personnel on foot (especially the pump operator) must make sure to be visible at all time.
- Dust is an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.
- A review of safety topics and recent incidents was done.
- SANA's health and safety representative pointed out that on SD4, the dozer does not leave enough space for haul trucks to keep a safe distance from the edge of the lift. The dozer operator has been notified of this issue.
- A fire extinguisher inspection has been performed on all heavy equipment.
- The suitable height of the berms on the edges of the rockfill lifts has been discussed.
- There is a lack of orange candles for blocking access to unsafe sections of the dikes. The warehouse will be checked for additional ones.
- The rain is an issue; the muddy and very slippery ground causes a high risk of slips and falls. Extra caution must be applied when walking or driving on wet surfaces.
- In order to provide haul trucks with a visual reference, each rockfill lift must have at least a small berm on its outer edge.
- Extinguishers will be installed on mobile power generators.

3.0 SUMMARY OF MAIN DISCUSSIONS IN CONSTRUCTION MEETINGS

Construction meetings were held daily during the reporting period and were attended by the QA manager. The following items were discussed:

General

- The limits of inverse filters have been marked by the surveyor on SD4/5 to avoid backfilling with UM rockfill beyond the rockfill/filters interface.
- Only one dozer is available at the moment for rockfill placement on SD4/5 and SD3. Placement and compaction/scarification operations will be alternated between the dikes to ensure continuous progress.

- UM rockfill is unlikely to be provided with more than 3 haul trucks per hour at the moment. Patrice Gagnon has asked for supplemental trucks, as the planned placement rate of 250 m^3/h is estimated to require at least 6 haul trucks to be achieved.
- The QA Manager and the QC representative spent a moment with the new excavator operator of Pit E (RH 120) to make sure he is aware of the rockfill specifications required on the dikes.
- The compaction method and requirements have been revised with the compactor operators.
- Safety berms on the edges of the rockfill lifts need to be removed to compact the UM rockfill underneath. The berms will be put back into place as soon as compaction is done.
- Scarification of the completed rockfill lifts on all dikes must be done as soon as possible, to be able to accommodate the UM rockfill that is supposed to be available in large quantities over the next few days.
- A second compactor would be useful on the dikes, as compaction is currently the most time-consuming operation in the dike construction.
- A new excavator has arrived on the dikes and is working 24/7.
- The QA Manager reiterated that only non-acid generator (N-AG) material is allowed for dike construction.
- The QA Manager reiterated that the coarse filter stockpile should be mixed at the same time as the till stockpiles to allow for representative material sampling.
- The rockfill placement objective of 250 m^3/h was achieved with 4 haul trucks.
- The mixing of the 2 sieved till stockpiles has begun with a loader. They will eventually be mixed together. Sampling on the 2 till stockpiles was done on August 4. The cores on the stockpiles were frozen and will be allowed to thaw before final mixing.
- The coarse filter stockpile has been mixed by a loader and sampled on August 4.
- The coarse filter (Type 3, 0-150mm) stockpile in the SANA crusher site is currently difficult to reach with a narrow access. A loader will widen the access to facilitate loading during construction of inverse filters.
- The D8 dozer on the dikes has been replaced with a larger dozer (D9). It was discussed that it may be possible to accommodate more than 4 haul trucks at a time for rockfill placement.
- The till stockpile on the side of Pit E will be mixed and thawed for sieving.
- Large quantities of UM rockfill are available from the previous blast and should suffice for the dike construction for some time. The RH-120 excavator will be replaced with a loader in the pit for 4 days.

Saddle Dam 5

- Oversize boulders (larger than 1.3 m) needed to be removed from SD5 (see picture below). Some of them were removed on August 3 during the night shift by pushing them down the slope. The profiled slope was not damaged by the falling boulders. The remaining boulders have been removed with a loader.

- A section of safety berm on SD5 (approx. Sta. 40+520 to 40+590 m) did not need to be removed to compact underneath the berm, as the UM rockfill lift was wider than the requirement, and the outer limit of the dike according to design plans was already compacted. The sloping operation corrected the wideness of the lift to match the specifications, with support from the surveyor.

Saddle Dam 4

- An accumulation of large boulders on SD4 at Sta. 40+230 m must be scattered on the ripped UM rockfill, in order to limit voids between the boulders after placement of the next lift. This was done on August 3.
- Pumping is ongoing on SD4. The outlet of the pumping hose should be placed in the upstream slope of the dike rather than on the edge of the crest, to avoid releasing water with fine particles into the granular filters.
- The two accesses on SD4 will be left in place for the moment. Access ramps will be built as rockfill lifts are raised.

Saddle Dam 3

- The first lift of UM rockfill on SD3 has been completed by filling a pumped out water pond with the 345 excavator at Sta. 20+730 m (approx.) due to temporary unavailability of the dozer, to ensure that capping would be completed before the water started to pond again. The material was placed without segregation and compacted shortly after.
- There is a thermistor installed downstream of SD3. In order not to damage it, the rockfill will be placed around the casing with an excavator, and compacted with the bucket. The compactor will finish its passes as close as possible. New casing will be added upwards as backfilling progresses.
- The QA Manager reiterated that the lift of UM rockfill at El. 137 m should be completed and compacted as soon as possible on the zone on the north part of SD3 where water was infiltrating through the compacted rockfill.
- There are visible ice lenses in a 2 to 3 m wide fracture zone of the bedrock on the south part of the SD3 footprint, extending from approx. Sta. 20+860 m (o.s. 12 m) to Sta. 20+882 m (o.s. -5 m). After discussion with Patrice Gagnon and Yves Boulianne, and given that the ice is in the bedrock and not within the till, it is considered that the ice will have limited impact on the foundation (settlement if thawing occurs) and is acceptable.
- The water ponding on the south side of the SD3 footprint (near Quarry 23) is still present despite the pumping. Patrice Gagnon suggested that water ponding in Quarry 23 coming through the fractured bedrock may be the cause. The zone has been capped with UM rockfill and swiftly compacted to avoid infiltrations in loose rockfill.
- Excavation works have resumed on SD3 (removal of access road) and will continue during placement of the rockfill lift at El. 141 m. If the UM rockfill production rhythm allows, haul trucks arriving with rockfill on the dike should load excavated material to be disposed of before leaving SD3, for an optimized use of the available haul trucks.

- The placement of UM rockfill at El. 141 m on SD3 was interrupted during the night shift on August 5 because of an uncertainty of the QC personnel about the approved foundation. Since the dozer had since left SD3, the lift was completed by a loader. Caution was used to limit rockfill segregation, and the compactor did 8 passes on this section.
- Some of the access roads are damaged by haul trucks traffic, especially on SD3. Sieving rejects or material from the current access road on SD3 are considered for backfilling the damaged roads; however, it is important not to contaminate the UM rockfill where the access goes through a rockfill lift.

Central Dike

- The north abutment of Central Dike will be built up to El. 145 m, with a liner tie-in at El. 143 m.
- The mixing and thawing of till stockpiles on the north side of Central Dike should be completed over the next few days.

4.0 SUMMARY OF CONSTRUCTION ACTIVITIES AND TEST RESULTS

Periodic QA inspections to monitor the construction activities and progress were performed by the QA Engineer; these are summarized in the tables below.

Table 3: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	■ Compaction of the 1.5 m thick lift of UM rockfill with a compactor (6 passes) at El. 141.5 m from Sta. 40+600 to 40+750 m (o.s. -10 to 13 m). ■ Scarification of the UM rockfill at El. 141.5 m from Sta. 40+590 to 40+730 m (o.s. -14 to 15 m). ■ Removal of the safety berms and compaction (6 passes) on the downstream side of SD5 at El. 141.5 m with an excavator from Sta. 40+590 to 40+700 m, and with a loader from Sta. 40+700 to 40+750 m. ■ Profiling of the slope on the downstream side of SD5 from El. 138.5 to 141.5 m with an excavator from Sta. 40+600 to 40+750 m. ■ Placement of a 1.5 m thick lift of UM rockfill with a dozer from El. 141.5 to 143 m from Sta. 40+600 to 40+750 m (o.s. -18 to 18 m). The material was compliant.

Table 4: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream	■ Scarification of the UM rockfill at El. 140 m from Sta. 40+175 to 40+230 m (o.s. -9 to 18 m). ■ Scattering of the pile of large boulders at Sta. 40+230 m over the scarified UM rockfill lift at El. 140 m with an excavator.

Activity or Area	Comments
	■ Placement of a 1.5 m-thick lift of UM rockfill from El. 140 m to 141.5 m with a dozer from Sta. 40+220 to 40+480 m (o.s. -14 to 28 m). The material was compliant. ■ Compaction of the 1.5 m thick lift of UM rockfill at El. 141.5 m with a 10-tonne smooth-drum compactor (6 passes) from Sta. 40+235 to 40+600 m (o.s. -14 to 20 m). ■ Scarification of the UM rockfill with a loader at El. 141.5 m from Sta. 40+220 to 40+470 m (o.s. -13 to 23 m). ■ Removal of the safety berms on the downstream side of SD4 at El. 141.5 m with a loader and compaction (6 passes) from Sta. 40+300 to 40+520 m. ■ Profiling of the slope on the downstream side of SD4 from El. 138.5 to 141.5 m with an excavator from Sta. 40+305 to 40+600 m. ■ Placement of a 1.5 m thick lift of UM rockfill with a dozer from El. 141.5 to 143 m from Sta. 40+540 to 40+600 m (o.s. -18 to 18 m). The material was compliant.
Water management	■ Water is ponding in the excavated area from Sta. 40+340 to 40+420 m (o.s. 32 to 35 m) and is being pumped out. A sump or ditch is planned to be built at a later time downstream of SD4 to collect the water. ■ A 2 to 3 m-wide ditch has been dug alongside the downstream toe of SD4 from Sta. 40+440 to 40+510 m

Table 5: QA Observations for Saddle Dam 3

Activity or Area	Comments
Foundation preparation	■ Final clean-up of the dike footprint to reach good quality bedrock from Sta. 20+800 to 20+887 m (o.s. -16 to 22 m).
Upstream	■ Removal of the old access road to the upstream side of SD3. The new access goes through the rockfill lift on the south side of SD3. The excavated materials have been stockpiled and will be reused to build the new access road. ■ Removal of loose rocks and soft and ice-rich soils down to the frozen soil with an excavator and loading of the excavated material for foundation preparation from Sta. 20+855 to 20+880 m (o.s. -21 to -4 m) and from Sta. 20+865 to 20+910 m (o.s. -36 to -14 m). The till is frozen at a shallow depth.
Downstream	■ Capping of a pumped out water pond at Sta. 20+730 m (approx.) with UM rockfill with an excavator. The material was compliant and placed without segregation. ■ Compaction of the first 2 m thick lift of UM rockfill with a compactor (8 passes) from Sta. 20+595 to 20+785 m (o.s. -3 to 29 m).

Activity or Area	Comments
	■ Scarification of the first lift of UM rockfill from Sta. 20+595 to 20+740 m (o.s. -3 to 31 m). ■ Placement of a 1 to 2 m thick lift (approx.) of UM rockfill to El. 137 m with a dozer from Sta. 20+595 to 20+775 m (o.s. -11 to 29 m). The material was compliant. ■ Compaction of the 1.0 to 2.0 m-thick lift of UM rockfill at El. 137 m with a compactor (8 passes) from Sta. 20+595 to 20+770 m (o.s. -11 to 27 m). ■ Scarification of the UM rockfill at El. 137 m from Sta. 20+580 to 20+735 m (o.s. -4 to 25 m). ■ Profiling of the slope of the north part of the downstream side of SD3 from El. 135 to 137 m with an excavator from Sta. 20+580 to 20+650 m. ■ Placement of a 2 m-thick lift of UM rockfill from El. 137 m to 139 m with a dozer from Sta. 20+585 to 20+660 m (o.s. –5 to 28 m). The material was compliant. ■ Compaction of the 2 m thick lift of UM rockfill at El. 139 m with a compactor (6 passes) from Sta. 20+585 to 20+735 m (o.s. -5 to 28 m). ■ Placement of a 2 m thick lift of UM rockfill in the south sector of SD3 with a dozer from Sta. 20+795 to 20+895 m (o.s. -17 to 16 m). The material was compliant. ■ Compaction of the first 2 m thick lift of UM rockfill in the south sector of SD3 with a 10-tonne smooth-drum compactor (8 passes) from Sta. 20+795 to 20+895 m (o.s. -17 to 16 m). ■ Scarification of the UM rockfill from Sta. 20+585 to 20+760 m (o.s. -8 to 11 m) at El. 139 m in the north sector of SD3, and from Sta. 20+855 to 20+895 m (o.s. -10 to 7 m) in the south sector. ■ Profiling of the slope on the downstream side of SD3 from El. 137 to 139 m with an excavator from Sta. 20+440 to 20+720 m. ■ Placement of a 2 m thick lift of UM rockfill with a dozer on the south part of SD3 from Sta. 20+855 to 20+880 m (o.s. -3 to 7 m). The material was compliant. ■ Removal of loose rocks and soft and ice-rich soils with an excavator and loading of the excavated material for foundation preparation from Sta. 20+790 to 20+820 m (o.s. -21 to 6 m). ■ Placement of a 2 m thick lift of UM rockfill with a dozer from El. 139 to 141 m from Sta. 20+580 to 20+740 m (o.s. -12 to 20 m). The material was compliant. ■ Compaction of the 2 m thick lift of UM rockfill at El. 141 m with a 10-tonne smooth-drum compactor (6 passes) from Sta. 20+580 to 20+740 m (o.s. -9 to

Activity or Area	Comments
	19 m). 8 passes were done on the north extremity of SD3 where the UM rockfill was placed with a loader.
Water management	■ Water was ponding in the excavated area from Sta. 20+800 to 20+840 m (o.s. 8 to 26 m) and has been pumped out. The water likely comes from Quarry 23 through the fractured bedrock.

Table 6: QA Observations for Central Dike

Activity or Area	Comments
Upstream	■ Removal of loose rocks and soft and ice-rich soils with an excavator and loading of the excavated material for foundation preparation from Sta. 0+085 to 0+095 m (o.s. -36 to -1 m).

5.0 FOUNDATION APPROVAL

The following foundation approvals were carried out during the reporting period.

Table 7: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
FND-SD3-26	SD3	Sta. 20+798.71 to 20+903.19 m (o.s. -16.34 to 18.88 m)	02-08-2017	Approved provided the water ponds are pumped out before placing UM rockfill. Ice is present inside fractures in a small zone of the bedrock (approx. Sta. 20+860 m, o.s. 12 m, to Sta. 20+882 m, o.s. -5 m) and is not problematic.

6.0 SAMPLING AND LABORATORY TESTING

The following samples were taken during the reporting period:

- Samples 368, 373, 429 and 430 were taken by the QC representative.
- Samples 369, 374 and 431 were taken by the QA Manager.

The gradation performed on sample 373, fine filter from Sana crusher, was compliant. The results obtained on sample 368, coarse filter from Sana crusher, show that a sandy fraction is finer than the gradation limits. Additional care will have to be taken during the loading and handling to minimize segregation. It is judged that the performance of the filter will still be adequate.

The gradation performed on sample 429, sieved till from stockpile #1 on the north of Central Dike, was compliant. The results obtained on sample 430, sieved till from stockpile #2, is on the finer edge of the required gradation. It is judged that the performance of the till as liner tie-in material will still be adequate.

Table 8: Samples Taken

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
368	04/08/2017	5/08/2017	Coarse filter (0-150 mm)	SANA crusher site	Gradation	Coarse ok, sandy particle out of gradation
					Water content	0.3%
369	04/08/2017		Coarse filter (0-150 mm)	SANA crusher site		
373	04/08/2017	5/08/2017	Fine filter (0-20 mm)	SANA crusher site	Gradation	Compliant
					Water content	2.7%
374	04/08/2017		Fine filter (0-20 mm)	SANA crusher site		
429	04/08/2017	5/08/2017	Sieved till (stockpile #1)	North of Central Dike	Gradation	Compliant
					Water content	4.9%
430	04/08/2017	5/08/2017	Sieved till (stockpile #2)	North of Central Dike		
431	04/08/2017		Sieved till (stockpile #2)	North of Central Dike	Gradation	On the finer edge of gradation
					Water content	7.2%

7.0 PHOTOGRAPHS



Photograph SD5-060: From Sta. 40+700/13 looking E. Scarification of the UM rockfill at El. 141.5 m from Sta. 40+590 to 40+730 m (o.s. -14 to 15 m).



Photograph SD5-061: From Sta. 40+700/9 looking N. View of oversize boulders (larger than 1.3 m) on the edge of the lift on SD5.



Photograph SD4-135: From Sta. 40+430/-21 looking W. Placement of a 2 m-thick lift of UM rockfill with a dozer from El. 140 to 141.5 m from Sta. 40+420 to 40+450 m (o.s. -5 to 17 m).



Photograph SD4-136: From Sta. 40+355/-13 looking W. Placement of a 1.5 m-thick lift of UM rockfill from El. 140 m to 141.5 m with a dozer from Sta. 40+290 to 40+410 m (o.s. -13 to 17 m)



Photograph SD4-137: From Sta. 40+400/7 looking NE. Compaction of the 1.5 m thick lift of UM rockfill at El. 141.5 m with a compactor (6 passes) from Sta. 40+290 to 40+410 m (o.s. -9 to 20 m).



Photograph SD4-138: From Sta. 40+360/11 looking SE. Scarification of the UM rockfill at El. 141.5 m from Sta. 40+300 to 40+470 m (o.s. -13 to 9 m).



Photograph SD4-139: From Sta. 40+670/11 looking N. Profiling the slope on the downstream side of SD4 from El. 138.5 to 141.5 m with an excavator from Sta. 40+440 to 40+600 m.



Photograph SD4-140: From Sta. 40+520/26 looking N. Removal of the safety berms on the downstream side of SD4 at El. 141.5 m with a loader from Sta. 40+300 to 40+520 m.



Photograph SD4-141: From Sta. 40+510/22 looking W. View of the ditch at the downstream toe of SD4 from Sta. 40+440 to 40+510 m and sloping from Sta. 40+305 to 40+420 m.



Photograph SD4-142: From Sta. 40+230/34 looking E. Compaction of the 1.5 m-thick lift of UM rockfill at El. 141.5 m with a 10-tonne smooth-drum compactor (6 passes) from Sta. 40+235 to 40+310 m (o.s. -14 to 18 m).



Photograph SD4-143: From Sta. 40+640/61 looking E. Placement of a 1.5 m-thick lift of UM rockfill with a dozer from El. 141.5 to 143 m from Sta. 40+540 to 40+600 m (o.s. -18 to 18 m).



Photograph SD3-195: From Sta. 20+755/-15 looking N. Compaction of the 2 m thick lift of UM rockfill with a compactor (8 passes) from Sta. 20+785 to 20+650 m (o.s. -3 to 29 m).



Photograph SD3-196: From Sta. 20+650/16 looking NE. Scarification of the UM rockfill from Sta. 20+595 to 20+740 m (o.s. -3 to 31 m).



Photograph SD3-197: From Sta. 20+860/14 looking SE. Final clean-up of the dike footprint to reach good quality bedrock from Sta. 20+820 to 20+845 m (o.s. -9 to 4 m) and from Sta. 20+870 to 20+887 m (o.s. -10 to 15 m). The bedrock seems sound and no ice lenses were observed in the exposed area.



Photograph SD3-198: From Sta. 20+620/47 looking E. Placement of a 1 to 2 m-thick lift (approx.) of UM rockfill at El. 137 m with a dozer from Sta. 20+595 to 20+615m (o.s. -4 to 29 m). The material was compliant.



Photograph SD3-199: From Sta. 20+800/22 looking E. Final clean-up of the dike footprint to reach good quality bedrock from Sta. 20+800 to 20+880 m (o.s. -10 to 22 m).



Photograph SD3-200: From Sta. 20+880/1 looking E. View of visible ice lenses in a fracture of the bedrock on the south part of the SD3 footprint, extending from Sta. 860 m (o.s. 12 m) to Sta. 882 m (o.s. -5 m).



Photograph SD3-201: From Sta. 20+790/5 looking N. Compaction of the 1 to 2 m thick lift of UM rockfill at El. 137 m with a compactor (8 passes) from Sta. 20+680 to 20+770 m (o.s. -12 to 27 m).



Photograph SD3-202: From Sta. 20+805/8 looking E. Final clean-up of the dike footprint to reach good quality bedrock from Sta. 20+805 to 20+840 m (o.s. -16 to 12 m).



Photograph SD3-203: From Sta. 20+610/22 looking N. Profiling the slope of the north part of the downstream side of SD3 from El. 135 to 137 m with an excavator from Sta. 20+580 to 20+650 m.



Photograph SD3-204: From Sta. 20+660/49 looking E. Placement of a 2 m thick lift of UM rockfill from El. 137 m to 139 m with a dozer from Sta. 20+605 to 20+660 m (o.s. -5 to 28 m).



Photograph SD3-205: From Sta. 20+800/-5 looking SE. Compaction of the first 2 m thick lift of UM rockfill in the south sector of SD3 with a compactor (8 passes) from Sta. 20+795 to 20+895 m (o.s. -17 to 16 m).



Photograph SD3-206: From Sta. 20+680/26 looking S. Profiling of the slope on the downstream side of SD3 from El. 137 to 139 m with an excavator from Sta. 20+440 to 20+720 m.



Photograph SD3-207: From Sta. 20+800/4 looking E. Loading of the excavated material stockpile along the current access road for foundation preparation from Sta. 20+800 to 20+810 m (o.s. 2 to 4 m) and placement of a 2 m-thick lift (approx.) of UM rockfill with a dozer from Sta. 20+855 to 20+880 m (o.s. -3 to 7 m).



Photograph SD3-208: From Sta. 20+555/9 looking S. Placement of a 2 m thick lift of UM rockfill with a dozer from El. 139 to 141 m from Sta. 20+620 to 20+675 m (o.s. -12 to 20 m).



Photograph SD3-209: From Sta. 20+760/-11 looking SW. Removal of loose rocks and soft and ice-rich soils with an excavator and loading of the excavated material for foundation preparation from Sta. 20+790 to 20+820 m (o.s. -21 to 6 m).



Photograph SD3-210: From Sta. 20+840/-17 looking E. Removal of loose rocks and soft and ice-rich soils down to the frozen soil with an excavator and loading of the excavated material for foundation preparation from Sta. 20+855 to 20+880 m (o.s. -21 to -4 m) and from Sta. 20+865 to 20+910 m (o.s. -36 to -14 m).



Photograph SD3-211: From Sta. 20+595/-18 looking NW. Compaction of the 2 m thick lift of UM rockfill at El. 141 m with a 10-tonne smooth-drum compactor (6 passes) from Sta. 20+580 to 20+740 m (o.s. -9 to 19 m).



Photograph SD3-212: From Sta. 20+915/-22 looking N. Removal of the old access road and stockpiling of reusable materials.



Photograph CD-1770: From Sta. 0+070/-57 looking NW. Mixing of the sieved till stockpiles. The cores of the stockpiles were frozen.



Photograph CD-1771: From Sta. 0+080/-60 looking SW. Removal of loose rocks and soft and ice-rich soils with an excavator and loading of the excavated material for foundation preparation from Sta. 0+085 to 0+095 m (o.s. -36 to -1 m).

SIGNATURES

GOLDER ASSOCIÉS LTÉE

Reviewed by:

ORIGINAL SIGNED

Marion Habersetzer, Jr. Eng.
QA Engineer

ORIGINAL SIGNED AND SEALED

Yves Boulianne, P.Eng (QC,NU)
Associate, Dike Designer

Attachments: Construction Progress Drawings from AEM as of August 6, 2017

MH/YB/jlm

c:\users\mhabersetzer\golder associates\1777687, aem south cell qa 2017 meadowbank - preparation of deliverables\as-built\rev 0\annexe e - qa reporting\e1 - weekly report\doc 1567 1777687 rev0 qa weekly report 2017-07-31 to 2017-08-06 - jlm.docx

TECHNICAL MEMORANDUM

DATE August 14, 2017 **REFERENCE No.** 1777687
Doc. 1567 Rev 0

TO Pierre McMullen, Julie Bélanger, Patrice Gagnon, Alexandre Lavallée
Agnico-Eagle Mines Limited Meadowbank Division

CC Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA WEEKLY REPORT FROM AUGUST 7 TO 13, 2017 – TSF SOUTH CELL CONSTRUCTION MEADOWBANK (1777687)

This document summarizes QA activities performed by Golder from August 7 to 13, 2017, inclusively, related to the construction activities of Saddle Dams 3, 4 and 5 (SD) and Central Dike at the Meadowbank mine site.

Unless specified, the construction activities use the centreline of the structures for a dike crest elevation of 150 m for reference (refer to the Drawings). The description of activities refers to the stations and offsets from the centreline (e.g., Sta. 0+500/-50 m). The "+" and "-" symbols indicate the location of the work downstream and upstream of the centreline, respectively.

1.0 GOLDER PERSONNEL ON SITE

Golder personnel on site during this reporting period is summarized in Table 1.

Table 1: Golder Personnel on Site

Name	Comments
Marion Habersetzer	QA Engineer

2.0 HEALTH AND SAFETY

H&S meetings were held with AEM and FGL/Sana during the daily construction meetings. Minutes from these meetings are recorded and stored in Golder's on-site office. The key H&S elements for the reporting period were as follows:

- SOP training took place on August 7 for the new QC personnel. Therefore, there was no QC personnel on site from 11 AM to 6 PM on that day.

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- The rain is an issue; the muddy and very slippery ground causes a high risk of slips and falls. Extra caution must be applied when walking or driving on wet surfaces.
- A haul truck went off the road on August 7 during the night shift on the access road to SD4 because of the bad visibility (darkness and rainy weather) and small berms. The berms have been raised in consequence.
- There is a thick layer of mud on access roads that increases the risk of slipping and getting stuck for vehicles.
- The QA Manager pointed out that slopes along the road downstream of SD3 are very steep. The slopes should be reworked soon to about 3H:1V slopes.
- There is a high voltage cable buried at a shallow depth underneath Saddle Road near SD3. The damage to the road due to heavy equipment traffic needs to be repaired by backfilling before it becomes close to exposing the cable.
- Each rockfill lift is placed with at least 1 m high berms on the edge of the crest.
- There is important heavy equipment coactivity on SD3 and SD4: personnel on foot must make sure to be visible at all time.
- Dust is an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.
- The question whether a defibrillator should be installed in the surveyor trailer to be available on the construction site has been raised.
- The Health & Safety representative indicated that JHA will be required for liner placement activities that will begin soon.
- There was a reminder about the fire hazard posed by the use of certain electric appliances in the camp.
- The different assembly points for employees in muster stations need to be clarified.
- A near-miss regarding a pick-up and a haul truck almost colliding at the intersection of the waste dump access and Vault Road was shared.
- A safety share took place about an incident in the pit involving a grade control worker being hit by a piece of casing ripped by an excavator. Work procedures must be adapted in consequence.

3.0 SUMMARY OF MAIN DISCUSSIONS IN CONSTRUCTION MEETINGS

Construction meetings were held daily during the reporting period and were attended by the QA manager. The following items were discussed:

General

- One of the excavators will be temporarily relocated to the pit.
- Mixing of the till stockpile near Pit E started on August 7.
- The ditch along the till stockpile near Pit E has been backfilled with UM rockfill from the pit to avoid loss of material when mixing the till.

- Due to the availability of only one excavator available on the dikes while the second one was being repaired, the placement of inverse filters on SD5 was delayed until August 12.
- The access to the stockpiles at the SANA crusher site has been reworked.
- The 345 excavator went to mix the till stockpile near Pit E from August 11.
- The loading unit in the pit broke down at 10 AM on August 10 and no rockfill placement could be done during the rest of the day shift.
- Based on current progression of the construction season, it is considered to stop the night shift on August 21, at least for the rockfill placement. There will be no more night shift supervisor.
- The size of the boulders loaded in the pit must be closely monitored, in order to avoid sending too much compliant rockfill to the waste dump.
- It is not planned to raise the Saddle Dams to an elevation higher than 145 m. The abutments will therefore be built in final configuration at El. 145 m.
- The fine filter in the inverse filter will be built with hard 0-20 mm stone from the Pit D stockpile. 0-20 mm soapstone from the SANA crusher site will only be used on the upstream slope. The materials are hauled from the stockpiles with a CAT-740 articulated truck.
- The QA Manager reiterated that 4 passes of compaction with vibrations are required for every 0.5 m lift of filter.
- AEM and Golder came up with a design for temporary closure of the geomembrane on Central Dike, SD5 and SD3 in order to ensure the geomembrane integrity against the wind until next year's construction season, when the geomembrane will be completed and sealed.
- The QC representative indicated that the 10-tonne compactor currently used on the dikes is not vibrating enough. Another compactor will be used for the filters.
- The till stockpiles on the north abutment of Central Dike are entirely mixed and thawed.
- The quality of the UM rockfill currently hauled from Pit E is an issue: the rockfill contains a large quantity of fine particles, as well as oversize boulders. The backhoe operator in the pit has been notified and large boulders removed from the dike using an excavator and a dozer, under supervision of the QC representative.
- Sample identification has been revised with the QC representative and corrections made. Samples #370 and #371 of fine filter taken yesterday have been re-labelled #375 and #376.

Saddle Dam 4

- A discussion was held on the field about the limits of the inverse filter on SD4. AEM's representative indicated that no construction above the elevation 145 m would take place, except for a rockfill pad to reinstall the pig launcher station.
- The inverse filter will be narrower on a section of SD4, from approx. Sta. 40+430 to 40+440 m, due to a steep drop in the bedrock and concerns about the large thickness of fine filter that would be required to fill the depression. After discussion with Yves Boulianne, given that the bedrock in this area is sound and massive,

the inverse filter will be built from the outer edge of the drop, with a local width of 6 m instead of 10 m. The bedrock depression will be backfilled with UM rockfill.

Saddle Dam 3

- The foreman, the QA Manager, the QC representative and the surveyor went to see the extremity of the SD2 till plug. A design will be proposed by Francis Pépin to connect the SD3 and SD2 keys, as the two existing keys are offset.
- The sump at the downstream toe of SD3 needs to be pumped.
- The QA Manager noted additional drill holes in the south side of SD3 where the foundation was being cleaned. According to Patrice Gagnon, these belong to the exploration holes pattern observed near Quarry 23 and show no indication of a blast.
- Ice lenses (20 to 40 cm) were observed on the bedrock foundation at the junction between SD2 and SD3. It was discussed with Yves Boulianne that in this case, the ice would not impact significantly the bearing capacity of the foundation and thus can be left in place.
- The alignment of the key between SD2 and SD3 is still to be determined. The foundation approval of the filters zone on SD3 was based on the available information, with the understanding that the key footprint might change. If the new key footprint overlaps with an already approved zone, this zone will have to be approved again after appropriate key trench preparation.
- AEM's representative demanded that the geomembrane in place on SD3 be inspected by the QA and the QC personnel for damage caused by rock fragments thrown during the blasting operations.

Central Dike

- The liner tie-in on the north abutment of Central Dike will probably be built as a backfill key (similarly to the Saddle Dams), whereas the rest of Central Dike was built with a key partially in excavation. This means that the key will be wider than on the rest of Central Dike. A new cross-section has been requested for the surveyor.
- AEM's representative, the QA Manager, the foreman and the QC representative went to the north abutment of Central Dike to assess the required footprint for raising the abutment to El. 145 m. It was decided that the north abutment of Central Dike would be built with a "steps" ending, to allow for further raise at a later time, to the contrary of the Saddle Dams. Details of the connection of the liner tie-in to the existing section have been discussed.
- As rockfill placement will soon begin on the north abutment of Central Dike, it was reiterated that only good quality N-AG from Pit A will be used. No UM rockfill is accepted on Central Dike.

4.0 SUMMARY OF CONSTRUCTION ACTIVITIES AND TEST RESULTS

Periodic QA inspections to monitor the construction activities and progress were performed by the QA Engineer; these are summarized in the tables below.

Table 3: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	■ Compaction of the 1.5 m thick lift of UM rockfill at El. 143 m with a 10-tonne smooth-drum compactor (6 passes) from Sta. 40+600 to 40+740 m (o.s.-20 to 14 m). ■ Scarification of the UM rockfill at El. 143 m from Sta. 40+600 to 40+745 m (o.s. -19 to 16 m). ■ Removal of the safety berms on the downstream side of SD5 at El. 143 m with a loader and compaction with a 10-tonne smooth-drum compactor (6 passes) from Sta. 40+600 to 40+745 m. ■ Placement of a 2 m thick lift of UM rockfill with a dozer from El. 143 to 145 m from Sta. 40+600 to 40+730 m (o.s. -25 to 11 m). The material was compliant. ■ Compaction of the 2 m thick lift of UM rockfill at El. 145 m with a 10-tonne smooth-drum compactor (6 passes) from Sta. 40+600 to 40+725 m (o.s. -24 to 12 m). ■ Placement of the first 0.5 m thick lift of fine filter (inverse filter) with an excavator at El. 143.8 m from Sta. 40+560 to 40+620 m (o.s. -31 to -16 m). Depressions in the bedrock have first been filled with fine filter and compacted with the bucket of the excavator before placing the 0.5 m thick lift. ■ Compaction of the 0.5 m thick lift of fine filter with a 10-tonne smooth-drum compactor (4 passes) from Sta. 40+560 to 40+620 m (o.s. -31 to -16 m). The material was wetted to promote compaction. ■ Placement of a 0.5 m thick lift of coarse filter (inverse filter) with an excavator at El. 144.7 m (approx.) from Sta. 40+550 to 40+620 m (o.s. -31 to -15 m). ■ Compaction of the 0.5 m thick lift of fine filter with a 10-tonne smooth-drum compactor (4 passes) from Sta. 40+550 to 40+620 m (o.s. -31 to -15 m).

Table 4: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream	■ Placement of a 1.5 m thick lift of UM rockfill with a dozer from El. 141.5 to 143 m from Sta. 40+160 to 40+460 m (o.s. -16 to 20m). The material was compliant.

Activity or Area	Comments
	■ Compaction of the 1.5 m thick lift of UM rockfill at El. 143 m with a 10-tonne smooth-drum compactor (6 passes) from Sta. 40+180 to 40+600 m (o.s.-20 to 17 m). ■ Profiling of the slope on the downstream side of SD4 from El. 138.5 to 141.5 m with an excavator from Sta. 40+220 to 40+305 m. ■ Scarification of the UM rockfill at El. 143 m from Sta. 40+165 to 40+600m (o.s. -21 to 17 m). ■ Removal of the safety berms on the downstream side of SD4 at El. 143 m with a loader and compaction with a 10-tonne smooth-drum compactor (6 passes) from Sta. 40+165 to 40+600 m. ■ Removal of one oversize boulder with a loader. ■ Profiling of the slope on the downstream side of SD4 from El. 141.5 to 143 m with an excavator from Sta. 40+165 to 40+550 m. ■ Placement of a 2 m thick lift of UM rockfill with a dozer from El. 143 to 145 m from Sta. 40+265 to 40+600 m (o.s. -29 to 18 m). The material contained a lot of fine particles and some large boulders but was acceptable. ■ Compaction of the 2 m thick lift of UM rockfill at El. 145 m with a 10-tonne smooth-drum compactor (6 passes) from Sta. 40+430 to 40+600 m (o.s. 24 to 13 m). ■ Removal of rockfill fallen from the upstream slope of SD4 (El. 145 m) onto the inverse filters zone with an excavator from Sta. 40+450 to 40+485 m. ■ Removal of oversize boulders in the upstream side of SD4 with an excavator. ■ Profiling of the slope on the upstream side of SD4 (3H:1V) from El. 143 to 145 m with an excavator from Sta. 40+395 to 40+420 m. ■ Placement of two 0.5 m thick lift of fine filter (inverse filter) with an excavator from Sta. 40+430 to 40+485 m (o.s. -31 to -18 m). Several 0.5 m thick lifts are required to fill a depression in the bedrock. ■ Compaction of each of the two 0.5 m thick lifts of fine filter with a 10-tonne smooth-drum compactor (4 passes) from Sta. 40+430 to 40+485 m (o.s. -31 to -18 m). The material was wetted to promote compaction.
Water management	■ Water ponding in the excavated area from Sta. 40+340 to 40+420 m (o.s. 32 to 35 m) has been pumped out.

Table 5: QA Observations for Saddle Dam 3

Activity or Area	Comments
Foundation preparation	■ Final clean-up of the dike footprint to reach good quality bedrock from Sta. 20+575 to 20+580 m (o.s. -7 to 1 m). Some ice lenses (20 to 40 cm) were observed on the bedrock. ■ Final clean-up of the dike footprint to reach good quality bedrock from Sta. 20+770 to 20+795 m (o.s. -20 to -6 m). ■ Final clean-up of the dike footprint to reach good quality bedrock and loading of the excavated material from Sta. 20+780 to 20+800 m (o.s. -9 to 14 m). Some ice lenses (20 to 30 cm) were observed on the bedrock.
Upstream	■ Removal of loose rocks and soft and ice-rich soils down to the frozen soil with an excavator and loading of the excavated material from Sta. 20+795 to 20+880 m (o.s. -38 to -8 m). ■ Removal of loose rocks and soft and ice-rich soils with an excavator from Sta. 20+770 to 20+820 m (o.s. -15 to 2 m). The bedrock was highly fractured with ice lenses.
Downstream	■ Removal of loose rocks and soft and ice-rich soils with an excavator on the junction of SD3 and SD2 and loading of the excavated material from Sta. 20+575 to 20+580 m (o.s. -13 to 4 m). ■ Scarification of the UM rockfill at El. 141 m from Sta. 20+580 to 20+770 m (o.s. -9 to 18 m). ■ Removal of the safety berms on the downstream side of SD3 at El. 141 m with a loader and compaction with a 10-tonne smooth-drum compactor (6 passes) from Sta. 20+580 to 20+745 m. ■ Profiling of the slope on the downstream side of SD3 from El. 139 to 141 m with an excavator from Sta. 20+580 to 20+745 m. ■ Placement of a 2 m thick lift of UM rockfill with a dozer from El. 141 to 143 m from Sta. 20+580 to 20+715 m (o.s. -16 to 18 m). The material was compliant. ■ Compaction of the 2 m thick lift of UM rockfill at El. 143 m with a 10-tonne smooth-drum compactor (6 passes) from Sta. 20+575 to 20+765 m (o.s. -21 to 16 m). 8 passes were done on the small zone at the north extremity of SD3 where rockfill had been placed on the bedrock. ■ Placement of a 2 m (max) thick lift of UM rockfill on the bedrock with an excavator from Sta. 20+780 to 20+815 m (o.s. -2 to 4 m) to provide an access to SD3 before the dozer is available to place the rest of the lift. The material was compliant and placed without segregation.

Activity or Area	Comments
	■ Compaction of the 2 m (max) thick lift of UM rockfill with a 10-tonne smooth-drum compactor (8 passes) from Sta. 20+780 to 20+815 m (o.s. -2 to 4 m). ■ Scarification of the UM rockfill at El. 143 m from Sta. 20+575 to 20+780 m (o.s. -26 to 14 m). ■ Removal of the safety berms on the downstream side of SD3 at El. 143 m with a loader and compaction with a 10-tonne smooth-drum compactor (6 passes) from Sta. 20+575 to 20+765 m.

Table 6: QA Observations for Central Dike

Activity or Area	Comments
Foundation preparation	■ Final clean-up of the dike footprint to reach good quality bedrock from Sta. 0+100 to 0+135 m (o.s. -16 to 5 m).
Upstream	■ Removal of loose rocks and soft and ice-rich soils with an excavator and loading of the excavated material from Sta. 0+090 to 0+135 m (o.s. -36 to -5 m). ■ Excavation of fill materials down to the natural in situ till on which the existing key is connected, from Sta. 0+090 to 0+150 m (o.s. -48 to -33 m). ■ Excavation of test pits through the access ramp to assess the depth of the natural soil and the thickness of the till layer along the key zone.

5.0 FOUNDATION APPROVAL

The following foundation approvals were carried out during the reporting period.

Table 7: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
FND-SD3-27	SD3	Sta. 20+554.81 to 20+589.70 m (o.s. -29.88 to 12.51 m)	09/08/2017	Ice lenses (20 to 40 cm) are present on the bedrock and do not impact the quality of the bedrock foundation.
FND-SD3-28	SD3	Sta. 20+769.04 to 20+794.22 m (o.s. -19.71 to -6.30 m)	09/08/2017	
FND-SD3-29	SD3	Sta. 20+792.99 to 20+819.38 m (o.s. -30.42 to -0.56 m)	10/08/2017	
FND-SD3-30	SD3	Sta. 20+778.88 to 20+807.75 m (o.s. -9.38 to 18.52 m)	11/08/2017	Ice lenses (20 to 30 cm) are present on the bedrock and do

Name	Structure	Sta. and Offset	Date of Approval	Comment
				not impact the quality of the bedrock foundation. Approved provided the water pond is pumped out before rockfill placement.
FND-CD-135	CD	Sta. 0+085.95 to 0+110.97 m (o.s. -28.30 to -12.98 m)	12/08/2017	Ice lenses (less than 15 cm) are present on the bedrock and do not impact the quality of the bedrock foundation.
FND-CD-136	CD	Sta. 0+095.75 to 0+134.60 m (o.s. -15.29 to 4.65 m)	13/08/2017	

6.0 SAMPLING AND LABORATORY TESTING

The following samples were taken during the reporting period.

The gradation tests performed on samples 375 and 376 (fine filter) were compliant.

The gradation test performed on sample 370 (coarse filter) show that a sandy fraction is finer than the gradation limits. Additional care will have to be taken during the loading and handling to minimize segregation. It is judged that the performance of the filter will still be adequate.

The gradation tests performed on samples 432 and 433 (sieved till from stockpiles #1 and #2 on the north of Central Dike) showed that the material is on the finer edge of the required gradation. It is judged that the performance of the till as liner tie-in material will still be adequate. The gradation test performed on sample 434 (rough till from the Pit E stockpile) is out of the required gradation, but this material will be sieved before use.

Table 8: Samples Taken

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
432 (till)	10/08/2017	11/08/2017	Sieved till (stockpile #2)	North of Central Dike	Gradation	On the finer edge of gradation
					Water content	7.2%
433 (till)	11/08/2017	11/08/2017	Sieved till (stockpile #1)	North of Central Dike	Gradation	On the finer edge of gradation
					Water content	7.2%
375 (fine)	12/08/2017	13/08/2017	Fine filter (Pit D stockpile)	Pit D	Gradation	Compliant
					Water content	2.7%

376 (fine)	12/08/2017	13/08/2017	Fine filter (in place in inverse filter)	SD5	Gradation	Compliant
					Water content	2.7%
434 (till)	12/08/2017	13/08/2017	Unsieved till (Pit E stockpile)	Pit E	Gradation of the fine part	Out of the required gradation for foundation
					Water content	7.2%
370 (coarse)	13/08/2017	13/08/2017	Coarse filter (in place)	SD4	Gradation	Coarse ok, sandy particle out of gradation
					Water content	0.9%

7.0 PHOTOGRAPHS



Photograph SD5-062: From Sta. 40+615/9 looking S. Compaction of the 1.5 m thick lift of UM rockfill at El. 143 m with a 10-tonne smooth-drum compactor (6 passes) from Sta. 40+600 to 40+740 m (o.s.-20 to 14 m).



Photograph SD5-063: From Sta. 40+535/5 looking S. Scarification of the UM rockfill and removal of the safety berms on the downstream side of SD5 at El. 143 m from Sta. 40+600 to 40+745 m (o.s. -19 to 16 m).



Photograph SD5-064: From Sta. 40+600/-8 looking S. Placement of a 2 m thick lift of UM rockfill with a dozer from El. 143 to 145 m from Sta. 40+600 to 40+730 m (o.s. -25 to 11 m).



Photograph SD5-065: From Sta. 40+580/-34 looking S. Placement of the first 0.5 m thick lift of fine filter (invert filter) with an excavator at El. 143.8 m from Sta. 40+560 to 40+620 m (o.s. -31 to -16 m).



Photograph SD5-066: From Sta. 40+550/-30 looking S. Placement of a 0.5 m thick lift of coarse filter (inverse filter) with an excavator at El. 144.3 m from Sta. 40+550 to 40+580 m (o.s. -31 to -15 m).



Photograph SD5-067: From Sta. 40+580/-32 looking S. Placement of a 0.5 m thick lift of coarse filter (inverse filter) with an excavator at El. 144.7 m (approx.) from Sta. 40+580 to 40+620 m (o.s. -30 to -21 m).



Photograph SD4-144: From Sta. 40+425/5 looking S. Placement of a 1.5 m thick lift of UM rockfill with a dozer from El. 141.5 to 143 m from Sta. 40+370 to 40+460 m (o.s. -16 to 17 m).



Photograph SD4-145: From Sta. 40+430/11 looking SW. Compaction of the 1.5 m thick lift of UM rockfill at El. 143 m with a 10-tonne smooth-drum compactor (6 passes) from Sta. 40+345 to 40+420 m (o.s. -15 to 17 m).



Photograph SD4-146: From Sta. 40+220/-14 looking SW. Compaction of the 1.5 m thick lift of UM rockfill at El. 143 m with a 10-tonne smooth-drum compactor (6 passes) from Sta. 40+180 to 40+345 m (o.s. -15 to 17 m).



Photograph SD4-147: From Sta. 40+450/34 looking S. Profiling of the slope on the downstream side of SD4 from El. 141.5 to 143 m with an excavator from Sta. 40+165 to 40+550 m.



Photograph SD4-148: From Sta. 40+370/14 looking N. Removal of the safety berms on the downstream side of SD4 at El. 143 m with a loader and compaction with a 10-tonne smooth-drum compactor (6 passes) from Sta. 40+165 to 40+425 m.



Photograph SD4-149: From Sta. 40+454/-17 looking S. Placement of a 2 m thick lift of UM rockfill with a dozer from El. 143 to 145 m from Sta. 40+560 to 40+600 m (o.s. -7 to 18 m), along the rockfill/inverse filter interface.



Photograph SD4-150: From Sta. 40+420/-27 looking SW. Placement of a 2 m thick lift of UM rockfill with a dozer from El. 143 to 145 m from Sta. 40+360 to 40+450 m (o.s. -23 to 11 m).



Photograph SD4-151: From Sta. 40+530/10 looking N. Compaction of the 2 m thick lift of UM rockfill at El. 145 m with a 10-tonne smooth-drum compactor (6 passes) from Sta. 40+430 to 40+520 m (o.s. 2 to 13 m).



Photograph SD4-152: From Sta. 40+420/-22 looking S. Placement of a 2 m thick lift of UM rockfill with a dozer from El. 143 to 145 m from Sta. 40+265 to 40+325 m (o.s. -29 to 16 m). Notice the oversize boulders left on the right.



Photograph SD4-153: From Sta. 40+475/-20 looking NW. Placement of two 0.5 m thick lift of fine filter (inverse filter) with an excavator from Sta. 40+430 to 40+485 m (o.s. -31 to -18 m).



Photograph SD3-213: From 20+850/-7 looking E. Removal of loose rocks and soft and ice-rich soils down to the frozen soil with an excavator and loading of the excavated material from Sta. 20+850 to 20+880 m (o.s. -37 to -8 m).



Photograph SD3-214: From Sta. 20+590/3 looking N. Removal of loose rocks and soft and ice-rich soils with an excavator and loading of the excavated material from Sta. 20+575 to 20+580 m (o.s. -13 to 4 m).



Photograph SD3-215: From Sta. 20+805/9 looking E. View of a drill hole on the upstream foundation of SD3 (south side), most likely from the exploration campaign.



Photograph SD3-216: From Sta. 20+755/-5 looking N. Scarification of the UM rockfill at El. 141 m from Sta. 20+580 to 20+770 m (o.s. -9 to 18 m).



Photograph SD3-217: From Sta. 20+745/20 looking N. Profiling of the slope on the downstream side of SD3 from El. 141 to 143 m with an excavator from Sta. 20+580 to 20+745 m.



Photograph SD3-218: From Sta. 20+765/-12 looking S. Removal of loose rocks and soft and ice-rich soils with an excavator from Sta. 20+770 to 20+820 m (o.s. -15 to 2 m).



Photograph SD3-219: From Sta. 20+575/-7 looking SW. Final clean-up of the dike footprint to reach good quality bedrock from Sta. 20+575 to 20+580 m (o.s. -7 to 1 m).



Photograph SD3-220: From Sta. 20+570/-9 looking NE. View of an ice lens (40 cm) on the bedrock at the junction between SD2 and SD3.



Photograph SD3-221: From Sta. 20+710/-24 looking N. Placement of a 2 m thick lift of UM rockfill with a dozer from El. 141 to 143 m from Sta. 20+640 to 20+715 m (o.s. -16 to 18 m).



Photograph SD3-222: From Sta. 20+580/16 looking SW. Compaction of the 2 m thick lift of UM rockfill at El. 143 m with a 10-tonne smooth-drum compactor (6 passes) from Sta. 20+575 to 20+765 m (o.s. -21 to 16 m).



Photograph SD3-223: From Sta. 20+600/-8 looking S. Final clean-up of the dike footprint to reach good quality bedrock and loading of the excavated material from Sta. 20+780 to 20+800 m (o.s. -9 to 14 m).



Photograph SD3-224: From Sta. 20+795/5 looking E. View of an ice lens (30 cm) at the surface of the bedrock on the downstream side of the SD3 footprint.



Photograph SD3-225: From Sta. 20+775/-7 looking N. Scarification of the UM rockfill and removal of safety berms at El. 143 m from Sta. 20+575 to 20+780 m (o.s. –26 to 14 m).



Photograph CD-1772: From Sta. 0+080/-22 looking W. Removal of loose rocks and soft and ice-rich soils with an excavator from Sta. 0+090 to 0+105 m (o.s. -36 to -29 m).



Photograph CD-1773: From Sta. 0+100/-9 looking W. View of an ice lens (15 cm) at the surface of the bedrock on the upstream side of the Central Dike footprint.



Photograph CD-1774: From Sta. 0+090/-33 looking S. Removal of loose rocks and soft and ice-rich soils with an excavator and loading of the excavated material from Sta. 0+095 to 0+135 m (o.s. -16 to -5 m).



Photograph CD-1775: From Sta. 0+100/-43 looking N. Excavation of test pits through the access ramp to assess the depth of the natural soil and the thickness of the till layer along the key zone.

SIGNATURES

GOLDER ASSOCIÉS LTÉE

Reviewed by:

ORIGINAL SIGNED

Marion Habersetzer, Jr. Eng.
QA Engineer

ORIGINAL SIGNED AND SEALED

Yves Boulianne, P.Eng (QC,NU)
Associate, Dike Designer

Attachments: Construction Progress Drawings from AEM as of August 13, 2017

MH/YB/jlm

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TECHNICAL MEMORANDUM

DATE August 21, 2017 **REFERENCE No.** 1777687
Doc. 1567 Rev 0

TO Pierre McMullen, Patrice Gagnon, Alexandre Lavallée
Agnico-Eagle Mines Limited Meadowbank Division

CC Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA WEEKLY REPORT FROM AUGUST 14 TO 20, 2017 – TSF SOUTH CELL CONSTRUCTION MEADOWBANK (1777687)

This document summarizes QA activities performed by Golder from August 14 to 20, 2017, inclusively, related to the construction activities of Saddle Dams 3, 4 and 5 (SD) and Central Dike at the Meadowbank mine site.

Unless specified, the construction activities use the centreline of the structures for a dike crest elevation of 150 m for reference (refer to the Drawings). The description of activities refers to the stations and offsets from the centreline (e.g., Sta. 0+500/-50 m). The "+" and "-" symbols indicate the location of the work downstream and upstream of the centreline, respectively.

1.0 GOLDER PERSONNEL ON SITE

Golder personnel on site during this reporting period is summarized in Table 1.

Table 1: Golder Personnel on Site

Name	Comments
Michael Nadon	QA Engineer

2.0 HEALTH AND SAFETY

H&S meetings were held with AEM and FGL/Sana during the daily construction meetings. Minutes from these meetings are recorded and stored in Golder's on-site office. The key H&S elements for the reporting period were as follows:

- There is important heavy equipment coactivity on SD4: personnel on foot must make sure to be visible at all time.

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- Dust is an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.
- The importance of synchronizing the good radio frequency to ensure safe field activities was reiterated.
- A talk concerning the respect of the speed limits on the mine site took place.
- The importance of the berms on the dikes in order to ensure a safe driving has been reiterated.
- According to the mine inspector, the dike's construction field goes well. Nothing special has to be mentioned.
- A spill occurred on the dozer of SD3 (about 4 L) on August 17. The spill has been cleaned and an environmental report sent to all concerned.
- Every pick-up truck driver must ensure that their beacon light is always on.
- On the construction area, always make yourself visible. Maintain eye contact with the operators.
- The rain is an issue, as the muddy and very slippery ground cause a high risk of slips and falls. Extra caution must be applied when walking or driving on wet surfaces.
- It was reminded that pre-start inspection at the beginning of each shift is mandatory. Among others, make sure to inspect all your PPE to ensure they are in good condition.
- It has been discussed that no supervisor will be present on the dike construction area during the night shift of August 20. The personnel on field must report to dispatch every two hours.

3.0 SUMMARY OF MAIN DISCUSSIONS IN CONSTRUCTION MEETINGS

Construction meetings were held daily during the reporting period and were attended by the QA manager. The following items were discussed:

General

- Michael Nadon arrived on site as the QA Manager on August 14.
- A talk about the bad quality of the UM rockfill (too many fine particles) took place. It has been agreed that the QC will spend some time with the excavator (RH 120) operator in order to make sure he is aware of the quality of the rockfill that is expected for the dike construction.
- It was discussed that the QA Manager will coach the new dozer operator to make sure he knows about the specification of the UM rockfill and the placement of the material.
- Regarding the remaining LLDPE geomembrane rolls from previous years, the QA Manager mentioned that the current storage of the LLDPE geomembrane does not meet specifications by being stored outside without any shelter. Also, a portion of the remaining LLDPE geomembrane rolls lies directly on the ground surface (see pictures attached).

  The QA Manager reminded that, as mentioned in the plans and specifications, the LLDPE geomembrane shall be stored such that it is protected from puncture, dirt, grease, gasoline, diesel, fuel, water, moisture, mud, mechanical abrasion, excessive heat and other causes of damage to the liner material. In order to

ensure the quality and long-term performance of the liner material, Golder does not support the initiative of using the unsheltered LLDPE geomembrane on the dikes.

That being said, if the LLDPE geomembrane is clean, devoid of visible folds and shear failure, the risk regarding the use of the unsheltered LLDPE geomembrane is low. If AEM is comfortable with that low risk, Golder would accept using it.

- The construction of the sump on SD3 and SD4 is being figured out by AEM, Golder and SANA. A topographic scan of the construction field to identify the low points has been done, and the first draft issued by AEM. A meeting between AEM and the Designer will probably take place on August 22 to discuss the needs of the sumps. Then, the construction activities will begin and the plans will be submitted to the mine department for drill and blast planning.
- The NON-AG stockpiles (SANA crusher and pit A) planned to be use for the rockfill placement on CD have been verify by the QA Manager. According to the QA Manager, the material is compliant.
- It was discussed that excavator 307, which was planned for the bedrock cleaning of the key trench for the placement of the till plug, is down because of a mechanical problem. In order to replace it, the Site Services lent a backhoe to the dike construction team.
- According to the results of the gradation performed on the low quality till sampled on the stockpile of the south part of pit E (433 and 434), the till belongs to the compacted till (0-150 mm) range, provided that coarser particles (>150 mm) are sorted before any placement (see the results in Table 8).
- Regarding the previous gradation performed on the compacted sieved till, the QA Manager noticed that the QC was not using the proper gradation limits. That being said, the results have been corrected and occurred no major change (see table 8).

Grain size (mm)	Percentage passing by mass (%)
50	100
25.4	85-100
12.7	75-94
4.76	63-83
0.425	43-58
0.075	30-45

Gradation Limits for Compacted Sieved Till

Saddle Dam 4

- The fine filter used for the filters on SD4 will come from the SANA crusher stockpile when the Pit E stockpile will be emptied.

  It was discussed that the western access road on SD4 will be excavated soon for the construction of the sump at SD4

Saddle Dam 3

- It has been agreed that the low quality till located on the south part of pit E will be sieved by an excavator if the maximum particle size needed for the liner protection at SD3 is 300 mm, and will be sieved by the environment's siever if the maximum particle size needed is 150 mm. A meeting with Golder and AEM will take place on August 22 about the maximum particle size needed for the liner protection at SD3.

- A ditch connecting the northern water pond of SD3 dike toe to the sump nearby was excavated in order to drain the dike toe. A labour man from SANA is in charge of the pumping operations and is making sure that the water in the sump is pumped out when needed. The water flow coming from the bottom of the dike has significantly decreased since the beginning of the pumping activities (August 18): the sump has been pumped from every 3 hours for 30 minutes approximately, to every 4 hours for 15 minutes. The pumping activities on SD3 will continue until the new sump is in operation.
- The UM rockfill placement at SD3 was completed on August 18.

Central Dike

- The placement of the good quality NON-AG rockfill on CD was completed on August 19. Unless there is a change on the planning, the rockfill placement is completely done for the construction season 2017.

4.0 SUMMARY OF CONSTRUCTION ACTIVITIES AND TEST RESULTS

Periodic QA inspections to monitor the construction activities and progress were performed by the QA Engineer; these are summarized in the tables below.

Table 3: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream	■ Profiling of the upstream slope (3H:1V) from El. 143 to 145 m with an excavator between Sta. 40+580 to 40+730 m. ■ Placement of the first, second, third and fourth 0.5 m thick lift of fine/coarse filter with an excavator from El. 143 to 145 m from Sta. 40+620 to 40+730 m. The material has been compacted with a 10-tonne smooth drum compactor (4 passes). The material was wetted to promote compaction.
Downstream	■ Removal of the safety berm at El. 145 m with an excavator and compaction of the UM rockfill located beneath the berm with a 10-tonne smooth-drum compactor (6 passes) from 40+600 to 40 +700 m.

Table 4: QA Observations for Saddle Dam 4

Activity or Area	Comments
Foundation preparation	■ Bedrock cleaning of the key trench for the till plug placement with a backhoe from Sta. 40+560 to 40+620 m (o.s. -30 to -40 m) and from Sta. 40+420 to 40+430 m (o.s. -30 to -40 m).
Upstream	■ Correction of the profiled upstream slope (3H:1V) from El. 143 to 145 m with an excavator between Sta. 40+140 and 40+420 m (approx.).
Upstream	■ Placement of a 2-m-thick lift of UM rockfill with a dozer from El. 143 to 145 m from Sta. 40+100 to 40+190 m (o.s. -26 to 15m). The material contained some large boulders but was acceptable.

Activity or Area	Comments
	■ Compaction of the 2-m-thick lift of UM rockfill with a 10-tonne smooth-drum compactor (4 passes) at El. 145 m from Sta. 40+030 to 40+ 420 m (o.s. -25 to -15 m). ■ Placement of a 0.5-m-thick lift of fine/coarse filters (inverse filter) on the very south part of SD4 with an excavator from Sta. 40+420 to 40+485 m (o.s. -9 to -30 m). ■ Compaction of the 0.5-m-thick lift of fine/coarse filters (inverse filter) on the very south part of SD4 with a 10-tonne smooth drum compactor (4 passes) from Sta. 40+420 to 40+485 m (o.s.-9 to -30 m). ■ Placement of a 0.5-m-thick lift of fine/coarse filters (inverse filter) on the very north part of SD4 with an excavator from Sta. 40+100 to 40+120 m (o.s. -20 to -30 m). ■ Compaction of the 0.5-m-thick lift of fine/coarse filters (inverse filter) on the very north part of SD4 with a 10-tonne smooth drum compactor (4 passes) from Sta. 40+100 to 40+ 120 m (o.s. -20 to -30 m). ■ Placement of a 0.5-m-thick lift of fine/coarse filters with an excavator from El. 143 to 143.5 m from Sta. 40+420 to 40+520 m. ■ Compaction of the first 0.5-m-thick lift of fine/coarse filters with a 10-tonne smooth drum compactor (4 passes) at El. 143.5 m from Sta. 40+420 to 40+520 m. ■ Placement of the first 0.5-m-thick lift of fine filter with an excavator from El. 143 to 143.5 m from Sta. 40+360 to 40+380 m.
Downstream	■ Profiling of the downstream slope of SD4 (1.5H:1V) from El. 143 to 145 m with an excavator from Sta. 40+440 to 40+520 m.
Water management	■ Water is being pumped out of the temporary sump.

Table 5: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream	■ Placement of a 2-m-thick lift of UM rockfill with a dozer from El. 143 to 145 m from Sta. 20+575 to 20+760 (o.s. -16 to -30 m). Some loads of UM rockfill were heterogeneous and contained high fine particles but also contained a good quantity of block-and cobble sized particles. ■ Compaction of the UM rockfill with a 10-tonne smooth drum compactor at El. 145 m from 20+575 to 20+760 (o.s. -16 to -30 m).

Activity or Area	Comments
	■ Placement of a 0.5-m-thick lift of fine/coarse filters (inverse filter) with an excavator from Sta. 20+800 to 20+815 m (o.s. -18 to -31 m). ■ Compaction of the 0.5-m-thick lift of fine/coarse filters (inverse filter) with a 10-tonne smooth drum compactor (4 passes) from Sta. 20+800 to 20+815 m (o.s. -18 to -31 m). The material was wetted to ensure a good quality of the compaction. ■ Placement of a 0.5-m-thick lift of fine/coarse filters (inverse filter) with an excavator from Sta. 20+580 to 20+600 m (o.s. -41 to -22 m). ■ Compaction of a 0.5-m-thick lift of fine/coarse filters (inverse filter) with a 10-tonne smooth drum compactor (4 passes) from Sta. 20+580 to 20+600 m (o.s -41 to -22 m). ■ Profiling of the upstream slope (3H:1V) with an excavator from Sta. 20+700 to 20+780 m.
Downstream	■ Profiling of the downstream slope (1.5H:1V) up to El.143 m from Sta. 20+580 to 20+780 m. ■ Excavation of a ditch connecting the northern water pond of SD3 dike toe to the sump nearby.
Water management	■ Water is being pumped out of the temporary sump.

Table 6: QA Observations for Central Dike

Activity or Area	Comments
Upstream	■ Placement with an excavator and compaction with a 10-tonne smooth drum compactor of a 0.5-m-thick lift of fine/coarse filters (inverse filter) with an excavator from Sta. 0+090 to 0+120 m (o.s. -18 to -28 m). ■ Placement of a 2-m-thick lift of good quality NON-AG rockfill with a dozer from El. 143 to 145 m from Sta. 0+100 to 0+175 m (o.s. 5 to -15 m). ■ Compaction of the 2-m-thick lift of good quality NON-AG rockfill with a 10-tonne smooth drum compactor at El. 145 m from Sta. 0+100 to 0+175 m (o.s. 5 to -15 m).

5.0 FOUNDATION APPROVAL

No foundation approval was carried out during the reporting period.

Table 7: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment

6.0 SAMPLING AND LABORATORY TESTING

The following samples (Table 8) were taken by the QA Manager and QC during the reporting period.

Gradation tests performed on samples 369 and 377 (fine/coarse filters) were compliant.

Samples 378 and 379 were taken, but not tested yet.

As mentioned above, the gradation limits used for the gradation performed on the compacted sieved till (429, 430 and 432) have been modified and the results corrected. This modification caused no major change.

Samples 433 and 434, low quality till coming from the south part of pit E, are compliant. 433 was performed with the 0-150 mm gradation limits, and 434 with the 0-50 mm because it was hand-sieved to 20 mm before performing the gradation.

Samples SD3-08, SD4-08 and CD-544 were sampled by the QA Manager but not yet tested.

Table 8: Samples taken by QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
369	2017-08-18	2017-08-18	Coarse filter	Sta. 0+100 m/o.s. - 26 m/El. 144.5 m	Gradation	Compliant
377	2017-08-17	2017-08-18	Fine filter	Sta. 20+590 m/o.s. - 30 m/El. 144.5 m	Gradation	Compliant
378	2017-08-18	-	Fine filter	Sta. 0+100 m/o.s. - 24 m/El. 144.5 m	Gradation	-
379	2017-08-18	-	Fine filter	Sta. 40+600 m, El. 144.5 m	Gradation	-
429	04/08/2017	5-08-2017	Sieved till (stockpile #1)	North of Central Dike	Gradation	Slightly too coarse, but accepted-
					Water content	4.90%
430	04/08/2017	5-08-2017	Sieved till (stockpile #2)	North of Central Dike	Gradation	Compliant
					Water content	7.20%

432	10/08/2017	2017-08-20	Sieved till (stockpile #1)	North of Central Dike	Gradation	Compliant
					Water content	8.90%
433	15-08-2016	2017-08-17	Low quality till	Stockpile Pit E	Gradation	Compliant
					Water content	8.30%
434	15-08-2016	2017-08-13	Low quality till	Stockpile Pit E	Gradation	Compliant
					Water content	8.60%

Table 9: Samples taken by QA

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
SD3-08	2017-08-17	-	Fine filter	Sta. 20+580 m/o.s. - 30 m/El. 144.5 m	Gradation	-
SD4-08	2017-08-17	-	Fine filter	Sta. 40+580 m/o.s. - 30 m/El. 145 m	Gradation	-
CD-544	2017-08-17	-	Fine filter	Sta. 0+100 m/o.s. - 24 m/El. 144.5 m	Gradation	-

7.0 PHOTOGRAPHS



Photograph CD-1776: From Sta. 0+080/-30 looking SE. Placement of the coarse filter (inverse filter) on the northern part of CD with an excavator at El. 145 m from Sta. 0+090 to 0+120 m (o.s. -18 to -28 m).



Photograph CD-1777: From Sta. 0+080/-20 looking S. View of the final lift of good quality NON-AG rockfill (El. 145 m) on CD from Sta. 0+100 to 0+175 m (o.s. 5 to -25 m).



Photograph CD-1778: From Sta. 0+080/-25 looking S. Compaction of the good quality NON-AG rockfill with a 10-tonne smooth drum compactor at El. 145 m from Sta. 0+100 to 0+175 m.



Photograph SD5-068: From Sta. 40+73-/-22 looking W. View of the sloping of the upstream slope of SD5 (3H:1V) from El. 143 to 145 m with an excavator between Sta. 40+580 and 40+730 m.



Photograph SD5-069: From Sta. 20+725/-30 looking W. Placement of the fourth 0.5-m-thick lift of coarse filter with an excavator from El. 144.5 to 145 m from Sta. 40+620 to 730 m.



Photograph SD5-070: From Sta. 40+600/-25 looking E. Placement of the fourth 0.5-m-thick lift of fine filter with an excavator from El. 144.5 to 145 m from Sta. 40+620 to 40+730 m.



Photograph SD4-154: From Sta. 40+440/-28 looking S. Placement of two 0.5-m-thick lifts of fine filter (inverse filter) with an excavator from Sta. 40+430 to 40+485 m (o.s. -30 to -9 m).



Photograph SD4-155: From Sta. 40+165/15 looking SE. Placement of a 2-m-thick lift of UM rockfill with a dozer from El. 143 to 145 m from Sta. 40+120 to 40+190 m.



Photograph SD4-156: From Sta. 40+090/-20 looking SE. Placement of a 0.5-m-thick lift of fine filter (inverse filter) with an excavator from Sta. 40+100 to 40+ 120 m (o.s. -20 to -30 m).



Photograph SD4-157: From Sta. 40+500/15 looking NW. Profiling of the slope on the downstream side of SD4 (1.5H:1V) from El. 143 to 145 m with an excavator from Sta. 40+440 to 40+520 m.



Photograph SD4-158: From Sta. 40+410-/-20 looking W. Placement of a 0.5-m-thick lift of fine/coarse filters with an excavator up to El. 143.5 m from Sta. 40+420 to 40+520 m.



Photograph SD4-159: From Sta. 40+580-/-30 looking E. View of the bedrock cleaning of the key trench for the till plug placement with a backhoe from Sta. 40+560 to 40+580 m. Notice that the western part of SD5 has already been cleaned by the backhoe (Sta. 40+580 to 40+620 m).



Photograph SD3-226: From Sta. 20+720/17 looking N. Profiling of the slope on the downstream slope of SD3 from El. 141 to 143 m with an excavator from Sta. 20+580 to 20+780 m.



Photograph SD3-227: From Sta. 20+700/-28 looking N. Placement of a 2-m-thick lift of UM rockfill with a dozer from El. 143 to 145 m from Sta. 20+710 to 20+760 m (o.s. -16 to 18 m).



Photograph SD3-228: From Sta. 20+780/-20 looking S. Placement of a 0.5-m-thick lift of fine filter (inverse filter) with an excavator from Sta. 20+800 to 20+815 m (o.s. -18 to -31 m).



Photograph SD3-229: From Sta. 20+560/-20 looking S. Placement of a 0.5-m-thick lift of fine filter (inverse filter) with an excavator from Sta. 20+580 to 20+600 (o.s. -41 to -22 m). Also, notice the dozer placing the 2.0-m-thick lift of UM rockfill from El. 143 to 145 m from Sta. 20+670 to 20+700 m (o.s. -16 to -25 m).



Photograph SD3-230: From Sta. 20+830/-28 looking N. View of the fine/coarse filters (inverse filter) placed and compacted on the upstream side of SD3 from Sta. 20+800 to 20+815 m (o.s. -18 to -30 m).



Photograph SD3-231: View of the unsheltered remaining rolls of LLDPE geomembrane on the north part of SD3. Notice that the rolls are lying directly on the ground surface.



Photograph SD3-232: From Sta. 20+560/-8 looking SE. Compaction of the coarse filter (inverse filter) with a 10-tonne smooth drum compactor from Sta. 20+580 to 20+610 m.



Photograph SD3-233: From Sta. 20+580/44 looking S. Excavation of a ditch connecting the northern water pond of SD3 dike toe to the sump nearby.



Photograph SD3-234: From Sta. 20+540/-30 looking S. View of SD3 done with the rockfill at El. 145 m.



Photograph SD3-235: From Sta. 20+785/-27 looking S. Profiling of the upstream slope of SD3 (3H:1V) with an excavator from Sta. 20+700 to 20+780 m.

SIGNATURES

GOLDER ASSOCIÉS LTÉE

Reviewed by:

ORIGINAL SIGNED

Marion Habersetzer, Jr.
Eng. QA Engineer

ORIGINAL SIGNED AND SEALED

Yves Boulianne, P.Eng (QC,NU)
Associate, Dike Designer

Attachments: Construction Progress Drawings from AEM as of August 20, 2017

MH/YB/jlm

c:\users\mhabersetzer\golder associates\1777687, aem south cell qa 2017 meadowbank - preparation of deliverables\as-built\rev 0\annexe e - qa reporting\e1 - weekly report\doc 1567 1777687 rev0 qa weekly report 2017-08-14 to 2017-08-20 - jlm.docx

TECHNICAL MEMORANDUM

DATE August 28, 2017 **REFERENCE No.** 1777687
Doc. 1567 Rev 0

TO Pierre McMullen, Patrice Gagnon, Alexandre Lavallée
Agnico-Eagle Mines Limited Meadowbank Division

CC Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA WEEKLY REPORT FROM AUGUST 21 TO 27, 2017 – TSF SOUTH CELL CONSTRUCTION MEADOWBANK (1777687)

This document summarizes QA activities performed by Golder from August 21 to 27, 2017, inclusively, related to the construction activities of Saddle Dams 3, 4 and 5 (SD) and Central Dike at the Meadowbank mine site.

Unless specified, the construction activities use the centreline of the structures for a dike crest elevation of 150 m for reference (refer to the Drawings). The description of activities refers to the stations and offsets from the centreline (e.g., Sta. 0+500/-50 m). The "+" and "-" symbols indicate the location of the work downstream and upstream of the centreline, respectively.

1.0 GOLDER PERSONNEL ON SITE

Golder personnel on site during this reporting period is summarized in Table 1.

Table 1: Golder Personnel on Site

Name	Comments
Michael Nadon	QA Engineer

2.0 HEALTH AND SAFETY

H&S meetings were held with AEM and FGL/Sana during the daily construction meetings. Minutes from these meetings are recorded and stored in Golder's on-site office. The key H&S elements for the reporting period were as follows:

- It was reminded to keep a safe distance from the slopes when working on the crest of the dike.
- Dust is an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.

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- Speed limits on the different roads were reiterated.
- A JHA has been issued by SANA for the bedrock cleaning of the upstream toe liner tie-in with a stream of pressurized air and has been signed by all concerned.
- Regarding the bedrock cleaning of the upstream toe liner tie-in with pressurized air, it was reiterated that if someone needs to enter the cleaning zone, it is mandatory to advise the foreman of the activities.
- It was discussed that the electrical maintenance of the mine site will occurred on the next Tuesday and Wednesday (August 29-30). Some areas of the mine site might be in “black-out” for a short period of time during maintenance.
- The rain is an issue, as the muddy and very slippery ground causes a high risk of slips and falls. Extra caution must be applied when walking or driving on wet surfaces.

3.0 SUMMARY OF MAIN DISCUSSIONS IN CONSTRUCTION MEETINGS

Construction meetings were held daily during the reporting period and were attended by the QA manager. The following items were discussed:

General

- The night shift of August 20 was the last one of the 2017 construction season. From now on, activities on the dike will occur on the day shift only.
- In order to get ready for the liner installation, SANA has begun to put together all the equipment needed for the installation (sand bags, geotextile/LLDPE rack, etc.).
- SANA started the clean-up activities with pressurized air on the upstream toe liner tie-in on SD4 on August 23.
- The QA Manager reiterated the slush grout recipe that will be used for filling discontinuities on the exposed bedrock of the upstream toe liner tie-in. Slush grout shall conform to the following:
    - Two parts sand and one part cement, by volume, mixed with sufficient water to produce a free-flowing mixture that can be poured and applied with a broom into cracks and fractures in the bedrock and that will completely fill open joints, crevices, and minor imperfections in the bedrock.
    - Sand: clean, medium to fine mortar sand (refer to CAN3-A23.1).
    - Cement: Portland cement in accordance with CAN3-A23.1, Type 50 to provide for sulphate resistance. Alternative admixtures with documented and demonstrated sulphate resistance equivalent to Type 50 cement may be used with the approval of the Owner’s Representative.
    - Water: in accordance with CAN3-A23.1.
    - Water-cement ratio to be determined and approved by the Owner’s Representative based on trial mixes produced with the Contractor’s mixing and pumping equipment. Water-cement ratio shall not exceed 0.6:1 (by mass) unless otherwise directed by the Owner’s Representative.
- The QC noticed that the coarse filter being placed on CD was not coming from the stockpile where the gradation tests were performed earlier in the construction season. According to the QA Manager and the QC,

the material seemed to be compliant, although it had sustained presence of fine particles. This material was placed from Sta. 0+100 to 0+140 m.

SANA made adjustments by using the good stockpile as soon as the QC noticed the mistake.

Saddle Dam 5

- The QA Manager went for an inspection of the cleaning activities on the upstream toe liner tie-in on SD5, and reminded the workers that all of the discontinuities have to be visible in order to characterise and protect them with the slush grout.

Saddle Dam 4

- The QA Manager and the Owner representative went for an inspection of the cleaning activities on the upstream toe liner tie-in on SD5/SD4, and asked SANA for further cleaning at some spots, especially a fault zone located at Sta. 40+578 m/o.s. -36.4 to -40.4 m [approx.]).
- On the upstream slope of the eastern part of SD4, an additional lift of fine filter (300 mm) was placed in order to cover a bedrock outcrop that has a larger height than the filters from Sta. 40+570 to 40+600 m (o.s. -25 to -30 m). The QA Manager reiterated that the additional lift was not compacted right after the placement, and that it will be important not to forget it. It was decided that the compaction will be done at the same time as the sieved till for the upstream toe liner tie-in.
- The cleaning of the fault zone located on the upstream toe liner tie-in of SD4/SD5 (Sta. 40+578 m/o.s. -36.4 to -40.4 m [approx.]) was stopped by the Owner representative and the QA Manager. Based on their observations regarding the cleaning, the fault zone seems to extend too deep in the bedrock. Discussions will take place within the next days concerning the method that will be used to fill in the hole left by the cleaning of the fault zone.
- The surveyor was asked by the QA Manager to survey the fault zone on the upstream toe liner tie-in of SD4/SD5 (Sta. 40+578 m/o.s. -36.4 to -40.4 m [approx.]) (see attached draft).
- While placing the filters on SD3 and SD4, the personnel on the field noticed that a thermistance pipe that comes from rockfill passes through the upstream slope. The QA Manager asked SANA to modify the pipe and install it deep enough in the rockfill in order to ensure that it won't interfere with the LLDPE geomembrane anchor. The same operation occurred on SD3 and SD4.

Saddle Dam 3

- The water flow coming from the bottom of the downstream slope of the northern part of SD3 has significantly decreased since the beginning of the pumping activities (August 18). The sump was pumped from every 3 hours for 30 minutes approximately, to every 4 hours for 15 minutes. The pumping activities on SD3 will continue until the new sump is in operation.
- The temporary sump on SD3 will need to be cleaned with an excavator because of the important amount of mud that got stuck at the bottom of the sump.
- The Owner representative (Patrice Gagnon) confirmed that the placement of the filters on SD3 will take place this year. SANA is planning to begin the task right after the filter placement on CD.

  Moreover, the preparation of the upstream toe liner tie-in on the south part of SD3 will take place in the schedule of the dike's 2017 construction season.

- The Owner's Representative (Patrice Gagnon) mentioned that the design of the sump on SD3 should be issued by the end of the day (August 27).

4.0 SUMMARY OF CONSTRUCTION ACTIVITIES AND TEST RESULTS

Periodic QA inspections to monitor the construction activities and progress were performed by the QA Engineer; these are summarized in the tables below.

Table 2: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream toe liner tie-in	■ Bedrock cleaning of the upstream toe liner tie-in with a stream of pressurized air from Sta. 40+600 to 40+620 m (o.s. -32 to -38 m). ■ Bedrock mapping of the cleaned bedrock of the upstream toe liner tie-in from Sta. 40+591 to 40+616 m.
Upstream	■ Profiling of the upstream slope with an excavator from El. 144.5 to 145 m from Sta. 40+570 to 40+740 m.

Table 3: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream toe liner tie-in	■ Bedrock cleaning of the upstream toe liner tie-in with a backhoe from Sta. 40+090 to 40+105 m (o.s. -30 to -40 m). ■ Bedrock cleaning of the upstream toe liner tie-in with a stream of pressurized air from Sta. 40+540 to 40+600 m (o.s. -32 to -38 m) and from Sta.40+420 to 40+465 (o.s. -24 to -39 m). ■ Beginning of the cleaning of the upstream toe liner tie-in with a stream of pressurized on the western part of SD4. ■ Bedrock mapping of the cleaned bedrock of the upstream toe liner tie-in from Sta. 40+561 to 40+591 m.
Upstream	■ Placement of the first 0.5-m-thick lift of fine filter with an excavator from El. 143 to 143.5 m from Sta. 40+120 to 40+280 m. ■ Placement of the first 0.5-m-thick lift of coarse filter with an excavator from El. 143 to 143.5 m from Sta. 40+120 to 40+240 m. ■ Compaction of the first 0.5-m-thick lift of fine/coarse filters with a 10-tonne smooth drum compactor (4 passes) at El. 143.5 m from Sta. 40+120 to 40+420 m.

Activity or Area	Comments
	■ Placement of the second, third and fourth 0.5-m-thick lift of fine/coarse filter with an excavator from El. 143.5 to 145 m from Sta. 40+120 to 40+440 m. The material was compacted with a 10-tonne smooth drum compactor (4 passes). ■ Profiling of the upstream slope with an excavator from El. 143 to 145 m from Sta. 40+120 to 40+440 m. ■ The thermistance pipe that came from rockfill through the upstream slope of SD4 has been modified to ensure it does not interfere with the liner anchor. ■ Modification of the upstream slope with an excavator from Sta. 40+570 to 40+600 m (o.s. –25 to –30 m). An additional lift of fine filter (300 mm) has been placed in order to cover a bedrock outcrop.
Water management	■ Water is being pumped out of the temporary sump.

Table 4: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream	■ Profiling of the upstream slope (3H:1V) with an excavator from E. 143 to 145 m from Sta. 20+780 to 20+810 m and from Sta. 20+610 to 20+640 m. ■ The thermistance pipe that came from rockfill through the upstream slope of SD3 has been modified to ensure it does not interfere with the liner anchor.
Downstream	■ Profiling of the downstream slope (1.5H:1V) with an excavator from El. 143 to 145 m from Sta. 20+580 to 20+750 m.
Water management	■ Water is being pumped out of the temporary sump.

Table 5: QA Observations for Central Dike

Activity or Area	Comments
Upstream toe liner tie-in	■ Bedrock cleaning of the key trench for the till plug placement with a backhoe from Sta. 0+090 to 40+100 m (o.s. -30 to -40 m).
Upstream	■ Placement of the first, second, third and fourth 0.5-m-thick lift of fine/coarse filters with an excavator from El. 143 to 145 m from Sta. 0+120 to 0+180 m. The material was compacted with a 10-tonne smooth drum compactor (4 passes).

5.0 BEDROCK MAPPING

The QA manager did the following bedrock mapping.

Table 6: Bedrock mapping by QA manager

Structure	Station and offset of centreline of the mapped section
SD5	From Sta. 40+604.5/-33.55 m to 40+616.0/-34 m
SD5	From Sta. 40+591.0/-35.75 m to 40+604.5/-33.55 m
SD4	From Sta. 40+580.0/-37.4 m to 40+591.0/-35.75 m
SD4	From Sta. 40+570.10/-31.50 m to 40+580.10/-37.40 m
SD4	From Sta. 40+561.20/-28.6 m to 40+570.10/-31.50 m

6.0 FOUNDATION APPROVAL

No foundation approvals were carried out during the reporting period.

7.0 SAMPLING AND LABORATORY TESTING

The following samples (Table 8 and Table 9) were taken by the QA Manager and QC during the reporting period.

The gradation tests performed by the QA Manager on samples SD3-08, SD4-08 and CD-544 (fine filter) were compliant.

The gradation tests performed by the QC on samples 378 and 379 (fine filter) were compliant.

Sample SD4-09 and CD-545 were sampled by the QA Manager but not yet tested.

Table 7: Samples taken by QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
378	2017-08-18	2017-08-20	Fine filter	Sta. 0+100 m/o.s. - 24 m/El. 144.5 m	Gradation	Compliant
379	2017-08-18	2017-08-20	Fine filter	Sta. 40+600 m, El. 144.5 m	Gradation	Compliant

Table 8: Samples taken by QA

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
SD3-08	2017-08-17	2017-08-21	Fine filter	Sta. 20+580 m/o.s. - 30 m/El. 144.5 m	Gradation	Compliant
SD4-08	2017-08-17	2017-08-21	Fine filter	Sta. 40+580 m/o.s. - 30 m/El. 145 m	Gradation	Compliant

CD-544	2017-08-17	2017-08-21	Fine filter	Sta. 0+100 m/o.s. -24 m/El. 144.5 m	Gradation	Compliant
SD4-09	2017-08-24		Coarse filter	(in place) Sta. 40+350/o.s. -20 El. 145 m	Gradation	
CD-545	2017-08-27	-	Coarse filter	(in place) Sta. 0+110/-20, El 144 m	Gradation	

8.0 PHOTOGRAPHS



Photograph SD5-071: From Sta. 20+740/-27 looking W. Profiling of the upstream slope of SD5 with an excavator from El. 144.5 to 145 m.



Photograph SD5-072: From Sta. 40+610/-20 looking N. View of the bedrock cleaning of the key trench for the till plug placement with stream of pressurized air.



Photograph SD5-073: From Sta. 40+540/-27 looking E. Bedrock cleaning of the upstream toe liner tie-in with stream of pressurized air from Sta. 40+540 to 40+620 m (o.s. -32 to -38 m).



Photograph SD4-160: From Sta. 40+280-/-20 looking E. Placement of the second 0.5-m-thick lift of coarse filter with an excavator from El. 143.5 to 144 m from Sta. 40+300 to 40+420 m.



Photograph SD4-161: From Sta. 40+090/-40 looking E. Bedrock cleaning of the key trench for the till plug placement with a backhoe from Sta. 40+090 to 40+105 m (o.s. -30 to -40 m).



Photograph SD4-162: From Sta. 40+220/-24 looking E. Compaction of the second 0.5-m-thick lift of fine/coarse filters with a 10-tonne smooth drum compactor (4 passes) at El. 144 m from Sta. 40+120 to 40+440 m. Notice the excavator behind placing the third lift of coarse filter (El. 144.5 m).



Photograph SD4-163: From Sta. 40+280-/-20 looking E. View of the pipe coming from the rockfill through the upstream slope of SD4 (Sta. 40+290/-25 m) that will have to be modified.



Photograph SD4-164: From Sta. 40+290/-24 looking E. Placement of the fourth 0.5-m-thick lift of fine filter with an excavator from El. 144.5 to 145 m from Sta. 40+270 to 40+440 m. Notice behind the profiled upstream slope from El. 143 to 144.5 m from Sta. 40+270 to 40+405 m.



Photograph SD4-165: From Sta. 40+320/-25 looking W. Beginning of bedrock cleaning on the central part of the upstream toe liner tie-in of SD4 with stream of pressurized air.



Photograph SD4-166: From Sta. 20+640/-30 looking W. Placement of the fourth 0.5-m-thick lift of fine filter with an excavator from El. 144.5 to 145 m from Sta. 40+120 to 40+270 m.



Photograph SD4-167: From Sta. 40+420/-23 looking W. View of the upstream slope of SD4. The filters and the profiling are completed (from Sta. 20+120 to 20+440 m).



Photograph SD4-168: From Sta. 40+605/-36 looking W. View of the upstream slope modification on SD4. From Sta. 40 +570 to 40+600 m (o.s. –25 to –30 m). An additional lift of fine filter (300 mm) has been placed in order to cover a bedrock outcrop.



Photograph SD4-169: From Sta. 40+420/-36 looking E. Bedrock cleaning of the upstream toe liner tie-in of SD4 from Sta. 40+420 to 40+465 m using stream of pressurized air.



Photograph SD3-236: From Sta. 20+620/-2 looking N. Profiling of the downstream slope (1.5H:1V) with an excavator from Sta. 20+580 to 20+700m .



Photograph SD3-237: From Sta. 20+660/-24 looking N. View of the pipe coming from the rockfill through the upstream slope of SD3 that will have to be modified.



Photograph SD3-238: From Sta. 20+640/-18 looking N. Profiling of the upstream slope of SD3 with an excavator from El. 143 to 145 m from Sta. 20+610 to 20+640 m.



Photograph SD3-239: From Sta. 20+790/-16 looking W. View of the profiled downstream slope (1.5H:1V) of SD3 from El. 143 to 145 m from Sta. 20+700 to 20+750 m.



Photograph SD3-240: From Sta. 20+640/-30 looking W. View of the thermistance pipe being modified on the upstream slope of SD3 (Sta. 20+640/-25 m) to ensure it does not interfere with the liner anchor.



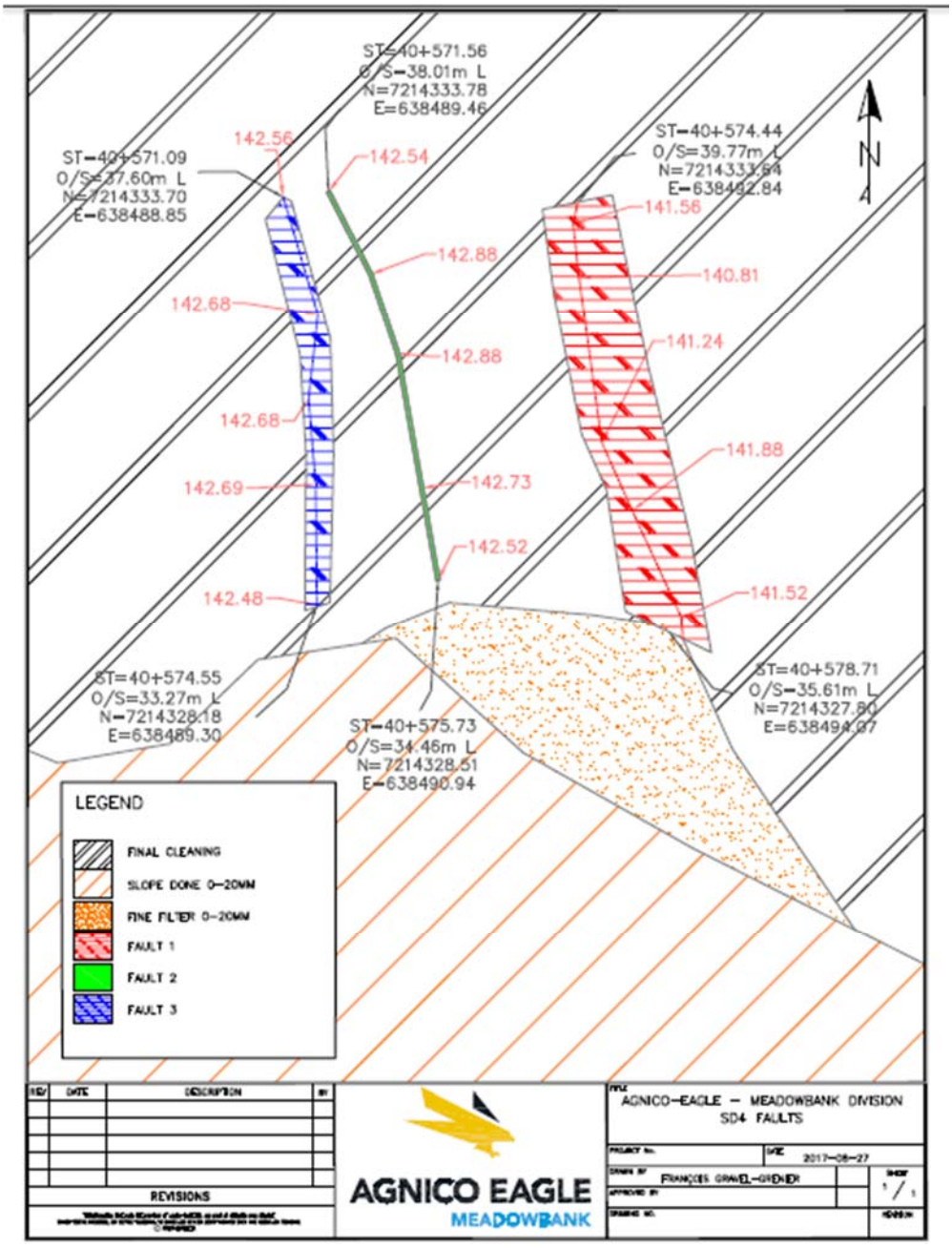
Photograph CD-1779: From Sta. 20+090/-35 looking S. Bedrock cleaning of the upstream toe liner tie-in with a backhoe from Sta. 0+090 to 0+100 m (o.s. -30 to -40 m).



Photograph CD-1780: From Sta. 0+180/-25 looking N. Placement of the first 0.5-m-thick lift of coarse filter with an excavator from El. 143 to 143.5 m from Sta. 0+120 to 0+180 m.



Photograph CD-1781: From Sta. 0+080/-36 looking S. Placement of the fourth 0.5-m-thick lift of coarse filter with an excavator from El. 144.5 to 145 m from Sta. 0+100 to 0+180 m.



Draft of the fault zone of the upstream toe line tie-in on SD4.

SIGNATURES

GOLDER ASSOCIÉS LTÉE

Reviewed by:

ORIGINAL SIGNED

Marion Habersetzer, Jr. Eng.
QA Engineer

ORIGINAL SIGNED

Yves Boulianne, P.Eng (QC,NU)
Associate, Dike Designer

Attachments: Construction Progress Drawings from AEM as of August 20, 2017

MH/YB/jlm

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TECHNICAL MEMORANDUM

DATE September 03, 2017 **REFERENCE No.** 1777687
Doc. 1567 Rev 0

TO Pierre McMullen, Julie Bélanger, Patrice Gagnon, Alexandre Lavallée
Agnico-Eagle Mines Limited Meadowbank Division

CC Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA WEEKLY REPORT FROM AUGUST 28 TO SEPTEMBER 3, 2017 – TSF SOUTH CELL CONSTRUCTION
MEADOWBANK (1777687)

This document summarizes QA activities performed by Golder from August 28 to September 3, 2017, inclusively, related to the construction activities of Saddle Dams 3, 4 and 5 (SD) and Central Dike at the Meadowbank mine site.

Unless specified, the construction activities use the centreline of the structures for a dike crest elevation of 150 m for reference (refer to the Drawings). The description of activities refers to the stations and offsets from the centreline (e.g., Sta. 0+500/-50 m). The "+" and "-" symbols indicate the location of the work downstream and upstream of the centreline, respectively.

1.0 GOLDER PERSONNEL ON SITE

Golder personnel on site during this reporting period is summarized in Table 1.

Table 1: Golder Personnel on Site

Name	Comments
Michael Nadon	QA Engineer

2.0 HEALTH AND SAFETY

H&S meetings were held with AEM and FGL/Sana during the daily construction meetings. Minutes from these meetings are recorded and stored in Golder's on-site office. The key H&S elements for the reporting period were as follows:

- Regarding the grout mixing, it was mentioned that it is mandatory to wear a mask.
- The temperature is getting colder every day, make sure to wear proper clothes.

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- The JHA concerning the pressurized air stream for the bedrock cleaning of the upstream toe liner tie-in will be presented to every worker who might work near the cleaning zone.
- Dust is an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.
- The speed limit on Saddle road was reminded (30 km/h maximum).
- Regarding the compaction activities using the P-10 000 or the “Jumping Jack,” it is important for the operator to alternate with another worker, or rest sufficiently when tired.
- The fog being an issue, make sure to turn on the lights on every mobile equipment and stay visible at all time on the construction field.
- The rain is an issue, as the muddy and very slippery ground cause a high risk of slips and falls. Extra caution must be applied when walking or driving on wet surfaces
- The mine inspector’s report has been issued. The document highlighted the good work that is being done on the dike construction field.

An allergic reaction occurred on September 2. It was then reiterated that it is important to advise the appropriate personnel if you have allergies.

3.0 SUMMARY OF MAIN DISCUSSIONS IN CONSTRUCTION MEETINGS

Construction meetings were held daily during the reporting period and were attended by the QA manager. The following items were discussed:

General

- The QC reminded that it is important to inform him if the source of the hauled material changes as the day progresses. It is important to understand that gradation limit must be performed on each source of material placed on the dike.
- Regarding the placement of the sieved compacted till on the upstream toe liner tie-in, it was discussed that an access will be built beyond the sieved compacted till by placing the granular protection at the same time as the sieved compacted till. Then, the haul trucks will be able to circulate on the granular protection.

  The QA Manager mentioned that the probability to contaminate the material by circulate directly on it is high. It was then agreed that the granular protection must be cleaned from any contamination (ex: fine filter found in coarse filter) before placing any other lift.
- The slush grout recipe used in the past year was reiterated to the contractor. The following recipe gave satisfactory results in the past:
  - 1 to $1^{1/3}$ of cement by volume;
  - 2 portions of sand by volume;
  - 2 portions of water.

Moreover, SANA is planning the confection of sand bags in order to be ready for the liner installation.

- A hauling operation from pit E to Sana crusher is ongoing (September 2 to 5). 6 000 m^3 of rough till is being hauled to the crusher in order to produce a sieved till (0-50 mm).
- The QC took water content with the nucleodensimeter at various place around the rough till stockpile that is being hauled from pit E to Sana crusher. The water content varies from 7% to 18%. In order to lower the water content and ensure a maximum of 10% when it will be time to place the material, the rough till stockpile will be mixed for allowing drying.
- It was discussed that neither the QA Manager nor the Owner's Representatives will be present on the construction site on September 5. As mentioned earlier before the beginning of the construction season, both QA Managers are exceptionally unable to be on site for this day. Also, the Owner's Representatives are both unavailable because they are involved in the MDRB 2017 presentation.

  That being said, it was agreed that the slush grout and the first lift of sieved till above the grouted bedrock won't be placed on any dike during this period (September 5).

Saddle Dam 4

- The QA Manager went for an inspection of the cleaning activities on the upstream toe liner tie-in on the north part of SD4, and reminded the workers that all organic matter must be removed from the discontinuities.
- A scanner has been done by AEM on SD5/SD4 in order to survey the fault zone on the upstream toe liner tie-in (Sta. 40+578 m/o.s. -36.4 to -40.4 m [approx.]).
- Regarding the fault zone on SD5/SD4, it was discussed that slush grout will be poured generously all over the zone. Then, when the grout begins to settle (15 minutes approximatively), sieved compacted till will be placed and compacted.

  The sections of the upstream toe liner tie-in where the 10-tonne smooth drum compactor is unable to work efficiently (ex: the narrow part of the fault zone), a P-10 000 or a "Jumping Jack" compactor will be used depending on the ground surface. The QA Manager mentioned that the maximum lift thickness, when another compactor than the 10-tonne is used, shall be 300 mm instead of 500 mm.
- The type of cement used during the slush grout activities of September 30 on SD4 was not the one recommended in the specifications. A type 30 cement was used instead of a type 50. Type 50 is recommended to provide for sulfate resistance.

  The grouted section with type 30 cement extends from Sta. 40+560 to 40+600 m.
- The QA Manager reiterated that the section of the upstream slope of SD4 that was modified because of a bedrock outcrop (Sta. 40+570 to 40+600 m/o.s. -25 to -30 m) is still not compacted. The compaction will be done at the same time as the first 0.5-m-thick lift of till.

Saddle Dam 3

- On the southern part of SD3, the upstream toe liner tie-in is being cleaned with a backhoe, and water is coming from the bedrock cracks, probably due to ice thawing. A little dike could be built soon to ensure the water/till mud does not flow on the cleaned upstream toe liner tie-in.

- During the bedrock cleaning of the upstream toe liner tie-in on SD3 with the 450 excavator, more loose rocks were removed than anticipated. Thus, an open hole located behind the future till plug is now present (Sta. 20+830 to 20+845 m [approx.]). In order to avoid a pool effect, which could potentially lead to an erosion of the till plug, the hole will be filled with compacted till (0-300mm).
- On August 2, water was used for the bedrock cleaning of SD3 and did not yield the expected results, since the mix of water and till hardened in the cracks and was very difficult to clean out. This technique won't be used again.

Central Dike

- Regarding the grouting of the upstream toe liner tie-in of CD, it was reiterated that the entire cleaned surface has to be covered by slush grout, unlike the Saddle Dams.

4.0 SUMMARY OF CONSTRUCTION ACTIVITIES AND TEST RESULTS

Periodic QA inspections to monitor the construction activities and progress were performed by the QA Engineer; these are summarized in the tables below.

Table 2: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream toe liner tie-in	■ Grouting of the entire cleaned bedrock surface between Sta. 40+600 and 40+620 m. The grout was quickly covered with a thin lift of till to fill the depression and allow good contact before the grout dried. A recipe by volume of $1^{1/3}$ cement, 2 sand and 2 water was used. ■ Placement of the 0.5-m-thick lift of sieved till above the till covering the slush grout from Sta. 40+600 to 40+620 m. Faults and large cracks have been compacted with a P-10 000 and a "Jumping Jack" compactor (maximum lift thickness of 300 mm). Otherwise, a minimum thickness of 0.5 m of till was placed on the 5 m of cleaned bedrock and against natural ground.

Table 3: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream toe liner tie-in	■ Bedrock cleaning of the upstream toe liner tie-in with a stream of pressurized air from Sta. 40+098 to 40+105.7 m. ■ Bedrock cleaning of the upstream toe liner tie-in with a stream of pressurized air from Sta. 40+420 to 40+465 m. ■ Grouting of the entire cleaned bedrock surface from Sta. 40+560 to 40+600 m, from Sta. 40+418 to 40+466 and from Sta. 40+098 + 40+106 m. The grout was quickly covered with a thin lift of till with an excavator to fill the depression and allow a good contact before the grout dried. A recipe by volume of $1^{1/3}$ cement, 2 sand and 2 water was used.

Activity or Area	Comments
	■ Placement of the 0.5-m-thick lift of sieved till above the till covering the slush grout from Sta. 40+560 to 40+600 m, from Sta. 40+418 to 40+466 m and from Sta. 40+098 + 40+106 m. Faults and large cracks have been compacted with a P-10 000 compactor (maximum lift thickness of 300 mm). Otherwise, a minimum thickness of 0.5 m of till was placed on the 5 m of cleaned bedrock. The material was compacted only with the bucket of the excavator. The 10-tonne smooth drum compactor will compact it later ■ Bedrock mapping of the cleaned bedrock of the upstream toe liner tie-in from Sta. 40+098 to 40+106 m, from Sta. 40+418 to 40+466 m and from Sta. 40+551 to 40+561 m.

Table 4: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream toe liner tie-in	■ Clean-up of the upstream toe liner tie-in with an excavator (removal of the till and loose rocks) on the southern part of SD3 from Sta. 20+790 to 20+840 m (o.s. -23 to -48 m). ■ Clean-up of the upstream toe liner tie-in with a backhoe in preparation for the blowing activities on the southern part of SD3 from Sta. 20+810 to 20+840 m (o.s.-23 to -48 m). ■ Clean-up of the upstream toe liner tie-in with pressurized air on the southern part of SD3 from Sta. 20+815 to 20+830 m (o.s.-22 to -31 m). ■ Clean-up of the upstream toe liner tie-in with pressurized air on the northern part of SD3 from Sta. 20+560 to 20+600 m (o.s.-30 to -44 m).
Upstream	■ Placement of the first, second, third and fourth 0.5-m-thick lift of fine/coarse filters with an excavator from El. 143 to 145 m from Sta. 20+600 to 20+780 m. The material was compacted with a 10-tonne smooth drum compactor (6 passes). ■ Profiling of the upstream slope of SD3 (3H:1V) with an excavator from El. 143 to 145 m from Sta. 20+600 to 20+780 m.
Water management	■ Water is being pumped out of the temporary sump.

Table 5: QA Observations for Central Dike

Activity or Area	Comments
Upstream toe liner tie-in	■ Bedrock cleaning of the upstream toe liner tie-in with pressurized air stream from Sta. 0+089 to 0+104 m (o.s. -18 to -23 m). ■ Bedrock mapping of the cleaned upstream toe liner tie-in from Sta. 0+089 to 0+104 m.

5.0 BEDROCK MAPPING

The QA manager did the following bedrock mapping.

Table 6: Bedrock mapping by QA manager

Structure	Station and offset of centreline of the mapped section
SD4	From Sta. 40+551.70/-25.70 m to 40+561.20/-28.60 m
SD4	From Sta. 40+098.00/-24.90 m to 40+105.70/-34.00 m
SD4	From Sta. 40+456.90/-29.55 m to 40+466.40/-26.25 m
SD4	From Sta. 40+446.50/-31.05 m to 40+456.90/-29.55 m
SD4	From Sta. 40+436.50/-31.50 m to 40+446.50/-31.05 m
SD4	From Sta. 40+428.50/-34.35 m to 40+436.30/-31.50 m
SD4	From Sta. 40+418.60/-34.50 m to 40+428.50/-34.35 m
CD	From Sta. 0+089.39/-16.74 m to 0+094.64/-17.66 m
CD	From Sta. 0+094.64/-17.66 m to 0+104.70/-20.01 m

6.0 SAMPLING AND LABORATORY TESTING

The following samples were taken and tested during the reporting period (details in Table 7 and Table 8).

The gradation test performed by the QC on sample 374 (coarse filter) was compliant.

The gradation tests performed by the QA on samples STCK-23, SD3-09, SD4-09 and CD-545 (coarse filter) were compliant, as well as the gradation test and water content performed on STCK-24 (sieved till).

Sample 435, taken by the QC, and sample SD4-10, taken by the QA, have not been tested yet.

Table 7: Samples Taken by QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
374	2017-08-29	01/09/2017	Coarse filter	Stockpile #2 Sana Crusher	Gradation	Compliant
435	2017-09-02		Sieved till	(in place) 40+430/-27		

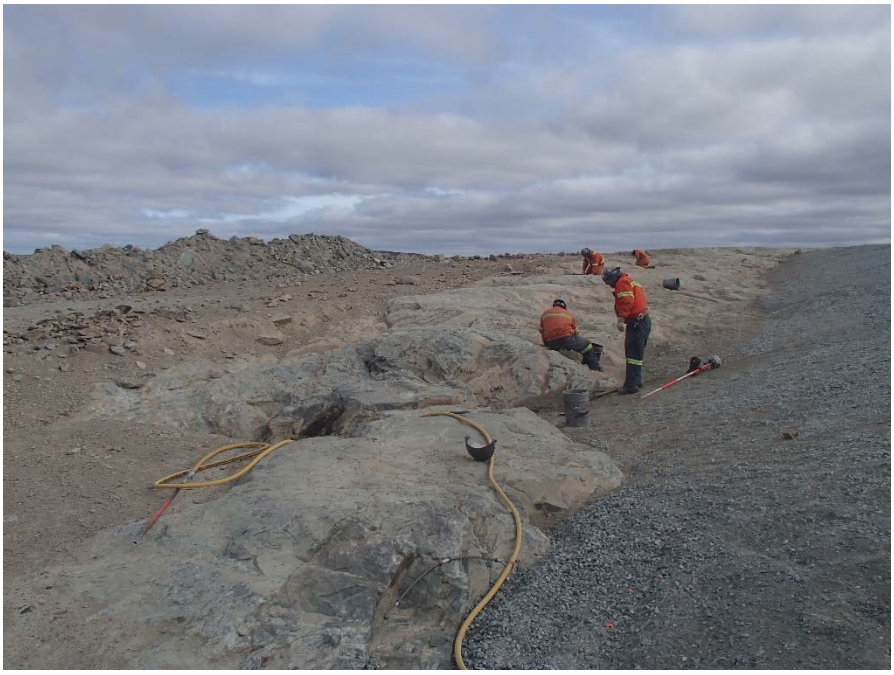
Table 8: Samples Taken by QA

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
STCK-23	2017-08-04	2017-08-24	Coarse filter	Stockpile Sieved Till North CD (pile #2)	Gradation	Compliant
STCK-24	2017-08-04	2017-08-28	Compacted sieved till	Stockpile Sieved Till North CD (pile #2)	Gradation	Compliant
					Water content	6.9%
SD3-09	2017-08-29	2017-09-01	Coarse filter	(in place) Sta. 20+770/o.s.-25 El 143.5 m	Gradation	Compliant
SD4-09	2017-08-24	2017-08-31	Coarse filter	(in place) Sta. 40+350/o.s. -20 El. 145 m	Gradation	Compliant
CD-545	2017-08-27	2017-08-31	Coarse filter	(in place) Sta. 00+110/o.s. -20, El 144 m	Gradation	Compliant
SD4-10	2017-09-02		Sieved till	(in place) 40+430/-30		

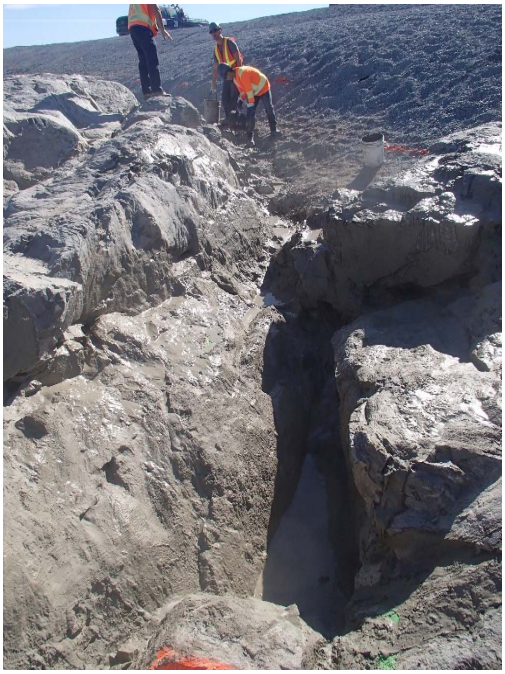
7.0 PHOTOGRAPHS



Photograph SD5-074: From Sta. 40+620/-30 m looking W. View of the slush grouted cracks and the placement of the 0.5-m-thick lift of sieved till from Sta. 40+600 to 40+620 m.



Photograph SD4-171: From Sta. 40+420/-32 m looking E. Bedrock cleaning of the upstream toe liner tie-in of SD4 from Sta. 40+420 to 40+465 m using pressurized air stream.



Photograph SD4-172: From Sta. 20+574/-40 m looking S. View of the faulted zone on the upstream toe liner tie-in of SD4 being generously slush grouted (Sta. 40+574 to 40+578/o.s. -35 to -40).



Photograph SD4-173: From Sta. 40+582/-30 m looking N. View of the fault zone on the upstream toe liner tie-in of SD4 being filled with sieved compacted till. Notice the two types of compactors, “Jumping Jack” (right) and P-10 000 (middle), that were used to ensure a good quality compaction depending on the ground surface.



Photograph SD4-174: From Sta. 40+418/-35 m looking E. Placement of the 0.5-m-thick lift of sieved till over the cleaned bedrock of the upstream toe liner tie-in. Notice the slush grouted discontinuities.



Photograph SD4-175: From Sta. 20+106/-20 m looking N. View of the upstream toe liner tie-in of the western part of SD4 being generously "slush grouted" from Sta. 40+098 + 40+106 m (o.s. -24 to -34 m).



Photograph SD3-241: From Sta. 20+810/-35 m looking N. Preparation for the compaction of the first 0.5-m-thick lift of fine/coarse filters (material is being wetted) on SD3. Notice behind the excavator placing the first lift of fine filter (El. 143 to 143.5 m).



Photograph SD3-242: From Sta. 20+720/-21 m looking S. Placement of the third 0.5-m-thick lift of coarse filter with an excavator from El.143.5 to 144 m. Notice the excavator removing the loose rocks and till like material for the preparation of the upstream toe liner tie-in on the very south part of SD3.



Photograph SD3-243: From Sta. 40+800/-47 m looking S. Bedrock cleaning of the upstream toe liner tie-in with a backhoe on SD3 from Sta. 20+810 to 20+840 m to prepare for pressurized air stream cleaning.



Photograph SD3-244: From Sta. 40+820/-24 m looking N. Placement of the fourth 0.5-m-thick lift of coarse filter with an excavator from El. 144.5 to 145 m.



Photograph SD3-245: From Sta. 20+720/-25 m looking N. Profiling of the upstream slope (3H:1V) of SD3 with an excavator from Sta. 20+600 to 20+780 m.



Photograph SD3-246: From Sta. 40+810/-30 m looking S. Bedrock cleaning of the upstream toe liner tie-in of SD3 with pressurized air stream from Sta. 20+815 to 20+830 m (o.s. -22 to -31 m).



Photograph SD3-247: From Sta. 40+590/-40 m looking NW. Bedrock cleaning of the upstream toe liner tie-in of the northern part of SD3 with pressurized air stream from Sta. 20+560 to 20+600 m (o.s.-30 to -44 m).



Photograph SD3-248: From Sta. 20+850/-36 m looking NW. Removal of the loose rocks on the upstream toe liner tie-in with an excavator on the southern part of SD3 from Sta. 20+815 to 20+830 m (o.s.-22 to -31 m).



Photograph SD3-249: From Sta. 40+850/-36 m looking NW. Profiling of the upstream slope (3H:1V) of SD3 from Sta. 20+780 to 20+800 m. Notice the compactor doing the compaction of the fourth lift of fine/coarse filters at El. 145 m from Sta. 20+600 to 20+800 m.



Photograph CD-1782: From Sta. 0+110/-15 m looking S. Bedrock cleaning of the upstream toe liner tie-in with pressurized air stream on the northern part of CD from Sta. 0+095 to 0+115 m.



Photograph BRM-011: From Sta. 40+574/-35 m looking SE. View of the fault zone located on the upstream toe liner tie-in of SD4/SD5 (Sta. 40+578 m/o.s. -36.4 to -40.4 m [approx.]) (photo coming from the bedrock mapping folder).

SIGNATURES

GOLDER ASSOCIÉS LTÉE

Reviewed by:

ORIGINAL SIGNED

Marion Habersetzer, Jr. Eng.
QA Engineer

ORIGINAL SIGNED AND SEALED

Yves Boulianne, P.Eng (QC,NU)
Associate, Dike Designer

Attachments: Construction Progress Drawings from AEM as of September 3, 2017

MH/YB/jlm

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TECHNICAL MEMORANDUM

DATE September 10, 2017 **REFERENCE No.** 1777687
Doc. 1567 Rev 0

TO Pierre McMullen, Julie Bélanger, Patrice Gagnon, Alexandre Lavallée
Agnico-Eagle Mines Limited Meadowbank Division

CC Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA WEEKLY REPORT FROM SEPTEMBER 4 TO 10, 2017 – TSF SOUTH CELL CONSTRUCTION MEADOWBANK (1777687)

This document summarizes QA activities performed by Golder from September 4 to 10, 2017, inclusively, related to the construction activities of Saddle Dams 3, 4 and 5 (SD) and Central Dike at the Meadowbank mine site.

Unless otherwise specified, the construction activities use the centreline of the structures for a dike crest elevation of 150 m for reference (refer to the Drawings). The description of activities refers to the stations and offsets from the centreline (e.g., Sta. 0+500/-50 m). The "+" and "-" symbols indicate the location of the work downstream and upstream of the centreline, respectively.

1.0 GOLDER PERSONNEL ON SITE

Golder personnel on site during this reporting period is summarized in Table 1.

Table 1: Golder Personnel on Site

Name	Comments
Michael Nadon	QA Engineer
Marion Habersetzer	QA Engineer

2.0 HEALTH AND SAFETY

H&S meetings were held with AEM and FGL/SANA during the daily construction meetings. Minutes from these meetings are recorded and stored in Golder's on-site office. The key H&S elements for the reporting period were as follows:

- It was reiterated that the blowing zone (pressurized air stream) has to be clearly identified.

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- Dust is an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.
- JHA was reminded for labour workers coming back to SD3 for pressurized air stream cleaning.
- Upcoming coactivity on the dikes: it was reiterated that speed limits must be respected, and the correct radio channel used at all time.
- Due to the reopening of the Portage waste dump, traffic in the area has increased and some vehicles have been reported to exceed speed limits. Visibility is an issue in the area. Concerned personnel has been advised and upcoming toolbox meetings will address this point.
- A safety share about a haul truck backing up in a parked pickup on another construction site has been done.
- It was reiterated that the pressurized air stream cleaning requires a safety perimeter.
- The JHA for liner installation was verified by the health and safety representatives and is to be accepted by AEM soon.
- There is important heavy equipment coactivity on SD3: personnel on foot must make sure to be visible at all times.
- Drilling will take place soon near Saddle Road. Due to the potential hazard posed by underground utilities, a 15-m safety perimeter will be set up around the drill. This may affect traffic on Saddle Road. Coordination between the different operations may help reduce the delays.
- A truck transporting seacans tilted and fell on the road because of an unbalanced weight inside the seacans. Always make sure that the load is balanced before transporting.
- The QA Manager presented Golder's Fatal Risk Control safety approach during the daily meeting.
- A spill (20L) occurred on Saddle Road on September 8
- Strong winds: wear safety glasses and appropriate clothing.

3.0 SUMMARY OF MAIN DISCUSSIONS IN CONSTRUCTION MEETINGS

Construction meetings were held daily during the reporting period and were attended by the QA manager. The following items were discussed:

General

- Michael Nadon left the site on September 4, and Marion Habersetzer arrived on the site on September 6.
- 4 500 m^3 has been hauled from pit E to SANA crusher up to now. One more hauling day will probably be needed to reach the 6 000 m^3 objective.
- In order to help the AEM surveyor, a new surveyor from SANA will work on the dike construction site from tomorrow until the end of the season.
- The liner contractors (ZTG) will arrive on site on September 18, instead of September 11 as initially planned.

- Till quantities planned for next year are being used this year, at tasks planned for next year (upstream liner tie-ins on the dikes) are already in progress.
- AEM's representative was exceptionally unable to attend the daily meeting on September 9.
- It was discussed with AEM that foundation approvals are needed for the key trench preparation, in addition to bedrock mapping. Foundation approvals will be done for all upstream liner tie-in sections that have already been completed.
- The QA manager pointed out that the according to the PNG results, the sieved till in place has a lower water content than the requirement (it should be 9 to 12%). The measured water content was around 5% in the compacted sieved till placed on Central Dike, SD4 and SD5 (measured several days after compaction), and around 7% on SD3 (measured the day after compaction). Given that the till comes from the same stockpile, it is supposed that the till had a water content of 7% during placement on all the dikes and that the till on Central Dike, SD4 and SD5 had dried during the delay before the PNG measurements.
- It was discussed with the QC representative and AEM's representative that the water contents sampled by the PNG in the first 0.5-m-thick layer of compacted sieved till might be underestimated due to the proximity of the dry bedrock 0.5 m below the surface. The water content measured in place is therefore a minimum value.

Saddle Dam 3

- The pressurized air stream cleaning of the bedrock performed on SD3 has caused an accumulation of till and rock fragments on the upstream slope of SD3, on the filters. The slope will need to be cleared and sloped again if need be before construction of the tie-in.
- The QA Manager pointed out that some small areas of the upstream toe line tie-in need further cleaning with pressurized air stream, both on the northern and southern parts of SD3.
- The sump on the downstream side of SD3 is planned to be excavated with one single blast. Regarding blast protection, given the limited number of blast mats, the SD3 side will be prioritized. Drilling started on September 10 and should last about 4 days.
- The sieved till for the protection layer of the liner in SD3 is being transported from the Central Dike stockpiles and dumped directly on the existing compacted sieved till, and then placed by the excavator. Given that there will be no contamination of the till (same material), it was deemed unnecessary to use a metal box. Where it is impossible to dump the sieved till without contaminating it, the excavator takes the material directly from the articulated truck for placement.
- A fault zone has been identified on the north part of SD3. As on SD4, the excavation was stopped when the filling material in the fractures (very dense till and gouge) was deemed suitable to provide a low-permeability surface for grouting.
- The construction of the sump at SD3 will require more than one blast, as drilled holes will quickly freeze during delay between drilling and blasting operations.
- In order to increase till moisture, the till lift on the south part of SD3 was watered during placement (watering every time the lift was raised by approximately 250 mm), before compaction. This operation was sometimes

challenging, as the till becomes muddy and extremely difficult to compact at approximately 11% water content. The till was watered as much as possible without reaching this state, in order to allow for a sufficient compaction.

Central Dike

- The first lift of sieved till placed on the upstream toe liner tie-in zone of Central Dike has a water content below the optimum, probably due to the repeated handling of the till. The till was not watered during the placement and was sealed. However, compaction results given by the Portable Nuclear Gauge (PNG) indicates that compaction still meets the specifications.

4.0 SUMMARY OF CONSTRUCTION ACTIVITIES AND TEST RESULTS

Periodic QA inspections to monitor the construction activities and progress were performed by the QA Engineer; these are summarized in the tables below.

Table 2: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream toe liner tie-in	■ Compaction of the first 0.5-m-thick lift of Compacted Sieved Till with a 10-tonne smooth-drum compactor with vibration from Sta. 40+600 to 40+620 m. PNG tests were conducted and results met Technical Specifications (see table 7).

Table 3: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream toe liner tie-in	■ Completion of the placement of the 0.5-m-thick lift of sieved till from Sta. 40+098 to 40+106 m (o.s. -24 to -34 m). ■ Compaction of the first 0.5-m-thick lift of compacted sieved till with a 10-tonne smooth-drum compactor with vibration from Sta. 40+100 + 40+105 m, from Sta. 40+420 to 40+465 m and from Sta. 40+560 to 40+600 m. PNG tests were conducted and results met Technical Specifications (see table 7).
Upstream	■ Placement of a UM rockfill pad on the exposed bedrock for installation of the pig launcher station on the upstream side of SD4 from Sta. 40+470 to 40+490 m (o.s. -31 to -10 m).

Table 4: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream toe liner tie-in	■ Bedrock cleaning of the upstream toe liner tie-in from Sta. 20+570 to 20+590 m and from Sta. 20+800 to 20+830 m. ■ Cleaning of the upstream slope with a 420 excavator on the north and south parts of SD3.

Activity or Area	Comments
	■ Bedrock mapping of the cleaned upstream toe liner tie-in from Sta. 20+572 to 20+600 m. ■ Bedrock mapping of the cleaned upstream toe liner tie-in from Sta. 20+797 to 20+817 m. ■ Grouting of the fractured zones of the bedrock from Sta. 20+572 to 20+599 m (o.s. -46 to -36 m). Most of the grout was quickly covered with a thin lift of till to fill the depressions and allow good contact before the grout dries. Due to delays in till supply, a small portion of grout was partially dry when covered. A recipe by volume of 1.5 cement, 1 sand and 1 water was used and adjusted for consistency when needed. ■ Grouting of the entire cleaned bedrock surface from Sta. 20+797 to 20+817 m (o.s. -36 to -20 m). The grout was quickly covered with a thin lift of till to fill the depressions and to allow a good contact before the grout dries. A recipe by volume of 1.5 cement, 1 sand and 1.5 water was used and adjusted for consistency when needed. ■ Placement of an initial 0.5-m-thick lift of sieved till above the till covering the slush grout from Sta. 20+572 to 20+599 m (o.s. -46 to -36 m). Faults and large cracks have been compacted with a P-10 000 compactor (maximum lift thickness of 300 mm). Otherwise, a minimum thickness of 0.5 m of till was placed on the 5 m of cleaned bedrock and compacted with a 10-tonne smooth drum compactor. ■ Placement of an initial 0.5-m-thick lift of sieved till above the till covering the slush grout from Sta. 20+797 to 20+817 m (o.s. -36 to -20 m). Faults and large cracks have been compacted with a P-10 000 compactor (maximum lift thickness of 300 mm). Otherwise, a thickness of 0.5 m of till was placed on the 5 m of cleaned bedrock and compacted with a 10-tonne smooth drum compactor after watering. ■ Placement of a second lift of sieved till from Sta. 20+797 to 20+817 m (o.s. -36 to -20 m) to complete the tie-in. The sieved till lift is at El. 145 m from the south extremity and connects to the existing till plug at the north extremity. The sieved till lift was compacted with a 10-tonne smooth drum compactor after watering. PNG tests have not been performed yet. ■ Placement of a second lift of sieved till from Sta. 20+572 to 20+599 m (o.s. -46 to -36 m) to complete the tie-in. The sieved till lift is at El. 145 m from the north extremity and connects to the existing till plug at the south extremity. The sieved till lift was compacted with a 10-tonne smooth drum compactor after watering. PNG tests have not been performed yet.
Upstream	■ Placement of a first 0.5-m-thick lift of compacted sieved till at El. 142 m over the LLDPE geomembrane from Sta. 20+630 to 20+750 m. The lift was

Activity or Area	Comments
	compacted using the bucket of the excavator. The upper part of the lift is incomplete on the north part because the excavator was unable to reach El. 142 m. The lift will be completed when the progression of the second class till lifts allows access to this zone. ■ Placement of a first 0.5-m-thick, 1.5 m wide lift of second class till over the compacted sieved till in place from Sta. 20+675 to 20+735 m.
Downstream	■ Removal of the old all-weather access road for sump preparation. ■ Excavation of the new sump on the downstream side of SD3 down to the frozen till and loading of the excavated material from Sta. 20+600 to 20+650 m (o.s. 30 to 60 m). ■ Drilling of the blast pattern for the sump preparation from Sta. 20+605 to 20+620 m (o.s. 30 to 57 m).
Water management	■ Water is being pumped out of the temporary sump.

Table 5: QA Observations for Central Dike

Activity or Area	Comments
Upstream toe liner tie-in	■ Grouting of the entire cleaned bedrock surface from Sta. 0+089 + 0+105 m. The grout was quickly covered with a thin lift of till to fill the depression and allow good contact before the grout dried. A recipe by volume of $1^{1/3}$ cement, 2 sand and 2 water was used. ■ Placement of the 0.5-m-thick lift of sieved till above the till covering the slush grout from Sta. 0+089 to 0+105 m. Faults and large cracks have been compacted with a P-10 000 compactor (maximum lift thickness of 300 mm). Otherwise, a minimum thickness of 0.5 m of till was placed on the 5 m of cleaned bedrock. ■ Compaction of the first 0.5-m-thick lift of Compacted Sieved Till with a 10-tonne smooth-drum compactor with vibration from Sta. 0+089 to 0+105 m. PNG tests were conducted and results met Technical Specifications (see table 7).

5.0 BEDROCK MAPPING

The QA manager did the following bedrock mapping:

Table 6: Bedrock mapping by QA manager

Structure	Station and offset of centreline of the mapped section
SD3	Sta. 20+589.9/-35.1 to 20+598.7/-39.6 m
SD3	Sta. 20+589.90/-30.4 to 20+591/-30.4 m
SD3	Sta. 20+581/-30.4 to 20+591/-30.4 m
SD3	Sta. 20+572/-33.5 to 20+581/-30.4 m
SD3	Sta. 20+797.3/-34.9 to 20+806.7/-32.1 m
SD3	Sta. 20+806.7/-32.1 to 20+817.4/-27.6 m

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 7 and 8 present the samples collected or tested by the QA and QC as well as PNG field results.

The gradation tests performed by the QC on sample 435 and 437 (sieved till) were compliant.

Samples CD-544 and SD3-008 (sieved till) taken by the QA, and samples 436, 438 and 439 (sieved till) taken by the QC, have not been tested yet.

Table 7: Samples Taken by QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
435	2017-09-02	2017-09-05	Sieved till	SD4 (in place) Sta. 40+430 m	Gradation	Compliant
					Water content	6.3%
436	2017-09-08		Sieved till	SD5 (in place) Sta. 20+651/-38.3 El. 141.2 m		
437	2017-09-08	2017-09-09	Sieved till	Central Dike (in place) Sta. 0+108/-20.9 El. 143.8 m	Gradation	Compliant
					Water content	6.8%
438	2017-09-09		Sieved till	SANA crusher		
439	2017-09-09		Sieved till	SANA crusher		
#1 (PNG)	2017-09-08	2017-09-08	Compacted Sieved till	Central Dike (in place) Sta. 0+092/-16.9 m El. 144.9 m	Dry density	2186
					Water content (PNG)	5.9%
#2 (PNG)	2017-09-08	2017-09-08	Compacted Sieved till	Central Dike (in place)	Dry density	2211

				Sta. 0+100/-20.8 m El. 144.2 m	Water content (PNG)	5.5%
#3 (PNG)	2017-09-08	2017-09-08	Compacted Sieved till	Central Dike (in place) Sta. 0+107.7/-17.9 m El. 143.8 m	Dry density	2249
					Water content (PNG)	5.8%
#4 (PNG)	2017-09-08	2017-09-08	Compacted Sieved till	Central Dike (in place) Sta. 0+114.4/-20.1 m El. 143.4 m	Dry density	2184
					Water content (PNG)	5.8%
#5 (PNG)	2017-09-09	2017-09-09	Compacted Sieved till	SD5 (in place) Sta. 40+615.2/-34 m El. 143.5 m	Dry density	2225
					Water content (PNG)	5.0%
#6 (PNG)	2017-09-09	2017-09-09	Compacted Sieved till	SD4 (in place) Sta. 40+611.3/-34 m El. 143.6 m	Dry density	2185
					Water content (PNG)	5.1%
#7 (PNG)	2017-09-09	2017-09-09	Compacted Sieved till	SD4 (in place) Sta. 40+602/-31.5 m El. 143.6 m	Dry density	2198
					Water content (PNG)	5.3%
#8 (PNG)	2017-09-09	2017-09-09	Compacted Sieved till	SD4 (in place) Sta. 40+601.7/-35 m El. 143.6 m	Dry density	2180
					Water content (PNG)	4.4%
#9 (PNG)	2017-09-09	2017-09-09	Compacted Sieved till	SD4 (in place) Sta. 40+586/-34 m El. 143.6 m	Dry density	2193
					Water content (PNG)	4.9%
#10 (PNG)	2017-09-09	2017-09-09	Compacted Sieved till	SD4 (in place) Sta. 40+579.7/-35.6 m El. 143.2 m	Dry density	2203
					Water content (PNG)	5.1%
#11 (PNG)	2017-09-09	2017-09-09	Compacted Sieved till	SD4 (in place) Sta. 40+570.6/-30.5 m El. 143.4 m	Dry density	2258
					Water content (PNG)	4.8%
#12 (PNG)	2017-09-09	2017-09-09	Compacted Sieved till	SD4 (in place) Sta. 40+563.0/-29.7 m El. 144.9 m	Dry density	2203
					Water content (PNG)	5.5%
#13 (PNG)	2017-09-09	2017-09-09	Compacted Sieved till	SD4 (in place) Sta. 40+458.6/-28.6 m El. 144.9 m	Dry density	2282
					Water content (PNG)	4.2%
#14 (PNG)	2017-09-09	2017-09-09	Compacted Sieved till	SD4 (in place) Sta. 40+451/-30.8 m El. 144.8 m	Dry density	2241
					Water content (PNG)	5.2%
	2017-09-09	2017-09-09		SD4 (in place)	Dry density	2192

#15 (PNG)			Compacted Sieved till	Sta. 40+443.4/-29.8 m El. 144.7 m	Water content (PNG)	5.3%
#16 (PNG)	2017-09-09	2017-09-09	Compacted Sieved till	SD4 (in place) Sta. 40+438.3/-28.6 m El. 144.7 m	Dry density	2288
					Water content (PNG)	4.7%
#17 (PNG)	2017-09-09	2017-09-09	Compacted Sieved till	SD4 (in place) Sta. 40+430/-33.1 m El. 143.3 m	Dry density	2225.1
					Water content (PNG)	5.4%
#18 (PNG)	2017-09-09	2017-09-09	Compacted Sieved till	SD4 (in place) Sta. 40+423.5/-31.4 m El. 143.9 m	Dry density	2193
					Water content (PNG)	5.2%
#19 (PNG)	2017-09-09	2017-09-09	Compacted Sieved till	SD4 (in place) Sta. 40+107/-34.8 m El. 143.3 m	Dry density	2189
					Water content (PNG)	5.3%
#20 (PNG)	2017-09-09	2017-09-09	Compacted Sieved till	SD4 (in place) Sta. 40+105.2/-30.7 m El. 144.1 m	Dry density	2216
					Water content (PNG)	4.9%
#21 (PNG)	2017-09-09	2017-09-09	Compacted Sieved till	SD4 (in place) Sta. 40+101.5/-30.6 m El. 144.6 m	Dry density	2203
					Water content (PNG)	5.1%

Table 8: Samples Taken by QA

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
CD-544	2017-09-07		Sieved till	Central Dike (in place) Sta. 0+100/-18.7 El. 144.2 m		
SD3-008	2017-09-08		Sieved till	SD3 (in place) Sta. 20+644/-45.6 El. 139.0 m		

7.0 PHOTOGRAPHS



Photograph SD3-250: From Sta. 20+630/17 m looking N. Excavation of the new sump on the downstream side of SD3 down to the frozen till and loading of the excavated material from Sta. 20+600 to 20+640 m.



Photograph SD3-251: From Sta. 20+680/13 m looking NW. Excavation of the new sump on the downstream side of SD3 down to the frozen till and loading of the excavated material from Sta. 20+615 to 20+650 m (o.s. 50 to 60 m).



Photograph SD3-252: From Sta. 20+605/-34 m looking NE. Bedrock cleaning of the upstream toe liner tie-in from Sta. 20+570 to 20+590 m.



Photograph SD3-253: From Sta. 20+750/-25 m looking E. Placement of a first 0.5-m-thick lift of Compacted Sieved Till at El. 142 m over the LLDPE geomembrane from Sta. 20+640 to 20+740 m.



Photograph SD3-254: From Sta. 20+785/-25 m looking S. Cleaning of the upstream slope with a 420 excavator.



Photograph SD3-255: From Sta. 20+740/-8 m looking NE. Placement of a first 0.5-m-thick, 1.5-m-wide lift of second class till over the Compacted Sieved Till lift from Sta. 20+675 to 20+735 m.



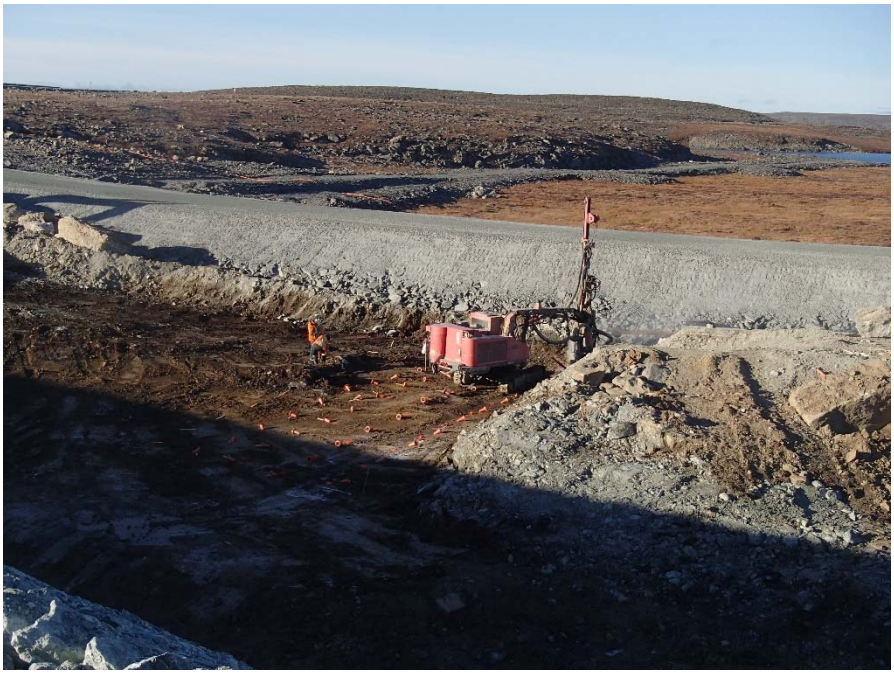
Photograph SD3-256: From Sta. 20+570/-37 m looking SW. Grouting of the fractured zones in the bedrock surface from Sta. 20+572 + 20+599 m (o.s. -46 to -36 m). Notice the excavator waiting to place the first till lift on the wet grout.



Photograph SD3-257: From Sta. 20+590/-43 m looking SW. Placement of the 0.5-m-thick lift of sieved till above the till covering the slush grout from Sta. 20+570 to 20+595 m (o.s. -46 to -36 m).



Photograph SD3-258: From Sta. 20+580/-24 m looking E. Compaction of the lift of sieved till above the till covering the slush grout from Sta. 20+570 to 20+595 m (o.s. -46 to -36 m).



Photograph SD3-259: From Sta. 20+820/-32 m looking NW. Drilling of the blast pattern for the sump preparation from Sta. 20+605 to 20+620 m (o.s. 30 to 57 m).



Photograph SD3-260: From Sta. 20+825/-38 m looking E. Grouting of the entire cleaned bedrock surface from Sta. 20+797 to 20+817 m (o.s. -36 to -20 m).



Photograph SD3-261: From Sta. 20+840/-39 m looking SW. Placement of a thin lift of till to fill the depressions and to allow a good contact before the grout dries.



Photograph SD3-262: From Sta. 20+785/-34 m looking SW. Compaction of the sieved till lift on the south extremity of SD3 with a 10-tonne smooth drum compactor after watering.



Photograph SD3-263: From Sta. 20+600/-37 m looking N. Compaction of the sieved till lift on the north extremity of SD3 with a 10-tonne smooth drum compactor after watering. Notice the texture of the humid till, sticking to the compactor drum.



Photograph CD-1783: From Sta. 0+90/-35 m looking SE. View of the slush grouted cleaned bedrock and the placement of the 0.5-m-thick lift of sieved till above the slush grout from Sta. 0+089 + 0+105 m.

SIGNATURES

GOLDER ASSOCIÉS LTÉE

Reviewed by:

ORIGINAL SIGNED

Marion Habersetzer, Jr. Eng.
QA Engineer

ORIGINAL SIGNED AND SEALED

Yves Boulianne, P.Eng (QC,NU)
Associate, Dike Designer

Attachments: Construction Progress Drawings from AEM as of September 10, 2017

MH/YB/jlm

c:\users\mhabersetzer\golder associates\1777687, aem south cell qa 2017 meadowbank - preparation of deliverables\as-built\rev 0\annexe e - qa reporting\e1 - weekly report\doc 1567 1777687 rev0 qa weekly report 2017-09-04 to 2017-09-10 - jlm.docx

TECHNICAL MEMORANDUM

DATE September 18, 2017 **REFERENCE No.** 1777687
Doc. 1567 Rev 0

TO Pierre McMullen, Julie Bélanger, Patrice Gagnon, Alexandre Lavallée
Agnico-Eagle Mines Limited Meadowbank Division

CC Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA WEEKLY REPORT FROM SEPTEMBER 11 TO 17, 2017 – TSF SOUTH CELL CONSTRUCTION MEADOWBANK (1777687)

This document summarizes QA activities performed by Golder from September 11 to 17, 2017, inclusively, related to the construction activities of Saddle Dams 3, 4 and 5 (SD) and Central Dike at the Meadowbank mine site.

Unless otherwise specified, the construction activities use the centreline of the structures for a dike crest elevation of 150 m for reference (refer to the Drawings). The description of activities refers to the stations and offsets from the centreline (e.g., Sta. 0+500/-50 m). The "+" and "-" symbols indicate the location of the work downstream and upstream of the centreline, respectively.

1.0 GOLDER PERSONNEL ON SITE

Golder personnel on site during this reporting period is summarized in Table 1.

Table 1: Golder Personnel on Site

Name	Comments
Marion Habersetzer	QA Engineer

2.0 HEALTH AND SAFETY

H&S meetings were held with AEM and FGL/SANA during the daily construction meetings. Minutes from these meetings are recorded and stored in Golder's on-site office. The key H&S elements for the reporting period were as follows:

- Dust is an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.
- JHA have been reviewed with new workers on the drill and blast operations.

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- Heavy equipment and light vehicles coactivity: was reiterated to make sure to be visible on the dikes and to park backwards.
- Strong winds and cold weather: make sure to dress appropriately.
- There is important heavy equipment coactivity on SD3: personnel on foot must make sure to be visible at all time.
- It was recommended to park construction equipment such as compactors on the dikes instead of in the pick-up parking lot near the construction trailer on SD3.
- The rain is an issue, the muddy and very slippery ground causes a high risk of slips and falls. Extra caution must be applied when walking or driving on wet surfaces.
- A safety meeting took place on September 16 with the operators.
- The JHA for liner installation has been reviewed during the daily meeting on September 17.

3.0 SUMMARY OF MAIN DISCUSSIONS IN CONSTRUCTION MEETINGS

Construction meetings were held daily during the reporting period and were attended by the QA manager. The following items were discussed:

General

- During sampling of the sieved till stockpile (0-50) at the SANA crusher site, the QC representative noticed some rock fragments too sharp for use against the liner. The sieving operations have been adapted to reduce crushing of large rocks, in order to limit the amount of sharp 0-50 particles in the till.
- The 0-300 till is now categorized under “low quality till”.
- A new foreman arrived on the dikes on September 13 (Carl Tremblay). He will be supported until Monday (September 18) by FGL’s engineer Jeannot Gagnon, and surveyor Francis Pépin.
- The QA Manager went to inspect the LLDPE membrane rolls at the north of Central Dike. The rolls are remaining material from last year and have been stored outside on trailers. About half of the rolls are damaged on the outside (wrinkles, tear and/or worn out spikes). The first few meters of these rolls will have to be discarded and only the good quality, undamaged part will be used for membrane installation.
- Alexandre Lavallée and Patrice Gagnon will exceptionally both be out of office from September 18 to 19. Rebecca Cousineau will provide support from AEM if needed and will be AEM’s representative for foundation approvals during this period.
- Due to logistic issues, the liner installers’ equipment can only be shipped in on September 20. As a result, the liner installers will be present on the site from September 21.
- Samples have been re-identified: CD-545 is now CD-546 and SD3-008 is now SD3-010.
- The LLDPE liner and geotextile rolls will be brought to the dikes soon in preparation for liner installation next week. The QA Manager reiterated that the LLDPE liner cannot be stored directly on the ground to avoid damage.

- It was reiterated that the excavator cannot circulate over the liner unless there is at least 2 m of material placed over the LLDPE.
- A new 345 excavator arrived on the dikes on September 17 to replace the broken one. It was reiterated that inspection of the heavy equipment will be essential every day during liner installation.

Saddle Dam 4

- The QA Manager went with Yves Boulianne and the QC representative to inspect the upstream slope of SD4 and SD5 in preparation of the liner installation. Some preparatory work is required before approval of the surface for liner installation and were discussed during the daily meeting on September 13:
    - Some bumps and depressions in the slope must be profiled with an excavator and compacted again with the bucket.
    - The existing LLDPE liner must be exposed over a length of at least 1 m. This required to remove some fine filter with a hand shovel. Care must be taken not to damage the membrane.
    - The toe of the slope must be cleared of loose till with a hand shovel along the entire length of the dike, to achieve flat surfaces.
    - The exposed membrane must be cleaned with brooms to remove all gravel, small rocks and dust over a length of at least 1 m, to allow for welding of the new liner.
    - The compacted sieved till used for the toe liner tie-in had a low humidity and cracked after compaction. In order to allow a good contact with the next compacted sieved till lifts, the surface outside the membrane footprint will be scarified with an excavator. A compactor will then re-compact the membrane footprint to remove the excavator's tracks and to ensure a flat and sealed surface for liner installation. This should be done one or two days before liner installation in order to reduce exposure time of the unsealed till.

Saddle Dam 3

- The PNG measurements taken by the QC on a section of low quality till placed and compacted on September 11 on SD3 indicate that the water content is too high and that compaction is ineffective. This section of the lift has been removed and replaced with another load of low quality till with a better water content to ensure sufficient compaction.
- After discussion with AEM's representative and Yves Boulianne, it has been decided that the low quality till protection layer for the liner on SD3 will be compacted with 4 passes of a 10 tonne smooth-drum compactor and that compaction will be only checked visually. 4 passes gave the best results based on the PNG measurements taken on the first lift. A memo will be issued on the use of low quality till as liner protection.
- After discussion with AEM's representative and Yves Boulianne, it has been accepted to place only a 1 m thick layer of fine UM rockfill over the low quality till for liner protection on SD3, provided that the UM rockfill contains enough fine particles to prevent erosion of the till layer by infiltration water.

- The new guidelines for placement and compaction of the low quality till and UM rockfill protection layers on SD3 have been presented to all during the daily meeting.
- Since the upstream side of SD3 will not be covered by tailings, the rockfill protection layer should be extended over the whole length of the dike to protect from erosion the low quality till installed last year.
- At the request of the QA Manager and the QC representative, placement of low quality till on SD3 was interrupted from around 14:30 on September 16 because of the rain. The material was becoming too wet. The stockpile at the SANA crusher site was sealed for protection from the rain.
- The QA Manager, the QC representative and AEM's representative went to inspect the liner on SD3 after the blast for possible damage caused by thrown rocks. No new damage was found.
- The QA Manager and the QC representative went to inspect the low quality till placed on SD3 on September 16. Due to the recent rain, water was ponding on compacted surfaces and one section of not yet compacted till was too wet to be compacted. It was decided to remove 200 mm of material over this section and to drain the water ponds before resuming placement of low quality till.
- On September 16, the compactor working on SD3 came too close from the upstream slope drove about 5 m on the LLDPE liner and damaged it. The liner was exposed with a hand shovel and cleaned, and the QA Manager inspected it. The damages (holes and tears) have been marked for repair by the liner installer next week.
- The UM rockfill removed from SD3 during profiling of the slopes will be used for the upstream rockfill protection layer on SD3. The material was inspected to ensure that it contained enough fine particles. The QA Manager pointed out that some oversize particles will have to be put aside during placement.

4.0 SUMMARY OF CONSTRUCTION ACTIVITIES AND TEST RESULTS

Periodic QA inspections to monitor the construction activities and progress were performed by the QA Engineer; these are summarized in the tables below.

Table 2: QA Observations for Saddle Dam 5

Activity or Area	Comments
	■

Table 3: QA Observations for Saddle Dam 4

Activity or Area	Comments
	■
Upstream	■ Placement of a 0.3 m thick lift of fine filter (0-3/4'') on the pig launcher pad on the upstream side of SD4 from Sta. 40+470 to 40+480 m (o.s. -26 to -17 m).

Activity or Area	Comments
	■ Excavation of the geosynthetics crest tie-in trench from Sta. 40+105 to 40+250 m.
Water management	■ Water is being pumped out of the temporary sump.

Table 4: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream toe liner tie-in	■ Testing of compaction with a PNG on the compacted sieved till lifts from Sta. 20+572 to 20+599 m and from Sta. 20+797 to 20+817 m. Results met Technical Specifications (see table 7).
Upstream	■ Removal of a section of the first lift of low quality till at El. 139.5 m that was too wet for compaction from Sta. 20+635 to 20+640 m (o.s. -59 to -44 m) and replacement with drier material. The lift was compacted with a 10 tonne smooth drum compactor (4 passes). ■ Placement of a second 0.5 m high, 1.5 m thick lift of low quality till at El. 140 m over the compacted sieved till lift from Sta. 20+635 to 20+745 m (o.s. -59 to -42 m). The lift was compacted with a 10 tonne smooth drum compactor (4 passes). ■ Placement of a third 0.5 m high, 1.5 m thick lift of low quality till at El. 140.5 m over the compacted sieved till lift from Sta. 20+620 to 20+745 m (o.s. -63 to -36 m). The lift was compacted with a 10 tonne smooth drum compactor (4 passes). ■ Placement of a fourth 0.5 m high, 1.5 m thick lift of low quality till at El. 141 m over the compacted sieved till lift from Sta. 20+630 to 20+735 m (o.s. -62 to -34 m). The lift was compacted with a 10 tonne smooth-drum compactor (4 passes). ■ Placement of a fifth 0.5 m high, 1.5 m thick lift of low quality till at El. 141.5 m over the compacted sieved till lift from Sta. 20+620 to 20+735 m (o.s. -63 to -30 m). The lift was compacted with a 10 tonne smooth-drum compactor (4 passes). ■ Scraping of approx. 200 mm of the low quality till lift at El. 141.5 m from Sta. 20+650 to 20+690 m to remove the wet surface before placing additional material. Small trenches were dug with the excavator to drain the water ponding on the compacted surfaces. ■ Placement of a sixth 0.5 m high, 1.5 m thick lift of low quality till at El. 142 m over the compacted sieved till lift from Sta. 20+630 to 20+720 m (o.s. -41 to -

Activity or Area	Comments
	35 m). The lift was compacted with a 10 tonne smooth-drum compactor (4 passes). ■ Completion of the 0.5 m thick lift of compacted sieved till against the liner up to El. 142 m from Sta. 20+620 to 20+750 m. The lift was compacted with the bucket of the excavator. ■ Placement of a first 1.5 m high, 1 m thick lift of fine UM rockfill at El. 140.5 m over the compacted low quality till lift from Sta. 20+635 to 20+750 m (o.s. -61 to -40 m). The lift was compacted with a 10 tonne smooth drum compactor (8 passes). ■ Placement of a second 1.5 m high, 1 m thick lift of fine UM rockfill at El. 142 m over the low quality till lift from Sta. 20+650 to 20+735 m (o.s. -45 to -41 m). ■ Removal of the compacted sieved till layer and cleanup of the LLDPE liner from Sta. 20+620 m (o.s. -51 to -41 m), to inspect the liner. Holes and tears have been marked for repairs.
Downstream	■ Drilling of the blast pattern for the sump preparation from Sta. 20+605 to 20+620 m (o.s. 30 to 57 m). ■ Blasting of the footprint of the new sump from Sta. 20+605 to 20+620 m (o.s. 30 to 57 m). ■ Removal of blast mats and excavation of the blasted material to prepare the next blast pattern from Sta. 20+620 to 20+635 m (o.s. 30 to 57 m). ■ Drilling of the blast pattern for the sump preparation from Sta. 20+620 to 20+635 m (o.s. 30 to 57 m).
Water management	■ Water is being pumped out of the old sump.

Table 5: QA Observations for Central Dike

Activity or Area	Comments
	■

5.0 FOUNDATION APPROVALS

The following foundation approvals were carried out during the reporting period.

Table 6: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 7 and 8 present the samples collected or tested by the QA and QC as well as PNG field results.

The gradation tests performed by the QC on samples 436, 438 and 439 (sieved till) were lacking a little fine particles, but were accepted as the till is well graded and it was judged that it would still perform well as a toe liner tie-in.

Samples CD-544 and SD3-008 (sieved till) taken by the QA have not been tested yet.

Table 7: Samples Taken by QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
436	2017-09-08	2017-09-13	Sieved till	SD5 (in place) 20+651/-38.3 m EL. 141.2 m	Gradation	Lacking a little fine, but accepted
					Water content	6.5%
438	2017-09-09	2017-09-14	Sieved till	SANA crusher stockpile	Gradation	Lacking a little fine, but accepted
					Water content	8.5%
439	2017-09-09	2017-09-13	Sieved till	SANA crusher stockpile	Gradation	Lacking a little fine, but accepted
					Water content	8.6%
#22 (PNG)	2017-09-11	2017-09-11	Compacted Sieved till	SD3 (in place) 20+821.0/-26.9 m EL. 145.0 m	Dry density	2203
					Water content (PNG)	6.4%
#23 (PNG)	2017-09-11	2017-09-11	Compacted Sieved till	SD3 (in place) 20+814.7/-28.6 m EL. 144.8 m	Dry density	2191
					Water content (PNG)	7.4%
#24 (PNG)	2017-09-11	2017-09-11	Compacted Sieved till	SD3 (in place) 20+806.7/-29.1 m EL. 144.7 m	Dry density	2204
					Water content (PNG)	6.9%
#25 (PNG)	2017-09-11	2017-09-11	Compacted Sieved till	SD3 (in place)	Dry density	2187

				20+800.9/-31.2 m EL. 144.7 m	Water content (PNG)	7.8%
#26 (PNG)	2017-09-11	2017-09-11	Compacted Sieved till	SD3 (in place) 20+592.7/-35.7 m EL. 145.0 m	Dry density	2186
					Water content (PNG)	8.6%
#27 (PNG)	2017-09-11	2017-09-11	Compacted Sieved till	SD3 (in place) 20+590.2/-35.5 m EL. 145.0 m	Dry density	2215
					Water content (PNG)	7.5%
#28 (PNG)	2017-09-11	2017-09-11	Compacted Sieved till	SD3 (in place) 20+589.2/-31.6 m EL. 145.0 m	Dry density	2206
					Water content (PNG)	7.5%
#29 (PNG)	2017-09-11	2017-09-11	Compacted Sieved till	SD3 (in place) 20+582.9/-30.1 m EL. 145.1 m	Dry density	2237
					Water content (PNG)	6.7%
#30 (PNG)	2017-09-11	2017-09-11	Compacted Sieved till	SD3 (in place) 20+573.8/-30.7 m EL. 144.7 m	Dry density	2222
					Water content (PNG)	5.6%

Table 8: Samples Taken by QA

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPHS



Photograph SD4-176: From 40+250/-24 looking N. Excavation of the geosynthetics crest tie-in trench from Sta. 40+105 to 40+250 m.



Photograph SD3-264: From 20+700/-60 looking W. Placement of a second 0.5 m thick, 1.5 m wide lift of low quality till at El. 140 m over the compacted sieved till lift from Sta. 20+640 to 20+745 m (o.s. -59 to -44 m).



Photograph SD3-265: From 20+740/-52 looking NE. Removal of a section of the first lift of low quality till at El. 139.5 m that was too wet for compaction from Sta. 20+635 to 20+640 m (o.s. -59 to -44 m) and replacement with drier material.



Photograph SD3-266: From 20+670/-40 looking S. Placement of a third 0.5 m thick, 1.5 m wide lift of low quality till at El. 140.5 m over the compacted sieved till lift from Sta. 20+620 to 20+745 m (o.s. -63 to -36 m).



Photograph SD3-267: From 20+690/-84 looking N. Placement of a first 1.5 m thick, 1 m wide lift of fine UM rockfill at El. 140.5 m over the compacted low quality till lift from Sta. 20+635 to 20+750 m (o.s. -61 to -40 m).



Photograph SD3-268: From 20+600/-205 looking W. Completion of the 0.5 m thick lift of compacted sieved till up to El. 142 m from Sta. 20+680 to 20+750 m. Notice the metal box used to prevent contamination of the till from the rockfill.



Photograph SD3-269: From 20+630/-25 looking S. Placement of a first 0.5 m high, 1.5 m thick lift of low quality till at El. 141 m over the compacted sieved till lift from Sta. 20+670 to 20+735 m (o.s. -39 to -34 m).



Photograph SD3-270: From 20+840/-52 looking N. Placement of a fourth 0.5 m high, 1.5 m thick lift of low quality till at El. 141 m over the compacted sieved till lift from Sta. 20+630 to 20+680 m (o.s. -62 to -34 m).



Photograph SD3-271: From 20+655/14 looking NW. Removal of blast mats and excavation of the blasted material to prepare the next blast pattern from Sta. 20+620 to 20+635 m (o.s. 30 to 57 m).



Photograph SD3-272: From 20+720/-35 looking NE. Digging of small trenches with the excavator to drain the water ponding on the compacted surfaces.



Photograph SD3-273: From 20+645/-69 looking W. Placement of a fifth 0.5 m high, 1.5 m thick lift of low quality till at El. 141.5 m over the compacted sieved till lift from Sta. 20+620 to 20+650 m (o.s. -63 to -30 m).



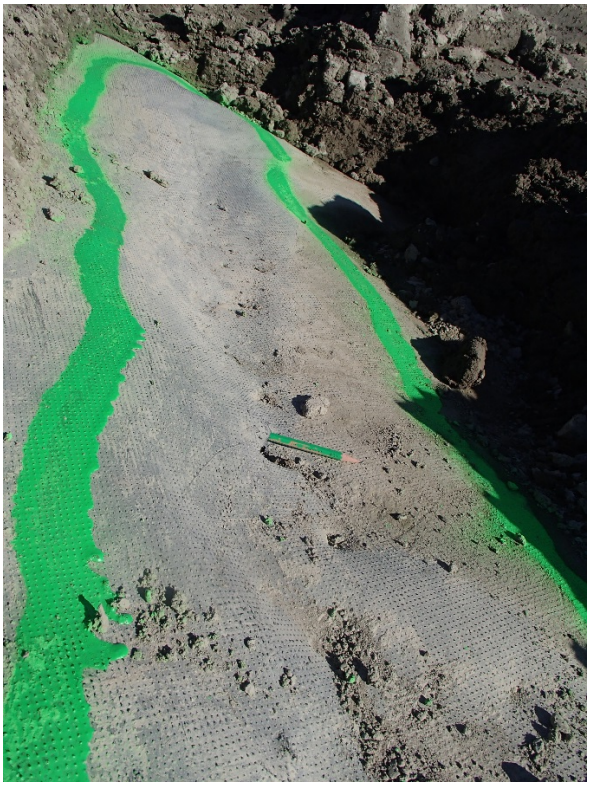
Photograph SD3-274: From 20+640/16 looking NW. Drilling of the blast pattern for the sump preparation from Sta. 20+620 to 20+635 m (o.s. 30 to 57 m).



Photograph SD3-275: From 20+720/-33 looking E. Placement of a sixth 0.5 m high, 1.5 m thick lift of low quality till at El. 142 m over the compacted sieved till lift from Sta. 20+630 to 20+720 m (o.s. -41 to -35 m).



Photograph SD3-276: From 20+715/-28 looking S. Placement of a second 1.5 m high, 1 m thick lift of fine UM rockfill at El. 142 m over the low quality till lift from Sta. 20+650 to 20+735 m (o.s. -45 to -41 m).



Photograph SD3-277: From 20+620/-49 looking N. Damaged LLDPE liner.



Photograph LLDPE-04: At the north Central Dike LLDPE storage site. Tear in the outside of a LLDPE roll. Notice that the rolls are stored outside.

SIGNATURES

GOLDER ASSOCIÉS LTÉE

Reviewed by:

ORIGINAL SIGNED

Marion Habersetzer, Jr. Eng.
QA Engineer

ORIGINAL SIGNED AND SEALED

Yves Boulianne, P.Eng (QC,NU)
Associate, Dike Designer

Attachments: Construction Progress Drawings from AEM as of September 17, 2017

MH/YB/jlm

https://golderassociates-my.sharepoint.com/personal/jlacostemccormick_golder_com/documents/_à faire/en cours/doc 1567 1777687 rev0 qa weekly report 2017-09-11 to 2017-09-17.docx

TECHNICAL MEMORANDUM

DATE September 25, 2017 **REFERENCE No.** 1777687
Doc. 1567 Rev 0

TO Pierre McMullen, Julie Bélanger, Patrice Gagnon, Alexandre Lavallée
Agnico-Eagle Mines Limited Meadowbank Division

CC Yves Boulianne

FROM Marion Habersetzer and Michael Nadon **EMAIL** mhabersetzer@golder.com

QA WEEKLY REPORT FROM SEPTEMBER 18 TO 24, 2017 – TSF SOUTH CELL CONSTRUCTION MEADOWBANK (1777687)

This document summarizes QA activities performed by Golder from September 18 to 24, 2017, inclusively, related to the construction activities of Saddle Dams 3, 4 and 5 (SD) and Central Dike at the Meadowbank mine site.

Unless otherwise specified, the construction activities use the centreline of the structures for a dike crest elevation of 150 m for reference (refer to the Drawings). The description of activities refers to the stations and offsets from the centreline (e.g., Sta. 0+500/-50 m). The "+" and "-" symbols indicate the location of the work downstream and upstream of the centreline, respectively.

1.0 GOLDER PERSONNEL ON SITE

Golder personnel on site during this reporting period is summarized in Table 1.

Table 1: Golder Personnel on Site

Name	Comments
Marion Habersetzer	QA Engineer
Michael Nadon	QA Engineer

2.0 HEALTH AND SAFETY

H&S meetings were held with AEM and FGL/SANA during the daily construction meetings. Minutes from these meetings are recorded and stored in Golder's on-site office. The key H&S elements for the reporting period were as follows:

- There is important heavy equipment coactivity on SD3 and SD4: personnel on foot must make sure to be visible at all time.

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- The rain is an issue, the muddy and very slippery ground causes a high risk of slips and falls. Extra caution must be applied when walking or driving on wet surfaces.
- The bright sunlight causes reflections in windows and mirrors especially in the morning. Be sure to clean the mirrors and glass.
- Dust is an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.
- Liner installation equipment has been inspected on the 19th of September.
- The QA Manager asked for fixing the stop sign on the corner of Saddle road and the West road. The stop sign was upside-down.
- It was reminded that wearing a face shield is mandatory while blowing with pressurized air stream.
- The JHA concerning the LLDPE geomembrane placement will be explained and signed by ZTG and SANA before any material placement.
- The cold temperature turned the LLDPE geomembrane surface into a very slippery surface (covered in frost) that causes a high risk of slips and falls. Extra caution must be applied when walking on the LLDPE geomembrane.

3.0 SUMMARY OF MAIN DISCUSSIONS IN CONSTRUCTION MEETINGS

Construction meetings were held daily during the reporting period and were attended by the QA manager. The following items were discussed:

General

- Due to a crew change and works to do on Amaruq Road, no worker from SANA was present on the dikes on September 18. Only 2 day workers and the drill and blast personnel were present.
- It had no AEM supervisor from September 19 to 21.
- Safe storage of the LLDPE rolls on the dikes during installation will require the placement of a few layers of geotextile on the rockfill surface to protect the liner.
- The heavy fabric used to protect the extremities of the existing liner needs to be removed to finalize preparation works before liner installation.
- The QA Manager and the SANA's representative went for a walk on September 21st to inspect the upstream surface of the dikes before the LLDPE geomembrane placement. More work has to be done (slope corrections and clean-up of the geomembrane) on SD4, SD5 and CD. The QA Manager had a talk with the foreman and the work was planned to be done by the end of the day.
- The QA Manager reminded that more sand bags will be needed for the LLDPE geomembrane installation. According to SANA, one of the sea can on CD has many sand bags of the previous year.
- In order to approve the upstream surface of the dikes, it was discussed that Stéphane Côté (LLDPE geomembrane installer foreman) will walk over the dikes with the QA Manager and the Owner representative before the placement of the LLDPE geomembrane.

- The Owner's Representatives might want to do horizontal seams on the LLDPE geomembrane for the purpose of saving LLDPE. The QA Engineer recalled that no horizontal seams should be carried out on the LLDPE on the upstream slope as per Technical Specifications. Following a discussion with the Dikes' designer, Golder still believed that horizontal seams shall not be conducted on the LLDPE geomembrane as per Technical Specifications. It should be noted that the International Association of Geosynthetics (IAGI) stated that it does not meet the state of practice. It is believed that this kind of seams weaken the LLDPE behavior in tension on the upstream slope of the structures and that it may contribute to damage the LLDPE once the tailings will weigh downward on it.
- ZTG has not been able to provide an official on-site QC for testing the geosynthetics. Thus, the ZTG's foreman, with more than 25 years experiences, will be assigned as the QC for all the liner installation period. The QA Manager mentioned that Golder is comfortable with it as long as the QC follow the frequency of the tests that have to be performed on geosynthetics and tools used to seam (calibration) as mentioned in the Specifications.
- The QA Manager mentioned that his presence is required for all the "air channel" tests. If, inadvertently, he is not present on site at that moment, the foreman should not hesitate to call him.
- It was mentioned that when the operator of the excavator is rolling the upstream slope, in view of the LLDPE geomembrane installation, he has to pay attention to do not roll below the fine filter in order to do not damage the existing LLDPE geomembrane.
- It was discussed that probably because of an electrical issue, the "vacuum box" and an extruder used for the geosynthetics installation broke yesterday. A new "vacuum box" has been ordered. An extruder will also be ordered if it is not possible to fix it on site. More news to come in the next few days.
- Because of the bad weather in the morning of the September 23rd (snow), the geotextile/LLDPE geomembrane installation was delayed until the afternoon.

Saddle Dam 5

- During clean-up of the existing liner, too much fine filter was removed on SD5 above El. 143 m. The depression will be filled with fine filter at the same time as the toe of the covered bedrock outcrop is backfilled with fine filter.

Saddle Dam 4

- The QA Manager noticed and marked 3 holes in the LLDPE liner on SD4 at approx. Sta. 40+170 m. The damage was probably caused by fine filter particles pushed into the liner by the roller attachment used during the profiling of the upstream slope.
- During compaction of the till plug on SD4 to remove the tracks of the excavator, the compactor drove on the free extremity of the LLDPE liner on the ground and damaged it (Sta. 40+100 m). Holes and folds are visible on the liner over a width of about 0.5 m and were marked by the QA Manager. The liner will be cleaned to allow welding of the next panel on the intact section of the liner in place.
- It was discussed that the west pipe of the pig launcher, on the crest of SD4, might be in the way of the excavator and the 35 tonne when it will be the time to place the rest of the till plug on the east part of SD4. Care must be taken when work will be performed around this section of SD4.

Saddle Dam 3

- It was discussed with AEM's representative that the thermistor upstream of SD3 will need to be moved for placement of the rockfill protection layer on the north part of SD3.
- The alignment of the rockfill protection layer on the north side of SD3 has been adjusted by the surveyor. Patrice Gagnon indicated that the rockfill protection must also be extended to the south extremity of SD3.

Central dike

- It was discussed that the work regarding the preparation of the foundation under geosynthetics in view of their installation on CD was planned to be completed by September 23rd. The QA Manager mentioned the last corrections that have to be done.

4.0 SUMMARY OF CONSTRUCTION ACTIVITIES AND TEST RESULTS

Periodic QA inspections to monitor the construction activities and progress were performed by the QA Engineer; these are summarized in the tables below.

Table 2: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream toe liner tie-in	■ Scarification of the till plug outside the liner footprint with an excavator to allow good contact with the second lift of sieved till from Sta. 40+550 to 40+620 m (o.s. -20 to -46 m). ■ Approbation of the foundation under geosynthetics in view of their installation from Sta. 40+564 to 40+712 (o.s. -23 to -31 m). The entire upstream fine filter slope and the Compacted Sieved Till surface under the LLDPE within the Upstream Toe Liner Tie-In were approved (FND-SD5-17).
Upstream	■ Clean-up of the existing LLDPE and removal of the fine filter stuck between the existing geomembrane and geotextile with shovels and pressurized air stream in preparation for liner installation. ■ Excavation of the geosynthetics crest tie-in trench from Sta. 40+565 to 40+710 m. ■ Placement of fine filter at approx. Sta. 40+420 and 40+650 m to correct the upstream slope in preparation for liner installation. The material was placed with an excavator and compacted with the bucket. ■ Final rolling of the upstream slope in view of the LLDPE geomembrane installation. ■ Removal of the heavy fabric used to protect the extremities of the existing liner.

Table 3: QA Observations for Saddle Dam 4

Activity or Area	Comments
Geotextile and LLDPE installation	■ Approbation of the foundation under geosynthetics in view of their installation from Sta. 40+105 to 40+449 m (o.s. -23 to -33 m). The entire upstream fine filter slope and the Compacted Sieved Till surface under the LLDPE within the Upstream Toe Liner Tie-In were approved (FND-SD4-34). ■ Installation of the geotextile on the upstream slope 3H:1V between El. 143 m and 145 m from Sta. 40+100 to 40+315 m. The geotextile surface was inspected before being covered with the LLDPE geomembrane. ■ Installation of the LLDPE on the upstream slope 3H:1V between El. 143 m and 145 m from sta. 40+100 to 40+315 m. The LLDPE was free of fold and hole. Seam tests were carried out under the supervision of the QA Engineer and results met Technical Specifications. ■ Vacuum box tests were performed from Sta. 40+100 à 40+315 m. No leak has been identified. ■ One horizontal seam was made on the LLDPE installed on the upstream 3H:1V slope at SD4. The seam was located on the crest of the dike at Sta. 40+170 m. ■ AM and PM calibration results met Technical Specifications. Loads at failure in peel and shear were greater than minimum values presented in Table 6-2 from Technical Specifications. ■ Destructive test was carried out on sample collected on the LLDPE geomembrane at Sta. 40+210 m. Loads at failure in peel and shear were greater than minimum values presented in Table 6-2 from Technical Specifications. Sample was kept for the Owner's Representative. ■ Backfilling of the geosynthetics tie-in from Sta. 40+170 to 40+305 m. The material was compacted with a 10 tonne smooth drum compactor (4 passes).
Upstream toe liner tie-in	■ Scarification of the till plug outside the liner footprint with an excavator to allow good contact with the second lift of sieved till from Sta. 40+100 to 40+110 m (o.s. -37 to -28 m) and from Sta. 40+415 to 40+455 m (o.s. -25 to -37 m).
Upstream	■ Clean-up of the existing LLDPE and removal of the fine filter stuck between the existing geomembrane and geotextile with shovels and pressurized air stream in preparation for liner installation. ■ Excavation of the geosynthetics crest tie-in trench from Sta. 40+100 to 40+450 m. ■ Removal of the compacted sieved till layer and clean-up of the LLDPE geomembrane on the western part of SD4, where the liner was damaged by the compactor few days ago, in order to repair it.

Activity or Area	Comments
Water management	■ Water is being pumped out of the temporary sump.

Table 4: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream	■ Placement of a second 1.5 m high, 1 m thick lift of fine UM rockfill at El. 142 m over the low quality till lift from Sta. 20+625 to 20+670 m (o.s. -49 to -41 m). The lift was compacted with a 10 tonne smooth-drum compactor (6 passes). ■ Placement of a 2.0 m thick lift of fine UM rockfill up to El. 140 m over the low quality till of the hump on the south extremity of SD3 from Sta. 20+620 to 20+660 m (o.s. -37 to -78 m). ■ Profiling of the upstream slope of the rockfill protection layer up to El. 142 m from Sta. 20+625 to 20+735 m. ■ Removal of oversize boulders left on the crest of SD3. ■ Removal of the compacted sieved till layer and clean-up of the LLDPE geomembrane from 20+610 to 20+620 m (o.s. -43 to -49 m), where the liner was damaged by the compactor few days ago. A patch of LLDPE geomembrane was seamed following the Specifications.
Downstream	■ Drilling and blasting of the sump from Sta. 20+620 to 20+635 m (o.s. 30 to 57 m). ■ Excavation of the blasted material of the sump.
Water management	■ Water is being pumped out of the old sump.

Table 5: QA Observations for Central Dike

Activity or Area	Comments
Geotextile and LLDPE installation	■ Approbation of the foundation under geosynthetics in view of their installation from Sta. 0+093 to 0+161 (o.s. -23 to -27 m). The entire upstream fine filter slope and the Compacted Sieved Till surface under the LLDPE within the Upstream Toe Liner Tie-In were approved (FND-CD-138).
Upstream toe liner tie-in	■ Scarification of the till plug outside the liner footprint with an excavator to allow good contact with the second lift of sieved till from Sta. 0+090 to 0+135 m (o.s. -40 to -28 m).
Upstream	■ Clean-up of the existing LLDPE and removal of the fine filter stuck between the existing geomembrane and geotextile with shovels and pressurized air stream in preparation for liner installation.

Activity or Area	Comments
	■ Excavation of the geosynthetics crest tie-in trench from Sta. 0+095 to 0+160 m. ■ Removal of the heavy fabric used to protect the extremities of the existing liner.

5.0 FOUNDATION APPROVALS

The following foundation approvals were carried out during the reporting period.

Table 6: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
FND-SD4-31	SD4	Sta. 40+096 to 40+110 m/o.s. -28 to -37 m	20-09-2017	Compliant
FND-SD4-32	SD4	Sta. 40+414 to 40+463 m/o.s. -26 to -38 m	20-09-2017	Compliant
FND-SD4-33	SD4	Sta. 40+549 to 40+600 m/o.s. -24 to -40 m	20-09-2017	Compliant
FND-SD4-34	SD4	Sta. 40+105 to 40+449/o.s. -23 to -33 m.	22-09-2017	Foundation approval in view of the geosynthetics installation.
FND-SD5-16	SD5	Sta. 40+600 to 40+620 m/o.s. -32 to -39 m	20-09-2017	Compliant
FND-SD5-17	SD5	Sta. 40+564 to 40+712 m/o.s. -23 to -31 m.	24-09-2017	Foundation approval in view of the geosynthetics installation.
FND-CD-137	CD	Sta. 0+088 to 0+117 m/o.s. -23 to -36 m	20-09-2017	Compliant
FND-CD-138	CD	Sta. 0+093 to 0+161 m/o.s. -23 to -27 m.	23-09-2017	Foundation approval in view of the geosynthetics installation.

6.0 SAMPLING, LABORATORY AND FIELD TESTING

No sample was taken or tested by the QA Manager or the QC during the reporting period.

Table 7: Samples Taken by QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

Table 8: Samples Taken by QA

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPHS



Photograph SD5-075: From 40+670/-24 looking W. Clean-up of the existing LLDPE liner with shovels and pressurized air stream from Sta. 40+635 to 40+720 m in preparation for liner installation. Notice the depression caused by too much fine filter being removed.



Photograph SD5-076: From 40+420/-37 looking SE. Placement of fine filter at approx. Sta. 40+420 and 40+650 m to correct the upstream slope in preparation for liner installation



Photograph SD5-077: From 40+580/-13 looking E. Excavation of the geosynthetics crest tie-in trench from Sta. 40+665 to 40+710 m.



Photograph SD5-078: From 40+580/-13 looking E. Scarification of the till plug outside the liner footprint with an excavator to allow good contact with the second lift of sieved till from Sta. 40+550 to 40+620 m (o.s. -46 to -20 m).



Photograph SD4-177: From 40+170/-30 looking E. Damaged existing LLDPE geomembrane on SD4.



Photograph SD4-178: From 40+440/-25 looking W. Excavation of the geosynthetics crest tie-in trench from Sta. 40+250 to 40+440 m.



Photograph SD4-179: From 40+110/-24 looking S. Scarification of the till plug outside the liner footprint with an excavator to allow good contact with the second lift of sieved till from Sta. 40+100 to 40+110 m (o.s. -37 to -28 m).



Photograph SD4-180: From 40+100/-32 looking W. LLDPE geomembrane damaged by the compactor on the western part of SD4. Notice the holes and folds.



Photograph SD4-181: From 40+380/-20 looking E. Clean-up of the LLDPE geomembrane and removal of the fine filter stuck between the existing geomembrane and geotextile with pressurized air stream.



Photograph SD4-182: From 40+190/-23 looking W. View of the geotextile placed over the upstream fine filter slope on the west part of SD4 from Sta. 40+100 to 40+190 m.



Photograph SD4-183: From 40+100/-26 looking E. View of the LLDPE geomembrane placed over the geotextile on the west part of SD4 from Sta. 40+100 to 40+190 m.



Photograph SD4-184: From 40+190/-23 looking W. View of the bad weather (snow) on the September 23rd that explained the geosynthetics installation delay.



Photograph SD4-185: From 40+225/-23 looking W. View of the LLDPE geomembrane placed over the geotextile on the west part of SD4 from Sta. 40+190 to 40+220 m during the afternoon.



Photograph SD4-186: From 40+320/-22 looking W. View of the placement of the LLDPE geomembrane on SD4 from Sta. 40+220 to 40+315 m.



Photograph SD3-278: From 20+650/-61 looking W. Placement of a second 1.5 m high, 1 m thick lift of fine UM rockfill at El. 142 m over the low quality till lift from Sta. 20+625 to 20+670 m (o.s. -49 to -41 m).



Photograph SD3-279: From 20+650/-16 looking NW. View of the blast of the sump of SD3 that was executed on the September 20th. The excavator started to clean the blasted zone.



Photograph SD3-280: From 20+660/-42 looking E. Placement of a 2.0 m thick lift of fine UM rockfill up to El. 140 m over the low quality till on the south extremity of SD3 from Sta. 20+620 to 20+660 m (o.s. -37 to -78 m).



Photograph SD3-281: From 20+620/-40 looking NE. Further removal of the compacted sieved till layer underneath the LLDPE geomembrane from 20+610 to 20+620 m (o.s. -43 to -49 m)(north of SD3), where the liner was damaged by the compactor few days ago, in order to ensure the liner was not damaged further around the compactor incident.



Photograph SD3-282: From 20+620/-40 looking NE. View of the reparation of the liner that was damaged by the compactor on the north part of SD3 (from Sta. 20+610 to 20+620 m/o.s. -43 to -49 m).



Photograph SD3-283: From 40+380/-20 looking E. Excavation of the blasted material of the SD3's sump (from Sta. 20+620 to 20+635 m/o.s. 30 to 57 m) with an excavator.



Photograph SD3-284: From 20+655/-14 looking NW. Excavation of the blasted material of the SD3's sump (from Sta. 20+620 to 20+635 m/o.s. 30 to 57 m).



Photograph SD3-285: From 20+655/-14 looking NW. Excavation of the blasted material of the SD3's sump (from Sta. 20+620 to 20+635 m/o.s. 30 to 57 m). Notice the excavator is done with the till-like material and has reached the blasted rock.

SIGNATURES

GOLDER ASSOCIÉS LTÉE

Reviewed by:

ORIGINAL SIGNED

Marion Habersetzer, Jr. Eng.
QA Engineer

ORIGINAL SIGNED AND SEALED

Yves Boulianne, P.Eng (QC,NU)
Associate, Dike Designer

Attachments: Construction Progress Drawings from AEM as of September 24, 2017

MH/MN/YB/jlm

https://golderassociates-my.sharepoint.com/personal/jlacostemccormick_golder_com/documents/_à faire/en cours/doc 1567 1777687 rev0 qa weekly report 2017-09-18 to 2017-09-24.docx

TECHNICAL MEMORANDUM

DATE October 02, 2017 **REFERENCE No.** 1777687
Doc. 1567 Rev 0

TO Pierre McMullen, Patrice Gagnon, Alexandre Lavallée
Agnico-Eagle Mines Limited Meadowbank Division

CC Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA WEEKLY REPORT FROM SEPTEMBER 25 TO OCTOBER 01, 2017 – TSF SOUTH CELL CONSTRUCTION
MEADOWBANK (1777687)

This document summarizes QA activities performed by Golder from September 25 to October 01, 2017, inclusively, related to the construction activities of Saddle Dams 3, 4 and 5 (SD) and Central Dike (CD) at the Meadowbank mine site.

Unless otherwise specified, the construction activities use the centreline of the structures for a dike crest elevation of 150 m for reference (refer to the Drawings). The description of activities refers to the stations and offsets from the centreline (e.g., Sta. 0+500/-50 m). The "+" and "-" symbols indicate the location of the work downstream and upstream of the centreline, respectively.

1.0 GOLDER PERSONNEL ON SITE

Golder personnel on site during this reporting period is summarized in Table 1.

Table 1: Golder Personnel on Site

Name	Comments
Michael Nadon	QA Engineer

2.0 HEALTH AND SAFETY

H&S meetings were held with AEM and FGL/SANA during the daily construction meetings. Minutes from these meetings are recorded and stored in Golder's on-site office. The key H&S elements for the reporting period were as follows:

- There is important heavy equipment coactivity on SD4-SD5: personnel on foot must make sure to be visible at all time.

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- Because of the presence of a thick fog, it was reminded to turn on the lights of vehicles, always signal yourself and stay visible.
- It was discussed that English is mandatory when talking on every radio frequency.
- An hydraulic oil spill occurred on a 35 tonne truck on the September 27th. The spill has been cleaned and an environmental report sent to all concerns.
- A safety tool box meeting took place on the morning of the September 27th with SANA's crew.
- It was reminded that the LLDPE geomembrane surface is very slippery, especially when it rains. Care must be taken when walking on it.
- Winter is coming; it was reminded to wear the proper clothes and take time to warm yourself up when needed.
- It was mentioned that the gap between the Baker road and the SD3's sump is important (few meters) and could be a safety issue. It was then agreed that the information have to be transmitted to those responsible of the road security (Site services).
- A fuel spill occurred on the September 29th when a haul truck slowly collide with a loader while charging. No injurie or major damage occurred. The spill contained less than 10 liters of fuel. It has been cleaned and a report sent to all concerns.
- An hydraulic spill occurred on the September 30th (around 50 L) with a haul truck (a hose broke). The spill got cleaned and report sent to all concerns.

3.0 SUMMARY OF MAIN DISCUSSIONS IN CONSTRUCTION MEETINGS

Construction meetings were held daily during the reporting period and were attended by the QA manager. The following items were discussed:

General

- The QA Manager reminded to compact (4 passes of a 10 tonne smooth drum compactor) the LLDPE geomembrane anchor on the crest of the dikes when the installation is completed.
- The fog on the morning of the September 25th lead to a delay regarding the geosynthetics installation. Extrusion seam was impossible with the fog, because droplets were forming at the surface of the LLDPE geomembrane and affected the quality of the seam.
- Because of the rain of the September 27th and the snow/rain of the September 29th no fusion and extrusion seaming was possible for the day.
- ZTG did not completed their work on SD5 and CD before Thursday the September 28th. Thus, it is planned that they will take the flight of Monday, if they have completed the entire geosynthetics installation.
- The QA Manager reminded the procedure regarding the placement of the compacted sieved till, given that the material is judged too dry.

    1. Placement of a first 250 mm thick lift of sieved till with an excavator, then wet the surface.
    2. Placement of the second 250 mm thick lift of sieved till with an excavator, then wet the surface.

3. Compaction of the 500 mm thick lift of wetted sieved till with a 10 tonne smooth drum compactor under the supervision of the QC, who will performed nucleodensimeter testing.

- The QA Manager reminded that a foundation approval is required for the section of the bedrock where will lay the compacted till (0-150 mm) and the granular protection (fine/coarse filters and fine rockfill). These foundation approvals concern SD4 and SD5. Regarding CD, the compacted till (0-150 mm) and the granular protection will end on the natural ground.

- Stéphane Côté (ZTG's foreman) suggested an idea that could allow AEM to save time and money about the geosynthetics installation for the next year.

  When it will be time to lift up the filters over the existing LLDPE geomembrane on the upstream slope of CD, place a layer of geotextile over the LLDPE geomembrane and make sure to extend it at least 1.0 m down the slope, then place the fine filter over as usual. When it will be time to install the geosynthetics, the extended portion of geotextile will be flipped over and seamed to the usual geotextile that it is installed over the fine filter surface, just before the LLDPE geomembrane (see the sketch attached).

  According to Stéphane Côté, this modification would help to limit the spread of fine filter on the existing LLDPE geomembrane (less clean-up while installing) and would give better results as the extrusion seam would be straighter.

- According to the fluctuating weather and the winter that is coming, it was discussed that the till placement is now the number 1 priority on the construction field. Given that the till has a water content between 6 and 10 %, the QA Manager reminded that the till placement has to be done as much as possible when the temperature is above 0 degrees to ensure the quality of the placement and especially, the compaction.

- In order to move along more quickly with the till placement, the two excavators available on the construction field will be assigned to the task.

- It was mentioned that before any placement of till, the surface where it will be placed needs to be scarify in order to break the thin frozen layer and ensure a good contact between the different lift of till.

- The QA Manager asked SANA for the daily quantities of the placed material. It has been 3 days since the last update. The QA Manager mentioned that this information is really important for the sampling frequency of the material, and if the information does not come soon, the placement of the 0-150 mm till will have to wait.

- The QC mentioned that 6 passes of the 10 tonne smooth drum compactor is needed to reach the desired level of compaction with the sieved till (0-50 mm).

- The geosynthetics installation for the 2017 construction season is officially completed. All of the geosynthetics have been tested and approved by the ZTG's QC, QA Manager and Owner's representative.

Saddle Dam 5

- Regarding the LLDPE geomembrane installation on SD5, two panels are missing to complete the SD5's surface. It has been agreed with the Owner representative that it will stay like that for this year because of the lack of LLDPE geomembrane. The LLDPE geomembrane placement will resume from that point on the 2018 construction season.

Saddle Dam 3

- The Owner's representative, the QA Manager and the SANA's foreman and surveyor went to inspect the ongoing work on SD3's sump. It was mentioned that the sump seems to be deep enough to ensure an efficient reservoir to drain the dike toe of SD3. An access ramp to the sump and a channel which will join the old sump and the new one are planned to be done within the next few days.

  According to the QA Manager, the design of the sump issued previously by AEM took into account that all the till surrounding the sump would be excavated. The reality is that more till than expected was found around the site of the new sump, and all the till has not been excavated.

  That being said, the QA Manager mentioned that the upper part of the slope of the sump (1H:1V) seems to be too steep. Instability issue could occurred during the next summer, since the upper section of the slope is lying over till that could thaw. It was suggested by the QA Manager that a 1 m thick lift of rockfill over the crest of the slope could act has a good isolation barrier to limit the thawing of the till.

  For the moment, the Owner's representative is comfortable with the current design and mentioned that further work will be performed during the next summer (2018) to ensure the slope stability (before the thill will have time to thaw). Given that information, Golder is comfortable with the SD3's sump.

- A "tramack hammer" went on the SD3's sump site in order to break the frozen soil and thus excavate a channel between the old sump and the new sump.

- The work on SD3's sump is almost done. The dewatering foreman will go on-site and verify if the pad for the pump of the sump is well located.

- The QA Manager reminded that the till where it had a patch of LLDPE geomembrane on the north part of the upstream slope of SD3 still need to be replace. But before, water in the hole has to be pumped out, then fill with till (see photograph attached).

- It has been mentioned that large particles of UM rockfill (>500 mm) are present on the second lift of the granular protection on the north part of SD3. Given that the maximum particle size is 500 mm, an excavator will be assigned to sort those large particles.

4.0 SUMMARY OF CONSTRUCTION ACTIVITIES AND TEST RESULTS

Periodic QA inspections to monitor the construction activities and progress were performed by the QA Engineer; these are summarized in the tables below.

Table 2: QA Observations for Saddle Dam 5

Activity or Area	Comments
Geotextile and LLDPE geomembrane installation	■ Installation of the geotextile on the upstream slope 3H:1V between El. 143 m and 145 m from Sta. 40+550 to 40+685 m. The geotextile surface was inspected before being covered with the LLDPE geomembrane. ■ Installation of the LLDPE on the upstream slope 3H:1V between El. 143 m and 145 m from Sta. 40+550 to 40+685 m. The LLDPE was free of fold and hole.

Activity or Area	Comments
	Seam tests were carried out under the supervision of the QA Engineer and results met Technical Specifications. No horizontal seam was made. ■ AM and PM calibration results met Technical Specifications. Loads at failure in peel and shear were greater than minimum values presented in Table 6-2 from Technical Specifications. ■ Vacuum box tests were performed from Sta. 40+620 à 40+685 m. No leak has been identified. ■ Destructive test was carried out on sample collected on the LLDPE geomembrane at Sta. 40+620 m. Loads at failure in peel and shear were greater than minimum values presented in Table 6-2 from Technical Specifications. Sample was kept for the Owner's Representative. ■ Backfilling of the geosynthetics tie-in from Sta. 40+550 to 40+685 m. The material was compacted with a 10 tonne smooth drum compactor (4 passes).
Upstream toe liner tie-in	■ Excavation on the upstream side of SD5 in view of the foundation approval required for the section of the bedrock where will lay the compacted till (0-150 mm) and the granular protection (fine/coarse filters and fine rockfill) from Sta. 40+560 to 40+630 m/o.s. -30 to -50 m. ■ Placement of the first 0.5 m thick lift of till 0-150 mm of the upstream toe liner tie-in from Sta. 40+500 to 40+625 m. The material was compacted with a 10 tonne smooth drum compactor under the supervision of the QC (6 passes). ■ Placement of the 0.5 m thick lift of finer filter of the granular protection with an excavator from Sta. 40+560 to 40+600 m. The material was compacted with the bucket (slope only).

Table 3: QA Observations for Saddle Dam 4

Activity or Area	Comments
Geotextile and LLDPE geomembrane installation	■ Installation of the geotextile on the upstream slope 3H:1V between El. 143 m and 145 m from Sta. 40+320 to 40+455 m. The geotextile surface was inspected before being covered with the LLDPE geomembrane. ■ Installation of the LLDPE on the upstream slope 3H:1V between El. 143 m and 145 m from Sta. 40+320 to 40+455 m. The LLDPE was free of fold and hole. Seam tests were carried out under the supervision of the QA Engineer and results met Technical Specifications. No horizontal seam was made. ■ Vacuum box tests were performed from Sta. 40+315 à 40+415 m. No leak has been identified. ■

Activity or Area	Comments
	■ No horizontal seam was made on this section of the LLDPE installed on the upstream 3H:1V slope at SD4. ■ AM and PM calibration results met Technical Specifications. Loads at failure in peel and shear were greater than minimum values presented in Table 6-2 from Technical Specifications. ■ Destructive test was carried out on sample collected on the LLDPE geomembrane at Sta. 40+345 m. Loads at failure in peel and shear were greater than minimum values presented in Table 6-2 from Technical Specifications. Sample was kept for the Owner's Representative. ■ Backfilling of the geosynthetics tie-in from Sta. 40+305 to 40+455 m. The material was compacted with a 10 tonne smooth drum compactor (4 passes).
Upstream toe liner tie-in	■ Placement of the second 0.5 m thick lift of sieved till of the upstream toe liner tie-in on the western part of SD4 from Sta. 40+100 to 40+120 m/o.s. -23 to -41 m. A compaction attempt was done with a 10 tonne smooth drum compactor under the supervision of the QC. The compaction has been postponed given that the sieved till was too wet. ■ Excavation on the upstream side of SD4 in view of the foundation approval required for the section of the bedrock where will lay the compacted till (0-150 mm) and the granular protection (fine/coarse filters and fine rockfill) from Sta. 40+390 to 40+440 m/o.s. -36 to -60 m.
Water management	■ Water is being pumped out of the temporary sump.

Table 4: QA Observations for Saddle Dam 3

Activity or Area	Comments
Downstream	■ Excavation of the blasted material of the sump. ■ Excavation of the channel between the old and the new sump with the "tramack hammer" and the excavator. ■ Construction of the pad for the pump at SD3's sump. ■ Sloping of the south ditch of the downstream dike toe of SD3 with an excavator. ■ Placement of the second 2.0 m thick lift of fine UM rockfill of the protection against erosion over the low quality till on the north part of SD3. The lift was placed with an excavator from Sta. 20+620 to 20+660 m/o.s. -37 to -78 m and compacted with a 10 tonne smooth drum compactor (6 passes).
Water management	■ Water is being pumped out of the old sump.

Table 5: QA Observations for Central Dike

Activity or Area	Comments
Geotextile and LLDPE geomembrane installation	■ Installation of the geotextile on the upstream slope 2H:1V between El. 143 m and 145 m from Sta. 0+095 to 0+165 m. The geotextile surface was inspected and is ready for being covered with the LLDPE geomembrane. ■ Installation of the LLDPE on the upstream slope 2H:1V between El. 143 m and 145 m from sta. 0+095 to 0+160 m. The LLDPE was free of fold and hole. Seam tests were carried out under the supervision of the QA Engineer and results met Technical Specifications. ■ Extrusion seam was performed from Sta. 0+140 to 0+160 m to seam the existing and the new LLDPE geomembrane. ■ Vacuum box tests were performed from Sta. 0+140 to 0+160 m. No leak has been identified. ■ No horizontal seam was made on the LLDPE installed on the upstream 2H:1V slope at CD. ■ AM and PM calibration results met Technical Specifications. Loads at failure in peel and shear were greater than minimum values presented in Table 6-2 from Technical Specifications. ■ Destructive test was carried out on sample collected on the LLDPE geomembrane at Sta. 0+130 m. Loads at failure in peel and shear were greater than minimum values presented in Table 6-2 from Technical Specifications. Sample was kept for the Owner's Representative. ■ Backfilling of the geosynthetics tie-in from Sta. 0+095 to 0+160 m. The material is not compacted yet.
Upstream toe liner tie-in	■ Placement of the second 0.5 m thick lift of sieved till of the upstream toe liner tie-in from 40+100 to 40+140 m/o.s. -24 to -34 m. The material was compacted with a 10 tonne smooth drum compactor under the supervision of the QC. ■ Correction of the second 0.5 m thick lift of sieved till of the upstream toe liner tie-in by adding a 200 mm thick lift of sieved till with an excavator from Sta. 40+100 to 40+140 m/o.s. -24 to -34 m. The compaction was then completed under the supervision of the QC with a PNG. Results met Technical Specifications (see table 6)

5.0 FOUNDATION APPROVALS

The following foundation approvals were carried out during the reporting period.

Table 6: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
LLDPE-SD4-003	SD4	Sta. 40+102 to 40+453 m/o.s. -22 to -36 m.	2017-09-26	Compliant
LLDPE-SD5-003	SD5	Sta. 40+561 to 40+683 m/o.s. -22 to -33 m	2017-09-30	Compliant
FND-SD5-18	SD5	To come	2017-09-30	Compliant
FND-SD4-35	SD4	Sta. 40+094 to 40+117 m/o.s.-33 to -54 m	2017-09-30	Compliant
FND-SD4-36	SD4	Sta. 40+390 to 40+448 m/o.s. -34 to -59 m	2017-09-30	Compliant

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 7 and 8 present the samples collected or tested by the QA and QC as well as PNG field results.

All of the PNG testing performed on the compacted sieved till of CD were compliant.

Three gradation tests were performed by the QA Manager during the reporting period (SD3-010, SD4-010 ad CD-546). The three tests were compliant even if the sandy part was little too coarse. It has been judged that it won't affect the capacity on the sieved till.

Table 7: Samples Taken by QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
#5 (PNG)	2017-10-01	2017-10-01	Compacted Sieved till	CD (in place) 0+138.0/-36.3 m EL. 142.7 m	Dry density	2140
					Water content (PNG)	8.7%
#6 (PNG)	2017-10-01	2017-10-01	Compacted Sieved till	CD (in place) 0+128.7/-35.6 m EL. 143.2 m	Dry density	2159
					Water content (PNG)	7.9%
#7 (PNG)	2017-10-01	2017-10-01	Compacted Sieved till	CD (in place) 0+121.1/-33.5 m EL. 143.5 m	Dry density	2210
					Water content (PNG)	7.2%

Table 8: Samples Taken by QA

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

SD3-010	2017-09-08	2017-09-27	Sieved till	(as placed) Sta. 20+644 m/o.s. -45.6 m, El. 139.0 m	Gradation + water content	Sandy part is little too coarse, but compliant. W: 6,7%
SD4-010	2017-09-02	2017-09-28	Sieved till	(as placed) Sta. 40+430 m/o.s. -30.0 m, El. 144.5 m	Gradation + water content	Sandy part is little too coarse, but accepted. W: 7.4%
CD-546	2017-09-07	2017-09-28	Sieved till	(as placed) Sta. 0+100 m/o.s. -18.7 m, El. 144.2 m	Gradation + water content	Sandy part is little too coarse, but accepted. W: 6.4%

7.0 PHOTOGRAPHS



Photograph SD5-079: From 40+455/-23 looking E. View of the placement of the LLDPE geomembrane on SD5 from Sta. 40+550 to 40+770 m.



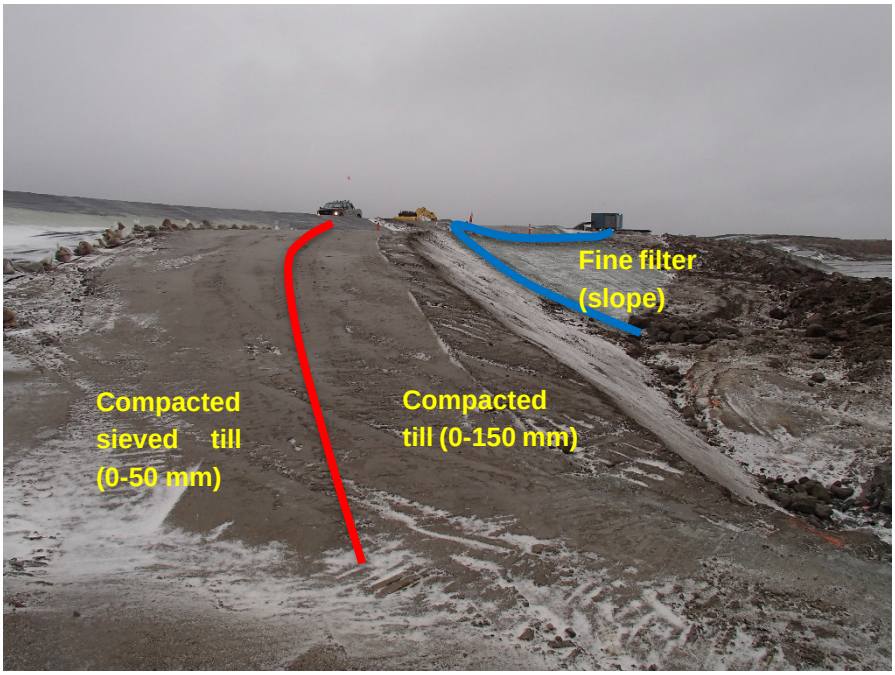
Photograph SD5-080: From 40+635/-27 looking W. View of the vacuum box testing on SD5 from Sta. 40+620 to 40+685 m. No leak has been detected.



Photograph SD5-081: From 40+630/-40 looking W. Excavation on the upstream side of SD5 in view of the foundation approval required for the section of the bedrock where will lay the compacted till (0-150 mm) and the granular protection (fine/coarse filters and fine rockfill) from Sta. 40+560 to 40+630 m/o.s. -30 to -50 m.



Photograph SD5-082: From 40+630/-25 looking W. Placement of the first 0.5 m thick lift of till 0-150 mm of the upstream toe liner tie-in from Sta. 40+500 to 40+610 m. The 10 tonne smooth drum compactor is compacting the material (4 passes).



Photograph SD5-083: From 40+635/-25 looking W. View of the placed material on SD5 from Sta. 40+560 to 40+625 m : sieved till (0-50 mm), till (0-150 mm) and fine filter.



Photograph SD4-187: From 40+460/-23 looking W. View of the placement of the LLDPE geomembrane on SD4 from Sta. 40+315 to 40+455 m. Notice the bottom of the LLDPE geomembrane is being seamed further on the dike.



Photograph SD4-188: From 40+420/-33 looking W. Completion of the extrusion seaming at the eastern part of SD4, from Sta. 40+400 to 40+415 m.



Photograph SD4-189: From 40+120/-23 looking NW. Compaction of the second 0.5 m thick lift of sieved till of the upstream toe liner tie-in with a 10 tonne smooth drum compactor. The compaction has been postponed given that the sieved till was too wet.



Photograph SD4-190: From 40+420/-44 looking NW. Excavation on the upstream side of SD4 in view of the foundation approval required for the section of the bedrock where will lay the compacted till (0-150 mm) and the granular protection (fine/coarse filters and fine rockfill) from Sta. 40+390 to 40+440 m/o.s. -36 to -60 m.



Photograph SD3-286: From 20+655/-14 looking NW. Excavation of the blasted material of the SD3's sump (from Sta. 20+620 to 20+635 m/o.s. 30 to 57 m).



Photograph SD3-287: From 20+575/-10 looking SW. Excavation of the channel between the old and the new sump with the "tramack hammer" and an excavator from 20+580 to 20+620 m /o.s. -45 m.



Photograph SD3-288: From 20+570/-20 looking NW. View of the new sump at SD3. Notice the channel between the old and the new sump. Also, the excavator doing the slope of the south ditch of the downstream dike toe of SD3.



Photograph SD3-289: From 20+620/-17 looking SW. Sloping of the south ditch of the downstream dike toe of SD3 with an excavator.



Photograph SD3-290: From 20+620/-40 looking NE. View of the hole in the sieved till that was dig for the LLDPE geomembrane repair. The water in the hole will have to be pumped out before any placement of sieved till.



Photograph SD3-291: From 20+680/-42 looking N. Placement of the second 2.0 m thick lift of fine UM rockfill up to El. 142 m over the low quality till on north extremity of SD3 from 20+620 to 20+660 m/o.s. -37 to -78 m.



Photograph CD-1784: From 0+090/-38 looking S. View of the placed geotextile on CD from El. 143 to 145 m from Sta. 0+095 to 0+165 m. No LLDPE geomembrane has been installed because of the rain.



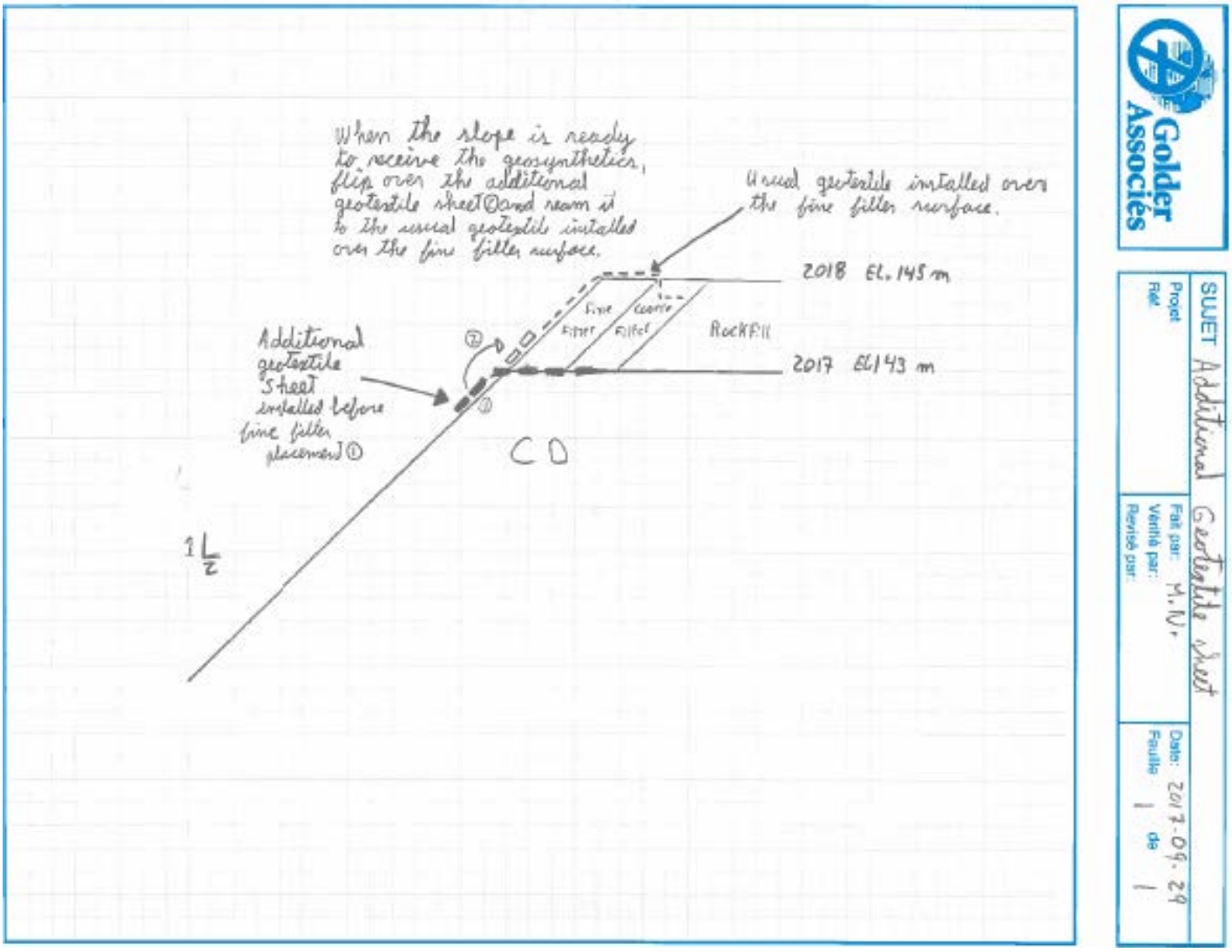
Photograph CD-1785: From 0+160/-23 looking N. View of the placed LLDPE geomembrane on the north part of CD. Notice the excavator placing the second 0.5 m thick lift of sieved till og the upstream toe liner tie-in.



Photograph CD-1786: From 0+080/-36 looking S. View of the excavator placing the second 0.5 m thick lift of sieved till of the upstream toe liner tie-in. The compaction will be done right after the placement under the supervision of the QC with a nucleodensimeter.



Photograph CD-1787 From 0+080/-36 looking S. View of the second 0.5 m thick lift of compacted sieved till of the upstream toe liner tie-in of CD from Sta. 40+100 to 40+140 m/o.s. -24 to -34 m.



Stéphane Côté's suggestion (liner installer foreman) : Additional geotextile sheet for the geosynthetics placement of the 2018 construction season.

SIGNATURES

GOLDER ASSOCIÉS LTÉE

Reviewed by:

ORIGINAL SIGNED

Marion Habersetzer, Jr. Eng.
QA Engineer

ORIGINAL SIGNED AND SEALED

Yves Boulianne, P.Eng (QC,NU)
Associate, Dike Designer

Attachments: Construction Progress Drawings from AEM as of October 1, 2017

MH/YB/jlm

https://golderassociates-my.sharepoint.com/personal/jlacostemccormick_golder_com/documents/_à faire/en cours/doc 1567 1777687 rev0 qa weekly report 2017-09-25 to 2017-10-01.docx

TECHNICAL MEMORANDUM

DATE October 10, 2017 **REFERENCE No.** 1777687
Doc. 1567 Rev 0

TO Pierre McMullen, Patrice Gagnon, Alexandre Lavallée
Agnico-Eagle Mines Limited Meadowbank Division

CC Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA WEEKLY REPORT FROM OCTOBER 02 TO OCTOBER 08, 2017 – TSF SOUTH CELL CONSTRUCTION
MEADOWBANK (1777687)

This document summarizes QA activities performed by Golder from October 02 to October 08, 2017, inclusively, related to the construction activities of Saddle Dams 3, 4 and 5 (SD) and Central Dike (CD) at the Meadowbank mine site.

Unless otherwise specified, the construction activities use the centreline of the structures for a dike crest elevation of 150 m for reference (refer to the Drawings). The description of activities refers to the stations and offsets from the centreline (e.g., Sta. 0+500/-50 m). The "+" and "-" symbols indicate the location of the work downstream and upstream of the centreline, respectively.

1.0 GOLDER PERSONNEL ON SITE

Golder personnel on site during this reporting period is summarized in Table 1.

Table 1: Golder Personnel on Site

Name	Comments
Michael Nadon	QA Engineer
Marion Habersetzer	QA Engineer

2.0 HEALTH AND SAFETY

H&S meetings were held with AEM and FGL/SANA during the daily construction meetings. Minutes from these meetings are recorded and stored in Golder's on-site office. The key H&S elements for the reporting period were as follows:

- It was reminded to clean your mirrors and always make sure to verify your blind spots when you drive reverse.
- Coactivity is expected of the next days around Saddle Road.

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- Strong winds and cold weather: keep good radio communication, stay visible and apply caution when driving or walking on icy surfaces, wear appropriate clothing. Hard hats and other PPE need to be adapted for the strong winds.
- It was reiterated that the use of seat belts in light vehicles is mandatory for everyone, driver and passengers.
- It was reiterated that although time is an issue at this stage of the construction, safety must remain the priority.
- There is important heavy equipment coactivity on all the dikes: personnel on foot must make sure to be visible at all time.
- Work in remote areas: the necessity of JHA and increased caution was reiterated.
- A safety meeting took place at the engineering office on October 8 to review recent lost-time incidents.

3.0 SUMMARY OF MAIN DISCUSSIONS IN CONSTRUCTION MEETINGS

Construction meetings were held daily during the reporting period and were attended by the QA manager. The following items were discussed:

General

- The 0-150 mm till has an important moisture and is difficult to compact. The QC representative tested the water content with the PNG in the stockpile at Pit E5 and found 9.6% water content. Measurements were taken on the 0-150 mm till lift placed at Central Dike and readings ranged from 7.9 to 14%.
- The articulated trucks supplying 0-150 mm till at Central Dike have formed tracks on the first lift of compacted sieved till. The tracks were mostly located outside of the liner tie-in limit (5 m) and were evened out by the bucket of the excavator before placement of the next lift.
- It was decided with AEM and SANA that given the issue posed by the overly moist 0-150 mm till, all the upstream toe liner tie-in will be completed with 0-50 mm sieved till only. The stockpile of 0-50 mm till at the SANA crusher site obtained by sieving earlier in the season will provide the required quantities to complete all the dikes. The QC representative will continue to monitor the sieved till moisture during placement and the sieved till lifts will be compacted with 6 passes of a 10 tonne smooth-drum compactor.
- It was reiterated that the sieved till lifts need to be compacted at the end of each shift before the till freezes.
- The QA Manager indicated that the surface of the compacted sieved till lifts have cracked and thus scarification is needed to ensure a good contact with the next lift of sieved till.
- The QA Manager reiterated that a minimum thickness of 2.0 m of material is required above the LLDPE liner before the excavator can circulate over it. Only the compactor is allowed on the second 0.5 m thick till lift above the liner, corresponding to the minimum thickness of 1.0 m over the liner.
- PNG tests #5, #6 and #7 have been re-identified #31, #32 and #33 respectively.
- Due to the cold weather, a layer of frozen till (approx. 5 to 15 cm thick) is present on top of each compacted sieved till layer in place at the time of placing the subsequent layer. The QA Manager reiterated that the till

layer in place must be scarified before placement of material on top of it to ensure a good contact through the frozen surface between the layers within the till plug.

- There was no three-weeks meeting this week.
- The last till placement was done on SD3 on October 8. The stockpile of sieved till at the SANA crusher site was then sealed until next year's construction season.

Saddle Dam 5

- Teranap panels will be installed on the open end of the LLDPE liner on SD5, at the junction with Central Dike, in order to protect it from the wind.
- The frozen compacted sieved till layer on SD5 has been scarified and left in place before placement of the next lift of sieved till. About only half of the thickness of the frozen layer has been scarified, but it was judged that it still provided a good contact for the subsequent lift of till.
- The trucks supplying fine filter material to SD5 left tracks on the top layer of compacted sieved till at approx. El. 145 m (see photograph below). The excavator evened out the layer with its bucket as much as possible.

Saddle Dam 4

- The QA Manager noticed than a small stockpile of fine filter left on the granular protection on the West extremity of SD4 still needed to be moved. This was done on October 7.
- The frozen surface (approx. 15 cm thick) of the first lift of compacted sieved till outside the LLDPE liner footprint on SD4 was removed. A patch of hard frozen till was left in place at the extremity of the lift, at the junction with the existing toe liner tie-in (approx. Sta. 40+410 m), as it was too hard to remove without risking damaging the nearby liner.
- Cracks up to 2 cm wide are present in the compacted sieved till surface at the extremity of the till plug on the east side of SD4 (see photograph below). Given that this area is at El. 145 m and that it will not be exposed to water or tailings, the QA Manager and AEM agreed that it was not a concern.
- In the past, compaction of the sieved till lift on the west extremity of SD4 was a challenge due to the compactor being unable to climb up the slope. In order to solve this problem, the compactor was tied to an excavator during compaction of the first and second lifts of sieved till over the LLDPE liner today (see photograph below). SANA health and safety representative (Raphaël Simard) was present during the operation.

Saddle Dam 3

- It was discussed that the south part of SD3 needs to be completed up to El. 142 m by the end of the construction season. Thus, the till plug and the granular protection have to be completed before the placement of the granular protection against the water (up to El. 142 m).
- Remaining stockpiles of 0-6'' and fine rockfill will be used for rockfill protection placement on the dikes, as they are compliant with the required gradation.

- The patch of LLDPE liner that has been repaired on SD3 at El. 142 m still need to be backfilled with sieved till. The water ponding in the depression is frozen and must be removed. It was discussed with AEM that since this cannot be done at the moment without risking damaging the membrane, the water removing and backfilling will be done during the next construction season after the ice has thawed.
- The remaining UM rockfill piles on SD3 will be used for the construction of the south cell internal structure. The construction of a UM rockfill pad will be monitored by the QA Manager over the next few days and sampled for future gradations tests by AEM.
- The QA Manager noticed a small hole in a repair patch on the LLDPE liner on SD3, at approx. Sta. 20+780 m (above El. 142 m). The hole was marked with paint.

4.0 SUMMARY OF CONSTRUCTION ACTIVITIES AND TEST RESULTS

Periodic QA inspections to monitor the construction activities and progress were performed by the QA Engineer; these are summarized in the tables below.

Table 2: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream toe liner tie-in	■ Placement of the first 0.5 m thick lift of sieved till over the LLDPE liner with an excavator from Sta. 40+550 to 40+610 m (o.s. -37 to -28 m). The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (6 passes). The compaction was tested with PNG and met the Specifications (see Table 7). ■ Placement of the 0.5 m thick lift of sieved till over the LLDPE liner on the upstream slope of SD5 with an excavator from Sta. 40+610 to 40+675 m. The lift was compacted with the bucket of the excavator. ■ Placement of a first 0.5 m thick lift of 0-150 mm till along the sieved till layer with an excavator from Sta. 40+550 to 40+560 m. The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (6 passes). ■ Placement of the 0.5 m thick lift of fine filter on the upstream slope of the upstream toe liner tie-in from Sta. 40+560 to 40+630 m, up to the first 0.5 m thick sieved till lift in place above the LLDPE liner. ■ Placement of the 0.5 m thick lift of coarse filter on the upstream slope of the upstream toe liner tie-in from Sta. 40+560 to 40+630 m, up to the first 0.5 m thick sieved till lift in place above the LLDPE liner. ■ Placement of the 1 m thick lift of fine rockfill on the upstream slope of the upstream toe liner tie-in from Sta. 40+560 to 40+630 m, up to the first 0.5 m thick sieved till lift in place above the LLDPE liner. ■ Scarification of the frozen layer of compacted sieved till from Sta. 40+570 to 40+ 630 m (o.s. -48 to -25 m).

Activity or Area	Comments
	■ Placement of the second 0.5 m thick lift of sieved till over the LLDPE liner with an excavator from Sta. 40+570 to 40+ 630 m (o.s. -48 to -25 m). The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (6 passes) ■ Placement of the third 0.5 m thick lift of sieved till over the LLDPE liner with an excavator from Sta. 40+575 to 40+630 m (o.s. -48 to -25 m). The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (6 passes). ■ Placement of the 0.5 m thick lift of fine filter on the top of the upstream toe liner tie-in from Sta. 40+610 to 40+640 m (o.s. -49 to -25 m). The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (4 passes). ■ Placement of the 0.5 m thick lift of fine filter on the slope of the upstream toe liner tie-in from Sta. 40+560 to 40+640 m. ■ Placement of the 0.5 m thick lift of fine filter over the sieved till protection layer on the upstream slope of SD5 from Sta. 40+610 to 40+640 m. The lift was compacted with the bucket of the excavator. ■ Placement of the 0.5 m thick lift of coarse filter on the top of the upstream toe liner tie-in from Sta. 40+615 to 40+640 m (o.s. -49 to -28 m). The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (4 passes). ■ Placement of the 0.5 m thick lift of coarse filter on the slope of the upstream toe liner tie-in from Sta. 40+560 to 40+640 m. ■ Placement of the 0.5 m thick lift of coarse filter over the fine filter protection layer on the upstream slope of SD5 from Sta. 40+615 to 40+640 m. The lift was compacted with the bucket of the excavator.

Table 3: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream toe liner tie-in	■ Removal of the frozen till layer from Sta. 40+410 to 40+450 m (o.s. -39 to -29 m) of the bedding of the LLDPE liner. The till has been replaced with new sieved till and compacted with a 10 tonne smooth-drum compactor with vibrations (6 passes). The compaction was tested with PNG and met the Specifications (see Table 7). ■ Removal of the overly wet sieved till outside of the LLDPE liner footprint on the west extremity of SD4 from Sta. 40+100 to 40+110 m (o.s. -45 to -29 m). ■ Placement of the first 0.5 m thick lift of sieved till over the LLDPE liner with an excavator from Sta. 40+100 to 40+110 m (o.s. -45 to -29 m) and from Sta. 40+410 to 40+450 m (o.s. -39 to -24 m). The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (6 passes). The compaction was tested with PNG and met the Specifications (see Table 7).

Activity or Area	Comments
	■ Placement of the second 0.5 m thick lift of sieved till over the LLDPE liner with an excavator from Sta. 40+100 to 40+120 m (o.s. -45 to -28 m) and from Sta. 40+400 to 40+430 m (o.s. -41 to -26 m). The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (6 passes). ■ Placement of the 0.5 m thick lift of sieved till over the LLDPE liner on the upstream slope of SD4 with an excavator from Sta. 40+110 to 40+120 m and from Sta. 40+380 to 40+420 m. The lift was compacted with the bucket of the excavator. ■ Placement of the third 0.5 m thick lift of sieved till over the LLDPE liner with an excavator from Sta. 40+100 to 40+120 m (o.s. -47 to -25 m) after scarification of the previous lift and from from Sta. 40+400 to 40+430 m (o.s. -41 to -22 m). The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (6 passes). ■ Placement of the 0.5 m thick lift of fine filter on the top of the upstream toe liner tie-in from Sta. 40+105 to 40+120 m (o.s. -47 to -25 m) and Sta. 40+390 to 40+425 m (o.s. -45 to -23 m). The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (4 passes). ■ Placement of the 0.5 m thick lift of fine filter on the slope of the upstream toe liner tie-in from Sta. 40+390 to 40+445 m and from Sta. 40+100 to 40+120 m. ■ Placement of the 0.5 m thick lift of fine filter over the sieved till protection layer on the upstream slope of SD4 from Sta. 40+110 to 40+130 m and Sta. 40+400 to 40+425 m. The lift was compacted with the bucket of the excavator. ■ Placement of the 0.5 m thick lift of coarse filter on the top of the upstream toe liner tie-in from Sta. 40+110 to 40+140 m (o.s. -50 to -28 m) and from Sta. 40+395 to 40+420 m (o.s. -45 to -28 m). The lift from Sta. 40+395 to 40+420 m (o.s. -45 to -28 m) was compacted with a 10 tonne smooth-drum compactor with vibrations (4 passes). ■ Placement of the 0.5 m thick lift of coarse filter on the slope of the upstream toe liner tie-in from Sta. 40+095 to 40+140 m and from Sta. 40+390 to 40+445 m. ■ Placement of the 0.5 m thick lift of coarse filter over the fine filter protection layer on the upstream slope of SD4 from Sta. 40+110 to 40+140 m and from Sta. 40+380 to 40+420 m. The lift was compacted with the bucket of the excavator.
Water management	■ Water is being pumped out of the temporary sump.

Table 4: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream toe liner tie-in	■ Placement of the two remaining 0.5 m thick lifts of sieved till on the slope of the upstream toe liner tie-in from Sta. 20+770 to 20+790 m, up to the elevation of the first compacted sieved till layer above the LLDPE (placed last year). ■ Placement of the 0.5 m thick lift of fine filter on the slope of the upstream toe liner tie-in from Sta. 20+770 to 20+790 m, up to the elevation of the first compacted sieved till layer above the LLDPE (placed last year). ■ Placement of the 0.5 m thick lift of coarse filter on the slope of the upstream toe liner tie-in from Sta. 20+770 to 20+790 m, up to the elevation of the first compacted sieved till layer above the LLDPE (placed last year). ■ These 4 lifts were compacted with the bucket of the excavator only, due to their limited extend which was too small for the 10 tonne smooth-drum compactor to traffic over.
Water management	■ Water is being pumped out of the old sump.

Table 5: QA Observations for Central Dike

Activity or Area	Comments
Upstream toe liner tie-in	■ Removal of the thin frozen layer present on the top of the second 0.5 m thick lift of sieved till. ■ Placement of the first 0.5 m thick lift of 0-150 mm till of the upstream toe liner tie-in from Sta. 0+100 to 0+150 m (o.s. -36 to -28 m). ■ Removal of the 0.5 m thick lift of overly wet 0-150 mm till on the upstream toe liner tie-in from Sta. 0+100 to 0+150 m (o.s. -36 to -28 m) and loading of the excavated material. ■ Replacement of the removed 0-150 mm till lift with a second 0.5 m thick lift of sieved till of the upstream toe liner tie-in from Sta. 0+100 to 0+150 m (o.s. -36 to -28 m). The lift was compacted with a 10 tonne smooth-drum compactor without vibrations (6 passes). ■ Placement of the third 0.5 m thick lift of sieved till of the upstream toe liner tie-in from Sta. 0+100 to 0+150 m (o.s. -40 to -25 m). The lift was compacted with a 10 tonne smooth-drum compactor without vibrations (6 passes). ■ Completion of the 0.5 m thick lift of sieved till over the LLDPE liner on the upstream slope of Central Dike with an excavator from Sta. 0+100 to 0+150 m. The lift was compacted with the bucket of the excavator.

Activity or Area	Comments
	■ Placement of the 0.5 m thick lift of fine filter on the top of the upstream toe liner tie-in from Sta. 0+115 to 0+155 m (o.s. -40 to -25 m). The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (4 passes). ■ Placement of the 0.5 m thick lift of fine filter on the slope of the upstream toe liner tie-in from Sta. 0+115 to 0+155 m. ■ Placement of the 0.5 m thick lift of fine filter over the sieved till protection layer on the upstream slope of Central Dike from Sta. 0+125 to 0+150 m. The lift was terminated at a safe distance of the zone where LLDPE liner will be completed next year. The lift was compacted with the bucket of the excavator. ■ Placement of the 0.5 m thick lift of coarse filter on the top of the upstream toe liner tie-in from Sta. 0+125 to 0+160 m (o.s. -45 to -25 m). The lift has not been compacted yet. ■ Placement of the 0.5 m thick lift of coarse filter on the slope of the upstream toe liner tie-in from Sta. 0+125 to 0+160 m. ■ Placement of the 0.5 m thick lift of coarse filter over the fine filter protection layer on the upstream slope of SD4 from Sta. 0+125 to 0+150 m. The lift was compacted with the bucket of the excavator.

5.0 FOUNDATION APPROVALS

The following foundation approvals were carried out during the reporting period.

Table 6: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
FND-SD5-18	SD5	Sta. 40+541 to 40+623 m/o.s. -27 to -50 m	2017-09-30	Compliant
LLDPE-CD-30	CD	Sta. 0+096 to 0+157 m/o.s. -20 to -28 m	2017-10-01	Compliant

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 7 and 8 present the samples collected or tested by the QA and QC as well as PNG field results.

Samples 441 and 442 (compacted sieved till in place) collected by the QC have not been tested yet.

Samples 380 (fine filter in place) and 440 (compacted sieved till in place) collected and tested by the QC were compliant.

Table 7: Samples Taken by QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
#34 (PNG)	2017-10-03	2017-10-03	Compacted sieved till	SD5 (in place) 40+570.2/-34.0 m EL. 144.7 m	Dry density	2067
					Water content (PNG)	10.1%
#35 (PNG)	2017-10-03	2017-10-03	Compacted sieved till	SD5 (in place) 40+581.3/-36.6 m EL. 143.9 m	Dry density	2036
					Water content (PNG)	9.8%
#36 (PNG)	2017-10-03	2017-10-03	Compacted sieved till	SD5 (in place) 40+600.0/-35.5 m EL. 144.23 m	Dry density	2053
					Water content (PNG)	9.4%
#37 (PNG)	2017-10-03	2017-10-03	Compacted sieved till	SD5 (in place) 40+614.7/-36.3 m EL. 143.9 m	Dry density	2080
					Water content (PNG)	7.7%
380	2017-10-04	2017-10-05	Fine filter	SD4 (in place) 40+610/-37 m	Gradation	Compliant
					Water content	3.2 %
#38 (PNG)	2017-10-04	2017-10-04	Compacted sieved till	SD4 (in place) 40+416.0/-38.3 m EL. 143.1 m	Dry density	1982
					Water content (PNG)	8.9%
#39 (PNG)	2017-10-04	2017-10-04	Compacted sieved till	SD4 (in place) 40+423.9/-36.5 m EL. 143.9 m	Dry density	2060
					Water content (PNG)	8.5%
#40 (PNG)	2017-10-04	2017-10-04	Compacted sieved till	SD4 (in place) 40+419.2/-35.4 m EL. 144.08 m	Dry density	2043
					Water content (PNG)	8.0%
#41 (PNG)	2017-10-05	2017-10-05	Compacted sieved till	SD4 (in place) 40+439.5/-33.9 m EL. 145.1 m	Dry density	2016
					Water content (PNG)	10.0%
440	2017-10-05	2017-10-07	Compacted sieved till	SD4 (in place) 40+420/-26 m	Gradation	Compliant
					Water content	9.2 %
441	2017-10-06		Compacted sieved till	SD4 (in place) 40+570/-25 m		
#42 (PNG)	2017-10-06	2017-10-06	Compacted sieved till	SD4 (in place) 40+105.5/-36.7 m EL. 143.9 m	Dry density	2119
					Water content (PNG)	7.9%
#43 (PNG)	2017-10-06	2017-10-06	Compacted sieved till	SD4 (in place) 40+111.4/-39.2 m EL. 142.5 m	Dry density	2132
					Water content (PNG)	7.8%
442	2017-10-09		Compacted sieved till	SD3 (in place) 20+780/-50 m		

Table 8: Samples Taken by QA

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPHS



Photograph SD5-084: From 40+625/-25 looking W. Placement of the first 0.5 m thick lift of sieved till over the LLDPE geomembrane with an excavator from 40+550 to 40+560 m.



Photograph SD5-085: From 40+620/-21 looking E. Placement of the first 0.5 m thick lift of sieved till over the LLDPE with an excavator from Sta. 40+560 to 40+610 m (o.s. -37 to -28 m).



Photograph SD5-086: From 40+610/-34 looking S. Placement of the 0.5 m thick lift of sieved till over the LLDPE on the upstream slope of SD5 with an excavator from Sta. 40+610 to 40+675 m.



Photograph SD5-087: From 40+580/-42 looking S. Placement of the 0.5 m thick lift of fine filter on the upstream slope of the upstream toe liner tie-in from Sta. 40+560 to 40+630 m.



Photograph SD5-088: From 40+550/-30 looking SE. Placement of the 0.5 m thick lift of coarse filter on the upstream slope of the upstream toe liner tie-in from Sta. 40+560 to 40+630 m.



Photograph SD5-089: From 40+550/-29 looking SE. Placement of the 0.5 m thick lift of fine rockfill on the upstream slope of the upstream toe liner tie-in from Sta. 40+560 to 40+620 m.



Photograph SD5-090: From 40+605/-31 looking N. Scarification of the frozen layer of compacted sieved till from Sta. 40+570 to 40+ 630 m (o.s. -48 to -25 m).



Photograph SD5-091: From 40+605/-31 looking S. Placement of the second 0.5 m thick lift of sieved till over the LLDPE liner with an excavator from Sta. 40+570 to 40+ 630 m (o.s. -48 to -25 m).



Photograph SD5-092: From 40+650/-31 looking N. Placement of the 0.5 m thick lift of fine filter on the top of the upstream toe liner tie-in from Sta. 40+610 to 40+640 m (o.s. -49 to -25 m).



Photograph SD5-093: From 40+620/-22 looking NE. View of the truck tracks on the top layer of compacted sieved till (approx. El. 145 m) on SD5.



Photograph SD5-094: From 40+645/-44 looking NW. Placement of the 0.5 m thick lift of coarse filter on the top of the upstream toe liner tie-in from Sta. 40+615 to 40+640 m (o.s. -49 to -28 m).



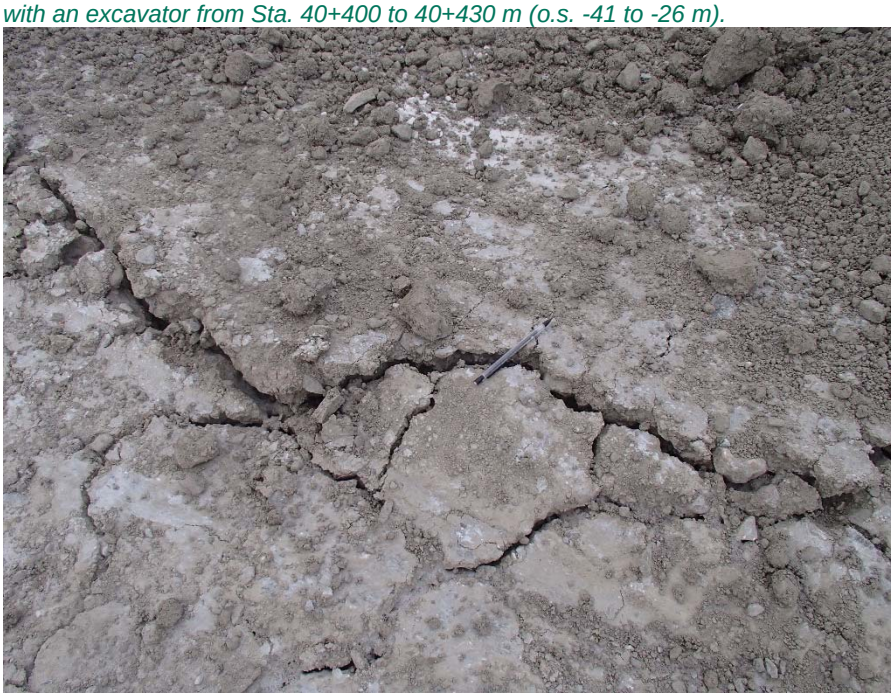
Photograph SD4-191: From 40+385/-18 looking S. Removal of the frozen till layer from Sta. 40+410 to 40+450 m (o.s. -39 to -29 m).



Photograph SD4-192: From 40+410/-29 looking SE. Placement of the first 0.5 m thick lift of sieved till over the LLDPE liner with an excavator from Sta. 40+410 to 40+450 m (o.s. -39 to -24 m).



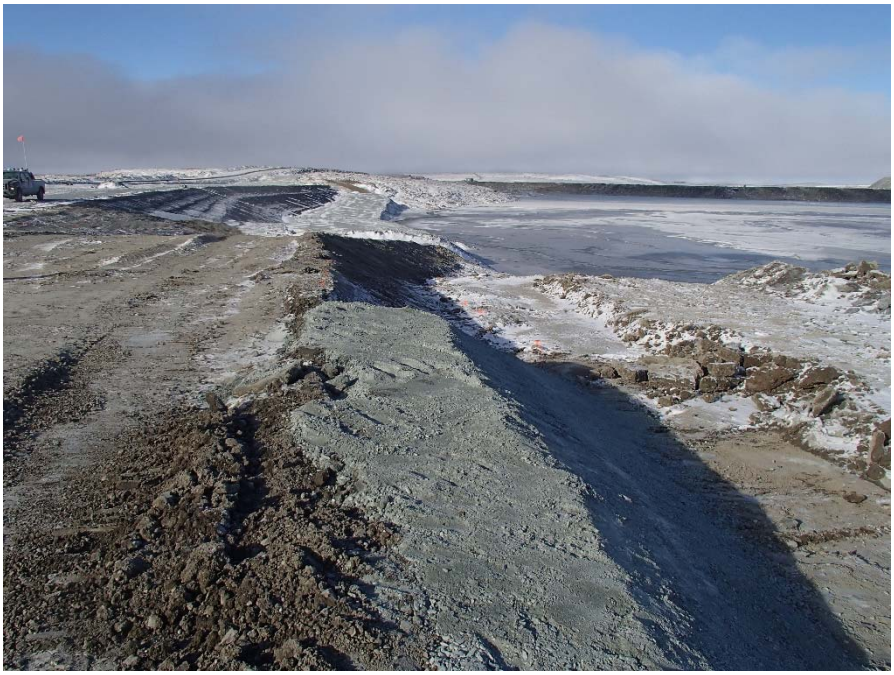
Photograph SD4-193: From 40+430/-17 looking NE. Placement of the second 0.5 m thick lift of sieved till over the LLDPE liner with an excavator from Sta. 40+400 to 40+430 m (o.s. -41 to -26 m).



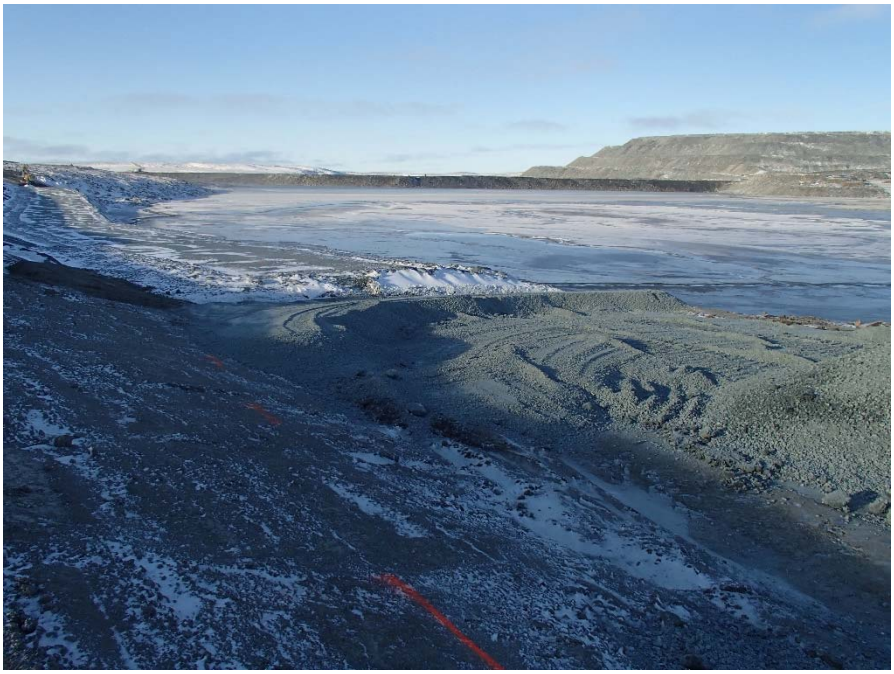
Photograph SD4-194: From 40+440/-36 looking SW. View of cracks in the compacted sieved till layer (approx. El. 145 m).



Photograph SD4-195: From 40+125/-20 looking N. Compaction of the first 0.5 m thick lift of sieved till over the LLDPE liner with an excavator from Sta. 40+100 to 40+110 m (o.s. -45 to -29 m). Notice the compactor tied to the excavator.



Photograph SD4-196: From 40+450/-33 looking NW. Placement of the 0.5 m thick lift of fine filter on the upstream slope of the upstream toe liner tie-in from Sta. 40+390 to 40+445 m.



Photograph SD4-197: From 40+415/-25 looking NW. Placement of the 0.5 m thick lift of fine filter on the upstream toe liner tie-in from Sta. 40+390 to 40+435 m (o.s. -47 to -32 m).



Photograph SD4-198: From 40+390/-25 looking SE. Placement of the 0.5 m thick lift of fine filter on the top of the upstream toe liner tie-in from Sta. 40+400 to 40+425 m (o.s. -45 to -23 m).



Photograph SD4-199: From 40+150/-23 looking N. Completion of the 0.5 m thick lift of sieved till over the LLDPE liner on the upstream slope of SD4 with an excavator from Sta. 40+115 to 40+120 m.



Photograph SD4-200: From 40+155/-23 looking N. Placement of the 0.5 m thick lift of fine filter over the sieved till protection layer on the upstream slope of SD4 from Sta. 40+110 to 40+130 m.



Photograph SD4-201: From 40+395/-17 looking SE. Placement of the 0.5 m thick lift of coarse filter on the top of the upstream toe liner tie-in from Sta. 40+395 to 40+420 m (o.s. -45 to -28 m).



Photograph SD3-292: From 20+780/-31 looking NW. View of the hole in the repair patch on SD3 (approx. Sta. 20+780 m).



Photograph SD3-293: From 20+750/-50 looking SE. Placement of the remaining layers of till plug and granular protection on the upstream slope of the upstream toe liner tie-in from Sta. 20+770 to 20+790 m, up to El. 142 m.



Photograph CD-1788: From 0+160/-23 looking N. Removal of the thin frozen layer present on the top of the second 0.5 m thick lift of sieved till on the north part of CD.



Photograph CD-1789: From 0+100/-34 looking W. Placement of the first 0.5 m thick lift of till (0-150 mm) of the upstream toe liner tie-in from 0+100 to 0+150 m (o.s. -36 to -28 m). Notice the truck tracks on the compacted sieved till lift.



Photograph CD-1790: From 0+140/-23 looking N. Removal of the lift of overly wet 0-150 mm till on the upstream toe liner tie-in from 0+100 to 0+150 m (o.s. -36 to -28 m).



Photograph CD-1791: From 0+150/-23 looking NE. Placement of the second 0.5 m thick lift of sieved till of the upstream toe liner tie-in from 0+100 to 0+150 m (o.s. -36 to -28 m).



Photograph CD-1792: From 0+130/-22 looking W. Placement of the 0.5 m thick lift of fine filter on the top of the upstream toe liner tie-in from Sta. 0+115 to 0+155 m (o.s. -40 to -25 m).



Photograph CD-1793: From 0+165/-27 looking NE. Placement of the 0.5 m thick lift of coarse filter on the top of the upstream toe liner tie-in from Sta. 0+125 to 0+160 m (o.s. -45 to -25 m).

SIGNATURES

GOLDER ASSOCIÉS LTÉE

Reviewed by:

ORIGINAL SIGNED

Marion Habersetzer, Jr. Eng.
QA Engineer

ORIGINAL SIGNED AND SEALED

Yves Boulianne, P.Eng (QC,NU)
Associate, Dike Designer

Attachments: Construction Progress Drawings from AEM as of October 8, 2017

MH/YB/jlm

c:\users\mhabersetzer\golder associates\1777687, aem south cell qa 2017 meadowbank - preparation of deliverables\weekly reports\doc 1567 1777687 rev0 qa weekly report 2017-10-02 to 2017-10-08.docx

TECHNICAL MEMORANDUM

DATE October 11, 2017 **REFERENCE No.** 1777687
Doc. 1567 Rev 0

TO Pierre McMullen, Patrice Gagnon, Alexandre Lavallée
Agnico-Eagle Mines Limited Meadowbank Division

CC Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA WEEKLY REPORT FROM OCTOBER 09 TO 11, 2017 – TSF SOUTH CELL CONSTRUCTION MEADOWBANK (1777687)

This document summarizes QA activities performed by Golder from October 09 to October 11, 2017, inclusively, related to the construction activities of Saddle Dams 3, 4 and 5 (SD) and Central Dike (CD) at the Meadowbank mine site.

Unless otherwise specified, the construction activities use the centreline of the structures for a dike crest elevation of 150 m for reference (refer to the Drawings). The description of activities refers to the stations and offsets from the centreline (e.g., Sta. 0+500/-50 m). The "+" and "-" symbols indicate the location of the work downstream and upstream of the centreline, respectively.

1.0 GOLDER PERSONNEL ON SITE

Golder personnel on site during this reporting period is summarized in Table 1.

Table 1: Golder Personnel on Site

Name	Comments
Marion Habersetzer	QA Engineer

2.0 HEALTH AND SAFETY

H&S meetings were held with AEM and FGL/SANA during the daily construction meetings. Minutes from these meetings are recorded and stored in Golder's on-site office. The key H&S elements for the reporting period were as follows:

- Cold weather and ice: apply caution when driving or walking on icy surfaces, wear appropriate clothing.
- There is important heavy equipment coactivity on all the dikes: personnel on foot must make sure to be visible at all time.

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- It was mentioned that a JHA for working around water (south cell internal structure) has been issued.

3.0 SUMMARY OF MAIN DISCUSSIONS IN CONSTRUCTION MEETINGS

Construction meetings were held daily during the reporting period and were attended by the QA manager. The following items were discussed:

General

- AEM representatives Frédérick Bolduc and Alexandre Lavallée went to inspect the dike construction with the QA Manager and the mine and SANA foremen to identify the remaining tasks to be done before closure of the construction season.
- The SANA foreman left the site on October 9. The surveyor will provide support to the operators until the end of the construction.
- One of the two shovels on the dikes went to SD3 at the beginning of each morning to break the ice of the south cell for the construction of the south cell internal structure before going back to the dikes. As a result, there were delays in rockfill placement.
- A debriefing session took place with the construction team and AEM on October 11 to review the construction season. The construction globally went very well despite potential for improvement in the planning. All parties involved were satisfied with the outcome.
- The construction of SD3, SD4, SD5 and the north abutment of Central Dike is now complete for 2017. The QA Manager did a final inspection of the dikes.
- The QC representative left the site on October 11, and the QA Manager left the site on October 12.

Saddle Dam 3

- Blocks larger than 0.5 m will be accepted on the south extremity of the fine rockfill erosion protection layer on SD3 (approx. Sta. 20+750 to 20+790 m), provided there is still a sufficient content of fine particles. This adjustment was decided by AEM, as this section of the protection layer is already shielded from water by the adjacent road material.

4.0 SUMMARY OF CONSTRUCTION ACTIVITIES AND TEST RESULTS

Periodic QA inspections to monitor the construction activities and progress were performed by the QA Engineer; these are summarized in the tables below.

Table 2: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream toe liner tie-in	■ Placement of the 1 m thick lift of fine UM rockfill on the slope of the upstream toe liner tie-in from Sta. 40+560 to 40+650 m.

Activity or Area	Comments
	■ Placement of the 1 m thick lift of fine UM rockfill on the top of the upstream toe liner tie-in from Sta. 40+610 to 40+650 m (o.s. -47 to -30 m). The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (6 passes).

Table 3: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream toe liner tie-in	■ Compaction of the 0.5 m thick lift of coarse filter on the top of the upstream toe liner tie-in from Sta. 40+110 to 40+140 (o.s. -50 to -28 m) with a 10 tonne smooth-drum compactor with vibrations (4 passes). ■ Placement of the 1 m thick lift of fine UM rockfill on the slope of the upstream toe liner tie-in from Sta. 40+095 to 40+130 m and from Sta. 40+385 to 40+445 m. ■ Placement of the 1 m thick lift of fine UM rockfill on the top of the upstream toe liner tie-in from Sta. 40+105 to 40+130 m (o.s. -47 to -28 m) and from Sta. 40+380 to 40+420 m (o.s. -51 to -30 m). The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (6 passes).

Table 4: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream toe liner tie-in	■ Placement of a 1 m thick, 2 m high lift of fine UM rockfill of the erosion protection over the low quality till from Sta. 20+735 to 20+780 m (o.s. -63 to 46 m). The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (8 passes). ■ Compaction of the 1 m thick, 2 m high lift of fine UM rockfill of the erosion protection over the low quality till from Sta. 20+620 to 20+660 m (6 passes).

Table 5: QA Observations for Central Dike

Activity or Area	Comments
Upstream toe liner tie-in	■ Compaction of the 0.5 m thick lift of coarse filter on the top of the upstream toe liner tie-in from Sta. 0+125 to 0+160 m (o.s. -45 to -25 m) with a 10 tonne smooth-drum compactor with vibrations (4 passes). ■ Placement of the 1 m thick lift of fine UM rockfill on the top of the upstream toe liner tie-in from Sta. 0+130 to 0+175 m (o.s. -47 to -29 m). The lift was terminated at a distance of the slope where the LLDPE liner will be completed next year, to keep the area clear. The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (6 passes).

Activity or Area	Comments
	■ Placement of the 1 m thick lift of fine UM rockfill on the slope of the upstream toe liner tie-in from Sta. 0+115 to 0+175 m.

5.0 FOUNDATION APPROVALS

The following foundation approvals were carried out during the reporting period.

Table 6: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 7 and 8 present the samples collected or tested by the QA and QC as well as PNG field results.

Samples 441 and 442 (compacted sieved till in place) collected and tested by the QC were compliant.

Table 7: Samples Taken by QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
441	2017-10-06	2017-10-09	Compacted sieved till	SD4 (in place) 40+570/-25 m	Gradation	Compliant
					Water content	8.9 %
442	2017-10-08	2017-10-09	Compacted sieved till	SD3 (in place) 20+780/-50 m	Gradation	Compliant
					Water content	9.5 %

Table 8: Samples Taken by QA

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPHS



Photograph SD5-095: From Sta. 40+610/-37 looking S. View of SD5 at the end of the 2017 construction phase.



Photograph SD4-202: From Sta. 40+170/-24 looking N. Placement of the 1 m thick lift of fine UM rockfill on the top of the upstream toe liner tie-in from Sta. 40+105 to 40+130 m (o.s. -47 to -28 m).



Photograph SD4-203: From Sta. 40+405/-46 looking NW. View of SD4 at the end of the 2017 construction phase.



Photograph SD3-294: From Sta. 20+615/-60 looking SW. Placement of the 1 m thick, 2 m high lift of fine UM rockfill from Sta. 20+735 to 20+780 m (o.s. -63 to 46 m).



Photograph SD3-295: From Sta. 20+620/-73 looking SW. Compaction of the 1 m thick, 2 m high lift of fine UM rockfill of the erosion protection over the low quality till from 20+620 to 20+660 m (6 passes).



Photograph SD3-296: From Sta. 20+600/-41 looking SW. View of SD3 at the end of the 2017 construction phase.



Photograph CD-1794: From Sta. 0+175/-37 looking E. Placement of the 1 m thick lift of fine UM rockfill on the top of the upstream toe liner tie-in from Sta. 0+130 to 0+175 m (o.s. -47 to -29 m). Notice the gap left to keep a distance from the zone of LLDPE to be completed.



Photograph CD-1795: From Sta. 0+075/-28 looking W. View of Central Dike at the end of the 2017 construction phase.

SIGNATURES

GOLDER ASSOCIÉS LTÉE

Reviewed by:

ORIGINAL SIGNED

Marion Habersetzer, Jr. Eng.
QA Engineer

ORIGINAL SIGNED AND SEALED

Yves Boulianne, P.Eng (QC,NU)
Associate, Dike Designer

Attachments: Construction Progress Drawings from AEM as of October 11, 2017

MH/YB/jlm

https://golderassociates-my.sharepoint.com/personal/jlacostemccormick_golder_com/documents/_à faire/en cours/doc 1567 1777687 rev0 qa weekly report 2017-10-09 to 2017-10-11.docx

APPENDIX E2 - QA DAILY REPORTS

QA DAILY REPORT

DATE June 28th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR JUNE 26-27TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 15 ° C, sunny

2.0 HEALTH AND SAFETY

- Arrival of Michael Nadon as QA manager on site on the 26th.
- SOP course for the QA and QC personnel on the 26-27th to review the site procedure.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

No daily construction meeting was held for the June 26-27th. During the day, the following discussions were held:

- SD5: AEM proceeded to the drilling and blasting of the dike footprint on the downstream side of SD5 from Sta. 40+620 to 40+720 for a final elevation at 150 m. (There was no QA on site during this operation). Soft and ice-rich soils are currently being removed from the Saddle Dam footprint.
- SD4: AEM proceeded to the drilling and blasting of the dike footprint on the downstream side of SD4 from Sta. 40+020 to 40+430 for a final elevation at 150 m. Soft and ice-rich soils have been removed from the Saddle Dam footprint (There was no QA on site during this operation). A strip of soft soil on the extreme east of the dike footprint still need to be removed.
- SD3: AEM is still proceeding to the drilling and blasting of the dike footprint on the downstream side of SD3 for a final elevation at 150 m.
- The QA Manager reminded that the water pounds which are present on the dike foot print of SD4 and SD5 have to be pumped before any placement of rockfill.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream slope	■ Excavation of the soft and ice-rich soils on the downstream side of the SD5 footprint from Sta. 40+720 to 40+620

5.0 FOUNDATION APPROVAL

No foundation approval was made before the arrival of the QA on site and up to date.

Table 2: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

No sample was taken before the arrival of the QA on site and up to date.

Table 5: Sample taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD5-043: From Sta.40+720 looking W. Excavation of the soft and ice-rich soils on the downstream side of the SD5 footprint from Sta. 40+720 to 40+620. Note the water pound at the extreme East.



Photograph SD4-105: From Sta.40+430/+20 looking NW. View of the excavation of the soft and ice-rich soils on the downstream side of the SD4 footprint from Sta. 40+430 to 40+020. Note the water pounds at the extreme SW.

QA DAILY REPORT

DATE June 29th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR JUNE 28TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 20 ° C, sunny

2.0 HEALTH AND SAFETY

- Dust is an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QA Manager and the surveyor (François Gravel) reviewed the location of the rockfill access road placed the last spring over non approved foundation within the footprint of SD5. The access road will need to be removed to prepare the foundation and was marked on the field.
- The QA Manager reminded the specification about the placement and the compaction of the rockfill on the dike footprint.
- A drill is planned to arrive today to finish the drill and blast on the north part of SD3.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

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Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream slope	■ Excavation of the soft and ice-rich soils on the downstream side of the SD5 footprint from Sta. 40+540 to 40+620 between the offset zone 15-30 m.

5.0 FOUNDATION APPROVAL

A foundation approval was made by the end of the day. The details of the approval will be emitted soon.

Table 2: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment
FND-SD5-12	SD5		28-06-2017	

6.0 LABORATORY

No sample was taken.

Table 5: Sample taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD5-044: From Sta.40+540/-15 looking SW. Excavation of the soft and ice-rich soils on the downstream side of the SD5 footprint from Sta. 40+540 to 40+620 between the offset zone 15-30 m.

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QA DAILY REPORT

DATE June 30 **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR JUNE 29TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 20 ° C, sunny

2.0 HEALTH AND SAFETY

- Dust is still an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.
- It will have some co-activity around Saddle road. Pay attention and stay vigilant when working around the construction field.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The drill planned for finish the drill and blast on the north part of SD3 will not arrive before Saturday.
- A new sump is planned on the north side of SD3, beyond the dike footprint, to collect the water around the dike.
- SD3 alignment will probably need to be adjusted in its southern extension due to the airstrip quarry limit. The QA Manager and the surveyor will investigate in the next few days.
- A JHA concerning the cleaning of the missholes at Saddle Dam 3 with water has been emitted and signed by all concerned.

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- After discussions with the representatives of AEM, Golder and FGL, it has been tolerated that the access road on the downstream side of the SD5 footprint will be placed with an excavator. However, the placement's thickness should not exceed 1 m.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream slope	■ Excavation of the soft and ice-rich soils on the downstream side of the SD5 footprint from Sta. 40+540 to 40+575 between the offset zone 20 to 40 m. ■ Placement a 1 m thick (approx.) lift of UM rockfill on the downstream side of the SD5 footprint from 40+540 to 40+588. This placement will be used as an access road.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream slope	■ Excavation of the soft and ice-rich soils on the downstream side of the SD4 footprint from Sta. 40+480 to 40+500 between the offset zone 30 to -25 m.

5.0 FOUNDATION APPROVAL

A foundation approval was made by the end of the day. The details of the approval will be emitted soon.

Table 3: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment
FND-SD5-12	SD5	40+588 to 40+537 (o.s. 22.60 to -9.0 m)	28-06-2017	Compliant
FND-SD5-13	SD5		29-06-2017	

6.0 LABORATORY

No sample was taken.

Table 4: Sample taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD4-106: From Sta.40+480/30 looking NE. Excavation of the soft and ice-rich soils on the downstream side of the SD4 footprint from Sta. 40+480 to 40+500 between the offset zone 30 to -25 m.



Photograph SD5-045: From Sta.40+540/0 looking SE. Excavation of the soft and ice-rich soils on the downstream side of the SD5 footprint from Sta. 40+540 to 40+575 between the offset zone 20 to 40 m. Notice the UM rockfill placement used as an access road.

QA DAILY REPORT

DATE July 1st **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR JUNE 30TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 20 ° C, sunny

2.0 HEALTH AND SAFETY

- Keep a safety distance from the excavator. Be sure you have an eye contact with the operator of the excavator before walking around it.
- A safety meeting took place this morning with the haul truck operators. Among others, Jeremy Kancir (AEM constructor supervisor) made sure that every operator use the proper radio frequency on the dike.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- It was discussed that the first lift of 1 m thick (approx.) of UM rockfill use to fill in the holes of the natural ground on the downstream side of the SD5 footprint will be compacted before the placement of the first 2 m thick lift.
- The drill planned for finish the drill and blast on the north side of SD3 will start by drilling the new sump, beyond the dike footprint. The drill is supposed to be on field next Monday.
- The QA Manager reminded that the clean-up of the SD4 footprint within the upstream side needs more attention than the downstream side. It has to be excavated to the bedrock.
- The QA Manager noticed that a section (Sta. 40+710 to 40+675) of the geomembrane on SD5 is damaged. There are some holes which may vary from 1 to 15 cm. The holes have been marked by the QA Manager.

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The damaged geomembrane section is planned to be repaired later in the construction season, when it will have geomembrane installation on the field.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream slope	■ Placement of a 1 m thick (approx.) lift of UM rockfill to fill in the holes of the natural ground on the downstream side of the SD5 footprint from 40+540 to 40+630. The material is compliant.
Water Management	■ The water in the southern part of SD5 have been pumped.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream slope	■ Loading of the excavated material on the downstream side of the SD4 footprint from Sta. 40+480 to 40+510 between the offset zone 30 to -25 m.
Water Management	■ The water pound in the cleaned section of the southern part of SD4 (around 40+430) is being pumped.

5.0 FOUNDATION APPROVAL

A foundation approval on the southern part of SD5 was made by the end of the day. The details of the approval will be emitted soon.

Table 3: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment
FND-SD5-13	SD5	40+705 to 40+580 (o.s. 21.51 to -14.88 m)	28-06-2017	Compliant
FND-SD5-14	SD5		29-06-2017	

6.0 LABORATORY

No sample was taken.

Table 4: Sample taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD5-046: From Sta.40+620/10 looking SW. Placement of a 1 m thick (approx.) lift of UM rockfill with a dozer on the downstream side of the SD5 footprint from 40+540 to 40+630. The material is compliant.



Photograph SD4-107: From Sta.40+480/30 looking E. Loading of the excavated material of the downstream side of the SD4 footprint from Sta. 40+480 to 40+510 between the offset zone 30 to -25 m. Notice the water pound on the western part, it will be pumped out within the next days.

QA DAILY REPORT

DATE July 2nd **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR JULY 1ST, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 25 ° C, sunny

2.0 HEALTH AND SAFETY

- Warm weather: drink water sufficiently, find some shade and, if possible, stay in the pick-up with air conditioner while you are on the field.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- It was discussed that the UM rockfill currently hauled from the pit is too coarse (particle size >1.3 m) for the dike infrastructure. As soon as the particle size will be less than 1.3 m, the hauling will restart on the dike.
- A new deposition plan for the south cell of the TSF is about to be emitted by AEM. The new plan will guide the decision about the possible installation of LLDPE geomembrane on SD5 and SD4. More information to come in the next few days.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

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Activity or Area	Comments
Downstream slope	■ Placement of a 1.5 m thick (approx.) lift of UM rockfill to fill in the holes of the natural ground surface on the downstream side of the SD5 footprint from Sta. 40+670 to 40+680 between the offset zone 7 to 22 m. The material is compliant.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream/upstream slope	■ Excavation of the soft/ice-rich soils material on the upstream side of the SD4 footprint from Sta. 40+440 to 40+520 between the offset zone -43 to -28 m. ■ Loading of the excavated material on the downstream side of the SD4 footprint from Sta. 40+400 to 40+440.
Water Management	■ The water pounds in the cleaned section of the southern part of SD4 (around 40+430) is being pumped.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Downstream slope	■ The 8 missholes on the downstream side of the northern part of SD3 have been cleaned with water.

5.0 FOUNDATION APPROVAL

A foundation approval on the southern part of SD5 was done.

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment
FND-SD5-14	SD5	40+736 to 40+695 (o.s. 22.11 to -13.3 m)	30-06-2017	Compliant

6.0 LABORATORY

No sample was taken.

Table 5: Sample taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD4-108: From Sta.40+370/-19 looking W. Loading of the excavated material with the excavator RH-120 on the downstream side of the SD4 footprint from Sta. 40+400 to 40+440.



Photograph SD4-109: From Sta.40+450/-37 looking E. Excavation of the soft/ice-rich soils material on the upstream side of the SD4 footprint from Sta. 40+440 to 40+520 between the offset zone -43 to -28 m.

QA DAILY REPORT

DATE July 3rd **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR JULY 2ND, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 25 ° C, sunny

2.0 HEALTH AND SAFETY

- Dust is still an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.
- Attention has to be paid when excavating the south-west section of SD4. There are buried cables near this section. After discussions, someone is supposed to be delegated for overseeing the task.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The present sump on the north part of SD3, which is collecting the water around the dike toe, is located on the downstream dike footprint for a final elevation at 150 m. A new location for the sump is being planned. The new sump will be located beyond the dike footprint. The planning of the new sump will take into account the north-south faulted area on the north part of SD3. More information to come in the next days.
- It was discussed that Sta. 40+600 m will be used to differentiate SD4 and SD5. As illustrated in the original plans, it is understood that SD4 is contained between Sta. 40+000 to 40+600 m, and SD5 between Sta. 40+600 to 40+800 m.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream	■ Removal of the old access road and loading of the excavated material for the foundation preparation from Sta. 40+600 to 40+620.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Foundation preparation	■ Final clean-up with an excavator to reach a good quality bedrock where water had been pumped earlier from Sta. 40+340 to 40+400 m.
Upstream	■ Removal of the old access road and loading of the excavated material for the foundation preparation from Sta. 40+540 to 40+600 m.

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 3: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

No sample was taken today.

Table 4: Sample taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD4-110: From Sta.40+580/-20 looking NW. Removal of the old access road and loading of the excavated material for the foundation preparation from Sta. 40+540 to 40+620.



Photograph SD4-111: From Sta.40+370/-14 looking E. View of the excavator doing the final clean-up of the footprint on the downstream side of SD4 to reach a good quality bedrock where water had been pumped earlier from Sta. 40+340 to 40+400 m.

QA DAILY REPORT

DATE July 4th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR JULY 3RD, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 20 ° C, sunny

2.0 HEALTH AND SAFETY

- In order to avoid haul truck collision, haul truck operator have been warned to do not park in front of a haul truck which is being loaded.
- Attention has to be paid when excavating the south-west section of SD4. There are buried cables near this section. After discussions, someone is supposed to be delegated for overseeing the task.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The difficulty to have some good NPAG on the construction field is still an issue. The lack of timing with the mine operation and the particle size (>1.3m) are the major points that explain the problem.
- Today it is the FGL “crew change”, initiatives are supposed to be taken in order to avoid down time on the field.
- Pierre-Luc Babin is now the new Surveyor/Foreman for Sana for the construction season 2017.
- It was discussed that a drill will be on SD3 to finish the drill and blast Tuesday.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream	■ Removal of the old access road and loading of the excavated material for the foundation preparation from Sta. 40+520 to 40+540 m (o.s. -15 to -39 m)
Downstream	■ Loading of the excavated material for the foundation preparation from Sta. 40+580 to 40+590 (o.s. -24 to -35 m)
Water Management	■ The water on the western side of the downstream side of SD4 (around Sta. 40+480 m) is being pumped.

Table 2: QA Observations for Saddle Dam 3

Activity or Area	Comments
Foundation preparation	■ Removal of loose rocks and soft and ice-rich soils with a dozer within the dike footprint. Work has been limited to a few meters because of a mechanical problem.

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 3: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

No sample was taken today.

Table 4: Sample taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD4-112: From Sta.40+550/-24 looking SE. Loading of the excavated material with an excavator for the foundation preparation from Sta. 40+580 to 40+590 (o.s. -24 to -35 m).

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QA DAILY REPORT

DATE July 5th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR JULY 4TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 20 ° C, sunny

2.0 HEALTH AND SAFETY

- A SANA's health and safety preventionist will assist the daily construction meeting starting tomorrow.
- Concerning the drill and blast on SD3, it was reiterated that each worker around this operation needs to ensure that the JHA and the drill and blast procedures are respected.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- It was discussed that the drilling activities on SD3 will start today. Thus, the water in the sump on the dike footprint will be pumped out today and the sump will have to be replace soon. AEM representative mentioned that the planning of the next sump is ongoing.
- The QA Manager and the Surveyor (AEM) went for surveying the SD4-SD5 dike toe on the downstream side. A portion of the access road placed last week on the downstream side SD4 and SD5 is located on a non-approved section (Sta. 40+540 to 40+640 m/o.s. 25 to 30 m). The strip (3 to 5 m width) will be excavated in order to approve the foundation underneath as soon as possible.
- It was discussed that an access road on SD3 has to be built to give access to the haul truck. It is planned to be done in the next few days, for the hauling of the loose rocks and soft and ice-rich soils generated by the foundation preparation.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	■ Placement of a 1.5 m thick (approx.) lift of UM rockfill to fill in the holes of the natural ground surface on the downstream side of the SD5 footprint from Sta. 40+680 to 40+690 m. The UM rockfill is heterogeneous and contains high fine particles but also contains a good quantity of block- and cobble-sized particles.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream	■ Loading of the excavated material for the foundation preparation from Sta. 40+590 to 40+640 m (o.s. -20 to -35 m).

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Foundation preparation	■ Removal of loose rocks and soft and ice-rich soils with an excavator up to the frozen soil from 20+640 to 20+700 m (o.s. 15 to 35 m) in order to set up the drill.
Water Management	■ The water in the sump have been pumped.

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

No sample was taken today.

Table 5: Sample taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD3-163: From Sta.20+570/20 looking S. View of the foundation preparation for the drill and blast. An excavator is removing loose rocks and soft and ice-rich soils up to the frozen soil from 20+640 to 20+700 m (o.s. 15 to 35 m). Notice: the drill is already on the field.



Photograph SD3-164: From Sta.20+670/35 looking N. View of the frozen soil (ice/water) on the excavated surface of the downstream side of SD3.This section is planned to be blast on the July 5th or 6th.

QA DAILY REPORT

DATE July 6th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon, Marion Habersetzer **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR JULY 5TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 20 ° C, sunny and windy

2.0 HEALTH AND SAFETY

- A SANA's health and safety preventionist was present at the daily construction meeting and will attend the following days. Two health and safety observers from FGL were present as well.
- The safety guidelines for work around heavy equipment were reminded.
- A safety share about driving heavy vehicles on haul roads was presented.
- The stockpile at SD3 beside the excavation has reached an important height and small rocks are falling off the slope. It was underlined that no worker should enter the excavation below the unstable slope.
- Dust is still an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The drilling activities on SD3 have started. The blast pattern has been cleaned and 2 drills are present on site. Drill holes maximum depth is about 5.5 m. The water in the sump on the dike footprint was pumped out today and the pump removed. The blasting is planned for tomorrow.
- Following yesterday's discussion, the access road on SD3 was reworked to give access to the haul trucks.

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- Regarding the connection of SD3 to SD2, it was decided that the organic soil and grass observed at the extremity of SD2 will be removed later when the placed rockfill reaches the current ground surface elevation, to prioritise drilling and blasting and subsequent soil removal.
- The QA Manager reminded that where water ponds are present within the footprint of the dam, all water need to be pumped out before placing the rockfill, and that the rockfill needs to be fully compacted before allowing water to return.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	■ Loading of the excavated material for the foundation preparation from Sta. 40+600 to 40+630 m (o.s. 22 to 24 m).

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream	■ Loading of the excavated material for the foundation preparation from Sta. 40+535 to 40+600 m (o.s. 22 to 27 m). ■ Loading of the excavated material for the foundation preparation from Sta. 40+505 to 40+540 m (o.s. -40 to -16 m).

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Downstream	■ Drilling for blasting preparation. Blasting has been delayed until tomorrow. Water ponds are present at the downstream dike footprint of SD3.

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

No sample was taken today.

Table 5: Sample taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD5-047: From Sta.40+630/23 looking E. Loading of the excavated material for the foundation preparation from Sta. 40+535 to 40+630 (o.s. 22 to 27 m).



Photograph SD3-165: From Sta.20+640/26 looking S. View of the drills drilling the frozen soil on the downstream side of the SD3 footprint.

QA DAILY REPORT

DATE July 7th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon, Marion Habersetzer **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR JULY 6TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 15 ° C, sunny and windy

2.0 HEALTH AND SAFETY

- Blasting is planned today at SD3: safety procedures must be followed by all.
- The SANA's operators received a toolbox and safety meeting this morning.
- The sprain hazard associated with walking on unstable ground and stockpiles was reminded.
- Dust is still an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The drilling is completed on SD3 and blasting will happen in the afternoon. Another section of the footprint is planned to be blasted tomorrow.
- Large blocks left on the SD3 footprints will be drilled and blasted along with the frozen ground to allow for loading and clearing by an excavator.
- The QA manager reminded that rockfill needs to be placed in lifts of maximum 2 m in thickness, including the depth of the crevices.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

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Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	■ Placement of a 1 m thick (approx.) lift of UM rockfill on the downstream side of the SD5 footprint from Sta. 40+730 to 40+740 m (o.s. 15 to 23 m). The material is compliant.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Water management	■ The water ponding on the bedrock is being pumped out.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Downstream	■ The footprint has been blasted at 15:30 from Sta. 20+665 to 40+690 (o.s. 31 to 36 m). Blasted materials are still in place.

5.0 FOUNDATION APPROVAL

Two foundation approvals were done today.

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment
FND-SD4-26	SD4	40+289.9 to 40+419 (o.s. -3.8 to 25.3 m)	6/07/2017	Approved provided the water ponds are pumped out before placing rockfill
FND-SD4-27	SD4	40+540.5 to 40+636.6 (o.s. 24.9 to 16.9)	6/07/2017	

6.0 LABORATORY

No sample was taken today.

Table 5: Sample taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD5-048: From Sta.40+750/-10 looking W. Placement of a 1 m thick (approx.) lift of UM rockfill on the downstream side of the SD5 footprint from 40+730 to 40+740 m (o.s. 15 to 23 m).



Photograph SD3-166: From Sta.20+690/31 looking N. Preparation for the blast on the downstream side of SD3: placement of the mattress over the drilled section (Sta. 20+665 to 40+690 (o.s. 31 to 36 m)).

QA DAILY REPORT

DATE July 8th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon, Marion Habersetzer **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR JULY 7TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 12 ° C, cloudy with light rain in the morning, sunny in the afternoon.

2.0 HEALTH AND SAFETY

- Blasting is planned for tomorrow at SD3. The blast clearance issues experienced on July 6th have been discussed and all departments need to give their clearance tomorrow by 15:00 for the blasting at 15:30.
- A safety share about the excavators working with the door open was mentioned.
- The rainy weather causes the ground to be slippery and the visibility reduced. Precautions must be taken to avoid slipping while walking or driving, and to remain visible at all time.
- There is more unsupervised activity during night shifts than planned. The need to have qualified supervisors during night shifts as well has been underlined.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- SANA provided the documentation regarding the two sieved till stockpiles north of Central Dike, in order to plan lab testing (gradation and water content). The available quantity is about 3 880 m^3. An excavator will mix each stockpile before a sample is taken for lab testing. The surveyor went to locate and identify the two stockpiles as stockpile #1 and #2. The plan is attached to this report.
- The QA Manager required the identification of the filter materials stockpiles in order to take samples for lab testing. A FGL representative accompanied the QA Manager to the SANA crusher site to locate the corresponding stockpiles of NPAG fine filter and coarse filter materials.

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- It was discussed that from the next Sunday, “three weeks meetings” will occurred each Sunday with the QA Manager and the representatives of AEM and SANA. “Three weeks meeting” will provide information about the construction schedule and the planning of the work to come.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

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Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	■ The first lift of UM rockfill has been compacted with a 10-tonne smooth-drum compactor with vibration (8 passes) from Sta. 40+535 to 40+740 m (o.s. 11 to 23 m). Large blocks on the sides of the lift need to be reworked to allow access for the compactor.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream	■ During the night shift, it had a placement of a 2 m thick (approx.) lift of UM rockfill over the approved zone of the downstream side of the SD4 footprint from Sta. 40+289.9 to 40+419 (o.s. -3.8 to 25.3 m), except in areas covered by water ponds. The material is compliant.
Water management	■ The water ponding on the bedrock is being pumped out.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Downstream	■ Tomorrow’s blasting pattern has been cleaned, drilled and loaded. The zone blasted on July 6th has not yet been excavated. ■ Loading of the excavated material stockpile south of the blasted zone has started.
Water management	■ The sump has been relocated and is in construction.

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

No sample was taken today.

Table 5: Sample taken

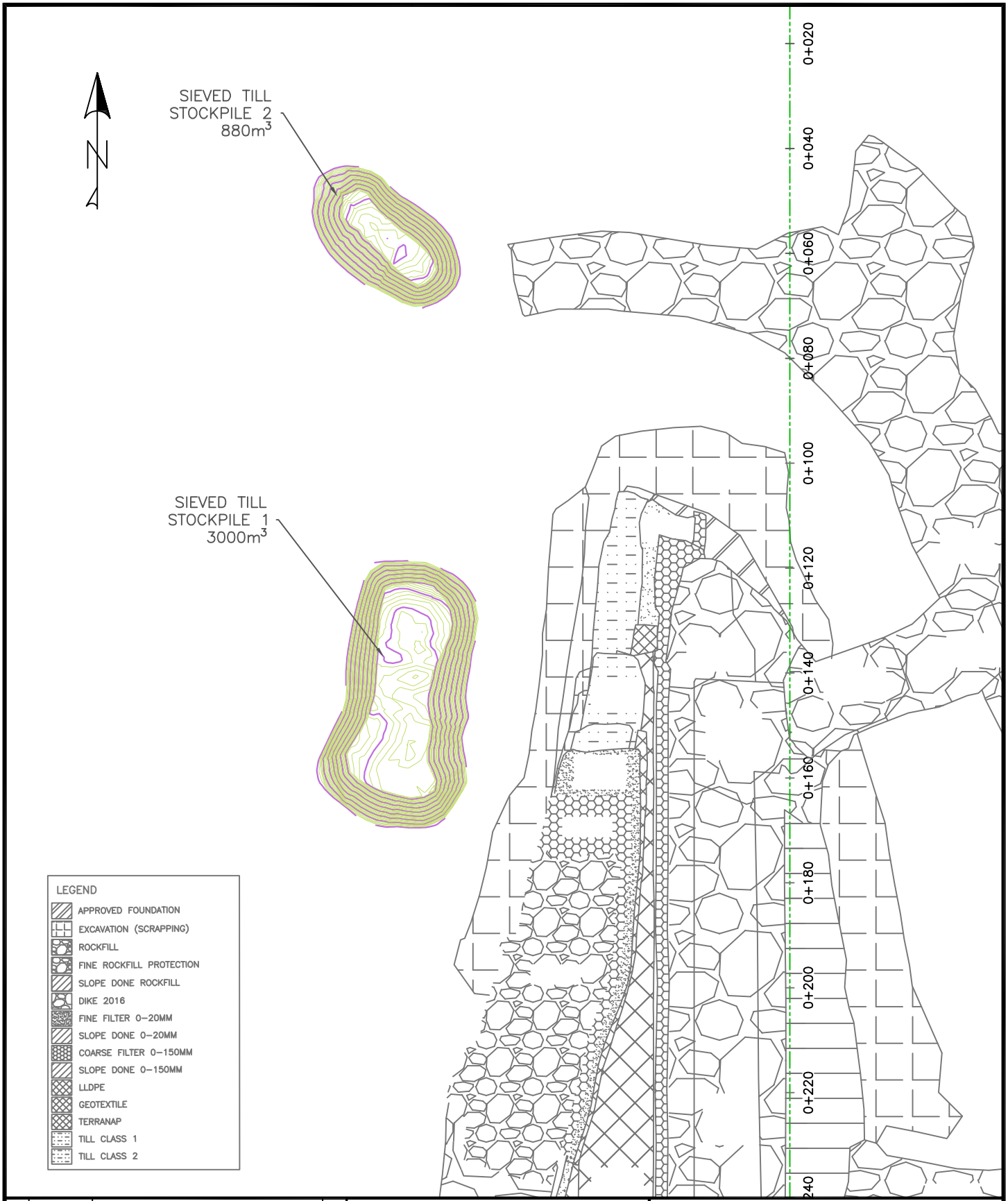
Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD4-113: From Sta.40+750/-10 looking NE. View of the first lift of UM rockfill being compacted with a 10-tonne smooth-drum compactor with vibration (8 passes) from Sta. 40+535 to 40+740 m (o.s. 11 to 23 m).

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REV	DATE	DESCRIPTION	BY

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MEADOWBANK

TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
SIEVED TILL STOCKPILE INVENTORY
CENTRAL DIKE NORTH

PROJECT No.	DATE 2017–07–07
DRAWN BY FRANÇOIS GRAVEL–GRENIER	SHEET 1 / 1
APPROVED BY	
DRAWING NO.	REVISION

QA DAILY REPORT

DATE July 9th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon, Marion Habersetzer **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR JULY 8TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 14 ° C, sunny.

2.0 HEALTH AND SAFETY

- The two QA Managers and the QC personnel were equipped by an AEM hygienist with dust, asbestos and noise samplers to measure the levels of exposure on a typical 12h-day. The hygienist accompanied the QA and QC personnel on the site between 7:15 and 9:00.
- Blasting is planned at 15:30 at SD3.
- Speed limits for vehicles on Saddle Road have been reminded: 20 km/h for heavy equipment and 30 km/h for light vehicles.
- It is compulsory to report at every passing of the gate in both directions of the “Baker Lake road”, even for short journeys to the Saddle Dams.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QA Manager accompanied the QC personnel to the SANA crusher site to provide identification of the stockpiles of NPAG fine filter (0-3/4’’) and coarse filter (0-6’’) materials to be sampled. Lab testing will take place in the next days.
- No further blasting will be used after today to prepare the foundation downstream of SD3. Only the sump excavation will be done by blasting.

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- The QA Manager reminded the need to complete and to compact the UM rockfill lift at SD4 before the pumped out water ponds fill again. If this happens, pumping will have to be redone.
- The limit of the approved SD2 foundation will be identified on the site to plan the connection of SD3 to SD2.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

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Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	■ Compaction of the first 1.5 m lift (approx.) of UM rockfill has resumed. The sides of the lift have been reworked to allow for compaction. ■ Loading of the excavated material stockpile for the foundation preparation at the southern extremity of the SD5 foundation.
Foundation preparation	■ Final clean-up of the footprint with an excavator to reach a good quality bedrock from Sta. 40+640 to 40+700 m (o.s. 12 to 29 m).

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Water management	■ The water ponding on the bedrock is being pumped out. Only one large pond remains.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Downstream	■ The footprint has been blasted at 15:30. The extent has not yet been measured due to the safety barrier still in place. The zone blasted on July 6th has not yet been excavated. ■ The northern side of the footprint has been scrapped during the night shift with a dozer.
Water management	■ The sump has been relocated and is in construction.

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

Two samples were taken today by the QC. Lab testing results will be reported at a later date.

Table 5: Sample taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
372	8/07/2017		Fine filter	Sana crusher site	Gradation	
367	8/07/2017		Coarse filter	Sana crusher site	Gradation	

7.0 PHOTOGRAPH



Photograph SD5-049: From Sta.40+640/08 looking E. View of the loading of the excavated material of the foundation preparation, final clean-up of the dike footprint and compaction of the UM rockfill lift from Sta. 40+535 to 40+630 (o.s. 22 to 27 m).



Photograph SD3-167: From Sta.20+700/35 looking N. View of the area blasted today on the downstream side of SD3.

QA DAILY REPORT

DATE July 10th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon, Marion Habersetzer **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR JULY 9TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 12 ° C, sunny and windy.

2.0 HEALTH AND SAFETY

- Blasting of the sump and the large boulders is planned for tomorrow 15:30 at SD3.
- Wear PPE at all time on the construction site and respect speed limits. Be careful when walking on rough surfaces (risk of slips, trips and falls).
- Electrical wires along the SD4 downstream side need to be relocated. This must be done by qualified personnel only.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- Louis-Pierre Collard will be the cross-shift foreman of Pierre-Luc Babin.
- Some large boulders on the downstream side of SD3 are too heavy to be removed by an excavator and are planned to be blasted along with the sump footprint tomorrow.
- It was discussed with the QA Manager and the SANA's foreman that in the absence of an available dozer, the pumped out water pond on the SD4 footprint can be filled with UM rockfill by an excavator, provided the rockfill lift does not exceed 1 m in thickness and is compacted with a smooth-drum compactor shortly after placement (Sta. 40+295 to 40+325 m (o.s. 2 to 10 m).

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- After the placement of the UM rockfill on the downstream side of the SD4 footprint from Sta. 40+295 to 40+325 m (o.s. 2 to 6 m), mud was coming at the surface of the rockfill lift during compaction with vibration at some isolated spots over the pumped out pond, probably because of the mud left after the water had been removed. The muddy rockfill zones have been removed with an excavator and immediately replaced by clean rockfill. The QA Manager confirmed during the excavation that all muddy materials had been cleaned. The clean UM rockfill was compacted with the bucket of the excavator and with the smooth-drum compactor without vibration, to avoid fluid movements within the lift. The next lift is to be compacted with vibration.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	■ Compaction of the first 1.5 m (approx.) lift of UM rockfill is finished.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream	■ Compaction of the first 1.5 m lift (approx.) of UM rockfill with a 10-tonne smooth-drum compactor with vibration (8 passes) (Sta. 40+540 to 40+600 m). ■ Placement of a 1 m lift (approx.) of UM rockfill with an excavator over the zones previously covered by water Sta. 40+295 to 40+325 m (o.s. 2 to 10 m). An adapted procedure was used for placement and compaction (see section 3.0). ■ Loading of the excavated material stockpile for the foundation preparation from the northern extremity of the UM rockfill lift, from Sta. 40+300 to 40+290 m (o.s. 14 to 21 m).
Water management	■ The water ponding on the bedrock from Sta. 40+295 to 40+325 m (o.s. 2 to 10 m) has been pumped out. Muddy areas and mud-filled rockfill have been removed.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Downstream	■ The footprint of the new sump has been drilled and prepared for the blasting of tomorrow (Sta 20+600 to 20+590 m/o.s. 42 to 57 m).

Activity or Area	Comments
	■ The zone blasted on July 8th extends from Sta. 20+650 to 20+670 m (o.s. 27 to 40 m). The materials blasted on July 6th and 8th have not yet been excavated. Frozen, ice rich soil is visible at the northern extremity of the blasted zone. ■ Removal of loose rocks and soft and ice-rich soils with an excavator up to the bedrock for foundation preparation from Sta. 20+630 to 20+640 m (o.s. 5 to 42 m).
Water management	■ The sump has been relocated and is in construction (Sta. 20+600 to 20+590 m/o.s. 42 to 57 m).

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

No sample was taken today. Two gradation tests were performed.

The gradation performed on sample 372, fine filter from Sana crusher, was compliant. The results obtained on sample 367, coarse filter from Sana crusher, show that a sandy fraction is finer than the gradation limits. Additional care will have to be taken during the loading and handling to minimise segregation. It is judged that the performance of the filter will still be adequate.

Table 5: Sample taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
372	8/07/2017	8/07/2017	Fine filter	Sana crusher site	Gradation	Compliant
367	8/07/2017	9/07/2017	Coarse filter	Sana crusher site	Gradation	Coarse ok, sandy particle out of gradation

7.0 PHOTOGRAPH



Photograph SD3-168: From Sta.20+640/42 looking W. Patch of frozen, ice-rich soil on the northern side of the blasted zone.



Photograph SD4-114: From Sta.40+365/19 looking NW. Loading of the excavated material stockpile for the foundation preparation from Sta. 40+300 to 40+290 m (o.s. 14 to 21 m).



Photograph SD4-115: From Sta.40+340/15 looking SE. Placement of a 1 m lift (approx.) of UM rockfill over the zones previously covered by water.



Photograph SD4-116: From Sta.40+295/-2 looking N. Mud is coming to the surface of the UM rockfill lift at isolated spots during compaction.



Photograph SD4-117: From Sta.40+315/-1 looking NW. Removal of the muddy UM rockfill spots with an excavator.

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QA DAILY REPORT

DATE July 11th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon, Marion Habersetzer **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR JULY 10TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 15 ° C, sunny.

2.0 HEALTH AND SAFETY

- Blasting is planned at 15:30 at SD3.
- SOP training took place in the afternoon for new employees (surveyor and QC personnel). Therefore, there was no QC personnel on site from 11:00 to 18:00 today.
- It was reminded that pipes and electrical wires must only be handled by a qualified person.
- Raphael Simard will be the cross-shift SANA preventionist of Serge Côté.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QA Manager pointed out that water is ponding on the compacted rockfill at SD4 (Sta. 40+320, o.s. 4 m). The water originated from seepage through the low point at the toe of SD4, probably from the transition between the bedrock and the rockfill. The next lift of UM rockfill should be of 2 m in thickness and be compacted swiftly after placement with the smooth-drum compactor with vibrations. If the water pond increases in volume, it will be pumped out before UM rockfill placement.
- The upstream footprint of SD4 and at the junction of SD4 and SD5 need further cleaning before foundation approval. The surveyor delimited on the ground the zone to be cleaned to the bedrock.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	■ Final clean-up footprint with an excavator to reach a good quality bedrock from Sta. 40+715 to 40+740 m (o.s. 0 to 27 m). ■ Three culverts have been removed by the excavator.
Water management	■ Water is ponding on the bedrock from Sta. 40+715 to 40+740 m (o.s. 11 to 23 m).

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream	■ Loading of the excavated material stockpile from Sta. 40+380 to 40+430 m (o.s. 27 to 46 m).
Water management	■ A small water pond has formed at the surface of the compacted UM rockfill at Sta. 40+320 (o.s. 4 m). ■ Water is ponding in the excavated area from Sta. 40+340 to 40+420 m (o.s. 32 to 35 m). A sump or ditch is planned to be built at a later time downstream of SD4 to collect the water.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Downstream	■ The footprint of the new sump has been blasted from Sta. 20+590 to 20+600 m (o.s. 42 to 57 m). The blasted materials are still in place. ■ Large boulders are still present on the SD3 footprint and were not blasted.
Water management	■ The sump has been relocated (Sta. 20+590 to 20+600, o.s. 42 to 57 m) and is in construction. ■ Pumping of the large water pond on the northern side of the footprint has begun.

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

No sample was taken today.

Table 5: Sample taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD4-118: From Sta.40+325/3 looking SW. Water is ponding on the compacted UM rockfill.



Photograph SD4-119: From Sta.40+380/3 looking E. Loading of the excavated material stockpile from Sta. 40+380 to 40+430 m (o.s. 27 to 46 m).



Photograph SD5-050: From Sta.40+695/-24 looking E. Final clean-up footprint with an excavator to reach a good quality bedrock from Sta. 40+715 to 40+740 m (o.s. 0 to 27 m).



Photograph SD3-169: From Sta.20+580/63 looking E. The footprint of the new sump has been blasted from Sta. 20+590 to 20+600 m (o.s. 42 to 57 m). Notice the large boulders east of the blasted zone.

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QA DAILY REPORT

DATE July 12th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer, revised by Michael Nadon **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR JULY 11TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 15 ° C, sunny.

2.0 HEALTH AND SAFETY

- Dust is still an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- Jeannot Gagnon will be the cross-shift of SANA's representative Christopher Gilbert.
- Samuel Kiley-Morin will be the cross-shift of the surveyor François Gravel-Grenier.
- The limit of the approved foundation of SD2 will be marked today. The slope will have to be partially excavated for preparation of the foundation of SD3, as the rockfill extends further than the approved foundation.
- The QA Manager reminded the need to have the dozer and compactor ready when UM rockfill is placed over an area that previously had water ponding, as water tends to accumulate again quickly around low points.
- The water pond at the surface of the compacted UM rockfill at Sta. 40+320 m (o.s. 4 m) is reaching an UM rockfill stockpile left on the first 1.5 m (approx.) lift at SD4. The QA Manager recommended to place the rockfill stockpile rapidly and to complete the compaction of the stockpile footprint, which was not reachable by the compactor.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Foundation preparation	■ Final clean-up footprint with an excavator to reach a good quality bedrock on the downstream side of SD5 from Sta. 40+636 to 40+739.5 m (o.s. 11.2 to 30.5 m).
Water management	■ Water ponds have been pumped out and mud removed with an excavator from Sta. 40+715 to 40+740 m (o.s. 11 to 23 m).

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Foundation preparation	■ Final clean-up footprint with an excavator to reach a good quality bedrock on the upstream side of SD4 from Sta. 40+515 to 40+540 m (o.s. -36 to -14 m).
Water management	■ The water pond at the surface of the compacted UM rockfill at Sta. 40+320 m (o.s. 4 m) is increasing in size. ■ Water is ponding in the excavated area from Sta. 40+340 to 40+420 m (o.s. 32 to 35 m). A sump or ditch is planned to be built at a later time downstream of SD4 to collect the water.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Downstream and upstream	■ Removal of loose rocks and soft and ice-rich soils on the downstream side of SD3 from Sta. 40+750 to 40+775 m (o.s. 11 to 33 m) and on the other side of Saddle Road along the Airstrip Quarry from Sta. 20+815 to 20+850 m (o.s. -28 to 20 m).
Water management	■ The sump has been relocated (Sta. 20+590 to 20+600 m, o.s. 42 to 57 m) and is in construction. ■ Pumping of the large water pond on the northern side of the footprint is ongoing. ■ Water is ponding in the area from Sta. 20+815 to 20+850 m (o.s. -4 to 20 m).

5.0 FOUNDATION APPROVAL

One foundation approval was done today.

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment
FND-SD5-15	SD5	Sta. 40+636 to 40+739.5 m (o.s. 11.2 to 30.5 m)	11/07/2017	Approved provided the water ponds are pumped out before placing UM rockfill

6.0 LABORATORY

No sample was taken today.

Table 5: Sample taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD5-051: From Sta.40+350/21 looking S. Final clean-up footprint with an excavator to reach a good quality bedrock from Sta . 40+636 to 40+739.5 m (o.s. 11.2 to 30.5 m).



Photograph SD4-120: From Sta.40+315/6 looking S. The water pond at the surface of the compacted UM rockfill at Sta. 40+320 m (o.s. 4 m) is increasing in size.



Photograph SD3-170: From Sta.20+845/-31 looking NW. Removal of loose rocks and soft and ice-rich soils along the Airstrip Quarry from Sta. 20+815 to 20+850 m (o.s. -28 to 20 m). Notice the water ponding in the area from Sta. 20+815 to 20+850 m (o.s. -4 to 20 m).

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QA DAILY REPORT

DATE July 13th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer, revised by Michael Nadon **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR JULY 12TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 15 ° C, sunny.

2.0 HEALTH AND SAFETY

- The hazard associated with the excavator working with the door open was reminded by the QA Manager.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The AEM representative collected feedback on the rockfill quality. If the rockfill quality changes (blocks larger than 1.3 m or presence of too much fines), the blasting method in the pit may be adjusted to correct it.
- The till stockpile should be mixed soon with an excavator to allow for thawing before sampling for lab testing.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

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Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	■ Construction of an access ramp at the southern extremity of the downstream side of SD5 for dumping of rockfill. ■ Placement of a 2 m thick (approx.) lift of UM rockfill from Sta. 40+710 to 40+735 m (o.s. 10 to 31 m) with a dozer.
Water management	■ Water ponds have been pumped out before placement of UM rockfill from Sta. 40+715 to 40+740 m (o.s. 11 to 23 m).

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream	■ Compaction of the first 1.5 m lift (approx.) of UM rockfill with a 10-tonne smooth-drum compactor with vibration (8 passes) from Sta. 40+340 to 40+420 m (o.s. 4 to 20 m) to complete compaction on the downstream toe of SD4. ■ Placement of a 0.7 m thick (approx.) lift of UM rockfill on the downstream side of the SD4 footprint from Sta. 40+295 to 40+330 m (o.s. 2 to 14 m). The material comes from the stockpile left on the footprint from the last placement and is compliant.
Water management	■ The water pond at the surface of the compacted UM rockfill at Sta. 40+320 m (o.s. 4 m) has been pumped out. ■ Water is ponding in the excavated area from Sta. 40+340 to 40+420 m (o.s. 32 to 35 m). A sump or ditch is planned to be built at a later time downstream of SD4 to collect the water.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Downstream	■ Scrapping of frozen soil with a dozer on the downstream side of SD3 from Sta. 40+590 to 40+620 m (o.s. -8 to 11 m). ■ Loading of excavated material for foundation preparation from Sta. 20+605 to 20+615 m (o.s. 13 to 49 m).
Water management	■ The new sump has been shaped and UM rockfill placed from Sta.20+570 to 20+590 m (42 to 49 m) during the night shift. ■ The water pond has extended to the area from Sta. 20+595 to 20+640 m (o.s. -2 to 24 m) and pumping is ongoing. ■ Water is ponding in the area from Sta. 20+815 to 20+850 m (o.s. -4 to 20 m).

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

No sample was taken today.

Table 5: Sample taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD3-171: From Sta.20+635/-12 looking NE. Scrapping of frozen soil with a dozer on the downstream side of SD3 from Sta. 40+590 to 40+620 m (o.s. -8 to 11 m) and loading of excavated material for foundation preparation from Sta. 20+605 to 20+615 m (o.s. 13 to 49 m).



Photograph SD4-121: From Sta.40+330/18 looking E. Placement of a 0.7 m thick (approx.) lift of UM rockfill on the downstream side of the SD4 footprint from Sta. 40+295 to 40+330 m (o.s. 2 to 14 m).

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QA DAILY REPORT

DATE July 14th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR JULY 13TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 10° C, sunny.

2.0 HEALTH AND SAFETY

- It was reminded that no one should walk within a 15-20 m distance of heavy equipment. If passage is needed and heavy equipments pose a safety hazard even when stopped (e.g. rocks potentially falling from trucks), the foreman should be called to indicate when the area will be clear of equipment.
- New haul truck drivers have arrived and the importance of using the correct radio channel has been underlined.
- Heavy traffic damages access roads. Any damaged road should be reported to be repaired quickly.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The bedrock foundation on the upstream side of SD4 needs more cleaning in localized spots. Since the access to these areas is not suitable at the moment for the excavator, it is planned to clean them once the rockfill lifts have reached their level, and to approve these parts of the foundation later.
- It is expected that no soapstone rockfill will be available from Portage Pit over the next few days. The use of NPAG rockfill is considered, if available from a different pit. Soapstone rockfill should be readily available from the beginning of August.
- For loading excavated material during the night shifts, the 365 excavator should be prioritized.

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- Regarding the preparation of the two till stockpiles, it is recommended that the 345 excavator strip the thawed material of the surface of the piles on a regular basis. The scrapped till should be placed in another pile kept sealed to avoid infiltrations.
- Works planned on the north abutment of Central Dike will be precised soon.
- The exposed bedrock downstream of SD3 is highly fractured and is likely to remain so at a considerable depth. A decision must be made about the depth at which the foundation will be placed.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Foundation preparation	■ Final clean-up of footprint with an excavator to reach a good quality bedrock from Sta. 40+440 to 40+470 m (o.s. -7 to 6 m) and from Sta. 40+215 to 40+290 m (o.s. 5 to 19 m).
Downstream	■ Compaction of the 0.7 m lift (approx.) of UM rockfill placed from the stockpiles with a 10-tonne smooth-drum compactor with vibration (8 passes) from Sta. 40+300 to 40+355 m (o.s. -1 to 14 m) and from Sta. 40+350 to 40+420 m (o.s. 20 to 27 m). ■ Removal of loose rocks and soft and ice-rich soils on the downstream side of SD4 from Sta. 40+430 to 40+465 m (o.s. 0 to 23 m).
Water management	■ Water is ponding on the bedrock from Sta. 40+240 to 40+290 m (o.s. 7 to 14 m). ■ Water is ponding in the excavated area from Sta. 40+340 to 40+420 m (o.s. 32 to 35 m). A sump or ditch is planned to be built at a later time downstream of SD4 to collect the water.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Downstream	■ Loading of excavated material for foundation preparation from Sta. 20+710 to 20+730 m (o.s. 40 to 47 m). ■ Removal of loose rocks and soft and ice-rich soils on the downstream side of SD3 from Sta. 20+595 to 40+615 m (o.s. -8 to 28 m). ■ Creation of two access ramps from the northern and western sides of the excavation to allow haul trucks to go on the downstream footprint for loading.
Water management	■ The new sump is in operation to support the dewatering of the SD3 downstream footprint. ■ The water pond from Sta. 20+595 to 20+640 m (o.s. -2 to 24 m) has been partially pumped out. ■ Water is ponding in the area from Sta. 20+815 to 20+850 m (o.s. -4 to 20 m).

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

No sample was taken today.

Table 5: Sample taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD4-122: From Sta. 40+230/-14 looking W. Final clean-up of footprint with an excavator to reach a good quality bedrock on the downstream side of SD4 Sta. 40+440 to 40+470 m (o.s. -7 to 6 m) and from Sta. 40+215 to 40+290 m (o.s. 5 to 19 m). Notice the water ponding on the bedrock.



Photograph SD3-172: From Sta. 20+740/21 looking E. Creation of two access ramps from the northern and western sides of the excavation to allow haul trucks to go on the downstream footprint for loading. Notice the highly fractured bedrock beneath the excavator.

QA DAILY REPORT

DATE July 15th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer, revised by Michael Nadon **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR JULY 14TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 15° C, sunny and windy.

2.0 HEALTH AND SAFETY

- Slopes around the excavation at SD3 are steep and unstable, with a risk of tripping and rocks falling: no one should walk down these slopes or stand at the bottom.
- Methods of measurement must be adapted based on the site conditions. The surveyor and QA Manager have modified their procedures to remain safe at all times when collecting data.
- Any injury, even minor ones, must be reported within 24h to the medical team and the supervisor.
- Blasting is scheduled at 12:15 on Amaruq Road and at 12:45 in Vault Pit.
- Always wait for the verbal approval of an operator before approaching a heavy equipment.
- Be aware that haul trucks tires can burst and pose a safety hazard for workers standing too close to them. A distance of 35 m is advised.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The availability of the dozer is uncertain and depends on mining activities. The construction activities will be reorganised if need be.

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- The question of the fractured bedrock as a foundation at SD3 has been raised and will be looked into today on the field with Alexandre Lavallée.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Foundation preparation	■ Final clean-up of footprint with an excavator to reach a good quality bedrock from Sta. 40+210 to 40+270 m (o.s. -7 to 15 m) and from Sta. 40+420 to 40+480 m (o.s. -3 to 27 m).
Downstream	■ Loading of the top of the excavated material stockpile for foundation preparation from Sta. 40+520 to 40+530 m (o.s. -8 to 9 m).
Water management	■ The water ponding on the bedrock from Sta. 40+240 to 40+290 m (o.s. 7 to 14 m) is being pumped out. ■ Water is ponding in the excavated area from Sta. 40+340 to 40+420 m (o.s. 32 to 35 m). A sump or ditch is planned to be built at a later time downstream of SD4 to collect the water.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Water management	■ The new sump is in operation to support the dewatering of the SD3 downstream footprint. Pumping of the water ponding on the northern side of the footprint is ongoing. ■ Orange water is ponding in the southern side of the excavation. ■ Water is ponding in the area from Sta. 20+815 to 20+850 m (o.s. -4 to 20 m).

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

No sample was taken today.

Table 5: Sample taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD4-123: From Sta. 40+430/1 looking S. Loading of the excavated material stockpile for foundation preparation from Sta. 40+520 to 40+530 m (o.s. -8 to 9 m) and final clean-up of footprint with an excavator to reach a good quality bedrock from Sta. 40+420 to 40+480 m (o.s. -3 to 27 m).



Photograph SD3-173: From Sta. 20+680/-16 looking W. Orange water is ponding in the southern side of the excavation.

QA DAILY REPORT

DATE July 16th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer, revised by Michael Nadon **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR JULY 15TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 15° C, cloudy and windy with a little rain.

2.0 HEALTH AND SAFETY

- The situation of the haul trucks from mine production working on the dikes will be mentioned during this week's safety meeting to ensure operators are aware of the specificities and constraints on the dikes.
- Night workers (QC personnel, excavator operator) usually work alone and need to have someone to refer to during their shift, in the absence of a supervisor (until August 1st). Alone workers should report to dispatch every 2 hours.
- Blasting is planned at 12:45 at Phaser and at 18:30 in Pit E5.
- It is reminded that stop and yield signs need to be respected by all and have priority over right of way. Right of way applies when no sign is installed.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- Old tires and culverts left from the foundation cleanups will be collected by site services.
- The two till stockpiles on SD4 will be moved around July 20th.
- Test pits will be done today to assess the depth of the bedrock at the western extremity of SD3 with Francis Pépin (SANA's surveyor) to mark the 15 m limit from the Airstrip Quarry crest. The alignment of SD3 will be adjusted consequently.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Foundation preparation	■ Final clean-up of footprint with an excavator to reach a good quality bedrock from Sta. 40+520 to 40+540 m (o.s. -3 to 30 m).
Downstream	■ Loading of the excavated material stockpile for foundation preparation from Sta. 40+520 to 40+540 m (o.s. 10 to 30 m). ■ The access road between SD4 and SD5 (« pig launcher » sector) has been removed.
Water management	■ The water ponding on the bedrock from Sta. 40+240 to 40+290 m (o.s. 7 to 22 m) is being pumped out. ■ Water is ponding in the excavated area from Sta. 40+340 to 40+420 m (o.s. 32 to 35 m). A sump or ditch is planned to be built at a later time downstream of SD4 to collect the water.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Downstream	■ Removal of loose rocks and soft and ice-rich soils on the downstream side of SD3 from Sta. 20+695 to 20+720 m (o.s. 13 to 33 m)
Upstream	■ Loading of the excavated material stockpile for foundation preparation from Sta. 20+755 to 20+785 m (o.s. -10 to 1 m). ■ Three test pits were executed to assess the depth of the bedrock at the western extremity of SD3.
Water management	■ The new sump is in operation to support the dewatering of the SD3 downstream footprint. Pumping of the water ponding on the footprint is ongoing.

Activity or Area	Comments
	■ Water is ponding in the area from Sta. 20+815 to 20+850 m (o.s. -4 to 20 m).

5.0 FOUNDATION APPROVAL

Two foundation approvals were done today.

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment
FND-SD4-28	SD4		15/07/2017	Approved provided the water ponds are pumped out before placing UM rockfill
FND-SD4-29	SD4		15/07/2017	Approved provided the water ponds are pumped out before placing UM rockfill

6.0 LABORATORY

No sample was taken today.

Table 5: Sample taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD4-124: From Sta. 40+420/8 looking S. Final clean-up of footprint with an excavator to reach a good quality bedrock from Sta. 40+520 to 40+540 m (o.s. -3 to 30 m).



Photograph SD3-174: From Sta. 20+820/-28 looking NE. Loading of the excavated material stockpile for foundation preparation from Sta. 20+755 to 20+785 m (o.s. -10 to 1 m).



Photograph SD3-175: From Sta. 20+820/-28 looking NE. Test pits were excavated to assess the depth of the bedrock at the western extremity of SD3.

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QA DAILY REPORT

DATE July 17th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer, revised by Michael Nadon **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR JULY 16TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 15° C, rainy.

2.0 HEALTH AND SAFETY

- The rain makes the ground muddy and very slippery, with a higher risk of slips and falls. Extra caution must be applied when walking or driving on wet surfaces.
- Blasting is planned at 12:45 at Vault.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The bedrock is being cleaned around the Airstrip Quarry (Quarry 28). The SD3 alignment will be optimized once the bedrock is exposed.
- When rockfill is available, it will be placed in priority on SD5 to complete the first lift. The next area to be backfilled will be the northern side of SD4.
- Excavation works to prepare the foundation at the three Saddle Dams should be over in about a week.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

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Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Water management	■ The water ponding on the bedrock from Sta. 40+240 to 40+290 m (o.s. 7 to 22 m) is being pumped out. ■ Water is ponding in the excavated area from Sta. 40+340 to 40+420 m (o.s. 32 to 35 m). A sump or ditch is planned to be built at a later time downstream of SD4 to collect the water.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Foundation preparation	■ Final clean-up of footprint with an excavator to reach a good quality bedrock from Sta. 20+590 to 20+640 m (o.s. -2 to 40 m) and from Sta 20+715 to 20+755 m (o.s. -2 to 6 m).
Downstream	■ Removal of loose rocks and soft and ice-rich soils on the downstream side of SD3 with a dozer from Sta. 20+595 to 20+680 m (o.s. 1 to 40 m). ■ Loading of the excavated material stockpile for foundation preparation from Sta. 20+590 to 20+610 m (o.s. 20 to 40 m) and from Sta. 20+610 to 20+635 m (o.s. 15 to 25 m).
Upstream	■ Loading of the excavated material stockpile for foundation preparation from Sta. 20+795 to 20+840 m (o.s. -26 to -14 m). ■ Removal of pipes to prepare work area for bedrock cleaning.
Water management	■ The new sump is in operation to support the dewatering of the SD3 downstream footprint. Pumping of the water ponding on the footprint is ongoing. ■ Water is ponding in the area from Sta. 20+815 to 20+850 m (o.s. -4 to 20 m).

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

No sample was taken today.

Table 5: Sample taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD3-176: From Sta. 20+585/-17 looking NW. Loading of the excavated material stockpile for foundation preparation from Sta. 20+590 to 20+610 m (o.s. 20 to 40 m) and final clean-up of footprint with an excavator to reach a good quality bedrock from Sta. 20+590 to 20+640 m (o.s. -2 to 40 m).

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QA DAILY REPORT

DATE July 18th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR JULY 17TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 15° C, rainy.

2.0 HEALTH AND SAFETY

- The rain is still an issue, the muddy and very slippery ground cause a high risk of slips and falls. Extra caution must be applied when walking or driving on wet surfaces.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- Michael Nadon arrived on site as the QA Manager for a ten days rotation.
- It was discussed that a new access road on SD4 will be built (between Sta. 40+520 to 40+540 m) in order to save travelling and allow haul truck to circulate safely on the dike.
- A first draft of the modified alignment of SD3 has been provided by SANA's surveyor. The draft will be studied by all concerned and modified, if needed, during the next days. Moreover, the dike footprint is being cleaned currently and the draft might need to be optimized once the bedrock will be exposed.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

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Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	■ Placement of a 1.5 m thick (approx.) lift of UM rockfill from Sta. 40+740 to 40 +640 m (o.s. 9 to 37 m). The lift reaches El. 135 m and the material is compliant.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Water management	■ The water ponding on the bedrock from Sta. 40+240 to 40+290 m (o.s. 7 to 22 m) is being pumped out. ■ Water is ponding in the excavated area from Sta. 40+340 to 40+420 m (o.s. 32 to 35 m). A sump or ditch is planned to be built at a later time downstream of SD4 to collect the water.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream	■ Loading of the excavated material stockpile for foundation preparation from Sta. 20+840 to 20+870 m (o.s. -34 to -12 m).
Water management	■ Pumping of the water ponding on the footprint is ongoing.

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

No sample was taken today.

Table 5: Sample taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD5-052: From Sta. 40+735/36 looking N. Placement of a 1.5 m thick (approx.) lift of UM rockfill from Sta. 40+740 to 40 +700 m (o.s. 9 to 37 m) up to El. 135 m.



Photograph SD3-177: From Sta. 20+805/-42 looking W. Loading of the excavated material stockpile for foundation preparation from Sta. 20+840 to 20+870 m (o.s. -34 to -12 m).

QA DAILY REPORT

DATE July 19th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR JULY 18TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 10° C, rainy.

2.0 HEALTH AND SAFETY

- 12h45: Blast at Vault
- A tool box meeting with the mine department about the haul truck operators working on the dike took place this morning. Using the good radio frequency and the appropriate procedure around heavy equipment were reiterated.
- It was reminded that when the plane is landing, heavy equipment has to stop their activity.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QA Manager will investigate on the Till quality required for the SD3 LLDPE cover and will give feedback as soon as possible.
- It was discussed that around the July 22nd, the tailing pipe around the Sieved Compacted Till on the North part of CD will be removed. Thus, the stockpile will be mixed to allow for thawing and sampling for lab testing.
- Regarding the numerous dewatering activities around SD4, the QA Manager proposed to excavate 5 m beyond the footprint of the downstream side of SD4 in order to create a ditch to help draining the dike footprint. Moreover, it was mentioned that a sump around SD4/SD5 dike toe should be planned soon to help draining the dike footprint.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

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Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	■ Compaction of the first 1.5 m thick (approx.) lift of UM rockfill with a 10 tonne compactor (8 passes) from Sta. 40+740 to 40 +640 m (o.s. 3 to 32 m).

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream	■ Placement of a 1.5 m thick (approx.) lift of UM rockfill with a dozer from Sta. 40+290 (o.s. -4 to 35 m) to 40 +240 m (o.s. -4 to 12 m). The material is compliant.
Water management	■ The water ponding on the bedrock from Sta. 40+240 to 40+290 m (o.s. 7 to 22 m) is being pumped out. ■ Water is ponding in the excavated area from Sta. 40+340 to 40+420 m (o.s. 32 to 35 m). A sump or ditch is planned to be built at a later time downstream of SD4 to collect the water.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Foundation preparation	■ Final clean-up of the footprint with an excavator to reach a good quality bedrock from Sta. 20+660 to 20+720 m (o.s. -8 to 30 m).
Upstream	■ Loading of the excavated material stockpile with an excavator for foundation preparation on the south part of SD3 from Sta. 20+860 to 20+880 m (o.s. -31 to -40 m).
Downstream	■ Loading of the excavated material stockpile with an excavator for foundation preparation from Sta. 20+660 to 20+720 m (o.s. 40 to 50 m).
Water management	■ Pumping of the water ponding on the northern part of the footprint is ongoing.

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

No sample was taken today.

Table 5: Sample taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD5-053: From Sta. 40+740/30 looking NW. View of the 10 tonne compactor compacting the first 1.5 m thick (approx.) lift of UM rockfill.



Photograph SD4-125: From Sta. 40+740/30 looking SE. Placement of a 1.5 m thick (approx.) lift of UM rockfill with a dozer from Sta. 40+290 (o.s. -4 to 35 m) to 40 +230 m (o.s. -4 to 12 m).



Photograph SD3-178: From Sta. 20+580/0 looking S. View of an excavator doing the final clean-up to reach a good quality bedrock on the downstream side of SD3, and an excavator loading the excavated material for the foundation preparation.

QA DAILY REPORT

DATE July 20th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR JULY 19TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 5° C, rainy.

2.0 HEALTH AND SAFETY

- Regarding the heavy equipment, it was reminded that it is important to always keep a safety distance and an eye contact with the operator when working around.
- The rain is still an issue, the muddy and very slippery ground cause a high risk of slips and falls. Extra caution must be applied when walking or driving on wet surfaces.
- About the can of spray paint, a container is available near SANA's office to throw it away.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- In order to drain the northern part of the SD3 dike toe, it was discussed that a ditch from the dike toe to the sump (east-west) would be significant. The excavation depth from the dike toe to the sump would vary from 0.4 m to 1.5 m (approx.), including a 1% slope toward the sump to ensure a natural drainage (see the draft attached to the report). Considering that the soil is still frozen, the excavation will be done in the next few days.
- SANA's surveyor is currently figuring out the new SD3 alignment. More information to come during the week.
- The QA Manager reminded that it is important to compact the UM rockfill that was placed yesterday on SD4 in order to ensure the compaction specifications before the water that had been pumped come back.

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- It was discussed that around the July 22nd, the tailing pipe beside the Sieved Compacted Till on the north part of CD will be removed. Thus, the stockpile will be mixed to allow for thawing and sampling for lab testing.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	■ Compaction of the first 1.5 m thick (approx.) lift of UM rockfill with a 10 tonne compactor (8 passes) from Sta. 40+600 to 40 +640 m (o.s. 20 to 35 m).

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream	■ Placement of a 1.5 m thick (approx.) lift of UM rockfill with a dozer from Sta. 40 +240 m to 40+160 (o.s. -4 to 12 m). The material is compliant. ■ Compaction of the first 1.5 m thick (approx.) lift of UM rockfill with a 10 tonne compactor (8 passes) from 40+240 to 40+318 (o.s. 5 to -10 m).
Water management	■ Water is ponding in the excavated area from Sta. 40+340 to 40+420 m (o.s. 32 to 35 m). A sump or ditch is planned to be built at a later time downstream of SD4 to collect the water.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Foundation preparation	■ Final clean-up of the footprint with an excavator to reach a good quality bedrock from Sta. 20+720 to 20+790 m (o.s. 5 to 14 m). ■ Excavation of the loose rocks, soft and ice-rich soils with an excavator on the south part of SD3 from Sta. 20+880 (o.s. -27 to -43 m) to 20+890 m (o.s. -60 to -66 m).
Water management	■ Pumping of the water ponding on the northern part of the footprint is ongoing.

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

No sample was taken today.

Table 5: Sample taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

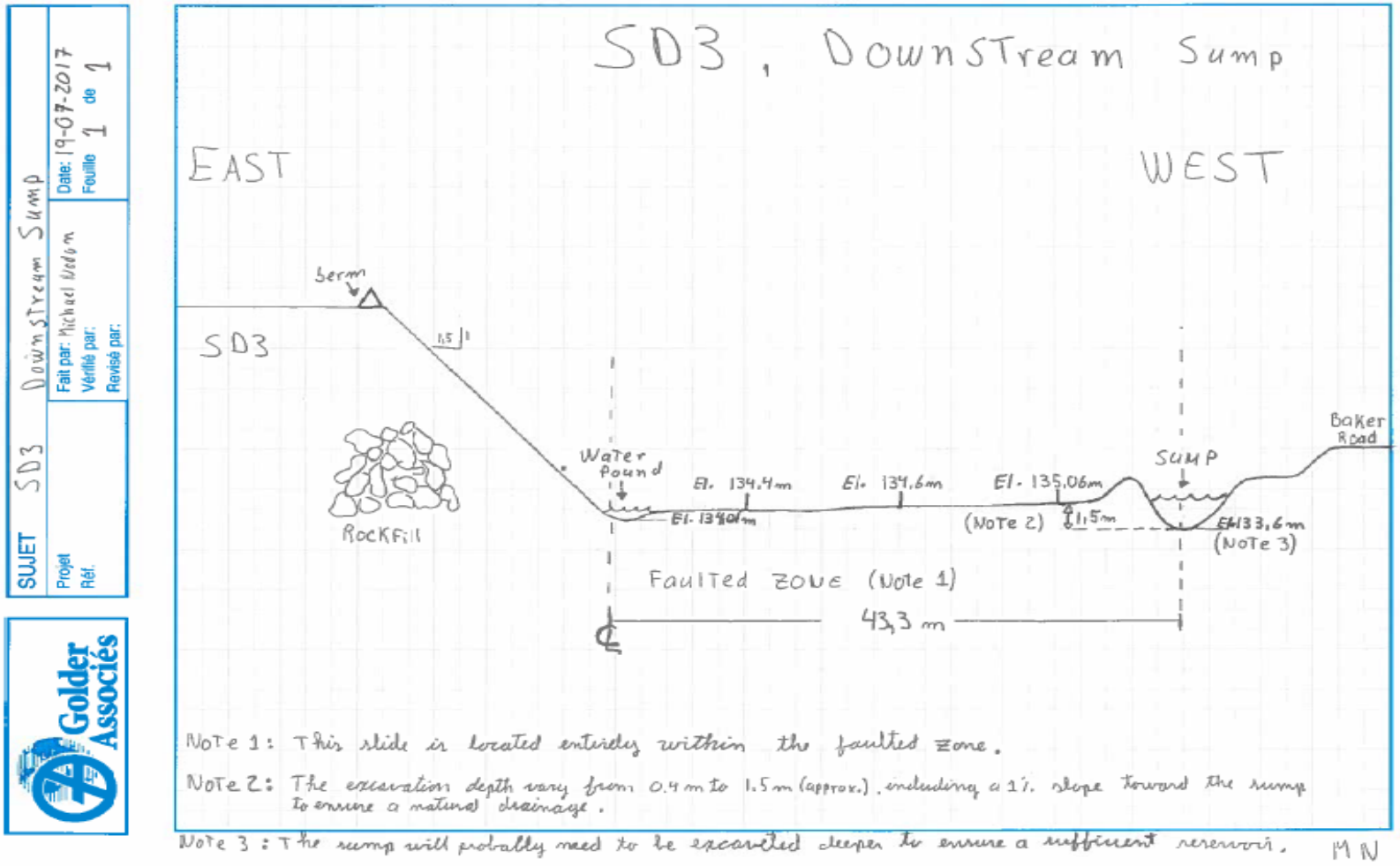
7.0 PHOTOGRAPH



Photograph SD4-126: From Sta. 40+200/-20 looking SE. View of the dozer placing a 1.5 m (approx.) lift of UM rockfill on the dike footprint.



Photograph SD3-179: From Sta. 20+730 looking S. View of an excavator doing the final clean-up to reach a good quality bedrock on the dike footprint of the downstream side of SD3.



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QA DAILY REPORT

DATE July 21st **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR JULY 20TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 10° C, cloudy.

2.0 HEALTH AND SAFETY

- No safety issue today.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- In order to ensure an appropriate contact between the different UM rockfill lift, the QA Manager reminded that it is important to scarify each UM rockfill lift after the compaction.
- Jérémy, from the mine department, was attending the daily construction meeting today to take the pulse of the rockfill hauling, and to learn about the needs of the project.
- It was discussed that a ditch will be excavated all along the downstream side of the SD4 and SD5 dike toe in order to help draining the water.
- The Representatives of Golder, SANA and the Owner went on the field to investigate the future site of the SD4 and SD5 sump. The surveyor (AEM) is currently doing a topographic survey to identify the lower point of this region. More news to come in the next few days.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

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Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	■ Loading of the excavated material for the foundation preparation from Sta. 40+640 to 40+720 m (o.s.29 to 50 m).

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream	■ Placement of a 1.5 m thick (approx.) lift of UM rockfill with a dozer from Sta. 40 +160 m (o.s. -4 to 12 m) to 40+40 m (o.s. 0 to 5 m). The material is compliant. ■ Placement of a 1.5 m thick (approx.) lift of UM rockfill with a dozer from Sta. 40+460 to 40+540 m (o.s. 20 to 35 m) ■ Compaction of the first 1.5 m thick (approx.) lift of UM rockfill with a 10 tonne compactor (8 passes) from 40+160 to 40+40 m (o.s. 0 to 5 m).
Water management	■ Water is ponding in the excavated area from Sta. 40+340 to 40+420 m (o.s. 32 to 35 m). A sump or ditch is planned to be built at a later time downstream of SD4 to collect the water.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Foundation preparation	■ Excavation of the loose rocks of the footprint with an excavator to reach a good quality bedrock from Sta. 20+720 to 20+790 m (o.s. 3 to 15 m).
Water management	■ Pumping of the water ponding on the northern part of the footprint is ongoing.

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

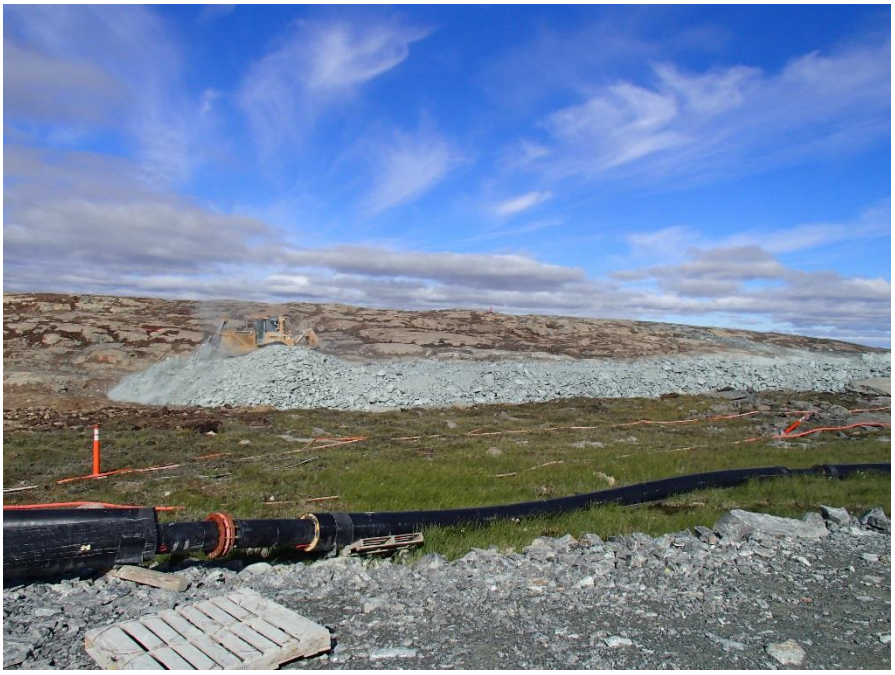
6.0 LABORATORY

No sample was taken today.

Table 5: Sample taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD4-126: From Sta. 40+200/-20 looking SE. Placement of a 1.5 m thick (approx.) lift of UM rockfill with a dozer from Sta. 40+460 to 40 +540 m (o.s. 20 to 35 m).



Photograph SD3-180: From Sta. 20+760/4 looking N. View of an excavator doing the final clean-up to reach a good quality bedrock on the dike footprint of the downstream side of SD3.

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QA DAILY REPORT

DATE July 22nd **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR JULY 21ST, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 15° C, cloudy to sunny.

2.0 HEALTH AND SAFETY

- The need to wear a mask while working in the lab was discussed. Alexandre Lavallée (AEM) will verify the previous investigation on the subject and will give feedback as soon as possible.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- Regarding the placement of UM rockfill lifts, in order to ensure an appropriate contact between a new UM rockfill lift and the profiled UM rockfill of the downstream slope, it was discussed that the dozer will mix the profiled UM rockfill while placing the new lift.
- The QA Manager reminded that a nucleodensimeter will be required to ensure the compaction specifications when till will be placed for the upstream toe liner tie-in. A nucleodensimeter is supposed to be send to Meadowbank for mid-August.
- The SANA's surveyor finished drawing the plan of the new alignment of SD3 and gave the new plan to all concern. The actual design of the dike was not suitable according to the latest bedrock depth since it would go straight to the quarry 23. The proposed realignment would allow a minimum of 15 m between the crest of the quarry and the toe of the dike (bedrock) and a bend angle of 145 degrees (approx.) (see the plan attached to the report). Golder's appreciation of the new alignment will come in the next few days.

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- It was discussed that the “tire technique” used for the bedrock cleaning is not the appropriate one for SD3. A lot of loose rocks are present on the dike footprint and it seems that the tire is not enough stiff to remove sufficiently the residual rocks. The “duck fingers technique” will now be used.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	■ Placement of a 2.0 m-thick lift of UM rockfill with a dozer from Sta.40+660 to 40+720 m (o.s. -5 to 25 m)

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream	■ Placement of a 1.5 m-thick (approx.) lift of UM rockfill with a dozer from Sta. 40 +540 m to 40+415 m (o.s. -6 to 30 m). The material is compliant. ■ Compaction of the 1.5 m-thick (approx.) lift of UM rockfill with a 10 tonne compactor (8 passes) from Sta. 40 +540 m to 40+415 m (o.s. -6 to 30 m). ■ Loading of the excavated material for the foundation preparation from Sta. 40+210 to 40+150 m (o.s. 15 to 30 m)
Water management	■ Water is ponding in the excavated area from Sta. 40+340 to 40+420 m (o.s. 32 to 35 m). A sump or ditch is planned to be built at a later time downstream of SD4 to collect the water.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Foundation preparation	■ Starting the excavation of the loose rocks, soft and ice-rich soils of the extreme south part of the dike footprint with an excavator to reach a good quality bedrock.
Water management	■ Pumping of the water ponding on the northern part of the footprint is ongoing.

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

No sample was taken today.

Table 5: Sample taken

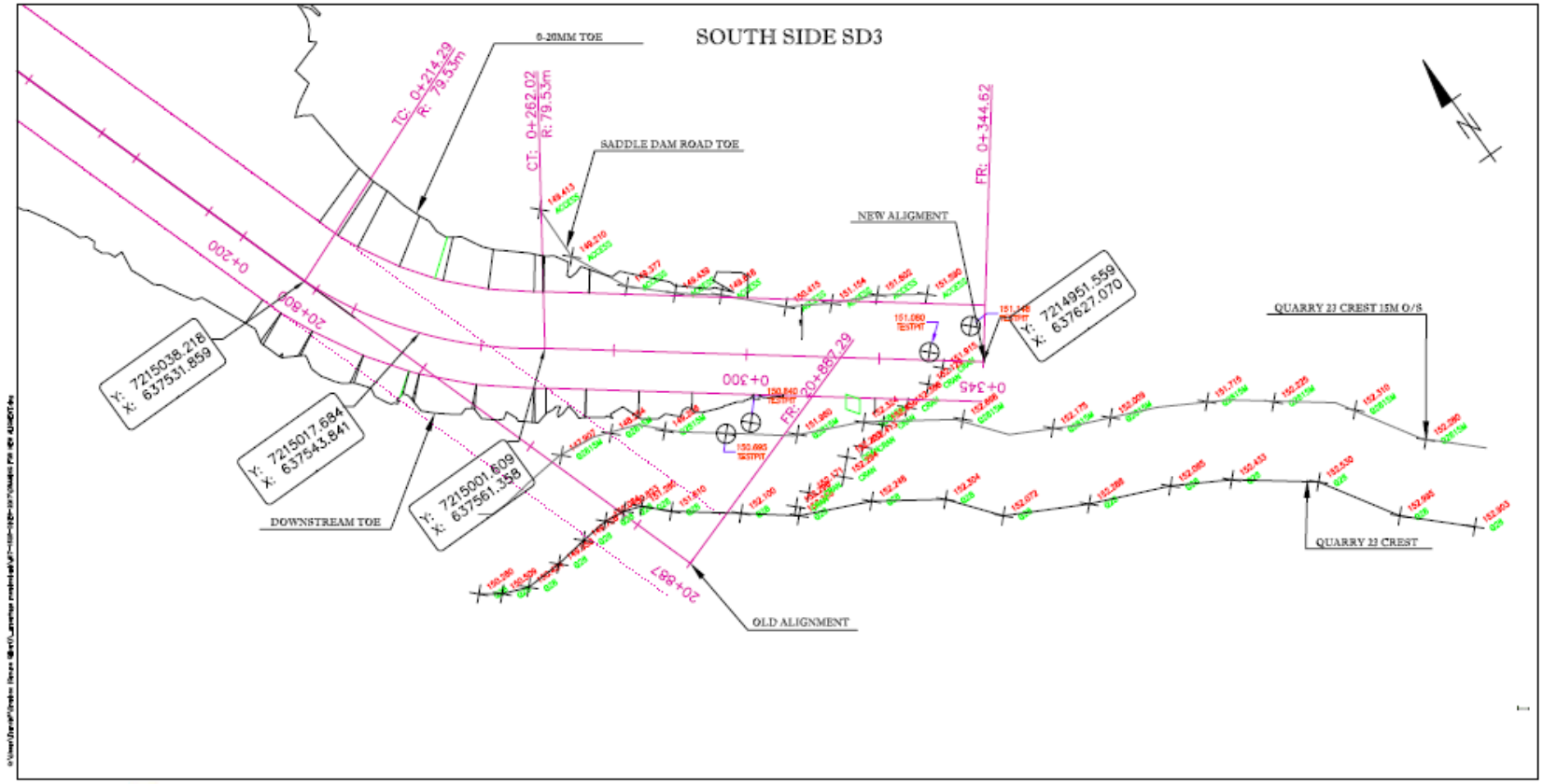
Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD5-054: From Sta. 40+680/18 looking W. View of a dozer placing a 2 m-thick lift of UM rockfill from Sta.40+660 to 40+720 m. Notice the compactor behind compacting the UM rockfill lift.

SD3 SOUTH END PROPOSAL
DIKES CONSTRUCTION
CONTRACT # 17-1505



984246 N.W.T. Limited
D/B/A :
Qamanittuaq
SANA

PREPARED BY : FRANCIS PEPIN
DATE : 20-07-2017
CON-SK-0001 REV 2

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Golder Associés

QA DAILY REPORT

DATE July 23rd **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR JULY 22ND, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 20° C, sunny.

2.0 HEALTH AND SAFETY

- The speed limit on the Saddle road has been reminded.
- Dust is an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The representatives of the Owner, Golder and SANA went for a walk on the southern part of SD3 to figure the SD3 realignment out in regard to remove the current access road. The possibility to use the future dike as an access road is being studied currently. A second field investigation will take place once the dike footprint will be cleaned.
- Regarding the SD3 sump, a meeting between the Owner representatives and Golder is planned soon. So far, it was discussed that the current sump might be used as a channel, which will redirect the water toward a new sump that could be located further south, on a portion of the old “Baker road”.
- A discussion about the water management on SD4 and SD5 took place. A ditch all along the two Saddle Dams is planned, as well as two sump, one for each structure that will be located in the respective low point. The draining plan of SD4 and SD5 will evolved as the field work will progress. The excavation of the ditch is planned to start within the few days.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	■ Placement of a 2.0 m-thick lift of UM rockfill with a dozer from Sta.40+720 to 40+740 m (o.s. -5 to 25 m). Some loads of UM rockfill were heterogeneous and contains high fine particles but also contains a good quantity of block- and cobble-sized particles. The material was compliant. ■ Compaction of the 2.0 m-thick lift of UM rockfill with a 10 tonne compactor (6 passes) from Sta. 40+660 to 40+740 (o.s. -5 to 25 m).

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Foundation preparation	■ Final clean-up of the dike footprint with an excavator to reach a good quality bedrock from Sta. 40+260 to 40+180 (o.s. 8 to 27 m).
Downstream	■ Loading of the excavated material for the foundation preparation from Sta. 40+150 to 40+030 m (o.s. 15 to 30 m). ■ Placement of a 2.0 m-thick lift of UM rockfill with a dozer from Sta.40+460 to 40+540 m (o.s. 10 to 27 m). ■ Compaction of the 2.0 m-thick lift of UM rockfill with a 10 tonne compactor (6 passes) from Sta.40+460 to 40+540 m (o.s. 10 to 27 m).
Water management	■ Water is ponding in the excavated area from Sta. 40+340 to 40+420 m (o.s. 32 to 35 m). A sump or ditch is planned to be built at a later time downstream of SD4 to collect the water.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Water management	■ Pumping of the water ponding on the northern part of the footprint is ongoing.

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

No sample was taken today.

Table 5: Sample taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD5-055: From Sta. 40+720/43 looking NW. View of a dozer placing a 2 m-thick lift of UM rockfill from Sta.40+720 to 40+740 m.



Photograph SD4-128: From Sta. 40+260/-29 looking N. Final clean-up of the footprint with an excavator to reach a good quality bedrock on the downstream side of SD4.

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QA DAILY REPORT

DATE July 24th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR JULY 23RD, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 20° C, rainy.

2.0 HEALTH AND SAFETY

- The grader # 4 had a mechanical issue yesterday and a coolant spill (about 30 liters) occurred. The spill got cleaned on the night shift and an incident report was sent to the environmental department this morning.
- It was reminded that electronics (Ipod, cell phone, etc.) are prohibited on the construction field and sanctions may be applied.
- We had a talk about the importance to have experienced haul truck drivers on the construction field. Jérémy Kancir, AEM foreman, is trying to get the message accross the mine department.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- It was discussed that the till stockpiles on the north of CD won't be mixed before July 29th. Actually, the realignment of the southern part of SD3 will be prioritised, and no excavator will be available until the end this operation.
- SANA confirmed that the preparation of the bedrock for the upstream toe liner tie-in on the north part of CD and around the connection between SD4 and SD5 is not planned to begin before the mid-August because of a lack of heavy equipment.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	■ Profiling the slope of the downstream side of SD5 with an excavator from Sta. 40+700 to 40+740 m.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Foundation preparation	■ Final clean-up of the dike footprint with an excavator to reach a good quality bedrock from Sta. 40+120 to 40+030 m (o.s. 11 to 30 m).
Downstream	■ Placement of a 2.0 m-thick lift of UM rockfill with a dozer from Sta.40+420 to 40+460 m (o.s. 10 to 27 m). ■ Compaction of the 2.0 m-thick lift of UM rockfill with a 10 tonne compactor (6 passes) from Sta.40+420 to 40+460 m (o.s. 10 to 27 m).
Water management	■ Water is ponding in the excavated area from Sta. 40+340 to 40+420 m (o.s. 32 to 35 m). A sump or ditch is planned to be built at a later time downstream of SD4 to collect the water.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream	■ Loading of the excavated material for the foundation preparation on the extreme south of the upstream side of SD3.
Water management	■ Pumping of the water ponding on the northern part of the footprint is ongoing.

5.0 FOUNDATION APPROVAL

A foundation approval was done on SD4. See the details in Table 4 below.

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment
FND-SD4-30	SD4	Sta. 40+020 to 40+264 m (o.s. 22.54 to 3.22 m)	23-07-2017	Approved provided the water ponds are pumped out before placing UM rockfill

6.0 LABORATORY

No sample was taken today.

Table 5: Sample taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD4-129: From Sta. 40+420/0 looking S. View of a dozer placing a 2 m-thick lift of UM rockfill from Sta.40+420 to 40+460 m.



Photograph SD4-130: From Sta. 40+158/15 looking NW. Final clean-up of the footprint with an excavator to reach a good quality bedrock on the downstream side of SD4 from Sta. 40+120 to 40+030 m .

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QA DAILY REPORT

DATE July 25th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR JULY 24TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 20° C, rainy in the morning, sunny in the afternoon.

2.0 HEALTH AND SAFETY

- The rain is still an issue, the muddy and very slippery ground cause a high risk of slips and falls. Extra caution must be applied when walking or driving on wet surfaces.
- During the night shift, a fire occurred at a drill of Vault pit. It was reminded that the fire extinguisher inspection is important and has to be done every day at the beginning of the shift.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- It was discussed that activities concerning the realignment of the southern part of SD3 will be prioritised for the next week, and that a foundation approval in this section would follow in the next days.
- The QA Manager spent a moment with the excavator operator of the Pit E (RH 120) to make sure he is concerned about the rockfill specifications we are expecting to appreciate on the dike.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

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Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	■ Placement of a 2.0 m-thick lift of UM rockfill with a dozer from El. 137 to 139 m from Sta. 40+680 to 40+700 m (o.s. -6 to 26 m).

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream	■ Placement of a 1.5 m-thick (approx.) lift of UM rockfill with a dozer from Sta.40+030 to 40+260 m (o.s. 6 to 20 m). ■ Compaction of the 1.5 m-thick (approx.) lift of UM rockfill with a 10 tonne compactor (6 passes) from Sta.40+260 to 40+030 m (o.s. 10 to 27 m).
Water management	■ Water is ponding in the excavated area from Sta. 40+340 to 40+420 m (o.s. 32 to 35 m). A sump or ditch is planned to be built at a later time downstream of SD4 to collect the water.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream	■ Loading of the excavated material for the foundation preparation from Sta. 20+790 to 20+770 m and from 20+710 to 20+750 (o.s. 15 to 22 m). ■ Final clean-up of the dike footprint with an excavator to reach a good quality bedrock from Sta. 20+890 (o.s. -60 to -65 m) to 20+860 m (o.s. -15 to -26 m).
Water management	■ Pumping of the water ponding on the northern part of the footprint is ongoing.

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

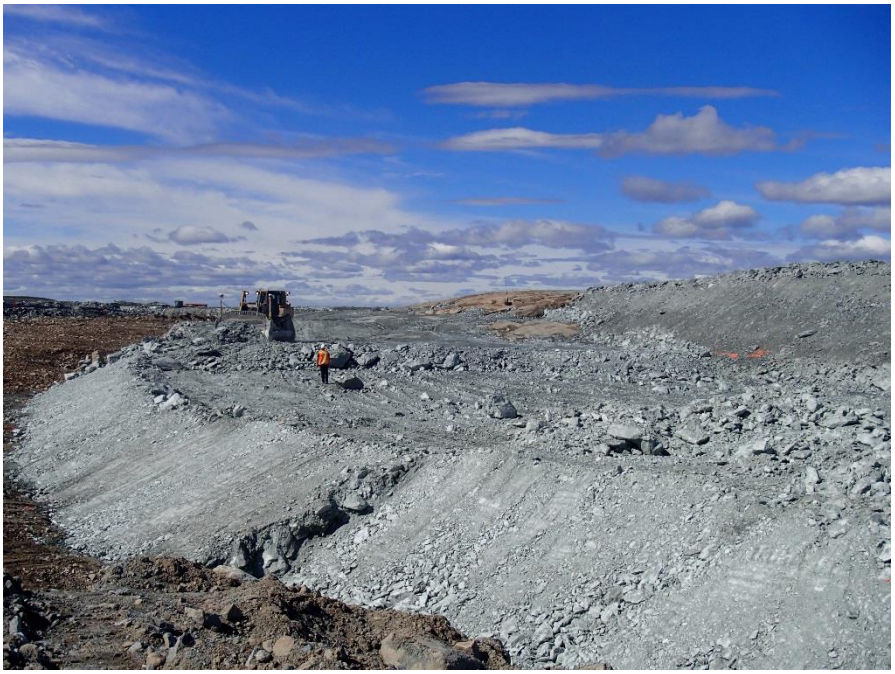
6.0 LABORATORY

No sample was taken today.

Table 5: Sample taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD5-056: From Sta. 40+720/43 looking NW. View of a dozer placing a 2 m-thick lift of UM rockfill with a dozer from El. 137 to 139 m from Sta.40+680 to 40+700 m.



Photograph SD3-181: From Sta. 20+880/-67 looking W. View of an excavator doing the final clean-up to reach a good quality bedrock on the realigned section of SD3.

QA DAILY REPORT

DATE July 26th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR JULY 25TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 15° C, rainy.

2.0 HEALTH AND SAFETY

- The rain is still an issue, the muddy and very slippery ground cause a high risk of slips and falls. Extra caution must be applied when walking or driving on wet surfaces.
- The berm on the access road of south the part of SD3 might be enlarged in order to keep a safety distance from the crest of the excavation. SANA's foremen will take a look this morning and give feedback.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- It was discussed that after the excavation of the southern abutment of SD2, for the foundation preparation and the connection between SD2 and SD3, the 365 excavator might begin to excavate the sump on SD4. More news to come during the week.
- The QA Manager mentioned that more cleaning is to be done on the south part of SD3 before any foundation approval. A lot of loose rocks are still present on the dike footprint.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in

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conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	■ Placement of a 2.0 m-thick lift of UM rockfill with a dozer from El. 137 to 139 m from Sta. 40+700 to 40+740 m (o.s. -4 to 28 m).

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Water management	■ Water is ponding in the excavated area from Sta. 40+340 to 40+420 m (o.s. 32 to 35 m). A sump or ditch is planned to be built at a later time downstream of SD4 to collect the water.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream	■ Loading of the excavated material for the foundation preparation from Sta. 20+750 to 20+770 m (o.s. 15 to 22 m). ■ Final clean-up of the dike footprint with an excavator to reach a good quality bedrock from Sta. 20+850 to 20+870 m (o.s. -14 to -21 m).
Water management	■ Pumping of the water ponding on the northern part of the footprint is ongoing.

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

No sample was taken today.

Table 5: Sample taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD5-057: From Sta. 20+750/60 looking NW. View of a dozer placing a 2 m-thick lift of UM rockfill from El. 137 to 139 m from Sta.40+700 to 40+740 m.



Photograph SD3-182: From Sta. 20+880/-41 looking NW. View of an excavator doing the final clean-up to reach a good quality bedrock on the realigned section of SD3.

QA DAILY REPORT

DATE July 27th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR JULY 26TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 10° C, cloudy to rainy.

2.0 HEALTH AND SAFETY

- An hydraulic oil spill occurred yesterday on SD4 (10 liters approx.) on the compactor. The spill has been cleaned and an environmental report sent to all concerned.
- It was reminded that any task concerning electrical wires or tailings pipes must be done by qualified personnel only.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- Regarding the clean-up of the bedrock on the dike footprint of the south part of SD3 (Sta. 20+830 m/o.s. -10 to 10 m to 20+900 m/o.s. -10 to 0 m), the QA Manager noticed some details that suggest this section would have been blasted in the past (see the plan and the photographs attached to the report).
  - The rock seems to be of a good quality, but is highly fractured. The fractures seem to follow a blocky pattern and are almost all mechanical. According to Patrice Gagnon (AEM), those fractures could be explained by a blast.
  - Two drill holes have been found in two different cobbles during the excavation of this section. This information confirms a drilling campaign in this section of the dike footprint. Therefore, it is hard to confirm that it was holes for blasting and not for another purpose (ex: exploration holes).
  - Ice lens (up to 30 cm) were found all across this section of the dike footprint.

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Patrice Gagnon will investigate on the drill and blast campaign that took place years ago for the conception of the quarry 23 located a few meters beyond the dike footprint. For the moment, loose rocks will continue to be removed. In the next days, it will be important to monitor this section of the dike and keep in mind that a reservoir could be create within the dike footprint as the rock is removed, and so a draining method as to be thought.

- It was discussed that the alignment of SD3 has been officially modified. From now on, the alignment of SD3 will be based on the new document "SD3 south end alignment" issued on the July 20th by SANA and approved by the Owner and Golder. The main change concerns the orientation of the south end of SD3, which turns 145 degrees toward the east, and so does the center line. It has to be understood that the geolocalisation system on SD3 will now be the one from the new alignment.
- It was reminded that the till stockpile on the north of CD has to be mixed as soon as possible for allow thawing and sampling for laboratory testing.
- The QA Manager reminded that it is important to scarify the north part of SD4 before any placement of rockfill.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	■ Placement of a 2.0 m-thick lift of UM rockfill with a dozer from El. 137 to 139 m from Sta. 40+650 to 40+750 m (o.s. -5 to 30 m). The material was compliant. ■ Compaction of a 2.0 m-thick lift of UM rockfill with a 10 tonne compactor (6 passes) at El. 139 m from Sta. 40+650 to 40+750 m (o.s. -5 to 30 m). ■ Scarification of the UM rockfill at El. 139 m with a grader from Sta. 40+650 to 40+750 m (o.s. -5 to 30 m).

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream	■ Placement of a 2.0 m-thick lift of UM rockfill with a dozer from El. 137 to 139 m from Sta. 40+270 to 40+410 m (o.s. -5 to 25 m). The material was compliant.
Water management	■ Water is ponding in the excavated area from Sta. 40+340 to 40+420 m (o.s. 32 to 35 m). A sump or ditch is planned to be built at a later time downstream of SD4 to collect the water.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Foundation preparation	■ Loading of the till like material with an excavator at the extreme north of SD3 (Sta. 20+570 to 20+590) for the connection between SD2 and SD3.
Water management	■ Pumping of the water ponding on the northern part of the footprint is ongoing.

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

No sample was taken today.

Table 5: Sample taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD4-131: From Sta. 40+280/31 looking E. Placement of a 2.0 m-thick lift of UM rockfill with a dozer from El. 137 to 139 m from Sta. 40+270 to 40+410 m.



Photograph SD3-183: From Sta. 20+600/-5 looking N. Excavation of the till like material with an excavator at the extreme north of SD3 (Sta. 20+570 to 20+590) for the connection between SD2 and SD3.



Photograph SD3-184: From Sta. 20+845/0 looking E. View of one of the two drill holes that have been found in two different cobbles during the excavation of the potentially blasted zone of the south part of SD3.

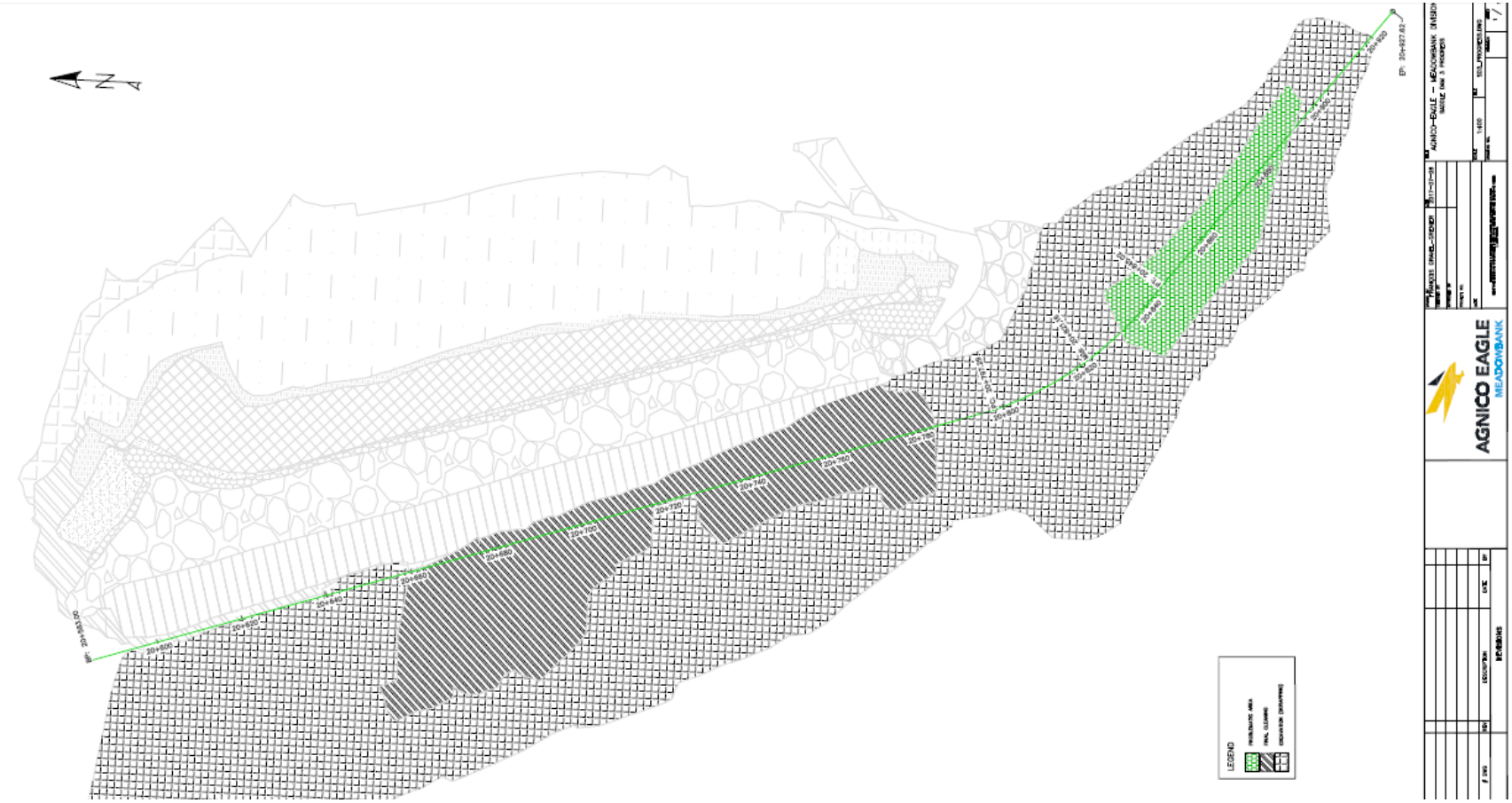
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Photograph SD3-185: From Sta. 20+860/-5. View of an ice lens (30 cm) that was found on the potentially blasted zone of the south part of SD3. Many other ice lens were found all across this section of the dike footprint.



Photograph SD3-186: From Sta. 20+840/-5 looking E. View of excavated rock coming from the potentially blasted zone of the south part of SD3. Notice the rock quality and its blocky pattern. The fractures seem to be only mechanical.



View of the potentially blasted zone of the south part of SD3.

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QA DAILY REPORT

DATE July 28th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon, Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR JULY 27TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 10° C, cloudy to sunny.

2.0 HEALTH AND SAFETY

- It was reiterated to keep a safety distance from heavy equipment and always have an eye contact with the operator.
- A talk about the importance of respecting the signs and speed limit on Saddle Road took place.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- According to Patrice Gagnon's investigation, the South part of SD3 would not have been blasted in the past. No blasting plan, no stemming and no nonel was found. The blocky pattern of the rock is probably caused by the action of freeze and thaw of the water that could have reached the rock through the drill holes present in this section. The drill holes found are probably exploration holes.
- The tailings pipes on the south part of SD3 won't be moved this week. There is a chance that they will be moved during the next week. More news to come during the week.
- From now on, Jérémy Kancir will work as an excavator operator in the pit. If any issue about the rockfill occurs, contact SANA's foremen (Sabin Larouche).

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	■ Placement of a 1.5 m-thick lift of UM rockfill with a dozer from El. 138.5 to 140 m from Sta. 40+660 to 40+725 m (o.s. -5 to 29 m). The material was compliant.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream	■ Compaction of a 2.0 m-thick lift of UM rockfill with a compactor (6 passes) at El. 139 m from Sta. 40+320 to 40+410 m (o.s. -5 to 25 m). ■ Grading of the surface of the lift of UM rockfill at El. 139 m from Sta. 40+240 to 40+410 m (o.s. -5 to 20 m).
Water management	■ Water is ponding in the excavated area from Sta. 40+340 to 40+420 m (o.s. 32 to 35 m). A sump or ditch is planned to be built at a later time downstream of SD4 to collect the water.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Foundation preparation	■ Final clean-up of the dike footprint to reach a good quality bedrock from Sta. 20+735 to 20+785 m (o.s. -13 to 21 m).
Downstream	■ Loading of the excavated material with an excavator from Sta. 20+610 to 20+625 m (o.s. 19 to 22 m).
Water management	■ Pumping of the water ponding on the northern part of the footprint is ongoing.

5.0 FOUNDATION APPROVAL

One foundation approval was done today.

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment
FND-SD3-22	SD3		27/07/2017	

6.0 LABORATORY

No sample was taken today.

Table 5: Sample taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD5-058: From Sta. 20+755 looking N. Placement of a 1.5 m-thick lift of UM rockfill with a dozer from El. 138.5 to 140 m from Sta. 40+660 to 40+725 m (o.s. -5 to 29 m).



Photograph SD4-132: From Sta. 40+380/54 looking E. Grading of the surface of the lift of UM rockfill at El. 139 m from Sta. 40+240 to 40+410 m (o.s. -5 to 20 m) after compaction.



Photograph SD3-187: From Sta. 40+380/54 looking E. Final clean-up of the dike footprint to reach a good quality bedrock from Sta. 20+735 to 20+785 m (o.s. -13 to 21 m).

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QA DAILY REPORT

DATE July 29th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR JULY 28TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 10° C, cloudy to sunny.

2.0 HEALTH AND SAFETY

- There is important heavy equipment coactivity on SD3: personnel on foot (especially the pump operator) must make sure to be visible at all time.
- A small fire start was reported on one of the haul trucks. Fire extinguishers on all machines must be checked: shake the extinguisher and check the gage. Periodic inspections must be performed by qualified personnel.
- The work cards can be left with Patrice Gagnon if the supervisor is unavailable (e.g. crew change).

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- Because of a blast planned in the pit during the night, there will be no rockfill available during approximately half of the night shift.
- The blast mats need to be removed from SD3 to allow better access for the heavy equipment.
- Rockfill placement on SD3 must begin in order to ensure continuity of the works after SD4 and SD5 are backfilled.
- The in-situ, good quality till on SD5 will be collected for later use in till plugs.

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- The QA Manager indicated that the current quality of the UM rockfill has a high fine content and just satisfying. Any finer load of UM rockfill will be returned as it would no longer be compliant.
- The fault area downstream of SD3 has been partially cleaned until frozen till and fractured bedrock with no visible ice lenses was encountered. Approval and backfilling took place immediately after the excavator has completed the cleanup, to avoid thawing of the foundation. The remaining parts of this area will be dealt with in a similar manner over the next few days.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	■ Compaction of a 1.5 m-thick lift of UM rockfill with a compactor (6 passes) at El. 140 m from Sta. 40+640 to 40+735 m (o.s. -11 to 17 m).

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream	■ Placement of a 1.5 m-thick lift of UM rockfill with a dozer from El. 140 to 141.5 m from Sta. 40+480 to 40+620 m (o.s. 6 to 21 m). The material was compliant. ■ Compaction of a 1.5 m-thick lift of UM rockfill with a compactor (6 passes) at El. 140 m from Sta. 40+520 to 40+620 m (o.s. 8 to 21 m).
Water management	■ Water is ponding in the excavated area from Sta. 40+340 to 40+420 m (o.s. 32 to 35 m). A sump or ditch is planned to be built at a later time downstream of SD4 to collect the water.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Foundation preparation	■ Final clean-up of the dike footprint to reach a frozen, ice-poor till and fractured bedrock from Sta. 20+700 to 20+735 m (o.s. 1 to 21 m) and from Sta. 20+610 to 20+640 m (o.s. 9 to 33 m).
Downstream	■ Loading of the excavated material with an excavator from Sta. 20+700 to 20+735 m (o.s. 23 to 25 m). ■ Construction of a UM rockfill access ramp to the downstream footprint to allow loading of trucks (approx. Sta. 20+620 m).

Activity or Area	Comments
	■ Removal of loose rocks and soft and ice-rich soils on the downstream side of SD3 with an excavator from Sta. 20+615 to 20+650 m (o.s. 30 to 47 m). ■ Placement of a 2 m-thick lift (approx.) of UM rockfill with a dozer from Sta. 20+610 to 20+630 m (o.s. 9 to 33 m) to cover the foundation as soon as bedrock cleaning was completed. The material was compliant. ■ Compaction of a 2 m-thick lift (approx.) of UM rockfill with a compactor (8 passes) from Sta. 20+610 to 20+630 m (o.s. 9 to 47 m).
Water management	■ Pumping of the water ponding on the northern part of the footprint is ongoing.

5.0 FOUNDATION APPROVAL

One foundation approval was done today.

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment
FND-SD3-23	SD3	Sta. 20+595.90 to 20+622.64 m (o.s. 3.24 to 30.62 m)	28/07/2017	Frozen foundation. Approved provided the water ponds are pumped out before placing UM rockfill.

6.0 LABORATORY

No sample was taken today.

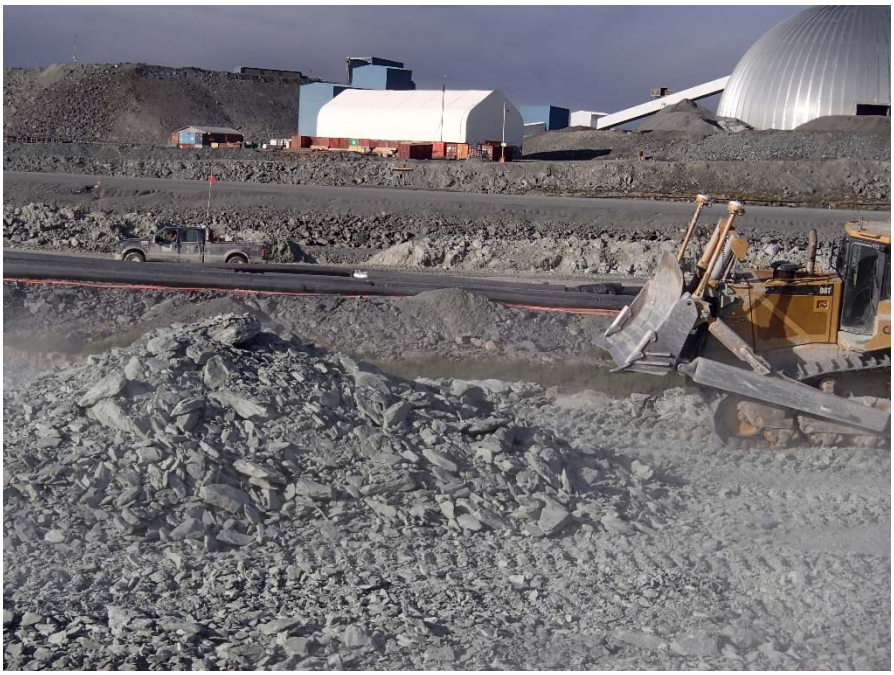
Table 5: Sample taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD5-059: From Sta. 40+710/9 looking N. Compaction of a 1.5 m-thick lift of UM rockfill with a compactor (6 passes) at El. 140 m from Sta. 40+640 to 40+735 m (o.s. -11 to 17 m).



Photograph SD4-133: From Sta. 40+580/-13 looking SW. Detail of the current UM rockfill. The material has a high fine content.



Photograph SD4-134: From Sta. 40+570/-5 looking SW. Placement of a 1.5 m-thick lift of UM rockfill with a dozer from El. 140 to 141.5 m from Sta. 40+480 to 40+620 m (o.s. 6 to 21 m).



Photograph SD3-187: From Sta. 20+755/-15 looking N. Final clean-up of the dike footprint to reach a good quality bedrock from Sta. 20+700 to 20+735 m (o.s. 1 to 21 m).



Photograph SD3-188: From Sta. 20+620/-8 looking E. Final clean-up of the dike footprint to reach a good quality bedrock from Sta. 20+610 to 20+640 m (o.s. 9 to 33 m) and removal of loose rocks and soft and ice-rich soils on the downstream side of SD3 with an excavator from Sta. 20+615 to 20+650 m (o.s. 30 to 47 m).

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QA DAILY REPORT

DATE July 30th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR JULY 29TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 12° C, sunny.

2.0 HEALTH AND SAFETY

- It was reiterated that PPE must be worn at all time on the construction field.
- There is still important heavy equipment coactivity on SD3: personnel on foot (especially the pump operator) must make sure to be visible at all time.
- A cyanide convoy is planned to pass on Baker Lake Road tomorrow or on Monday. It is essential for everyone to have the correct radio frequency. It is recommended to avoid Baker Lake Road if possible over the next 2 days to avoid interference with the convoy.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The sump must be pumped out as much as possible to allow drainage of the footprint of SD3.
- Due to the excessively high fine content of the UM rockfill, UM rockfill placement was stopped around noon on SD3. Placement resumed at around 14:00 with good quality NPAG rockfill.
- The tailings pipes on the south part of SD3 are being moved.
- The blast mats have been removed from SD3.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	■ Scarification of the UM rockfill at El. 140 m with a grader from Sta. 40+640 to 40+750 m (o.s. 5 to 21 m). ■ Placement of a 1.5 m-thick lift of UM rockfill with a dozer from El. 140 to 141.5 m from Sta. 40+635 to 40+660 m (o.s. 13 to 21 m). The material was compliant. ■ Compaction of a 1.5 m-thick lift of UM rockfill with a compactor (6 passes) at El. 141.5 m from Sta. 40+620 to 40+660 m (o.s. 13 to 21 m).

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Water management	■ Water is ponding in the excavated area from Sta. 40+340 to 40+420 m (o.s. 32 to 35 m). A sump or ditch is planned to be built at a later time downstream of SD4 to collect the water.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Foundation preparation	■ Final clean-up of the dike footprint to reach a frozen, ice-poor till and fractured bedrock from Sta. 20+595 to 20+620 m (o.s. -1 to 31 m). ■ Final clean-up of the dike footprint to reach a good quality bedrock from Sta. 20+625 to 20+660 m (o.s. 14 to 25 m).
Downstream	■ Loading of the excavated material with an excavator from Sta. 20+595 to 20+660 m (o.s. 25 to 45 m). ■ Placement of a 2 m-thick lift (approx.) of UM and NPAG rockfill with a dozer from Sta. 20+595 to 20+620 m (o.s. -1 to 31 m) to cover the foundation as soon as bedrock cleaning was completed. The material was compliant. ■ Compaction of a 2 m-thick lift (approx.) of UM and NPAG rockfill with a compactor (8 passes) from Sta. 20+595 to 20+620 m (o.s. -1 to 31 m).
Water management	■ Pumping of the water ponding on the northern part of the footprint is ongoing.

5.0 FOUNDATION APPROVAL

One foundation approval was done today.

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment
FND-SD3-24	SD3		29/07/2017	Frozen foundation. Approved provided the water ponds are pumped out before placing UM rockfill.

6.0 LABORATORY

No sample was taken today.

Table 5: Sample taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD3-189: From Sta. 20+615/-14 looking NW. Placement of a 2 m-thick lift (approx.) of UM and NPAG rockfill with a dozer from Sta. 20+595 to 20+620 m (o.s. -1 to 31 m) to cover the foundation as soon as bedrock cleaning was completed.



Photograph SD3-190: From Sta. 20+615/-14 looking SW. Final clean-up of the dike footprint to reach a good quality bedrock from Sta. 20+625 to 20+660 m (o.s. 14 to 25 m) and loading of the excavated material with an excavator from Sta. 20+595 to 20+660 m (o.s. 25 to 45 m).

QA DAILY REPORT

DATE July 31st **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR JULY 30TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 15° C, sunny.

2.0 HEALTH AND SAFETY

- It was reiterated that the cyanide convoy is expected today or tomorrow.
- There is still important heavy equipment coactivity on SD3: personnel on foot (especially the pump operator) must make sure to be visible at all time.
- Dust is an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.
- The 3-contact points method must be used when entering or exiting a vehicle or heavy equipment.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- Haul truck activity on the dikes is now conducted in an efficient and satisfactory manner.
- The till stockpiles are now accessible on the north part of Central Dike. When an excavator is available, mixing of the till and coarse filter stockpiles will take place.
- The QA Manager reminded that rockfill placement must be done in 2 m lifts maximum from the lowest point. There is a large bedrock depression on the SD3 footprint (more than 2 m deep) which requires special attention during backfilling. The surveyor indicates the elevation limits for each lift on the bedrock and existing dikes to facilitate the work of the dozer.

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- The QA Manager highlighted that due to the large quantity of water flowing on the bedrock and at the surface of the frozen foundation on SD3, the second lift of rockfill should be placed and compacted as soon as possible to avoid infiltration and water ponding on the surface
- During the final clean-up of the bedrock on the downstream side of SD3, a small sector of rockfill was removed, which allowed to confirm that the foundation was still frozen after rockfill had been in place for several days.
- The 365 excavator will be relocated out of the dikes as of this afternoon.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	■ Placement of a 1.5 m-thick lift of UM rockfill with a dozer from El. 140 to 141.5 m from Sta. 40+720 to 40+730 m (o.s. -16 to 10 m). The material was compliant.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Water management	■ Water is ponding in the excavated area from Sta. 40+340 to 40+420 m (o.s. 32 to 35 m). A sump or ditch is planned to be built at a later time downstream of SD4 to collect the water.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Foundation preparation	■ Final clean-up of the dike footprint to reach frozen, ice-poor till and good quality bedrock from Sta. 20+620 to 20+660 m (o.s. 24 to 35 m). This part of the footprint is mainly on frozen, ice-poor till. ■ Final clean-up of the dike footprint to reach good quality bedrock from Sta. 20+800 to 20+860 m (o.s. -19 to 14 m).
Downstream	■ Loading of the excavated material with an excavator from Sta. 20+800 to 20+870 m (o.s. -29 to 25 m). ■ Placement of a 2 m-thick lift (approx.) of UM rockfill with a dozer from Sta. 20+620 to 20+680 m (o.s. 24 to 35 m) to cover the foundation as soon as bedrock cleaning was completed. The material was compliant.

Activity or Area	Comments
	■ Placement of a 2 m-thick lift (approx.) of UM rockfill with a dozer from Sta. 20+705 to 20+770 m (o.s. -9 to 10 m). The material was compliant. ■ Compaction of a 2 m-thick lift (approx.) of UM rockfill with a compactor (8 passes) from Sta. 20+620 to 20+680 m (o.s. 24 to 35 m).
Water management	■ Pumping of the water ponding on the northern part of the footprint is ongoing. ■ Water is ponding in the excavated area from Sta. 20+800 to 20+815 m (o.s. 8 to 26 m).

5.0 FOUNDATION APPROVAL

One foundation approval was done today.

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment
FND-SD3-25	SD3	Sta. 20+614.42 to 20+744.43 m (o.s. -7.23 to 33.55 m)	30/07/2017	Partially frozen foundation. Approved provided the water ponds are pumped out before placing UM rockfill.

6.0 LABORATORY

No sample was taken today.

Table 5: Sample taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD3-191: From Sta. 20+815/25 looking E. Loading of the excavated material with an excavator from Sta. 20+800 to 20+870 m (o.s. -29 to 25 m).



Photograph SD3-192: From Sta. 20+780/18 looking SE. Placement of a 2 m-thick lift (approx.) of UM rockfill with a dozer from Sta. 20+705 to 20+770 m (o.s. -9 to 10 m). Notice the large depression in the bedrock.



Photograph SD3-193: From Sta. 20+815/26 looking E. Final clean-up of the dike footprint to reach good quality bedrock from Sta. 20+800 to 20+860 m (o.s. -19 to 14 m). Water is ponding in the excavated area from Sta. 20+800 to 20+815 m (o.s. 8 to 26 m).



Photograph SD3-194: From Sta. 20+695/-15 looking N. Placement of a 2 m-thick lift (approx.) of UM rockfill with a dozer from Sta. 20+620 to 20+680 m (o.s. 24 to 35 m).

QA DAILY REPORT

DATE August 1st **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR JULY 31ST, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 15° C, sunny.

2.0 HEALTH AND SAFETY

- The importance of performing a good check of the equipment before filling the work card or inspection form was reiterated.
- It was reiterated that to prevent hand or head injuries, everyone should know how to use the required tools, ask for assistance if in doubt, and wear the appropriate PPE (gloves, hard hat…) at all times on the construction site.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The limits of inverse filters have been marked by the surveyor on SD4/5 to avoid backfilling with UM rockfill beyond the rockfill/filters interface.
- Only one dozer is available at the moment for rockfill placement on SD4 and SD3. Placement and compaction/scarification operations will be alternated between the dikes to ensure continuous progress.
- UM rockfill is unlikely to be provided with more than 3 haul trucks per hour at the moment. Patrice Gagnon has asked for supplemental trucks, as the planned placement rate of 250 m^3/h requires at least 6 haul trucks to be achieved.
- The first lift of UM rockfill on SD3 has been completed by filling a pumped out water pond with the 345 excavator at Sta. 20+730 m (approx.) due to temporary unavailability of the dozer, to ensure that capping

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would be completed before the water start to pond again. The material was placed without segregation and compacted shortly after.

- The QA Manager and the QC representative spent a moment with the new excavator operator of the Pit E (RH 120) to make sure he is aware of the rockfill specifications required on the dikes.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	■ Compaction of the 2.0 m-thick lift of UM rockfill with a compactor (6 passes) at El. 141.5 m from Sta. 40+600 to 40+750 m (o.s. -10 to 13 m).

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream	■ Placement of a 2.0 m-thick lift of UM rockfill with a dozer from El. 140 to 141.5 m from Sta. 40+420 to 40+450 m (o.s. -5 to 17 m). The material was compliant. ■ Compaction of the 2.0 m-thick lift of UM rockfill with a compactor (6 passes) at El. 141.5 m from Sta. 40+420 to 40+600 m (o.s. -9 to 17 m).
Water management	■ Water is ponding in the excavated area from Sta. 40+340 to 40+420 m (o.s. 32 to 35 m). A sump or ditch is planned to be built at a later time downstream of SD4 to collect the water.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Foundation preparation	■ Final clean-up of the dike footprint to reach good quality bedrock from Sta. 20+820 to 20+845 m (o.s. -9 to 4 m) and from Sta. 20+870 to 20+887 m (o.s. -10 to 15 m). The bedrock seems sound and no more ice lenses were observed in the exposed area.
Downstream	■ Capping of a pumped out water pond at Sta. 20+730 m (approx.) with UM rockfill with an excavator. The material was compliant and placed without segregation. ■ Compaction of the 2.0 m-thick lift of UM rockfill with a compactor (8 passes) from Sta. 20+785 to 20+650 m (o.s. -3 to 29 m).

Activity or Area	Comments
	■ Scarification of the UM rockfill from Sta. 20+595 to 20+740 m (o.s. -3 to 31 m). ■ Placement of a 2 m-thick lift (approx.) of UM rockfill with a dozer from Sta. 20+740 to 20+775 m (o.s. -11 to 16 m). The material was compliant.
Water management	■ Water is ponding in the excavated area from Sta. 20+800 to 20+840 m (o.s. 8 to 26 m) and is being pumped out.

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

No sample was taken today.

Table 5: Sample taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD3-195: From Sta. 20+755/-15 looking N. Compaction of the 2.0 m-thick lift of UM rockfill with a compactor (8 passes) from Sta. 20+785 to 20+650 m (o.s. -3 to 29 m).



Photograph SD3-196: From Sta. 20+650/16 looking NE. Scarification of the UM rockfill from Sta. 20+595 to 20+740 m (o.s. -3 to 31 m).



Photograph SD3-197: From Sta. 20+860/14 looking SE. Final clean-up of the dike footprint to reach good quality bedrock from Sta. 20+820 to 20+845 m (o.s. -9 to 4 m) and from Sta. 20+870 to 20+887 m (o.s. -10 to 15 m). The bedrock seems sound and no ice lenses were observed in the exposed area.



Photograph SD4-135: From Sta. 40+430/-21 looking W. Placement of a 2.0 m-thick lift of UM rockfill with a dozer from El. 140 to 141.5 m from Sta. 40+420 to 40+450 m (o.s. -5 to 17 m).

QA DAILY REPORT

DATE August 2nd **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR AUGUST 1ST, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 15° C, sunny.

2.0 HEALTH AND SAFETY

- There is still important heavy equipment coactivity on SD3: personnel on foot (especially the pump operator) must make sure to be visible at all time.
- The cyanide convoy is planned for today.
- A leak was detected on the 345 excavator and will be repaired before it causes a spill.
- Blasting is planned at 12:45 in Pit E.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- UM rockfill should be available in large quantities after the blast today.
- The compaction method and requirements have been revised with the compactor operator.
- There is a thermistor installed downstream of SD3. In order not to damage it, the rockfill will be placed around the casing with an excavator, and compacted with the bucket. The compactor will finish its passes as close as possible. New casing is supposed to be welded as backfilling progresses.

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- The QA Manager reiterated that the lift of UM rockfill at El. 137 m should be completed and compacted as soon as possible on the zone on the north part of SD3 where water is infiltrating through the compacted rockfill.
- There are visible ice lenses in a 2 to 3 m wide fracture zone of the bedrock on the south part of the SD3 footprint, extending from approx. Sta. 860 m (o.s. 12 m) to Sta. 882 m (o.s. -5 m). After discussion with Patrice Gagnon and given that the ice is in the bedrock and not within the till, the ice will have no impact on the foundation and is acceptable.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Water management	■ Water is ponding in the excavated area from Sta. 40+340 to 40+420 m (o.s. 32 to 35 m). A sump or ditch is planned to be built at a later time downstream of SD4 to collect the water.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Foundation preparation	■ Final clean-up of the dike footprint to reach good quality bedrock from Sta. 20+800 to 20+880 m (o.s. -10 to 22 m).
Downstream	■ Placement of a 1.0 to 2.0 m-thick lift (approx.) of UM rockfill at El. 137 m with a dozer from Sta. 20+595 to 20+615 m (o.s. -4 to 29 m). The material was compliant. ■ Compaction of the 1.0 to 2.0 m-thick lift of UM rockfill at El. 137 m with a compactor (8 passes) from Sta. 20+680 to 20+770 m (o.s. -12 to 27 m).
Water management	■ Water ponding in the excavated area from Sta. 20+800 to 20+840 m (o.s. 8 to 26 m) has been pumped out.

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

No sample was taken today.

Table 5: Sample taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD3-198: From Sta. 20+620/47 looking E. Placement of a 1.0 to 2.0 m-thick lift (approx.) of UM rockfill at El. 137 m with a dozer from Sta. 20+595 to 20+615m (o.s. -4 to 29 m). The material was compliant.



Photograph SD3-199: From Sta. 20+800/22 looking E. Final clean-up of the dike footprint to reach good quality bedrock from Sta. 20+800 to 20+880 m (o.s. -10 to 22 m).



Photograph SD3-200: From Sta. 20+880/1 looking E. View of visible ice lenses in a fracture of the bedrock on the south part of the SD3 footprint, extending from Sta. 860 m (o.s. 12 m) to Sta. 882 m (o.s. -5 m).



Photograph SD3-201: From Sta. 20+790/5 looking N. Compaction of the 1.0 to 2.0 m-thick lift of UM rockfill at El. 137 m with a compactor (8 passes) from Sta. 20+680 to 20+770 m (o.s. -12 to 27 m).

QA DAILY REPORT

DATE August 3rd **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR AUGUST 2ND, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 15° C, sunny.

2.0 HEALTH AND SAFETY

- A safety meeting and a toolbox meeting for the operators took place. The subjects developed were eye safety, 3-point contact, extinguisher inspection, and coactivity.
- There is still important heavy equipment coactivity on SD3: personnel on foot (especially the pump operator) must make sure to be visible at all time.
- Dust is an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- Safety berms on the edges of the rockfill lifts need to be removed to compact the rockfill underneath. The berms will be put back into place as soon as compaction is done.
- There will be a crew change today for the compactor operator. Compaction might be delayed until tomorrow.

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- Scarification of the completed rockfill lifts on all dikes must be done as soon as possible, to be able to accommodate the UM rockfill that is supposed to be available in large quantities over the next few days.
- A second compactor would be useful on the dikes, as compaction is currently the most time-consuming operation in the dike construction.
- An excavator will soon be available 24h/24, when the operator of the 365 excavator is relocated on the dikes.
- The water ponding on the south side of the SD3 footprint (near Quarry 23) is still present despite the pumping. Patrice Gagnon suggested that water ponding in Quarry 23 coming through the fractured bedrock may be the cause. More details to come once the zone has been surveyed and the elevations compared.
- Oversize boulders (larger than 1.3 m) need to be removed from SD5 (see picture below).
- An accumulation of large boulders on SD4 at Sta. 40+230 m must be scattered on the ripped UM rockfill, in order to limit voids between the boulders after placement of the next lift.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	■ Scarification of the UM rockfill at El. 141.5 m from Sta. 40+590 to 40+730 m (o.s. –14 to 15 m). ■ Removal of the safety berms on the downstream side of SD5 at El. 141.5 m with an excavator from Sta. 40+590 to 40+700 m.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream	■ Placement of a 1.5 m-thick lift (approx.) of UM rockfill from El. 140 m to 141.5 m with a dozer from Sta. 40+290 to 40+410 m (o.s. -13 to 17 m). The material was compliant. ■ Scarification of the UM rockfill at El. 140 m from Sta. 40+175 to 40+230 m (o.s. –9 to 18 m).
Water management	■ Water is ponding in the excavated area from Sta. 40+340 to 40+420 m (o.s. 32 to 35 m). A sump or ditch is planned to be built at a later time downstream of SD4 to collect the water.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Foundation preparation	■ Final clean-up of the dike footprint to reach good quality bedrock from Sta. 20+805 to 20+840 m (o.s. -16 to 12 m).
Downstream	■ Compaction of the 1.0 to 2.0 m-thick lift of UM rockfill at El. 137 m with a compactor (8 passes) from Sta. 20+595 to 20+680 m (o.s. -5 to 27 m). ■ Scarification of the UM rockfill at El. 137 m from Sta. 20+580 to 20+735 m (o.s. –4 to 25 m). ■ Profiling the slope of the north part of the downstream side of SD3 from El. 135 to 137 m with an excavator from Sta. 20+580 to 20+650 m.
Water management	■ Water is ponding again in the excavated area from Sta. 20+800 to 20+840 m (o.s. 8 to 26 m) and is being pumped out. The water likely comes from Quarry 23 through the fractured bedrock.

5.0 FOUNDATION APPROVAL

One foundation approval was done today.

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment
FND-SD3-26	SD3		02-08-2017	Approved provided the water ponds are pumped out before placing UM rockfill. Ice is present inside fractures in a small zone of the bedrock (approx. Sta. 20+860 m, o.s. 12 m, to Sta. 20+882 m, o.s. -5 m) and is not problematic.

6.0 LABORATORY

No sample was taken today.

Table 5: Sample taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD5-060: From 40+700/13 looking E. Scarification of the UM rockfill at El. 141.5 m from Sta. 40+590 to 40+730 m (o.s. –14 to 15 m).



Photograph SD5-061: From 40+700/9 looking N. View of oversize boulders (larger than 1.3 m) on the edge of the lift on SD5.



Photograph SD4-136: From 40+355/-13 looking W. Placement of a 1.5 m-thick lift (approx.) of UM rockfill from El. 140 m to 141.5 m with a dozer from Sta. 40+290 to 40+410 m (o.s. -13 to 17 m).



Photograph SD3-202: From 20+805/8 looking E. Final clean-up of the dike footprint to reach good quality bedrock from Sta. 20+805 to 20+840 m (o.s. -16 to 12 m).



Photograph SD3-203: From 20+610/22 looking N. Profiling the slope of the north part of the downstream side of SD3 from El. 135 to 137 m with an excavator from Sta. 20+580 to 20+650 m.

QA DAILY REPORT

DATE August 4th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR AUGUST 3RD, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 20° C, sunny.

2.0 HEALTH AND SAFETY

- A review of safety topics and recent incidents was done.
- There is still important heavy equipment coactivity on SD3: personnel on foot (especially the pump operator) must make sure to be visible at all time.
- Dust is an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- Some oversize boulders (larger than 1.3 m) have been removed from SD5 during the night shift by pushing them down the slope. The profiled slope was not damaged by the falling boulders. The remaining boulders have been removed with a loader.
- A new excavator has arrived on the dikes.
- The QA Manager reiterated that only NPAG material is allowed for dike construction.

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- A section of safety berm on SD5 (approx. Sta. 40+520 to 40+590 m) did not need to be removed to compact underneath the berm, as the UM rockfill lift was wider than the requirement, and the outer limit of the dike according to design plans was already compacted. The sloping operation corrected the wideness of the lift to match the specifications, with support from the surveyor.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	■ Removal of the safety berms on the downstream side of SD5 at El. 141.5 m with a loader and compaction (6 passes) from Sta. 40+700 to 40+750 m. ■ Profiling the slope on the downstream side of SD5 from El. 138.5 to 141.5 m with an excavator from Sta. 40+600 to 40+750 m.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream	■ Compaction of the 1.5 m-thick lift of UM rockfill at El. 141.5 m with a compactor (6 passes) from Sta. 40+290 to 40+410 m (o.s. -9 to 20 m). ■ Scarification of the UM rockfill at El. 141.5 m from Sta. 40+300 to 40+470 m (o.s. –13 to 9 m). ■ Removal of the safety berms on the downstream side of SD4 at El. 141.5 m with a loader and compaction (6 passes) from Sta. 40+300 to 40+520 m. ■ Profiling the slope on the downstream side of SD4 from El. 138.5 to 141.5 m with an excavator from Sta. 40+440 to 40+600 m. ■ Scattering of the pile of large boulders at Sta. 40+230 m over the scarified UM rockfill lift at El. 140 m with an excavator.
Water management	■ Water is ponding in the excavated area from Sta. 40+340 to 40+420 m (o.s. 32 to 35 m). A sump or ditch is planned to be built at a later time downstream of SD4 to collect the water.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Downstream	■ Placement of a 2 m-thick lift (approx.) of UM rockfill from El. 137 m to 139 m with a dozer from Sta. 20+605 to 20+660 m (o.s. –5 to 28 m). The material was compliant. ■ Compaction of the 2.0 m-thick lift of UM rockfill at El. 139 m with a compactor (6 passes) from Sta. 20+700 to 20+735 m (o.s. -5 to 28 m).
Water management	■ Water is ponding in the excavated area from Sta. 20+800 to 20+840 m (o.s. 8 to 26 m) and is being pumped out.

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

No sample was taken today.

Table 5: Sample taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD4-137: From 40+400/7 looking NE. Compaction of the 1.5 m-thick lift of UM rockfill at El. 141.5 m with a compactor (6 passes) from Sta. 40+290 to 40+410 m (o.s. -9 to 20 m).



Photograph SD4-138: From 40+360/11 looking SE. Scarification of the UM rockfill at El. 141.5 m from Sta. 40+300 to 40+470 m (o.s. –13 to 9 m).



Photograph SD4-139: From 40+670/11 looking N. Profiling the slope on the downstream side of SD4 from El. 138.5 to 141.5 m with an excavator from Sta. 40+440 to 40+600 m.



Photograph SD4-140: From 40+520/26 looking N. Removal of the safety berms on the downstream side of SD4 at El. 141.5 m with a loader from Sta. 40+300 to 40+520 m.



Photograph SD3-204: From 20+660/49 looking E. Placement of a 2 m-thick lift (approx.) of UM rockfill from El. 137 m to 139 m with a dozer from Sta. 20+605 to 20+660 m (o.s. –5 to 28 m).

QA DAILY REPORT

DATE August 5th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR AUGUST 4TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 20° C, sunny.

2.0 HEALTH AND SAFETY

- There is still important heavy equipment coactivity on SD3 and SD4: personnel on foot must make sure to be visible at all time.
- Dust is an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.
- SANA's health and safety representative pointed out that on SD4, the dozer does not leave enough space for haul trucks to keep a safe distance from the edge of the lift. The dozer operator has been notified of this concern today.
- A fire extinguisher inspection will be performed today on all heavy equipments.
- The suitable height of the berms on the edges of the rockfill lifts has been discussed.
- There is a lack of orange cones for blocking access to unsafe sections of the dikes. The warehouse will be checked for additional ones.

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3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The north abutment of Central Dike will be built until El. 145 m, with a liner tie-in at El. 143 m. Excavation works are planned soon. More information to come over the next week.
- The QA Manager reiterated that the coarse filter stockpile should be mixed at the same time as the till stockpiles to allow for representative material sampling.
- Excavation works have resumed on SD3 (removal of access road) and will continue during placement of the rockfill lift at El. 141 m. If the UM rockfill production rhythm allows, haul trucks arriving with rockfill on the dike should load excavated material to be disposed of before leaving SD3, for an optimized use of the available haul trucks.
- Yesterday, the rockfill placement objective of 250 m^3/h was achieved with 4 haul trucks.
- The mixing of the 2 sieved till stockpiles has begun with a loader. They will eventually be mixed together. Sampling on the 2 till stockpiles was done today. The cores on the stockpiles were frozen and will be allowed to thaw before final mixing.
- The coarse filter stockpile has been mixed by a loader and sampled.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream	■ Placement of a 1.5 m-thick lift (approx.) of UM rockfill from El. 140 m to 141.5 m with a dozer from Sta. 40+220 to 40+280 m (o.s. –14 to 28 m). The material was compliant. ■ Compaction of the 1.5 m-thick lift of UM rockfill at El. 141.5 m with a 10-tonne smooth-drum compactor (6 passes) from Sta. 40+235 to 40+310 m (o.s. 9 to 17 m). ■ Profiling of the slope on the downstream side of SD4 from El. 138.5 to 141.5 m with an excavator from Sta. 40+305 to 40+420 m.

Activity or Area	Comments
Water management	■ Water is ponding in the excavated area from Sta. 40+340 to 40+420 m (o.s. 32 to 35 m). A sump or ditch is planned to be built at a later time downstream of SD4 to collect the water. ■ A 2 to 3 m-wide ditch has been dug alongside the downstream toe of SD4 during the night shift from Sta. 40+440 to 40+510 m.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Downstream	■ Compaction of the first 2.0 m-thick lift of UM rockfill in the south sector of SD3 with a 10-tonne smooth-drum compactor (8 passes) from Sta. 20+795 to 20+895 m (o.s. -17 to 16 m). ■ Scarification of the UM rockfill from Sta. 20+585 to 20+760 m (o.s. –8 to 11 m) at El. 139 m in the north sector of SD3, and from Sta. 20+855 to 20+895 m (o.s. -10 to 7 m) in the south sector. ■ Profiling of the slope on the downstream side of SD3 from El. 137 to 139 m with an excavator from Sta. 20+440 to 20+720 m. ■ Placement of a 2 m-thick lift (approx.) of UM rockfill with a dozer from Sta. 20+855 to 20+880 m (o.s. -3 to 7 m). The material was compliant. ■ Loading of the excavated material stockpile along the current access road for foundation preparation from Sta. 20+800 to 20+810 m (o.s. 2 to 4 m).

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

Seven samples were taken today:

- Samples 368, 373, 429 and 430 were taken by the QC representative.
- Samples 369, 374 and 431 were taken by the QA Manager.

Table 5: Samples taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
368	04/08/2017		Coarse filter (0-6'')	SANA crusher		
369	04/08/2017		Coarse filter (0-6'')	SANA crusher		
373	04/08/2017		Fine filter (0-3/4'')	SANA crusher		
374	04/08/2017		Fine filter (0-3/4'')	SANA crusher		
429	04/08/2017		Sieved till (stockpile #1)	North of Central Dike		
430	04/08/2017		Sieved till (stockpile #2)	North of Central Dike		
431	04/08/2017		Sieved till (stockpile #2)	North of Central Dike		

7.0 PHOTOGRAPH



Photograph SD4-141: From 40+510/22 looking W. View of the ditch at the downstream toe of SD4 from Sta. 40+440 to 40+510 m and sloping from Sta. 40+305 to 40+420 m.



Photograph SD3-205: From 20+800/-5 looking SE. Compaction of the first 2.0 m-thick lift of UM rockfill in the south sector of SD3 with a compactor (8 passes) from Sta. 20+795 to 20+895 m (o.s. -17 to 16 m).



Photograph SD3-206: From 20+680/26 looking S. Profiling of the slope on the downstream side of SD3 from El. 137 to 139 m with an excavator from Sta. 20+440 to 20+720 m.



Photograph SD3-207: From 20+800/4 looking E. Loading of the excavated material stockpile along the current access road for foundation preparation from Sta. 20+800 to 20+810 m (o.s. 2 to 4 m) and placement of a 2 m-thick lift (approx.) of UM rockfill with a dozer from Sta. 20+855 to 20+880 m (o.s. -3 to 7 m).



Photograph CD-1770: From 0+070/-57 looking NW. Mixing of the sieved till stockpiles. The cores of the stockpiles were frozen.

QA DAILY REPORT

DATE August 6th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR AUGUST 5TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 25° C, rainy in the morning and sunny in the afternoon.

2.0 HEALTH AND SAFETY

- There is still important heavy equipment coactivity on SD3: personnel on foot must make sure to be visible at all time.
- The rain is an issue, the muddy and very slippery ground cause a high risk of slips and falls. Extra caution must be applied when walking or driving on wet surfaces.
- In order to provide haul trucks with a visual reference, each rockfill lift must have at least a small berm on its outer edge.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The mixing and thawing of till stockpiles on the north side of Central Dike should be completed today.
- Pumping is ongoing on SD4. The outlet of the pumping hose should be placed in the upstream slope of the dike rather than on the edge of the crest, to avoid releasing water with fine particles into the granular filters.

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- The coarse filter (0-6'') stockpile in the SANA crusher site is currently difficult to reach with a narrow access. A loader will widen the access to facilitate loading during construction of inverse filters.
- The excavation of the north abutment of Central Dike should begin over the next few days.
- The D8 dozer on the dikes has been replaced with a D9 dozer.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream	■ Compaction of the 1.5 m-thick lift of UM rockfill at El. 141.5 m with a 10-tonne smooth-drum compactor (6 passes) from Sta. 40+235 to 40+310 m (o.s. -14 to 18 m).
Water management	■ Water is ponding in the excavated area from Sta. 40+340 to 40+420 m (o.s. 32 to 35 m) and is being pumped out.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream	■ Removal of the access road to SD3. The new access goes through the rockfill lift on the south side of SD3.
Downstream	■ Removal of loose rocks and soft and ice-rich soils with an excavator and loading of the excavated material for foundation preparation from Sta. 20+790 to 20+820 m (o.s. -21 to 6 m). ■ Placement of a 2 m-thick lift (approx.) of UM rockfill with a dozer from El. 139 to 141 m from Sta. 20+620 to 20+675 m (o.s. -12 to 20 m). The material was compliant.

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

No sample was taken today.

Table 5: Samples taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD4-142: From 40+230/34 looking E. Compaction of the 1.5 m-thick lift of UM rockfill at El. 141.5 m with a 10-tonne smooth-drum compactor (6 passes) from Sta. 40+235 to 40+310 m (o.s. -14 to 18 m).



Photograph SD3-208: From 20+555/9 looking S. Placement of a 2 m-thick lift (approx.) of UM rockfill with a dozer from El. 139 to 141 m from Sta. 20+620 to 20+675 m (o.s. -12 to 20 m).



Photograph SD3-209: From 20+760/-11 looking SW. Removal of loose rocks and soft and ice-rich soils with an excavator and loading of the excavated material for foundation preparation from Sta. 20+790 to 20+820 m (o.s. -21 to 6 m).

QA DAILY REPORT

DATE August 7th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR AUGUST 6TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 12° C, rainy.

2.0 HEALTH AND SAFETY

- The rain is still an issue, the muddy and very slippery ground cause a high risk of slips and falls. Extra caution must be applied when walking or driving on wet surfaces.
- There is still important heavy equipment coactivity on SD3: personnel on foot must make sure to be visible at all time.
- Extinguishers will be installed on mobile power generators.
- Due to a thunderstorm last night and the presence of a loaded blast pattern, all activity was stopped in the pit for 2 hours.
- A blast is planned at 12:45 in Pit E.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The till stockpile on the side of Pit E will be mixed and thawed for sieving.
- Large quantities of UM rockfill are available from the previous blast and should suffice for the dike construction for some time. The RH-120 excavator will be replaced with a loader in the pit for 4 days.

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- It was discussed that with a larger dozer on the dikes (D9), it may be possible to accommodate more than 4 haul trucks at a time for rockfill placement.
- The placement of UM rockfill at El. 141 m on SD3 was interrupted during the night shift because of an uncertainty of the QC personnel about the approved foundation. Since the dozer has since left SD3, the lift was completed by a loader. Caution was used to limit rockfill segregation, and the compactor did 8 passes on this section.
- The two accesses on SD4 will be left in place for the moment. Access ramps will be built as rockfill lifts progress.
- Some of the access roads are damaged by haul trucks traffic, especially on SD3. Sieving reject or material from the current access road on SD3 are considered for backfilling the damaged roads, however it is important not to contaminate the UM rockfill where the access goes through a rockfill lift.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	■ Placement of a 1.5 m-thick lift (approx.) of UM rockfill with a dozer from El. 141.5 to 143 m from Sta. 40+600 to 40+700 m (o.s. -18 to 18 m). The material was compliant.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream	■ Scarification of the UM rockfill at El. 141.5 m with a loader from Sta. 40+220 to 40+430 m (o.s. -9 to 23 m). ■ Placement of a 1.5 m-thick lift (approx.) of UM rockfill with a dozer from El. 141.5 to 143 m from Sta. 40+540 to 40+600 m (o.s. -18 to 18 m). The material was compliant.
Water management	■ Water ponding in the excavated area from Sta. 40+340 to 40+420 m (o.s. 32 to 35 m) is being pumped out.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream	■ Removal of the old access road to the upstream side of SD3. The excavated materials have been stockpiled and will be reused to build the new access road. ■ Removal of loose rocks and soft and ice-rich soils down to the frozen soil with an excavator and loading of the excavated material for foundation preparation from Sta. 20+855 to 20+880 m (o.s. -21 to -4 m) and from Sta. 20+865 to 20+910 m (o.s. -36 to -14 m). The till is frozen at a shallow depth.
Downstream	■ Compaction of the 2-m thick lift of UM rockfill at El. 141 m with a 10-tonne smooth-drum compactor (6 passes) from Sta. 20+580 to 20+740 m (o.s. -9 to 19 m). 8 passes were done on the north extremity of SD3 where the UM rockfill was placed with a loader.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
Upstream	■ Removal of loose rocks and soft and ice-rich soils with an excavator and loading of the excavated material for foundation preparation from Sta. 0+085 to 0+095 m (o.s. -36 to -1 m).

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 5: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

No sample was taken today.

Table 6: Samples taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD4-143: From 40+640/61 looking E. Placement of a 1.5 m-thick lift (approx.) of UM rockfill with a dozer from El. 141.5 to 143 m from Sta. 40+540 to 40+600 m (o.s. -18 to 18 m).



Photograph SD3-210: From 20+840/-17 looking E. Removal of loose rocks and soft and ice-rich soils down to the frozen soil with an excavator and loading of the excavated material for foundation preparation from Sta. 20+855 to 20+880 m (o.s. -21 to -4 m) and from Sta. 20+865 to 20+910 m (o.s. -36 to -14 m).



Photograph SD3-211: From 20+595/-18 looking NW. Compaction of the 2-m thick lift of UM rockfill at El. 141 m with a 10-tonne smooth-drum compactor (6 passes) from Sta. 20+580 to 20+740 m (o.s. -9 to 19 m).



Photograph SD3-212: From 20+915/-22 looking N. Removal of the old access road and stockpiling of reusable materials.



Photograph CD-1771: From 0+080/-60 looking SW. Removal of loose rocks and soft and ice-rich soils with an excavator and loading of the excavated material for foundation preparation from Sta. 0+085 to 0+095 m (o.s. -36 to -1 m).

QA DAILY REPORT

DATE August 8th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR AUGUST 7TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 12° C, rainy and windy.

2.0 HEALTH AND SAFETY

- SOP training took place in the afternoon for the new QC personnel. Therefore, there was no QC personnel on site from 11:00 to 18:00 today.
- The rain is still an issue, the muddy and very slippery ground causes a high risk of slips and falls. Extra caution must be applied when walking or driving on wet surfaces.
- A haul truck went off the road during the night shift on the access road to SD4 because of the bad visibility (darkness and rainy weather) and small berms. The berms have been raised in consequence.
- There is a thick layer of mud on access roads which increases the risk of slipping and getting stuck for vehicles.
- The QA Manager pointed out that slopes along the road downstream of SD3 are very steep. The slopes should be reworked soon to about 3:1 slopes.
- There is a high voltage cable buried at a shallow depth underneath Saddle Road near SD3. The damage to the road due to heavy equipment traffic needs to be repaired by backfilling before it becomes close to exposing the cable.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

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- The liner tie-in on the north abutment of Central Dike will probably be built as a backfill key (similarly to the Saddle Dams), whereas the rest of Central Dike was built with a key trench. This means that the key will be wider than on the rest of Central Dike. A new cross-section has been requested for the surveyor.
- One of the excavators will be temporarily relocated to the pit.
- Mixing of the till stockpile near Pit E should start today.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	■ Compaction of the 1.5 m thick lift of UM rockfill at El. 143 m with a 10-tonne smooth-drum compactor (6 passes) from Sta. 40+600 to 40+740 m (o.s.-20 to 14 m).

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream	■ Placement of a 1.5 m thick lift of UM rockfill with a dozer from El. 141.5 to 143 m from Sta. 40+370 to 40+460 m (o.s. -16 to 17 m). The material was compliant. ■ Compaction of the 1.5 m thick lift of UM rockfill at El. 143 m with a 10-tonne smooth-drum compactor (6 passes) from Sta. 40+545 to 40+600 m (o.s.-20 to 14 m). ■ Profiling of the slope on the downstream side of SD4 from El. 138.5 to 141.5 m with an excavator from Sta. 40+220 to 40+305 m.
Water management	■ Water ponding in the excavated area from Sta. 40+340 to 40+420 m (o.s. 32 to 35 m) is being pumped out.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream	■ Removal of loose rocks and soft and ice-rich soils down to the frozen soil with an excavator and loading of the excavated material from Sta. 20+850 to 20+880 m (o.s. -37 to -8 m).

Activity or Area	Comments
Downstream	■ Removal of loose rocks and soft and ice-rich soils with an excavator on the junction of SD3 and SD2 and loading of the excavated material from Sta. 20+575 to 20+580 m (o.s. -13 to 4 m).

Table 4: QA Observations for Central Dike

Activity or Area	Comments
Upstream	

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 5: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

No sample was taken today.

Table 6: Samples taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD5-062: From 40+615/9 looking S. Compaction of the 1.5 m thick lift of UM rockfill at El. 143 m with a 10-tonne smooth-drum compactor (6 passes) from Sta. 40+600 to 40+740 m (o.s.-20 to 14 m).



Photograph SD4-144: From 40+425/5 looking S. Placement of a 1.5 m thick lift of UM rockfill with a dozer from El. 141.5 to 143 m from Sta. 40+370 to 40+460 m (o.s. -16 to 17 m).



Photograph SD3-213: From 20+850/-7 looking E. Removal of loose rocks and soft and ice-rich soils down to the frozen soil with an excavator and loading of the excavated material from Sta. 20+850 to 20+880 m (o.s. -37 to -8 m).



Photograph SD3-214: From 20+590/3 looking N. Removal of loose rocks and soft and ice-rich soils with an excavator and loading of the excavated material from Sta. 20+575 to 20+580 m (o.s. -13 to 4 m).

QA DAILY REPORT

DATE August 9th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR AUGUST 8TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 15° C, sunny.

2.0 HEALTH AND SAFETY

- Each rockfill lift is placed with at least 1 m high berms on the edge of the crest.
- There is still important heavy equipment coactivity on SD3: personnel on foot must make sure to be visible at all time.
- The 345 excavator is leaking and will be repaired today to prevent a spill.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The 450 excavator will replace the 345 during the repairs.
- The foreman, the QA Manager, the QC representative and the surveyor went to see the extremity of the SD2 till plug. A design will be proposed by Francis Pépin to connect the SD3 and SD2 keys, as the 2 existing keys are offset.
- The sump at the downstream toe of SD3 needs to be pumped.
- A loader is currently the loading unit in Pit E. If due to the ongoing foundation preparation the dikes cannot accommodate any more rockfill after the lifts at El. 143 m are completed, the loading unit can be stopped and relocated easily.

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- The QA Manager noted additional drill holes in the south side of SD3 where the foundation is being cleaned. According to Patrice Gagnon, these belong to the exploration holes pattern observed near Quarry 23 and show no indication of a blast.
- The ditch along the till stockpile near Pit E will be backfilled with UM rockfill from the pit to avoid loss of material when mixing the till. This was done after the rockfill lift was completed today on SD4.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	■ Scarification of the UM rockfill at El. 143 m from Sta. 40+600 to 40+745 m (o.s. -19 to 16 m). ■ Removal of the safety berms on the downstream side of SD5 at El. 143 m with a loader and compaction with a 10-tonne smooth-drum compactor (6 passes) from Sta. 40+600 to 40+745 m.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream	■ Placement of a 1.5 m thick lift of UM rockfill with a dozer from El. 141.5 to 143 m from Sta. 40+160 to 40+280 m (o.s. -13 to 20 m). The material was compliant. ■ Compaction of the 1.5 m thick lift of UM rockfill at El. 143 m with a 10-tonne smooth-drum compactor (6 passes) from Sta. 40+345 to 40+420 m (o.s. -15 to 17 m). ■ Scarification of the UM rockfill at El. 143 m from Sta. 40+420 to 40+600m (o.s. -21 to 17 m). ■ Removal of the safety berms on the downstream side of SD4 at El. 143 m with a loader and compaction with a 10-tonne smooth-drum compactor (6 passes) from Sta. 40+440 to 40+600 m.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream	■ Removal of loose rocks and soft and ice-rich soils with an excavator from Sta. 20+770 to 20+820 m (o.s. -15 to 2 m). The bedrock is highly fractured with ice lenses.
Downstream	■ Scarification of the UM rockfill at El. 141 m from Sta. 20+580 to 20+770 m (o.s. –9 to 18 m). ■ Removal of the safety berms on the downstream side of SD3 at El. 141 m with a loader and compaction with a 10-tonne smooth-drum compactor (6 passes) from Sta. 20+580 to 20+745 m. ■ Profiling of the slope on the downstream side of SD3 from El. 139 to 141 m with an excavator from Sta. 20+580 to 20+745 m.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
Upstream	

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 5: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

No sample was taken today.

Table 6: Samples taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD5-063: From 40+535/5 looking S. Scarification of the UM rockfill and removal of the safety berms on the downstream side of SD5 at El. 143 m from Sta. 40+600 to 40+745 m (o.s. -19 to 16 m).



Photograph SD4-145: From 40+430/11 looking SW. Compaction of the 1.5 m thick lift of UM rockfill at El. 143 m with a 10-tonne smooth-drum compactor (6 passes) from Sta. 40+345 to 40+420 m (o.s. -15 to 17 m).



Photograph SD3-215: From 20+805/9 looking E. View of a drill hole on the upstream foundation of SD3 (south side), most likely from the exploration campaign.



Photograph SD3-216: From 20+755/-5 looking N. Scarification of the UM rockfill at El. 141 m from Sta. 20+580 to 20+770 m (o.s. –9 to 18 m).



Photograph SD3-217: From 20+745/20 looking N. Profiling of the slope on the downstream side of SD3 from El. 141 to 143 m with an excavator from Sta. 20+580 to 20+745 m.



Photograph SD3-218: From 20+765/-12 looking S. Removal of loose rocks and soft and ice-rich soils with an excavator from Sta. 20+770 to 20+820 m (o.s. -15 to 2 m).

QA DAILY REPORT

DATE August 10th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR AUGUST 9TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 20° C, sunny to cloudy.

2.0 HEALTH AND SAFETY

- Dust is an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.
- There is still important heavy equipment coactivity on SD3: personnel on foot must make sure to be visible at all time.
- A defibrillator should be installed in the surveyor trailer to be available on the construction site.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- There will be only one excavator available on the dikes for the next 2 days while the second one is being repaired. The placement of inverse filters on SD5 has therefore been delayed until August 12.
- The access to the stockpiles at the SANA crusher site has been reworked.
- Ice lenses (20 to 40 cm) were observed on the bedrock foundation at the junction between SD2 and SD3. It was discussed with Yves Boulianne that in this case, the ice would not impact significantly the bearing capacity of the foundation and thus can be left in place.
- The alignment of the key between SD2 and SD3 is still to be determined. The foundation approval of the filters zone on SD3 was based on the available information, with the understanding that the key footprint

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might change. If the new key footprint overlaps with an already approved zone, this zone will have to be approved again after appropriate key trench preparation.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream	■ Compaction of the 1.5 m thick lift of UM rockfill at El. 143 m with a 10-tonne smooth-drum compactor (6 passes) from Sta. 40+180 to 40+345 m (o.s. -15 to 17 m).

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Foundation preparation	■ Final clean-up of the dike footprint to reach good quality bedrock from Sta. 20+575 to 20+580 m (o.s. -7 to 1 m). Some ice lenses (20 to 40 cm) were observed on the bedrock. ■ Final clean-up of the dike footprint to reach good quality bedrock from Sta. 20+770 to 20+795 m (o.s. -20 to -6 m).
Upstream	■ Removal of loose rocks and soft and ice-rich soils with an excavator and loading of the excavated material from Sta. 20+795 to 20+865 m (o.s. -38 to -11 m).
Downstream	■ Placement of a 2 m thick lift of UM rockfill with a dozer from El. 141 to 143 m from Sta. 20+640 to 20+715 m (o.s. -16 to 18 m). The material was compliant.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
Upstream	

5.0 FOUNDATION APPROVAL

Two foundation approvals were done today.

Table 5: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment
FND-SD3-27	SD3	Sta. 20+554.81 to 20+589.70 m (o.s. -29.88 to 12.51 m)	09/08/2017	Ice lenses (20 to 40 cm) are present on the bedrock and do not impact the quality of the bedrock foundation.
FND-SD3-28	SD3	Sta. 20+769.04 to 20+794.22 m (o.s. -19.71 to -6.30 m)	09/08/2017	

6.0 LABORATORY

No sample was taken today.

Table 6: Samples taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD4-146: From 40+220/-14 looking SW. Compaction of the 1.5 m thick lift of UM rockfill at El. 143 m with a 10-tonne smooth-drum compactor (6 passes) from Sta. 40+180 to 40+345 m (o.s. -15 to 17 m).



Photograph SD3-219: From 20+575/-7 looking SW. Final clean-up of the dike footprint to reach good quality bedrock from Sta. 20+575 to 20+580 m (o.s. -7 to 1 m).



Photograph SD3-220: From 20+570/-9 looking NE. View of an ice lens (40 cm) on the bedrock at the junction between SD2 and SD3.



Photograph SD3-221: From 20+710/-24 looking N. Placement of a 2 m thick lift of UM rockfill with a dozer from El. 141 to 143 m from Sta. 20+640 to 20+715 m (o.s. -16 to 18 m).

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QA DAILY REPORT

DATE August 11th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR AUGUST 10TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 12° C, cloudy.

2.0 HEALTH AND SAFETY

- Dust is an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.
- There is important heavy equipment coactivity on SD4: personnel on foot must make sure to be visible at all time.
- The Health & Safety representative indicated that JHA will be required for liner placement activities that will begin soon.
- There was a reminder about the fire hazard posed by the use of certain electric appliances in the camp.
- The different assembly points for employees in muster stations need to be clarified.
- A blast is planned at 12:45 in Pit E5.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The 345 excavator should be repaired by tomorrow morning and will go mix the till stockpile near Pit E for 2 days. It is planned to move to the north abutment of Central Dike on Monday for excavation works.

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- The loading unit in the pit broke down at 10:00 and no rockfill placement could be done during the rest of the day shift.
- The loader went to mix the remaining till stockpiles at the north abutment of Central Dike. A small part is still frozen. The QC representative sampled the till stockpile #2 for a Proctor test.
- Based on current progression of the construction season, it is considered to stop the night shift on August 21, at least for the rockfill placement. There will be no more night shift supervisor.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream	■ Removal of the safety berms on the downstream side of SD4 at El. 143 m with a loader and compaction with a 10-tonne smooth-drum compactor (6 passes) from Sta. 40+165 to 40+425 m. ■ Removal of one oversize boulder with a loader. ■ Profiling of the slope on the downstream side of SD4 from El. 141.5 to 143 m with an excavator from Sta. 40+165 to 40+550 m. ■ Placement of a 2 m thick lift of UM rockfill with a dozer from El. 143 to 145 m from Sta. 40+560 to 40+600 m (o.s. -14 to 18 m). The material was compliant.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Downstream	■ Compaction of the 2 m thick lift of UM rockfill at El. 143 m with a 10-tonne smooth-drum compactor (6 passes) from Sta. 20+575 to 20+765 m (o.s. -21 to 16 m). 8 passes were done on the small zone at the north extremity of SD3 where rockfill had been placed on the bedrock.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
Upstream	

5.0 FOUNDATION APPROVAL

One foundation approval was done today.

Table 5: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment
FND-SD3-29	SD3	Sta. 20+792.99 to 20+819.38 (o.s. -30.42 to -0.56 m)	10/08/2017	

6.0 LABORATORY

One sample was taken today by the QC representative.

Table 6: Samples taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
432	10/08/2017		Sieved till (stockpile #2)			

7.0 PHOTOGRAPH



Photograph SD4-147: From 40+450/34 looking S. Profiling of the slope on the downstream side of SD4 from El. 141.5 to 143 m with an excavator from Sta. 40+165 to 40+550 m.



Photograph SD4-148: From 40+370/14 looking N. Removal of the safety berms on the downstream side of SD4 at El. 143 m with a loader and compaction with a 10-tonne smooth-drum compactor (6 passes) from Sta. 40+165 to 40+425 m.



Photograph SD4-149: From 40+454/-17 looking S. Placement of a 2 m thick lift of UM rockfill with a dozer from El. 143 to 145 m from Sta. 40+560 to 40+600 m (o.s. -7 to 18 m), along the rockfill/inverse filter interface.



Photograph SD3-222: From 20+580/16 looking SW. Compaction of the 2 m thick lift of UM rockfill at El. 143 m with a 10-tonne smooth-drum compactor (6 passes) from Sta. 20+575 to 20+765 m (o.s. -21 to 16 m).

QA DAILY REPORT

DATE August 12th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR AUGUST 11TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 20° C, cloudy to sunny.

2.0 HEALTH AND SAFETY

- Dust is still an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.
- There is still important heavy equipment coactivity on SD4: personnel on foot must make sure to be visible at all time.
- A near-miss regarding a pick-up and a haul truck almost colliding at the intersection of the waste dump access and Vault Road was shared.
- A blast is planned at 12:45 at Vault.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The size of the boulders loaded in the pit must be closely monitored, in order to avoid sending too much compliant rockfill to the waste dump.
- AEM's representative demanded that the geomembrane in place on SD3 be inspected by the QA and the QC personnel for damaged caused by rock fragments thrown during the blasting operations.
- The loader went to mix the remaining till stockpiles at the north abutment of Central Dike. A small part is still frozen. The QC representative sampled the till stockpile #1 for a Proctor test.

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- It is not planned to raise the Saddle Dams to an elevation higher than 145 m. The abutments will therefore be built in final configuration at El. 145 m.
- AEM's representative, the QA Manager, the foreman and the QC representative went to the north abutment of Central Dike to assess the required footprint for raising the abutment to El. 145 m. It was decided that the north abutment of Central dike would be built with a "steps" ending, to allow for further raise at a later time, to the contrary of the Saddle Dams. Details of the connection of the liner tie-in to the existing section have been discussed.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	■ Placement of a 2 m thick lift of UM rockfill with a dozer from El. 143 to 145 m from Sta. 40+600 to 40+730 m (o.s. -25 to 11 m). The material was compliant.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream	

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Foundation preparation	■ Final clean-up of the dike footprint to reach good quality bedrock and loading of the excavated material from Sta. 20+780 to 20+800 m (o.s. -9 to 14 m). Some ice lenses (20 to 30 cm) were observed on the bedrock.
Downstream	■ Placement of a 2 m (max) thick lift of UM rockfill on the bedrock with an excavator from Sta. 20+780 to 20+815 m (o.s. -2 to 4 m) to provide an access to SD3 before the dozer is available to place the rest of the lift. The material was compliant and placed without segregation. ■ Compaction of the 2 m (max) thick lift of UM rockfill with a 10-tonne smooth-drum compactor (8 passes) from Sta. 20+780 to 20+815 m (o.s. -2 to 4 m).

Table 4: QA Observations for Central Dike

Activity or Area	Comments
Upstream	■ Removal of loose rocks and soft and ice-rich soils with an excavator from Sta. 0+090 to 0+105 m (o.s. -36 to -29 m).

5.0 FOUNDATION APPROVAL

One foundation approval was done today.

Table 5: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment
FND-SD3-30	SD3	Sta. 20+778.88 to 20+807.75 m (o.s. -9.38 to 18.52 m)	11/08/2017	Ice lenses (20 to 30 cm) are present on the bedrock and do not impact the quality of the bedrock foundation. Approved provided the water pond is pumped out before rockfill placement.

6.0 LABORATORY

One sample was taken today by the QC representative.

Table 6: Samples taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
433	11/08/2017		Sieved till (stockpile #1)			

7.0 PHOTOGRAPH



Photograph SD5-064: From 40+600/-8 looking S. Placement of a 2 m thick lift of UM rockfill with a dozer from El. 143 to 145 m from Sta. 40+600 to 40+730 m (o.s. -25 to 11 m).



Photograph SD3-223: From 20+600/-8 looking S. Final clean-up of the dike footprint to reach good quality bedrock and loading of the excavated material from Sta. 20+780 to 20+800 m (o.s. -9 to 14 m).



Photograph SD3-224: From 20+795/5 looking E. View of an ice lens (30 cm) at the surface of the bedrock on the downstream side of the SD3 footprint.



Photograph CD-1772: From 0+080/-22 looking W. Removal of loose rocks and soft and ice-rich soils with an excavator from Sta. 0+090 to 0+105 m (o.s. -36 to -29 m).

QA DAILY REPORT

DATE August 13th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR AUGUST 12TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 20° C, cloudy and rainy in the morning, sunny in the afternoon.

2.0 HEALTH AND SAFETY

- The rain is still an issue, the muddy and very slippery ground causes a high risk of slips and falls. Extra caution must be applied when walking or driving on wet surfaces.
- There is still important heavy equipment coactivity on SD4: personnel on foot must make sure to be visible at all time.
- A safety share took place about an incident in the pit which involved a grade control worker being hit by a piece of casing ripped by an excavator. Work procedures must be adapted in consequence.
- A blast is planned at 12:45 at Vault.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The fine filter in the invert filters will be built with hard 0-3/4'' stone from the Pit D stockpile. 0-3/4'' soapstone from the SANA crusher site will only be used on the upstream slope. The materials are hauled from the stockpiles with a CAT-740 articulated truck.
- The QA Manager reminded that 4 passes of compaction with vibrations are required for every 0.5 m lift of filter.

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- A discussion was held on the field about the limits of the invert filters on SD4. AEM's representative indicated that no construction above the elevation 145 m would take place, except for a rockfill pad to reinstall the pig launcher station.
- AEM and Golder came up with a design for temporary closure of the geomembrane on Central Dike, SD5 and SD3, in order to ensure the geomembrane integrity against the action of the wind until next year's construction season, when the geomembrane will be completed and sealed.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	■ Compaction of the 2 m thick lift of UM rockfill at El. 145 m with a 10-tonne smooth-drum compactor (6 passes) from Sta. 40+600 to 40+725 m (o.s. -24 to 12 m). ■ Placement of the first 0.5 m thick lift of fine filter (invert filter) with an excavator at El. 143.8 m from Sta. 40+560 to 40+620 m (o.s. -31 to -16 m). Depressions in the bedrock have first been filled with fine filter and compacted with the bucket of the excavator before placing the 0.5 m thick lift. ■ Compaction of the 0.5 m thick lift of fine filter with a 10-tonne smooth-drum compactor (4 passes) from Sta. 40+560 to 40+620 m (o.s. -31 to -16 m). The material was wetted to promote compaction. ■ Placement of a 0.5 m thick lift of coarse filter (invert filter) with an excavator at El. 144.3 m from Sta. 40+550 to 40+580 m (o.s. -31 to -15 m).

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream	■ Placement of a 2 m thick lift of UM rockfill with a dozer from El. 143 to 145 m from Sta. 40+360 to 40+450 m (o.s. -23 to 11 m). The material was compliant. ■ Compaction of the 2 m thick lift of UM rockfill at El. 145 m with a 10-tonne smooth-drum compactor (6 passes) from Sta. 40+540 to 40+600 m (o.s. -24 to 12 m).

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Downstream	■ Scarification of the UM rockfill at El. 143 m from Sta. 20+575 to 20+780 m (o.s. –26 to 14 m). ■ Removal of the safety berms on the downstream side of SD3 at El. 143 m with a loader from Sta. 20+575 to 20+765 m.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
Upstream	■ Removal of loose rocks and soft and ice-rich soils with an excavator and loading of the excavated material from Sta. 0+095 to 0+135 m (o.s. -16 to -5 m). ■ Excavation of fill materials until the natural in-situ till on which the existing key is connected, from Sta. 0+090 to 0+150 m (o.s. -48 to -33 m).

5.0 FOUNDATION APPROVAL

One foundation approval was done today.

Table 5: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment
FND-CD-134	CD	Sta. 0+085.95 to 0+110.97 m (o.s. -28.30 to -12.98 m)	12/08/2017	Ice lenses (less than 15 cm) are present on the bedrock and do not impact the quality of the bedrock foundation.

6.0 LABORATORY

Three samples were taken today by the QC representative.

Table 6: Samples taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
370	12/08/2017		Fine filter (Pit D stockpile)			
371	12/08/2017		Fine filter (in place in the SD5 invert filter)			
434	12/08/2017		Unsieved till (Pit E stockpile)		Gradation of the fine part	

7.0 PHOTOGRAPH



Photograph SD5-065: From 40+580/-34 looking S. Placement of the first 0.5 m thick lift of fine filter (invert filter) with an excavator at El. 143.8 m from Sta. 40+560 to 40+620 m (o.s. -31 to -16 m).



Photograph SD5-066: From 40+550/-30 looking S. Placement of a 0.5 m thick lift of coarse filter (invert filter) with an excavator at El. 144.3 m from Sta. 40+550 to 40+580 m (o.s. -31 to -15 m).



Photograph SD4-150: From 40+420/-27 looking SW. Placement of a 2 m thick lift of UM rockfill with a dozer from El. 143 to 145 m from Sta. 40+360 to 40+450 m (o.s. -23 to 11 m).



Photograph SD3-225: From 20+775/-7 looking N. Scarification of the UM rockfill and removal of safety berms at El. 143 m from Sta. 20+575 to 20+780 m (o.s. –26 to 14 m).



Photograph CD-1773: From 0+100/-9 looking W. View of an ice lens (15 cm) at the surface of the bedrock on the upstream side of the Central Dike footprint.



Photograph CD-1774: From 0+090/-33 looking S. Removal of loose rocks and soft and ice-rich soils with an excavator and loading of the excavated material from Sta. 0+095 to 0+135 m (o.s. -16 to -5 m).

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QA DAILY REPORT

DATE August 14th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR AUGUST 13TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 24° C, sunny.

2.0 HEALTH AND SAFETY

- There is still important heavy equipment coactivity on SD4: personnel on foot must make sure to be visible at all time.
- Dust is an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.
- A blast is planned at 12:45 in Pit E5.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QC representative indicated that the 10-tonne compactor currently used on the dikes is not vibrating enough. Another compactor will be used for the filters.
- As rockfill placement will soon begin on the north abutment of Central Dike, it was reiterated that only good quality NPAG from Pit A will be used. No UM rockfill is accepted on Central Dike.
- The till stockpiles on the north abutment of Central Dike are entirely mixed and thawed.
- The quality of the UM rockfill currently hauled from Pit E is an issue: the rockfill contains a large quantity of fine particles, as well as oversize boulders. The backhoe operator in the pit has been notified and large boulders removed from the dike using an excavator and a dozer, under supervision of the QC representative.

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- The inverse filter will be narrower on a section of SD4, from approx. Sta. 40+430 to 40+440 m, due to a steep drop in the bedrock and concerns about the large thickness of fine filter that would be required to fill the depression. After discussion with Yves Boulianne, given that the bedrock in this area is sound and massive, the inverse filter will be built from the outer edge of the drop, with a local width of 6 m instead of 10 m. The bedrock depression will be backfilled with UM rockfill.
- Sample identification has been revised with the QC representative and corrections made. Samples #370 and #371 of fine filter taken yesterday have been re-labelled #375 and #376.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	■ Placement of a 0.5 m thick lift of coarse filter (inverse filter) with an excavator at El. 144.7 m (approx.) from Sta. 40+580 to 40+620 m (o.s. -30 to -21 m). ■ Compaction of the 0.5 m thick lift of fine filter with a 10-tonne smooth-drum compactor (4 passes) from Sta. 40+580 to 40+620 m (o.s. -30 to -21 m).

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream	■ Placement of a 2 m thick lift of UM rockfill with a dozer from El. 143 to 145 m from Sta. 40+265 to 40+325 m (o.s. -29 to 16 m). The material contained a lot of fine particles and some large boulders but was acceptable. ■ Compaction of the 2 m thick lift of UM rockfill at El. 145 m with a 10-tonne smooth-drum compactor (6 passes) from Sta. 40+430 to 40+520 m (o.s. 2 to 13 m). ■ Removal of rockfill fallen from the upstream slope of SD4 (El. 145 m) onto the inverse filters zone with an excavator from Sta. 40+450 to 40+485 m. ■ Removal of oversize boulders in the upstream side of SD4 with an excavator. ■ Placement of two 0.5 m thick lift of fine filter (inverse filter) with an excavator from Sta. 40+430 to 40+485 m (o.s. -31 to -18 m). Several 0.5 m thick lifts are required to fill a depression in the bedrock.

Activity or Area	Comments
	■ Compaction of each of the two 0.5 m thick lifts of fine filter with a 10-tonne smooth-drum compactor (4 passes) from Sta. 40+430 to 40+485 m (o.s. -31 to -18 m). The material was wetted to promote compaction. ■ Profiling of the slope on the upstream side of SD4 (3H:1V) from El. 143 to 145 m with an excavator from Sta. 40+395 to 40+420 m.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Downstream	

Table 4: QA Observations for Central Dike

Activity or Area	Comments
Foundation preparation	■ Final clean-up of the dike footprint to reach good quality bedrock from Sta. 0+100 to 0+135 m (o.s. -16 to 5 m).
Upstream	■ Excavation of test pits through the access ramp to assess the depth of the natural soil and the thickness of the till layer along the key zone.

5.0 FOUNDATION APPROVAL

One foundation approval was done today.

Table 5: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment
FND-CD-136	CD	Sta. 0+095.75 to 0+134.60 m (o.s. -15.29 to 4.65 m)	13/08/2017	

6.0 LABORATORY

One sample was taken today by the QC representative.

Table 6: Samples taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
370 (coarse)	13/08/2017		Coarse filter (in place)	SD4		

7.0 PHOTOGRAPH



Photograph SD5-067: From 40+580/-32 looking S. Placement of a 0.5 m thick lift of coarse filter (inverse filter) with an excavator at El. 144.7 m (approx.) from Sta. 40+580 to 40+620 m (o.s. -30 to -21 m).



Photograph SD4-151: From 40+530/10 looking N. Compaction of the 2 m thick lift of UM rockfill at El. 145 m with a 10-tonne smooth-drum compactor (6 passes) from Sta. 40+430 to 40+520 m (o.s. 2 to 13 m).



Photograph SD4-152: From 40+420/-22 looking S. Placement of a 2 m thick lift of UM rockfill with a dozer from El. 143 to 145 m from Sta. 40+265 to 40+325 m (o.s. -29 to 16 m). Notice the oversize boulders left on the right.



Photograph SD4-153: From 40+475/-20 looking NW. Placement of two 0.5 m thick lift of fine filter (inverse filter) with an excavator from Sta. 40+430 to 40+485 m (o.s. -31 to -18 m).



Photograph CD-1775: From 0+100/-43 looking N. Excavation of test pits through the access ramp to assess the depth of the natural soil and the thickness of the till layer along the key zone.

QA DAILY REPORT

DATE August 15th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Julie Bélanger, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer and Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR AUGUST 14TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 25° C, sunny.

2.0 HEALTH AND SAFETY

- There is still important heavy equipment coactivity on SD4: personnel on foot must make sure to be visible at all time.
- Dust is an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- Michael Nadon just arrived on site as the QA Manager.
- The sieving unit from the environment department may be used to sieve the Pit E till stockpile.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

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Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream	■ Removal of the safety berm at El. 145 m with an excavator and compaction of the UM rockfill located beneath the berm with a 10 tonne smooth-drum compactor (6 passes) from 40+700 to 40 +600 m.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream	■ Placement of a 2 m thick lift of UM rockfill with a dozer from El. 143 to 145 m from Sta. 40+120 to 40+190 m (o.s. -26 to 15m). The material contained some large boulders but was acceptable. ■ Placement of two 0.5 m thick lifts of fine filter (inverse filter) with an excavator from Sta. 40+430 to 40+485 m (o.s. -30 to -9 m). ■ Compaction of each of the two 0.5 m thick lifts of fine filter with a 10-tonne smooth-drum compactor (4 passes) from Sta. 40+430 to 40+485 m (o.s. -30 to -9 m). The material was wetted to promote compaction. ■ Placement of a 0.5 m thick lift of coarse filter (inverse filter) with an excavator from Sta. 40+430 to 40+ 485 m (o.s. -25 to -9 m). ■ Compaction of the 0.5 m thick lift of coarse filter (inverse filter) with a 10-tonne smooth-drum compactor (4 passes) from Sta. 40+430 to 40+ 485 m (o.s. -25 to -9 m).

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Downstream	■ Profiling of the slope on the downstream side (1.5H:1V) up to El.143 m from Sta. 20+580 to 20+780 m.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
Upstream	■

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 5: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

No sample was taken today.

Table 6: Samples taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD4-154: From 40+440/-28 looking S. Placement of two 0.5 m thick lifts of fine filter (inverse filter) with an excavator from Sta. 40+430 to 40+485 m (o.s. -30 to -9 m).



Photograph SD4-155: From 40+165/15 looking SE. Placement of a 2 m thick lift of UM rockfill with a dozer from El. 143 to 145 m from Sta. 40+120 to 40+190 m.



Photograph SD3-226: From 20+720/17 looking N. Profiling of the slope on the downstream side of SD3 from El. 141 to 143 m with an excavator from Sta. 20+580 to 20+780 m.

QA DAILY REPORT

DATE August 16th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR AUGUST 15TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 20° C, foggy.

2.0 HEALTH AND SAFETY

- The importance of synchronising the good radio frequency to ensure safe field activities was reminded.
- A talk concerning the respect of the speed limits on the mine site took place.
- There is still important heavy equipment coactivity on SD4: personnel on foot must make sure to be visible at all time.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The fine filter used for the filters on SD4 will come from the SANA crusher stockpile when the Pit E stockpile will be emptied.
- It was discussed that the QA Manager will inspect the LLDPE geomembrane rolls of the previous years in order to ensure the quality of the material before using it.
- It was discussed that the sumps on SD3, SD4 and SD5 are still planned to be done by the end of the construction season. Activities around the sumps will probably begin when the construction of the dikes will be done.

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- Low quality till stockpile on the south part of Pit E will be sampled today to perform a gradation and a water content. Depending on the results, decision will follow about the possibility to use the till in the liner protection configuration on SD3.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
	■

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream	■ Placement of a 0.5 m thick lift of fine/coarse filter (inverse filter) on the very south part of SD4 with an excavator from Sta. 40+420 to 40+460 m (o.s. -20 to -30 m). ■ Compaction of the 0.5 m thick lift of fine/coarse filter (inverse filter) on the very south part of SD4 with a 10-tonne smooth drum compactor (4 passes) from Sta. 40 +420 to 40+460 m (o.s.-20 to -30 m). ■ Placement of a 0.5 m thick lift of fine/coarse filter (inverse filter) on the very north part of SD4 with an excavator from Sta. 40+100 to 40+ 120 m (o.s. -20 to -30 m). ■ Compaction of the 0.5 m thick lift of fine/coarse filter (inverse filter) on the very north part of SD4 with a 10-tonne smooth drum compactor (4 passes) from Sta. 40+100 to 40+ 120 m (o.s. -20 to -30 m). ■ Compaction of the 2 m thick lift of UM rockfill at El. 145 m with a 10-tonne smooth-drum compactor (4 passes) from Sta. 40+260 to 40+ 420 m (o.s. -25 to -15 m). ■ Profiling of the slope on the downstream side of SD4 (1.5H:1V) from El. 143 to 145 m with an excavator from Sta. 40+440 to 40+520 m.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Downstream	■ Placement of a 2.0 m thick lift of UM rockfill with a dozer from El. 143 to 145 m from Sta. 20+710 to 20+760 (o.s. -16 to -25 m). Some loads of UM rockfill were heterogeneous and contained high fine particles but also contained a good quantity of block-and cobble sized particles.

Activity or Area	Comments
	■ Placement a 0.5 m thick lift of fine filter (inverse filter) with an excavator from Sta. 20+800 to 20+ 815 m (o.s. -18 to -31 m)

Table 4: QA Observations for Central Dike

Activity or Area	Comments
Upstream	■

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 5: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

Two samples were taken by the QC today.

Table 6: Samples taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
133	15-08-2016	-	Low quality till	Stockpile Pit E	Gradation/ water content	-
135	15-08-2016	-	Low quality till	Stockpile Pit E	Gradation/ water content	-

7.0 PHOTOGRAPH



Photograph SD4-156: From 40+090/-20 looking SE. Placement a 0.5 m thick lift of fine filter (inverse filter) with an excavator from Sta. 40+100 to 40+ 120 m (o.s. -20 to -30 m).



Photograph SD4-157: From 40+500/15 looking NW. Profiling of the slope on the downstream side of SD4 (1.5H:1V) from El. 143 to 145 m with an excavator from Sta. 40+440 to 40+520 m.



Photograph SD3-227: From 20+700/-28 looking N. Placement of a 2 m thick lift of UM rockfill with a dozer from El. 143 to 145 m from Sta. 20+710 to 20+760 m (o.s. -16 to 18 m).



Photograph SD3-228: From 20+780/-20 looking S. Placement a 0.5 m thick lift of fine filter (inverse filter) with an excavator from Sta. 20+800 to 20+ 815 m (o.s. -18 to -31 m).

QA DAILY REPORT

DATE August 17th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR AUGUST 16TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 15° C, foggy.

2.0 HEALTH AND SAFETY

- A tool box meeting with the crew that just arrived (SANA) took place this morning.
- The importance of the berms on the dikes in order to ensure a safe driving has been reiterated.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- A talk about the bad quality of the UM rockfill (too many fine particles) took place. It has been agreed that the QC will spend some time with the excavator (RH 120) operator in order to make sure he is aware of the quality of the rockfill that is expected for the dike construction.
- It was discussed that the QA Manager will coach the new dozer operator to make sure he knows about the specification of the UM rockfill and the placement of the material.
- Regarding the bedrock cleaning for the till plug, SANA asked AEM if the 307 excavator is ready to work soon. SANA is planning to start the cleaning at the end of the next week. More news to come within the next days.
- Regarding the remaining LLDPE geomembrane rolls of the previous years, the QA Manager mentioned that the current storage of the LLDPE geomembrane does not meet the specification by being stored outside without any shelter. Also, a portion of the remaining LLDPE geomembrane rolls lies directly on the ground surface (see pictures attached).

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The QA Manager reminded that, as mentioned in the plans and specifications, the LLDPE geomembrane shall be stored such that it is protected from puncture, dirt, grease, gasoline, diesel, fuel, water, moisture, mud, mechanical abrasion, excessive heat and other causes of damage to the liner material. In order to ensure quality and long term performance of the liner material, Golder does not support the initiative of using the unsheltered LLDPE geomembrane on the dikes.

That being said, if the LLDPE geomembrane is clean, empty of visible fold and shear failure, the risk regarding the use of the unsheltered LLDPE geomembrane is low. If AEM is comfortable with that low risk, Golder would accept to use it.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
	■

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream	■ Reshaping of the upstream slope of SD4 (3H:1V) from El. 143 to 145 m with an excavator between Sta. 40+420 to 40+140 m (approx.).

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Downstream	■ Placement of a 2.0 m thick lift of UM rockfill with a dozer from El. 143 to 145 m from Sta. 20+670 to 20+700 (o.s. -16 to -25 m). Some loads of UM rockfill were heterogeneous and contained high fine particles but also contained a good quantity of block-and cobble sized particles. ■ Compaction of a 0.5 m thick lift of fine filter (inverse filter) with a 10 tonne smooth drum compactor (4 passes) from Sta. 20+800 to 20+ 815 m (o.s. -18 to -31 m). The material was wetted to ensure a good quality of the compaction. ■ Placement of a 0.5 m thick lift of coarse filter (inverse filter) with an excavator from Sta. 20+800 to 20+815 m (o.s. -18 to -30 m).

Activity or Area	Comments
	■ Compaction of a 0.5 m thick lift of coarse filter (inverse filter) with a 10 tonne smooth drum compactor (4 passes) from Sta. 20+800 to 20+ 815 m (o.s. -18 to -30 m). The material was wetted to ensure a good quality of the compaction. ■ Placement of a 0.5 m thick lift of fine filter (inverse filter) with an excavator from Sta. 20+580 to 20+600 m (o.s. -41 to -22 m). ■ Compaction of a 0.5 m thick lift of fine filter (inverse filter) with a 10 tonne smooth drum compactor (4 passes) from Sta. 20+580 to 20+600 m (o.s -41 to -22 m). ■ Placement of a 0.5 m thick lift of coarse filter (inverse filter) with an excavator from Sta. 20+580 to 20+590 m (o.s. -41 to -22 m).

Table 4: QA Observations for Central Dike

Activity or Area	Comments
Upstream	■

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 5: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

No sample was taken today.

Table 6: Samples taken

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD3-229: From 20+560/-20 looking S. Placement of a 0.5 m thick lift of fine filter (inverse filter) with an excavator from Sta. 20+580 to 20+600 (o.s. -41 to -22 m). Also, notice the dozer placing the 2.0 m thick lift of UM rockfill from El. 143 to 145 m from Sta. 20+670 to 20+700 m (o.s. -16 to -25 m).



Photograph SD3-230: From 20+830/-28 looking N. View of the fine/coarse filter (inverse filter) placed and compacted on the upstream side of SD3 from Sta. 20+800 to 20+815 m (o.s. -18 to -30 m).



Photograph SD3-231: View of the unsheltered remaining rolls of LLDPE geomembrane on the north part of SD3. Notice that the rolls are lying directly on the ground surface.

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QA DAILY REPORT

DATE August 18th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR AUGUST 17TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 15° C, foggy.

2.0 HEALTH AND SAFETY

- According to the mine inspector, the dike's construction field goes well. Nothing special has been mentioned.
- It will have a blast at Pit A at 18h30.
- A spill occurred on the dozer of SD3 yesterday (about 4 L). The spill has been cleaned and an environmental report sent to all concerned.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- It was discussed that the environment's siever could be available for a sieving test with the low quality till located on the south part of pit E.
- It has been agreed that the low quality till located on the south part of pit E will be sieved by an excavator if the maximum particle size needed for the liner protection at SD3 is 300 mm, and will be sieved by the environment's siever if the maximum particle size needed is 150 mm. A meeting with Golder and AEM will take place at the beginning of the next week about the maximum particle size needed for the liner protection at SD3.
- The construction of the sump on SD3 and SD4 is being planned by AEM, Golder and SANA. A topographic scan of the construction field will be done in order to find low points, then a first draft of the sumps will be issued.

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- It was discussed that a ditch connecting the northern water pond of SD3 dike toe to the sump nearby would be an efficient way to drain the dike toe.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
	■ Sloping of the upstream slope of SD5 (3H:1V) from El. 143 to 145 m with an excavator between Sta. 40+580 to 40+730 m.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
	■

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Downstream	■ Placement of a 2.0 m thick lift of UM rockfill with a dozer from El. 143 to 145 m from Sta. 20+700 to 20+600 (o.s. -16 to -25 m). Some loads of UM rockfill were heterogeneous and contained high fine particles but also contained a good quantity of block-and cobble sized particles. ■ Placement and compaction of a 0.5 m thick lift of coarse filter (inverse filter) with an excavator from Sta. 20+580 to 20+610 m (o.s. -18 to -30 m). ■ Excavation of a ditch connecting the northern water pond of SD3 dike toe to the sump nearby.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
Upstream	■

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 5: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

One sample was taken by the QC, and two samples were taken by the QA. See the details of the samples below.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
377	2017-08-17	-	Fine filter	Sta. 20+590 m/o.s. - 30 m/El. 144.5 m	Gradation	-

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
SD3-08	2017-08-17	-	Fine filter	Sta. 20+580 m/o.s. - 30 m/El. 144.5 m	Gradation	-
SD4-08	2017-08-17	-	Fine filter	Sta. 40+580 m/o.s. - 30 m/El. 145 m	Gradation	-

7.0 PHOTOGRAPH



Photograph SD3-232: From 20+560/-8 looking SE. Compaction of the coarse filter (inverse filter) with a 10 tonne smooth drum compactor from 20+580 to 20+610 m.



Photograph SD3-233: From 20+580/44 looking S. Excavation of a ditch connecting the northern water pond of SD3 dike toe to the sump nearby.



Photograph SD5-068: From 40+73-/-22 looking W. View of the sloping of the upstream side of SD5 (3H:1V) from El. 143 to 145 m with an excavator between Sta. 40+580 to 40+730 m.

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QA DAILY REPORT

DATE August 19th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR AUGUST 18TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 15° C, cloudy to sunny.

2.0 HEALTH AND SAFETY

- A talk about the importance of respecting the speed limits took place.
- It will have a blast at Pit A at 18h30.
- Every pick-up truck driver has to ensure that its beacon light is always on.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- A labour man from SANA will be available for the water management on SD3 and SD4. A few times a day, he will pump the water out of the temporary sump on SD3 and SD4.
- It has been planned that Golder and AEM representatives will meet today in order to plan to the sumps on SD3 and SD4.
- The NPAG stockpiles (SANA crusher and pit A) planned to be use for the rockfill placement on CD has been verify by the QA Manager. According to the QA Manager, the material is compliant.
- It was discussed that the 307 excavator, which was planned for the bedrock cleaning of the till plug, is down because of a mechanic problem. In order to replace it, the Site Services will lend a backhoe to the dike construction team.

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- The UM rockfill placement at SD3 is done. The compaction will follow during the next days.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream	■ Placement of a 0.5 m thick lift of fine/coarse filter with an excavator up to El. 143.5 m from Sta. 40+620 to 40+730 m.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream	■ Placement of a 0.5 m thick lift of fine/coarse filter with an excavator up to El. 143.5 m from Sta. 40+420 to 40+520 m.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Water management	■ Water is being pumped out of the temporary sump.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
Upstream	■ Placement and compaction of a 0.5 m thick lift of fine/coarse filter (inverse filter) with an excavator from 0+090 to 0+120 m (o.s. -18 to -28 m). ■ Placement of a 2 m thick lift of good quality NPAG with a dozer from El. 143 to 145 m from Sta. 0+130 to 0+150 m (o.s. -10 to 10 m).

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 5: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

Two samples were taken by the QC, and one sample was taken by the QA. See the details below.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
378	2017-08-18	-	Fine filter	Sta. 0+100 m/o.s. - 24 m/El. 144.5 m	Gradation	-
369	2017-08-18	-	Coarse filter	Sta. 0+100 m/o.s. - 26 m/El. 144.5 m	Gradation	-

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
CD-544	2017-08-17	-	Fine filter	Sta. 0+100 m/o.s. - 24 m/El. 144.5 m	Gradation	-

7.0 PHOTOGRAPH



Photograph CD-1776: From 0+080/-30 looking SE. Placement of the coarse filter (inverse filter) on the northern part of CD with an excavator at El. 145 m from 0+090 to 0+120 m (o.s. -18 to -28 m).



Photograph SD3-234: From 20+540/-30 looking S. View of SD3 done with the rockfill at El. 145 m.



Photograph SD4-158: From 40+410-/-20 looking W. Placement of a 0.5 m thick lift of fine/coarse filters with an excavator up to El. 143.5 m from Sta. 40+420 to 40+520 m.

QA DAILY REPORT

DATE August 20th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR AUGUST 19TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 15° C, cloudy to rainy.

2.0 HEALTH AND SAFETY

- On the construction field, always make yourself visible. Keep an eye contact with the operators.
- It will have a blast at Vault pit at 12h45.
- The rain is an issue, the muddy and very slippery ground cause a high risk of slips and falls. Extra caution must be applied when walking or driving on wet surfaces.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The placement of the good quality NPAG rockfill on CD is completed. Unless there is a change on the planning, the rockfill placement is completely done for the construction season 2017.
- Concerning the design of the sump at SD3, AEM issued a first draft of a 2000 m3 (approx.) reservoir. Discussions between AEM and Golder representatives will take place within the next days to precise and confirm the design.
- It was discussed that the western access road on SD4 will be excavated soon for the construction of the sump at SD4.

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- According to the results of the gradation performed on the low quality till sampled on the stockpile of the south part of pit E (433 and 434), the till belongs to the compacted till (0-150 mm) range, provided that coarser particles (>150 mm) are sorted before any placement.
- Regarding the previous gradation performed on the compacted sieved till, the QA Manager noticed that the QC was not using the proper gradation limits. That being said, the results have been corrected and occurred no major change (see the results in table 6).

Grain size (mm)	Percentage passing by mass (%)
50	100
25.4	85-100
12.7	75-94
4.76	63-83
0.425	43-58
0.075	30-45

Gradation Limits for Compacted Sieved Till

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream	■ Placement and compaction of the second and third 0.5 m thick lift of fine/coarse filters with an excavator from El. 143.5 to 144.5 m from Sta. 40+620 to 40+730 m. ■ Placement of the fourth 0.5 m thick lift of coarse filter with an excavator from El. 144.5 to 145 m from Sta. 40+620 to 40+730 m.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Water management	■ Water is being pumped out of the temporary sump.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Water management	■ Water is being pumped out of the temporary sump.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
	■

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 5: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

Two samples were taken by the QC (378 and 379).

The gradation limits applied on the gradation of the compacted sieved till (429, 430 and 432) were modified, and so the results (see the details below).

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
369	2017-08-18	2017-08-18	Coarse filter	Sta. 0+100 m/o.s. - 26 m/El. 144.5 m	Gradation	Compliant
377	2017-08-17	2017-08-18	Fine filter	Sta. 20+590 m/o.s. - 30 m/El. 144.5 m	Gradation	Compliant
378	2017-08-18	-	Fine filter	Sta. 0+100 m/o.s. - 24 m/El. 144.5 m	Gradation	-
379	2017-08-18	-	Fine filter	Sta. 40+600 m, El. 144.5 m	Gradation	-
429	04/08/2017	5/08/2017	Sieved till (stockpile #1)	North of Central Dike	Gradation	Slightly too coarse, but accepted
					Water content	4.90%
430	04/08/2017	5/08/2017	Sieved till (stockpile #2)	North of Central Dike	Gradation	Compliant
					Water content	7.20%
432	10/08/2017	2017-08-20	Sieved till (stockpile #1)	North of Central Dike	Gradation	Compliant
					Water content	8.90%
433	15-08-2016	2017-08-17	Low quality till	Stockpile Pit E	Gradation	Compliant
					Water content	8.30%
434	15-08-2016	2017-08-13	Low quality till	Stockpile Pit E	Gradation	Compliant
					Water content	8.60%

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph CD-1777: From 0+080/-20 looking S. View of the final lift of good quality NPAG rockfill (El. 145 m) on CD from Sta. 0+100 to 0+175 m (o.s. 5 to -25 m).



Photograph SD5-069: From 40+725/-30 looking W. Placement of the fourth 0.5 m thick lift of coarse filter with an excavator from El. 144.5 to 145 m from Sta. 40+620 to 730 m.

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QA DAILY REPORT

DATE August 21th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR AUGUST 20TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 15° C, cloudy to rainy.

2.0 HEALTH AND SAFETY

- It was reminded that pre-start inspection at the beginning of each shift is mandatory. Among others, make sure to inspect all of your PPE to ensure they are in good condition.
- It has been discussed that it won't have any supervisor on the dike construction field during the night shift. That being said, the personnel on field will have to report to the dispatch every two hours.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- ERRATUM
  - The last daily report (August 19th, 2017) omitted to mention the beginning of the cleaning activities with the backhoe on the key trench for the till plug placement on SD5, from 40+580 to 40+ 40+620 m (o.s. -30 to -37 m).
- The water flow coming from the northern dike toe at SD3 has significantly decreased since the beginning of the pumping activities, 3 days ago. The pumping activities on SD3 will continue until the new sump will be on operation.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream	■ Placement with an excavator and compaction with a 10 tonne smooth drum compactor (4 passes) of the fourth 0.5 m thick lift of fine filter from El. 144.5 to 145 m from Sta. 40+620 to 40+730 m.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream	■ Bedrock cleaning of the key trench for the till plug placement with a backhoe from Sta. 40+560 to 40+580 m and Sta.40+420 to 40+430 m (o.s. -30 to -40 m). ■ Compaction of the first 0.5 m thick lift of fine/coarse filters with a 10 tonne smooth drum compactor (4 passes) at El. 143.5 m from Sta. 40+420 to 40+520 m. ■ Placement of the first 0.5 m thick lift of fine filter with an excavator from El. 143 to 143.5 m from 40+360 to 40+380 m.
Water management	■ Water is being pumped out of the temporary sump.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream	■ Compaction of the UM rockfill with a 10 tonne smooth drum compactor at El. 145 m from 20+575 to 20+660 (o.s. -20 to -30 m). ■ Profiling of the upstream slope (3H:1V) with an excavator from 20+700 to 20+780 m.
Water management	■ Water is being pumped out of the temporary sump.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
Upstream	■ Compaction of the good quality NPAG rockfill with a 10 tonne smooth drum compactor at El. 145 m from 0+100 to 0+175 m (o.s. 5 to -15 m).

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 5: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

Two samples were taken by the QC during the reporting period. See the details below.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
378	2017-08-18	-	Fine filter	Sta. 0+100 m/o.s. - 24 m/El. 144.5 m	Gradation	-
379	2017-08-18	-	Fine filter	Sta. 40+600 m, El. 144.5 m	Gradation	-

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph CD-1778: From 0+080/-25 looking S. Compaction of the good quality NPAG rockfill with a 10 tonne smooth drum compactor at El. 145 m from 0+100 to 0+175 m.



Photograph SD3-235: From 20+785/-27 looking S. Profiling of the upstream slope of SD3 (3H:1V) with an excavator from 20+700 to 20+780 m.



Photograph SD4-158: From 40+410-/-20 looking E. View of the bedrock cleaning of the key trench for the till plug placement with a backhoe from Sta. 40+560 to 40+580 m. Notice that the western part of SD5 has already been cleaned by the backhoe (40+580 to 40+620 m).



Photograph SD5-070: From 40+600/-25 looking E. Placement of the fourth 0.5 m thick lift of fine filter with an excavator from El. 144.5 to 145 m from Sta. 40+620 to 40+730 m.

QA DAILY REPORT

DATE August 22nd **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR AUGUST 21TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 15° C, sunny.

2.0 HEALTH AND SAFETY

- It will have a blast at pit A at 12h45
- It was reminded to keep a safety distance from the slopes when working on the crest of the dike.
- Dust is an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- Yesterday night shift was the last one of the 2017 construction season. From now on, the work on the dike will only be executed on the day shift.
- In order to get ready for the liner installation (approximatively 1 month), SANA is checking all the equipment needed for the installation (sand bags, geotextile/LLDPE rack, etc).
- It was discussed that a thermistance pipe is coming from the rockfill through the upstream slope of SD3 (Sta. 20+660/-24 m). The pipe alignment will be modified in order to ensure it does not interfere with the liner.
- The water flow coming from the bottom of the dike has significantly decreased since the beginning of the pumping activities (August 18th): the sump has been pumped from every 3 hours for 30 minutes

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approximately, to every 4 hours for 15 minutes. The pumping activities on SD3 will continue until the new sump will be in operation.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
	■

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream	■ Bedrock cleaning of the key trench for the till plug placement with a backhoe from Sta. 40+090 to 40+105 m (o.s. -30 to -40 m). ■ Placement of the first 0.5 m thick lift of fine filter with an excavator from El. 143 to 143.5 m from Sta. 40+120 to 40+280 m. ■ Placement of the first 0.5 m thick lift of coarse filter with an excavator from El. 143 to 143.5 m from Sta. 40+120 to 40+240 m. ■ Compaction of the first 0.5 m thick lift of fine/coarse filters with a 10 tonne smooth drum compactor (4 passes) at El. 143.5 m from Sta. 40+120 to 40+420 m. ■ Placement of the second 0.5 m thick lift of coarse filter with an excavator from El. 143.5 to 144 m from Sta. 40+320 to 40+420 m.
Water management	■ Water is being pumped out of the temporary sump.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream	■ Profiling of the downstream slope (1.5H:1V) with an excavator from Sta. 20+580 to 20+700 m.
Water management	■ Water is being pumped out of the temporary sump.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
	■

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 5: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

Two gradations were performed by the QC during the reporting period. See the details below.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
378	2017-08-18	2017-08-20	Fine filter	Sta. 0+100 m/o.s. - 24 m/El. 144.5 m	Gradation	Compliant
379	2017-08-18	2017-08-20	Fine filter	Sta. 40+600 m, El. 144.5 m	Gradation	Compliant

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD3-236: From 20+620/-2 looking N. Profiling of the downstream slope (1.5H:1V) with an excavator from Sta. 20+580 to 20+700m .



Photograph SD3-237: From 20+660/-24 looking N. View of the pipe coming from the rockfill through the upstream slope of SD3 that will have to be modified.



Photograph SD4-160: From 40+280-/-20 looking E. Placement of the second 0.5 m thick lift of coarse filter with an excavator from El. 143.5 to 144 m from Sta. 40+300 to 40+420 m.



Photograph SD4-161: From 40+090/-40 looking E. Bedrock cleaning of the key trench for the till plug placement with a backhoe from Sta. 40+090 to 40+105 m (o.s. -30 to -40 m).

QA DAILY REPORT

DATE August 23rd **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR AUGUST 22ND, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 15° C, sunny.

2.0 HEALTH AND SAFETY

- It will have a blast at Vault pit at 12h45
- Speed limits on the dike were reiterated.
- Dust is an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The temporary sump on SD3 will need to be cleaned with an excavator because of the important amount of mud that got stuck at the bottom of the sump.
- If workers are available, SANA would like to begin the blowing activities regarding the bedrock cleaning of the key trench for the placement of the till plug.
- The thermistance pipe that come from rockfill through the upstream slope of SD3 and SD4 will be modified soon. The pipe alignment will be modified in order to ensure it does not interfere with the liner.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
	■

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream	■ Placement of the second 0.5 m thick lift of fine filter with an excavator from El. 143.5 to 144 m from Sta. 40+120 to 40+340 m. ■ Placement of the second 0.5 m thick lift of coarse filter with an excavator from El. 143.5 to 144 m from Sta. 40+120 to 40+240 m. ■ Compaction of the second 0.5 m thick lift of fine/coarse filters with a 10 tonne smooth drum compactor (4 passes) at El. 144 m from Sta. 40+120 to 40+440 m. ■ Placement of the third 0.5 m thick lift of fine/coarse filter with an excavator from El. 144 to 144.5 m from Sta. 40+290 to 40+440 m. ■ The thermistance pipe that came from rockfill through the upstream slope of SD4 has been modified.
Water management	■ Water is being pumped out of the temporary sump.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Water management	■ Water is being pumped out of the temporary sump.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
	■ Bedrock cleaning of the key trench for the till plug placement with a backhoe from Sta. 0+090 to 40+100 m (o.s. -30 to -40 m).

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 5: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

Two gradations were performed by the QA during the reporting period. See the details below.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
SD3-08	2017-08-17	2017-08-21	Fine filter	Sta. 20+580 m/o.s. - 30 m/El. 144.5 m	Gradation	Compliant
SD4-08	2017-08-17	2017-08-21	Fine filter	Sta. 40+580 m/o.s. - 30 m/El. 145 m	Gradation	Compliant
CD-544	2017-08-17	2017-08-21	Fine filter	Sta. 0+100 m/o.s. - 24 m/El. 144.5 m	Gradation	Compliant

7.0 PHOTOGRAPH



Photograph CD-1779: From 20+090/-35 looking S. Bedrock cleaning of the key trench for the till plug placement with a backhoe from Sta. 0+090 to 40+100 m (o.s. -30 to -40 m).



Photograph SD4-162: From 40+220/-24 looking E. Compaction of the second 0.5 m thick lift of fine/coarse filters with a 10 tonne smooth drum compactor (4 passes) at El. 144 m from Sta. 40+120 to 40+440 m. Notice the excavator behind placing the third lift of coarse filter (El. 144.5 m).



Photograph SD4-163: From 40+280-/-20 looking E. View of the modified thermistance pipe that came from rockfill through the upstream slope of SD4 (Sta. 40+290/-25 m).

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QA DAILY REPORT

DATE August 24rh **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR AUGUST 23RD, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 15° C, sunny.

2.0 HEALTH AND SAFETY

- It will have a blast at Vault pit at 18h30.
- A JHA has been issued by SANA for the bedrock cleaning of the key trench with pressurised air stream and has been signed by the employee.
- A safety meeting with SANA's worker took place this morning.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- Thermistance pipe that comes from rockfill through the upstream slope of SD4 has been modified. The same operation will be executed with the thermistance pipe at SD3.
- It was discussed that two more workers will join the blowing team tomorrow.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

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Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Toe liner tie-in	■ Beginning of the cleaning of the key trench for the till plug placement with pressurized air stream from 40+605 to 40+610 m (o.s. -32 to -33 m).
Upstream	■ Profiling of the upstream slope with an excavator from El. 144.5 to 145 m from Sta. 40+570 to 40+740 m.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream	■ Compaction of the third 0.5 m thick lift of fine/coarse filters with a 10 tonne smooth drum compactor (4 passes) at El. 144.5 m from Sta. 40+120 to 40+440 m. ■ Placement of the fourth 0.5 m thick lift of coarse filter with an excavator from El. 144.5 to 145 m from Sta. 40+290 to 40+440 m. ■ Placement of the third 0.5 m thick lift of fine/coarse filters with an excavator from El. 144.5 to 145 m from Sta. 40+120 to 40+290 m. ■ Profiling of the upstream slope with an excavator from El. 143 to 144.5 m from Sta. 40+405 to 40+430 m.
Water management	■ Water is being pumped out of the temporary sump.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream	■ Profiling of the upstream slope of with an excavator from E. 143 to 145 m from Sta. 20+780 to 20+810 m and from Sta. 20+610 to 20+640 m.
Water management	■ Water is being pumped out of the temporary sump.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
	■

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 5: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

No sample was taken during the reporting period.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph CD5-071: From 20+740/-27 looking W. Profiling of the upstream slope of SD5 with an excavator from El. 144.5 to 145 m.



Photograph SD5-072: From 40+610/-20 looking N. View of the bedrock cleaning of the key trench for the till plug placement with pressurized air stream.



Photograph SD4-164: From 40+210-/-20 looking E. Placement of the third 0.5 m thick lift of fine filter with an excavator from El. 144 to 144.5 m from 40 +290 to 40+120 m.



Photograph SD4-164: From 20+640/-18 looking N. Profiling of the upstream slope of SD3 with an excavator from E. 143 to 145 m from Sta. 20+610 to 20+640 m.

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QA DAILY REPORT

DATE August 25th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR AUGUST 24TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 15° C, sunny.

2.0 HEALTH AND SAFETY

- Regarding the bedrock cleaning of the upstream toe liner tie-in with pressurised air stream, it was reminded that if someone needs to enter the zone, it is mandatory to advise the foreman of the activities.
- The speed limits on the dike has been reminded.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- Thermistance pipe that was modified yesterday on SD4 will need to be modified again. The QA Manager asked SANA to install the pipe deeper in the rockfill in order to ensure that it won't interfere with the LLDPE geomembrane anchor. The same operation will be done on the thermistance pipe of SD3.
- The QA Manager reminded the slush grout recipe that will be used for the filling of the discontinuities on the exposed bedrock of the upstream toe liner tie-in. Slush grout shall conform to the following:
  - Two parts sand and one part cement, by volume, mixed with water sufficient to produce a free-flowing mixture which can be poured and broomed into cracks and fractures in the bedrock and which will completely fill open joints, crevices, and minor imperfections in the bedrock.
  - Sand: clean, medium to fine mortar sand (refer to CAN3-A23.1)

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- Cement: Portland cement in accordance with CAN3-A23.1, Type 50 to provide for sulphate resistance. Alternative admixtures with documented and demonstrated sulphate resistance equivalent to Type 50 cement may be used with the approval of the Owner's Representative.
- Water: in accordance with CAN3-A23.1.
- Water-cement ratio to be determined and approved by the Owner's Representative based on trial mixes produced with the Contractor's mixing and pumping equipment. Water-cement ratio shall not exceed 0.6:1 (by mass) unless otherwise directed by the Owner's Representative.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream toe liner tie-in	■ Bedrock cleaning of the upstream toe liner tie-in with pressurized air stream from 40+540 to 40+620 m (o.s. -32 to -38 m).

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream	■ Placement of the fourth 0.5 m thick lift of coarse filter with an excavator from El. 144.5 to 145 m from Sta. 40+120 to 40+290 m. ■ Profiling of the upstream slope with an excavator from El. 143 to 144.5 m from Sta. 40+270 to 40+405 m. ■ Placement of the fourth 0.5 m thick lift of fine filter with an excavator from El. 144.5 to 145 m from Sta. 40+270 to 40+440 m. ■ The thermistance pipe has been modified to ensure it does not interfere with the liner anchor.
Water management	■ Water is being pumped out of the temporary sump.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream	■ The thermistance pipe has been modified to ensure it does not interfere with the liner anchor.
Downstream	■ Profiling of the downstream slope with an excavator from El. 143 to 145 m from Sta. 20+700 to 20+750 m.
Water management	■ Water is being pumped out of the temporary sump.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
	■

5.0 FOUNDATION APPROVAL

No foundation approval was done today.

Table 5: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment

6.0 LABORATORY

One sample was taken by the QA Manager during the reporting period.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
SD4-09	2017-08-24		Coarse filter	(in place) Sta. 40+350/o.s. -20 El. 145 m	Gradation	

7.0 PHOTOGRAPH



Photograph SD3-239: From 20+790/-16 looking W. View of the profiled upstream slope of SD3 from El. 143 to 145 m from Sta. 20+700 to 20+750 m.



Photograph SD3-240: From 20+640/-30 looking W. View of the thermistance pipe being modified on the upstream slope of SD3 (Sta. 20+640/-25 m) to ensure it does not interfere with the liner anchor.



Photograph SD5-073: From 40+540/-27 looking E. Bedrock cleaning of the upstream toe liner tie-in with pressurized air stream from 40+540 to 40+620 m (o.s. -32 to -38 m).



Photograph SD4-165: From 40+290/-24 looking E. Placement of the fourth 0.5 m thick lift of fine filter with an excavator from El. 144.5 to 145 m from Sta. 40+270 to 40+440 m. Notice behind the profiled upstream slope from El. 143 to 144.5 m from Sta. 40+270 to 40+405 m.

QA DAILY REPORT

DATE August 26th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR AUGUST 25TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 15° C, sunny.

2.0 HEALTH AND SAFETY

- It will have a blast at pit E at 12h45.
- It was discussed that the electrical maintenance of the mine site will occurred on the next Tuesday and Wednesday (August 29-30). Some area of the mine site might be in “black-out” for a short period of time during the maintenance.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QA Manager went for an inspection of the cleaning activities on the upstream toe liner tie-in on SD5, and reminded the workers that all of the discontinuities have to be visible in order to characterise and protect them with the slush grout.
- The Owner representative (Patrice Gagnon) confirmed that the placement of the filters on SD3 will take place this year. SANA is planning the beginning of the task right after the filter placement on CD.

  Moreover, the preparation of the upstream toe liner tie-in on the south part of SD3 will take place in the schedule of the 2017 construction season of the dike.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream toe liner tie-in	■ Completion of the bedrock cleaning of the upstream toe liner tie-in with pressurized air stream from Sta. 40+540 to 40+620 m (o.s. -32 to -38 m). ■ Bedrock mapping of the cleaned bedrock of the upstream toe liner tie-in from Sta. 40+591 to 40+604.5 m and from Sta. 40+604.5 to 40+616 m.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream	■ Profiling of the upstream slope with an excavator from El. 143 to 144.5 m from Sta. 40+120 to 40+270 m. ■ Placement of the fourth 0.5 m thick lift of fine filter with an excavator from El. 144.5 to 145 m from Sta. 40+120 to 40+270 m. ■ Compaction of the fine/coarse filters with a 10 tonne smooth drum compactor at El. 145 m from 40+120 to 40+440 m. ■ Completion of the thermistance pipe modification by burying the pipe with fine filter.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Water management	■ Water is being pumped out of the temporary sump.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
	■

5.0 BEDROCK MAPPING

The QA manager did the following bedrock mapping.

Table 5: Bedrock mapping by QA manager

Structure	Station and offset of centreline of the mapped section
SD5	From 40+604.5/-33.55 to 40+616.0/-34
SD5	From 40+591.0/-35.75 to 40+604.5/-33.55

6.0 LABORATORY

No sample was taken during the reporting period.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD4-166: From 40+320/-25 looking W. Beginning of bedrock cleaning on the southern part of the upstream toe liner tie-in of SD4 with pressurized air stream.



Photograph SD4-167: From 20+640/-30 looking W. Placement of the fourth 0.5 m thick lift of fine filter with an excavator from El. 144.5 to 145 m from Sta. 40+120 to 40+270 m.

QA DAILY REPORT

DATE August 27th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR AUGUST 26TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 12° C, cloudy to sunny.

2.0 HEALTH AND SAFETY

- Regarding the bedrock cleaning of the upstream toe liner tie-in with pressurised air stream, it was reminded that if someone needs to enter the zone, it is mandatory to advise the foreman of the activities.
- Dust is an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The Owner representative (Patrice Gagnon) mentioned that the design of the sump on SD3 should be issued by the end of the day.
- The QA Manager and the Owner representative went for an inspection of the cleaning activities on the upstream toe liner tie-in on SD5/SD4, and asked SANA for further cleaning at some spots, especially a fault zone located at Sta. 40+578 m/o.s. -36.4 to -40.4 m (approx.)).
- On the upstream slope of the eastern part of SD4, an additional lift of fine filter (300 mm) has been placed in order to cover a bedrock outcrop that has a larger high then the filters from 40 +570 to 40+600 m (o.s. –25 to –30 m).

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
	■

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream toe liner tie-in	■ Bedrock mapping of the cleaned bedrock of the upstream toe liner tie-in from Sta. 40+580 to 40+591 m. ■ More clean-up has been done on the fault zone at SD4 (Sta. 40+578 m/o.s. -36.4 to -40.4 m (approx.)).
Upstream	■ Profiling of the upstream slope with an excavator from El. 144.5 to 145 m from Sta. 40+120 to 40+440 m. ■ Modification of the upstream slope with an excavator from Sta. 40 +570 to 40+600 m (o.s. –25 to –30 m). An additional lift of fine filter (300 mm) has been placed in order to cover a bedrock outcrop.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Water management	■ Water is being pumped out of the temporary sump.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
Upstream	■ Placement of the first 0.5 m thick lift of coarse filter with an excavator from El. 143 to 143.5 m from Sta. 0+120 to 0+180 m.

5.0 BEDROCK MAPPING

The QA manager did the following bedrock mapping.

Table 5: Bedrock mapping by QA manager

Structure	Station and offset of centreline of the mapped section
SD4	From 40+580.0/-37.4 to 40+591.0/-35.75

6.0 LABORATORY

No sample was taken during the reporting period.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph CD-1780: From 0+180/-25 looking N. Placement of the first 0.5 m thick lift of coarse filter with an excavator from El. 143 to 143.5 m from Sta. 0+120 to 0+180 m..



Photograph SD4-168: From 40+420/-23 looking W. View of the upstream slope of SD4. The filters and the profiling are completed (from 20+120 to 20+440 m).



Photograph SD4-169: From 40+605/-36 looking W. View of the upstream slope modification on SD4. From Sta. 40 +570 to 40+600 m (o.s. –25 to –30 m). An additional lift of fine filter (300 mm) has been placed in order to cover a bedrock outcrop.

QA DAILY REPORT

DATE August 28th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR AUGUST 27TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 10° C, cloudy to rainny.

2.0 HEALTH AND SAFETY

- It will have a blast at Vault pit.
- The rain is an issue, the muddy and very slippery ground cause a high risk of slips and falls. Extra caution must be applied when walking or driving on wet surfaces.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QC noticed that the coarse filter being placed on CD was not coming from the stockpile where the gradation tests were performed earlier in the construction season. According to the QA Manager and the QC, the material seemed to be compliant, although a sustained presence of fine particles. This material was placed from Sta. 0+100 to 0+140 m.

  SANA made adjustment by using the good stockpile as soon as the QC noticed the mistake.
- The QA Manager reminded that the section of the upstream slope of SD4 that was modified yesterday (Sta.40+570 to 40+600 m/o.s. -25 to -30 m) is not compacted yet. It was decided that the compaction will be done at the same time as the till plug placement.
- The cleaning of the fault zone located on the upstream toe liner tie-in of SD4/SD5 (Sta 40+578 m/o.s. -36.4 to -40.4 m (approx.)) was stopped by the Owner representative and the QA Manager. Based on their observations regarding the cleaning, the fault zone seems to extend too deep in the bedrock to clean it.

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Discussions will take place within the next days concerning the method that will be used to fill in the hole left by the cleaning of the fault zone.

- The surveyor was asked by the QA Manager to survey the fault zone on the upstream toe liner tie-in of SD4/SD5 (Sta 40+578 m/o.s. -36.4 to -40.4 m (approx.)) (see draft attached).

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
	■

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream toe liner tie-in	■ Bedrock mapping of the cleaned bedrock of the upstream toe liner tie-in from Sta. 40+561 to 40+580 m. ■ Bedrock cleaning of the upstream toe liner tie-in with pressurized air stream from Sta. 40+420 to 40+465 m (o.s. -24 to -39 m). ■ Beginning of the cleaning of the upstream toe liner tie-in with pressurized air stream on the northern part of SD4.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Water management	■ Water is being pumped out of the temporary sump.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
Upstream	■ Placement of the second, third and fourth 0.5 m thick lift of fine/coarse filters with an excavator from El. 143.5 to 145 m from Sta. 0+100 to 0+180 m. The material was compacted with a 10 tonne smooth drum compactor (4 passes).

5.0 BEDROCK MAPPING

The QA manager did the following bedrock mapping.

Table 5: Bedrock mapping by QA manager

Structure	Station and offset of centreline of the mapped section
SD4	From 40+570.10/-31.50 m to 40+580.10/-37.40 m
SD4	From 40+561.20/-28.6 m to 40+570.10/-31.50 m

6.0 LABORATORY

One sample was taken by the QA Manager during the reporting period.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
CD-545	2017-08-27	-	Coarse filter	Sta. 0+110/-20, El 144 m	Gradation	

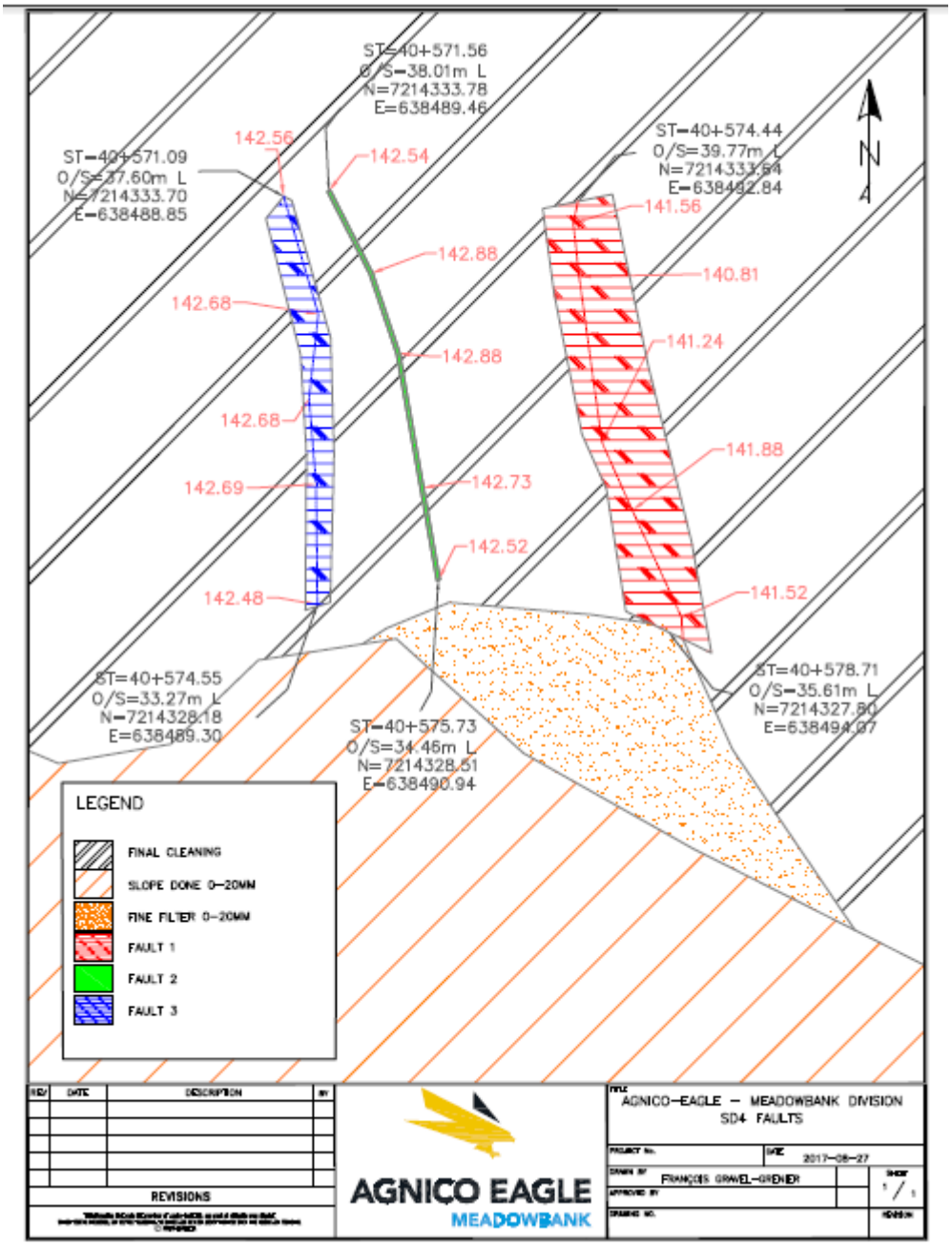
7.0 PHOTOGRAPH



Photograph CD-1781: From 0+080/-36 looking S. Placement of the fourth 0.5 m thick lift of coarse filter with an excavator from El. 144.5 to 145 m from Sta. 0+100 to 0+180 m.



Photograph SD4-170: From 40+420/-36 looking E. Bedrock cleaning of the upstream toe liner tie-in of SD4 between 40+420 to 40+465 m using pressurized air stream.



Draft of the fault zone of the upstream toe line tie-in onSD4.

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QA DAILY REPORT

DATE August 29th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR AUGUST 28TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 10° C, cloudy.

2.0 HEALTH AND SAFETY

- It will have a blast at Phaser pit at 12h30.
- It was discussed that grouting activities will occur soon. Regarding the grout mixing, it is mandatory to wear a mask.
- The temperature is getting cold, make sure to wear proper clothes.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- During the daily meeting, the QC reminded that it is important to inform him if the source of the hauled material change as the day progress. It is important to understand that gradation limit has to be performed on each source of material that will be placed on the dike.
- The QA Manager went for an inspection of the cleaning activities on the upstream toe liner tie-in on the north part of SD4, and reminded the workers that all of the organic matter has to be removed from the discontinuities.
- A scanner has been done by AEM on SD5/SD4 in order to survey the fault zone on the upstream toe liner tie-in (Sta 40+578 m/o.s. -36.4 to -40.4 m (approx.)).

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream toe liner tie-in	■ A scanner has been done by AEM in order to survey the fault zone on the upstream toe liner tie-in.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream toe liner tie-in	■ Completion of the bedrock cleaning of the upstream toe liner tie-in with pressurized air stream from Sta. 40+098 to 40+105.7 m. ■ Bedrock mapping of the cleaned bedrock of the upstream toe liner tie-in from Sta. 40+551 to 40+561 and from Sta. 40+098 to 40+105.7 m. ■ Continued of the bedrock cleaning of the upstream toe liner tie-in with pressurized air stream from Sta. 40+420 to 40+465 m (o.s. -24 to -39 m).

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream	■ Placement of the first 0.5 m thick lift of fine/coarse filters from El. 143 to 143.5 m from Sta. 20+600 to 20+780 m. The material was compacted with a 10 tonne smooth drum compactor (4 passes).
Water management	■ Water is being pumped out of the temporary sump.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
	■

5.0 BEDROCK MAPPING

The QA manager did the following bedrock mapping.

Table 5: Bedrock mapping by QA manager

Structure	Station and offset of centreline of the mapped section
SD4	From 40+551.70/-25.70 m to 40+561.20/-28.60 m
SD4	From 40+098/-24.9 m to 40+105.7/-34 m

6.0 LABORATORY

No sample was taken during the reporting period.

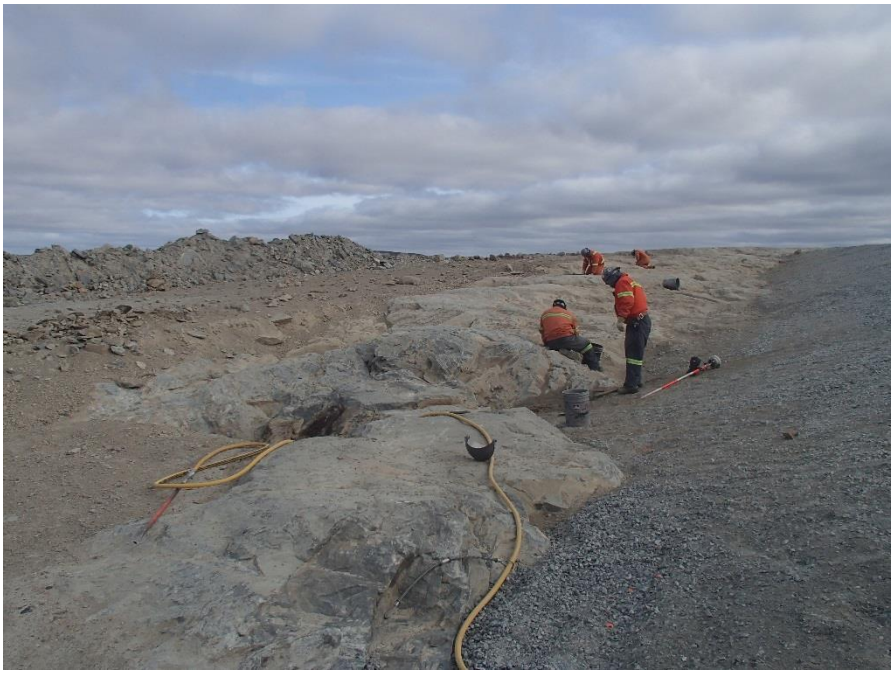
Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD4-171: From 40+420/-32 looking E. Bedrock cleaning of the upstream toe liner tie-in of SD4 between 40+420 to 40+465 m using pressurized air stream.



Photograph SD3-241: From 20+810/-35 looking N. Preparation for the compaction of the first 0.5 m thick lift of fine/coarse filters (material is being wetted) on SD3. Notice behind the excavator placing the first lift of fine filter (El. 143 to 143.5 m).



Photograph BRM-011: From 40+574/-35 looking SE. View of the fault zone located on the upstream toe liner tie-in of SD4/SD5 (Sta 40+578 m/o.s. -36.4 to -40.4 m (approx.)).

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QA DAILY REPORT

DATE August 30th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR AUGUST 29TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 10° C, cloudy.

2.0 HEALTH AND SAFETY

- It was discussed that the JHA concerning the use of pressurized air stream for the bedrock cleaning of the upstream toe liner tie-in will be presented to the two new labours as soon as they get on the mine site.
- Dust is an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- Regarding the placement of the sieved compacted till on the upstream toe liner tie-in, it was discussed that an access will be built beyond the sieved compacted till by placing the granular protection at the same time as the sieved compacted till. Then, the haul trucks will be able to circulate on the granular protection.

  The QA Manager mentioned that the probability to contamine the material by circulate directly on it is high. It was then agreed that the granular protection has to be cleaned from any contamination (ex: fine filter found in coarse filter) before placing any other lift.

- It was discussed that grouting activities on SD5 might begin on Thursday. The slush grout recipe used in the past year was reminded to the contractor. The following recipe gave satisfactory results in the past :
  - 1 to $1^{1/3}$ of cement by volume ;

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- 2 portions of sand by volume ;
- 2 portions of water.

Moreover, SANA is planning the confection of sand bags in order to be ready for the liner installation.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
	■

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream toe liner tie-in	■ Completion of the bedrock cleaning of the upstream toe liner tie-in with pressurized air stream from Sta. 40+420 to 40+465 m (o.s. -24 to -39 m).

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream	■ Placement of the second 0.5 m thick lift of fine/coarse filters from El. 143 to 143.5 m from Sta. 20+600 to 20+780 m. The material was compacted with a 10 tonne smooth drum compactor (4 passes). ■ Placement of the third 0.5 m thick lift of coarse filter from El. 143.5 to 144 m from 20+600 to 20+780 m. ■ Placement of the third 0.5 m thick lift of fine filter from El. 143.5 to 144 m from 20+700 to 20+780 m.
Water management	■ Water is being pumped out of the temporary sump.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
	■

5.0 BEDROCK MAPPING

No bedrock mapping was done during the reporting period.

Table 5: Bedrock mapping by QA manager

Structure	Station and offset of centreline of the mapped section

6.0 LABORATORY

Gradations were performed on the samples STCK-23 and STCK-24. The results are compliant.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
STCK-23	2017-08-04	2017-08-24	Coarse filter	Stockpile Sieved Till North CD (pile #2)	Gradation	Compliant
STCK-24	2017-08-04	2017-08-28	Compacted sieved till	Stockpile Sieved Till North CD (pile #2)	Gradation/ water content	Compliant

7.0 PHOTOGRAPH



Photograph SD3-242: From 20+720/-21 looking S. Placement of the third 0.5 m thick lift of coarse filter with an excavator from El.143.5 to 144 m. Notice the excavator removing the loose rocks and till like material for the preparation of the upstream toe liner tie-in on the very south part of SD3.

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QA DAILY REPORT

DATE August 31st **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR AUGUST 30TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 20° C, sunny.

2.0 HEALTH AND SAFETY

- A safety tool box with the new cross-shift operators and labours took place this morning.
- The speed limit on Saddle road was reminded (30 km/h maximum).

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- Regarding the fault zone on SD5/SD4, it was discussed that slush grout will be poured generously all over the zone. Then, when the grout will start to settle (15 minutes approximatively), sieved compacted till will be placed and compacted.

  The sections of the upstream toe liner tie-in where the 10 tonne smooth drum compactor is not able to work efficiently (ex: the narrow part of the fault zone), a P-10 000 or a “Jumping-Jack” compactor will be used depending on the ground surface. The QA Manager mentioned that the maximum lift thickness, when another compactor than the 10 tonne is used, shall be 300 mm instead of 500 mm.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
	■

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream toe liner tie-in	■ Slush grouting of the cleaned bedrock and placement of the first 0.5 m thick lift of sieved compacted till with an excavator from 40+560 to 40+600 m. Faults and large cracks have been compacted with a P-10 000 and a “Jumping-Jack” compactor (maximum lift thickness of 300 mm). ■ Bedrock mapping of the cleaned bedrock from 40+436 to 40+466 m.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream toe liner tie-in	■ Clean-up of the upstream toe liner tie-in with an excavator in preparation of the blowing activities from 20+790 to 20+840 m.
Upstream	■ Placement of the third 0.5 m thick lift of fine filter from El. 143.5 to 144 m from 20+600 to 20+700 m.
Water management	■ Water is being pumped out of the temporary sump.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
	■

5.0 BEDROCK MAPPING

The following bedrock mappings were done during the reporting period.

Table 5: Bedrock mapping by QA manager

Structure	Station and offset of centreline of the mapped section
SD4	Sta. 40+456.90/-29.55 m to 40+466.40/-26.25 m
SD4	Sta. 40+446.50/-31.05 m to 40+456.90/-29.55 m
SD4	Sta. 40+436.50/-31.50 m to 40+446.50/-31.05 m

6.0 LABORATORY

No sample was taken during the reporting period.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD4-172: From 20+574/-40 looking S. View of the faulted zone on the upstream toe liner tie-in of SD4 being generously slush grouted (Sta. 40+574 to 40+578/o.s. -35 to -40).



Photograph SD4-173: From 40+582/-30 looking S. View of the fault zone on the upstream toe liner tie-in of SD4 being filled with sieved compacted till. Notice the two types of compactor "Jumping Jack" (right) and P-10 000 (middle) that were used to ensure a good quality compaction depending on the ground surface.

QA DAILY REPORT

DATE September 1st **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR AUGUST 31ST, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 20° C, sunny.

2.0 HEALTH AND SAFETY

- Regarding the compaction activities using the P-10 000 or the “Jumping-Jack”, it is important for the operator to alternate with another worker, or take sufficient rest when tired.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The type of cement used during the slush grouting activity of yesterday on SD4 was not the recommended one in the specifications. A type 30 cement was used instead of a type 50. Basically, the type 50 is recommended to provide for sulfate resistance.

  The grouted section with type 30 cement extends from 40+560 to 40+600 m.

- The QA Manager reminded that the section of the upstream slope of SD4 that was modified because of a bedrock outcrop (Sta.40+570 to 40+600 m/o.s. -25 to -30 m) is still not compacted. The compaction will be done at the same time as the first 0.5 m thick lift of till.

- On the southern part of SD3, the upstream toe liner tie-in is being cleaned with a backhoe and water is coming from the bedrock cracks, probably due to the thawing of the ice. A little dike could be built soon to ensure the water/till mud does not flow on the cleaned upstream toe liner tie-in.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream toe liner tie-in	■ Grouting of the entire cleaned bedrock surface between 40+600 and 40+620. The grout was quickly covered with a thin lift of till to fill the depression and to allow a good contact before the grout dry. A recipe by volume of $1^{1/3}$ cement, 2 sand and 2 water was used. ■ Placement of the 0.5 m thick lift of sieved till above the till covering the slush grout from 40+600 to 40+620. Faults and large cracks have been compacted with a P-10 000 and a “Jumping-Jack” compactor (maximum lift thickness of 300 mm). Otherwise, a minimum thickness of 0.5 m of till was placed on the 5 m of cleaned bedrock and against natural ground.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream toe liner tie-in	■ Grouting of the entire cleaned bedrock surface between 40+418 and 0+466. The grout was quickly covered with a thin lift of till to fill the depression and to allow a good contact before the grout dry. A recipe by volume of $1^{1/3}$ cement, 2 sand and 2 water was used. ■ Placement of the 0.5 m thick lift of sieved till above the till covering the slush grout from 40+418 to 40+466. Faults and large cracks have been compacted with a P-10 000 and a “Jumping-Jack” compactor (maximum lift thickness of 300 mm). Otherwise, a minimum thickness of 0.5 m of till was placed on the 5 m of cleaned bedrock and against natural ground. ■ Bedrock mapping of the cleaned bedrock from 40+418 to 40+436 m.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream toe liner tie-in	■ Clean-up of the upstream toe liner tie-in with a backhoe in preparation of the blowing activities from 20+810 to 20+840 m (o.s.-23 to -48 m).
Water management	■ Water is being pumped out of the temporary sump.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
Upstream toe liner tie-in	■ Bedrock cleaning of the upstream toe liner tie-in with pressurized air stream from Sta. 0+095 to 0+115 m (o.s. -24 to -31 m).

5.0 BEDROCK MAPPING

The following bedrock mappings were done during the reporting period.

Table 5: Bedrock mapping by QA manager

Structure	Station and offset of centreline of the mapped section
SD4	Sta. 40+428.50/-34.35 m to 40+436.30/-31.50 m
SD4	Sta. 40+418.60/-34.50 m to 40+428.50/-34.35 m

6.0 LABORATORY

No sample was taken during the reporting period.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



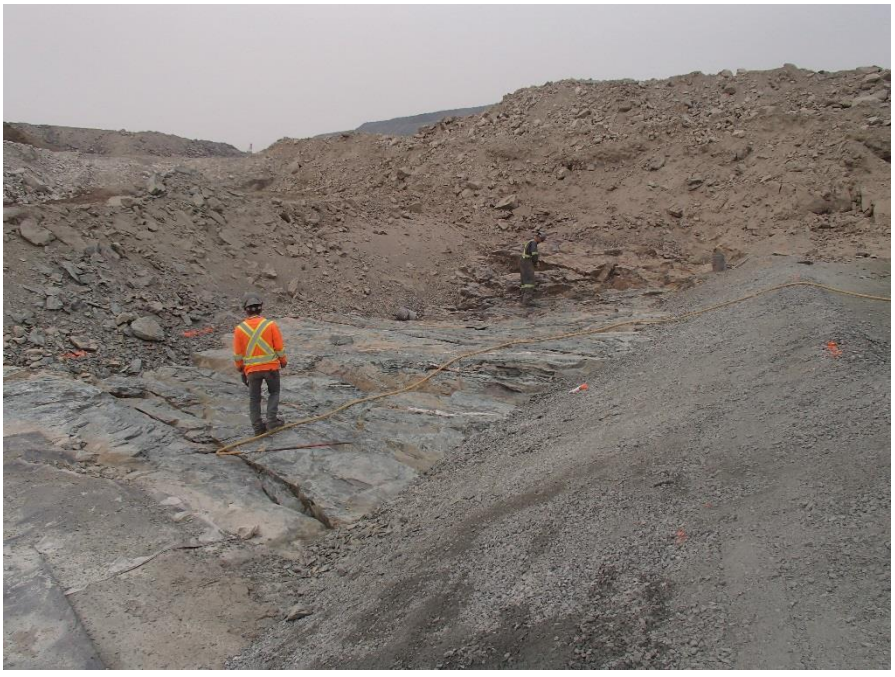
Photograph SD3-243: From 40+800/-47 looking S. Bedrock cleaning of the upstream toe liner tie-in with a backhoe on SD3 from Sta. 20+810 to 20+840 m in prevision of the pressurized air stream cleaning.



Photograph SD4-174: From 40+418/-35 looking E. Placement of the 0.5 m thick lift of sieved till over the cleaned bedrock of the upstream toe liner tie-in. Notice the slush grouted discontinuities.



Photograph SD5-074: From 40+620/-30 looking W. View of the slush grouted cracks and the placement of the 0.5 m thick lift of sieved till from Sta. 40+600 to 40+620 m.



Photograph CD-1782: From 0+110/-15 looking S. Bedrock cleaning of the upstream toe liner tie-in with pressurized air stream on the northern part of CD from Sta. 0+095 to 0+115 m.

QA DAILY REPORT

DATE September 2nd **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR SEPTEMBER 1ST, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 10° C, cloudy to rainy.

2.0 HEALTH AND SAFETY

- A thick fog is present this morning; make sure to turn on the lights on every mobile equipment and stay visible at all time on the construction field.
- The rain is an issue, the muddy and very slippery ground cause a high risk of slips and falls. Extra caution must be applied when walking or driving on wet surfaces

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- During the bedrock cleaning of the upstream toe liner tie-in of yesterday on SD3 with the 450 excavator, more loose rocks have been removed than anticipated. Thus, an open hole located behind the future till plug is now present (Sta. 20+830 to 20+845 m (approx.)). In order to avoid a pool effect, which could potentially lead to an erosion of the till plug, the hole will be filled with compacted till (0-300mm).
- The hauling operation from pit E to Sana crusher begins this morning for 2 days (approx.). 12 000 m3 of rough till will be hauled to the crusher in order to produce a sieved till (0-50 mm).

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
	■

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
	■

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream toe liner tie-in	■ Clean-up of the upstream toe liner tie-in with pressurized air stream from 20+815 to 20+830 m (o.s.-22 to -31 m). ■ Compaction of the 3rd lift of fine/coarse filters with an excavator with a 10 tonne smooth drum compactor (6 passes) at El.144.5 m from Sta. 20+600 to 20+780 m. ■ Placement of the 4th lift of coarse filter with an excavator from El.144.5 to 145 m from Sta. 20+600 to 20+780 m ■ Profiling of the upstream slope (3H:1V) from El. 143 to 144.5 m from 20+600 to 20+780 m.
Water management	■ Water is being pumped out of the temporary sump.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
Upstream toe liner tie-in	■ Completion of the clean-up of the upstream toe liner tie-in with pressurized air stream from Sta.0+089 to 0+104 m (o.s. -18 to -23 m). Two rocks, too big to be removed by a man, will be removed later with an excavator.

5.0 BEDROCK MAPPING

No bedrock mapping was done during the reporting period.

Table 5: Bedrock mapping by QA manager

Structure	Station and offset of centreline of the mapped section

6.0 LABORATORY

5 samples were tested during the last days, see the details below (Table 6 and Table 7).

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
374	2017-08-31	2017-09-01	Coarse filter	Stockpile #2 Sana Crusher	Gradation	Compliant

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
SD3-09	2017-08-29	2017-09-01	Coarse filter	(in place) Sta. 20+770/o.s.-25 El 143.5 m	Gradation	Compliant
SD4-09	2017-08-24	2017-08-31	Coarse filter	(in place) Sta. 40+350/o.s. -20 El. 145 m	Gradation	Compliant
CD-545	2017-08-27	2017-08-31	Coarse filter	(in place) Sta. 00+110/o.s. -20, El 144 m	Gradation	Compliant
STCK-23	2017-08-04	2017-08-28	Sieved till	Stockpile #1 Sana Crusher	Gradation/Water content	Compliant

7.0 PHOTOGRAPH



Photograph SD3-244: From 40+820/-24 looking N. Placement of the fourth 0.5 m thick lift of coarse filter with an excavator from El. 144.5 to 145 m.



Photograph SD3-245: From 20+720/-25 looking N. Profiling of the upstream slope (3H:1V) of SD3 with an excavator from 20+600 to 20+780 m.



Photograph SD3-046: From 40+810/-30 looking S. Bedrock cleaning of the upstream toe liner tie-in of SD3 with pressurized air stream from Sta. 20+815 to 20+830 m (o.s. -22 to -31 m).

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QA DAILY REPORT

DATE September 3rd **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR SEPTEMBER 2ND, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 10° C, cloudy to sunny.

2.0 HEALTH AND SAFETY

- The mine inspector's report has been issued. The document underlined the good work that it is done on the dike construction field.
- A SANA's pick-up is circulating without having its tailgate. In order to ensure a safe driving on the construction field, it will be repaired as soon as possible.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- Yesterday, water was used for the bedrock cleaning and did not give the expected results. Water and till got hardly stuck in cracks. This technique won't be used again.
- The QA Manager went for an inspection after the cleaning activities of yesterday on the upstream toe liner tie-in on the south part of SD3 and asked for more cleaning. Loose big block of rocks are present and need to be removed before any further pressurized air stream cleaning.
- Regarding the grouting of the upstream toe liner tie-in of CD, it was reminded that the entire cleaned surface has to be covered by grout unlike the Saddle dams.
- It was discussed that a water content could be performed on the rough till currently being hauled from pit E to Sana crusher. Thus, SANA could make adjustment if the rough till would be too wet or vice-versa.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
	■

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
	■

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream toe liner tie-in	■ Removal of the loose rocks on the upstream toe liner tie-in with an excavator on the southern part of SD3 from Sta. 20+815 to 20+830 m (o.s.-22 to -31 m). ■ Clean-up of the upstream toe liner tie-in with pressurized air stream on the northern part of SD3 from 20+560 to 20+600 m (o.s.-30 to -44 m). ■ Placement of the 4th lift of fine filter with an excavator from El.144.5 to 145 m from Sta. 20+600 to 20+780 m.
Water management	■ Water is being pumped out of the temporary sump.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
Upstream toe liner tie-in	■ Bedrock mapping of the cleaned upstream toe liner tie-in from Sta. 0+089 to 0+104 m.

5.0 BEDROCK MAPPING

Two bedrock mappings were done during the reporting period.

Table 5: Bedrock mapping by QA manager

Structure	Station and offset of centreline of the mapped section
CD	From 0+089.39/-16.74 to 0+094.64/-17.66 m
CD	From 0+094.64/-17.66 to 0+104.70/-20.01 m

6.0 LABORATORY

2 samples of sieved till were taken on SD4 during the reporting period (Table 6 and Table 7).

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
435	2017-09-02		Sieved till	(in place) 40+430/-27		

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
SD4-10	2017-09-02		Sieved till	(in place) 40+430/-30		

7.0 PHOTOGRAPH



Photograph SD3-247: From 40+590/-40 looking NW. Bedrock cleaning of the upstream toe liner tie-in of the northern part of SD3 with pressurized air stream from Sta. 20+560 to 20+600 m (o.s.-30 to -44 m).



Photograph SD3-248: From 20+850/-36 looking NW. Removal of the loose rocks on the upstream toe liner tie-in with an excavator on the southern part of SD3 from Sta. 20+815 to 20+830 m (o.s.-22 to -31 m).

QA DAILY REPORT

DATE September 4th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR SEPTEMBER 3RD, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 10° C, sunny.

2.0 HEALTH AND SAFETY

- An allergic reaction occurred yesterday. It was then reminded that it is important to advise the concerned personnel if you have allergies.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QC took water content with the nucleodensimeter yesterday at various place around the rough till stockpile that was hauled from pit E to Sana crusher the last days. The water content varies from 7% to 18%. In order to lower the water content and ensure a maximum of 10% when it will be time to place the material, the rough till stockpile will be mixed for allowing drying.

- It was discussed that neither of the QA Manager and the Owner representative will be present on the construction site on the September 5th. As mentioned earlier before the beginning of the construction season, both of the QA Managers are exceptionally not able to be on site for this day. Also, the Owner representatives are both not available because they are involved in the MDRB 2017 presentation.

  That being said, it was agreed that the slush grout and the first lift of sieved till above the grouted bedrock won't be placed on any dike during this period (5th of September).

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

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Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
	■

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream toe liner tie-in	■ Grouting of the entire cleaned bedrock surface from Sta. 40+098 + 40+106 m (o.s. -24 to -34 m). The grout was quickly covered with a thin lift of till to fill the depression and to allow a good contact before the grout dry. A recipe by volume of $1^{1/3}$ cement, 2 sand and 2 water was used. ■ Placement of the 0.5 m thick lift of sieved till above the till covering the slush grout from 40+098 to 40+106 m (o.s. -24 to -34 m). Faults and large cracks have been compacted with a P-10 000 compactor (maximum lift thickness of 300 mm). Otherwise, a minimum thickness of 0.5 m of till was placed on the 5 m of cleaned bedrock. The material was compacted only with the bucket of the excavator. The 10 tonne smooth drum compactor will compact later.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream toe liner tie-in	■ Clean-up of the upstream toe liner tie-in with pressurized air stream on the northern part of SD3 from 20+560 to 20+600 m (o.s.-30 to -44 m). ■ Compaction of the fourth lift of fine/coarse filters with a 10 tonne smooth drum compactor (6 passes). The material was wetted to ensure the good quality of the compaction. ■ Profiling of the upstream slope (3H:1V) with an excavator from El. 144.5 to 145 m from Sta. 20+600 to 20+800 m.
Water management	■ Water is being pumped out of the temporary sump.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
	■

5.0 BEDROCK MAPPING

No bedrock mapping was done during the reporting period.

Table 5: Bedrock mapping by QA manager

Structure	Station and offset of centreline of the mapped section

6.0 LABORATORY

No sample was taken during the reporting period.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD3-249: From 40+850/-36 looking NW. Profiling of the upstream slope (3H:1V) of SD3 from 20+780 to 20+800 m. Notice the compactor doing the compaction of the fourth lift of fine/coarse filters at El. 145 m from Sta. 20+600 to 20+800m.



Photograph SD4-175: From 20+106/-20 looking N. View of the upstream toe liner tie-in of the western part of SD4 being generously "slush grouted" from Sta. 40+098 + 40+106 m (o.s. -24 to -34 m).

QA DAILY REPORT

DATE September 5th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR SEPTEMBER 4TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 10° C, sunny.

2.0 HEALTH AND SAFETY

- It was reiterated that the blowing zone (pressurized air stream) has to be clearly identified.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The reporting period of this daily report concerns exceptionally the morning period (6h00 to 12h00 a.m.) only. The QA Manager left the site during the afternoon.
- 4 500 m3 has been hauled from pit E to Sana crusher up to now. One more hauling day will probably be needed to reach the 6 000 m3 objective.
- In order to help the AEM surveyor, a new surveyor from SANA will work on the dike construction site from tomorrow until the end of the season.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

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Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
	■

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream toe liner tie-in	■ Completion of the placement of the 0.5 m thick lift of sieved till from 40+098 to 40+106 m (o.s. -24 to -34 m). The 10 tonne smooth drum compactor will compact it later.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream toe liner tie-in	■ Clean-up of the upstream toe liner tie-in with pressurized air stream on the northern part of SD3 from Sta. 20+815 to 20+830 m (o.s.-22 to -31 m).
Water management	■ Water is being pumped out of the temporary sump.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
Upstream toe liner tie-in	■ Grouting of the entire cleaned bedrock surface from Sta. 0+089 + 0+105 m. The grout was quickly covered with a thin lift of till to fill the depression and to allow a good contact before the grout dry. A recipe by volume of $1^{1/3}$ cement, 2 sand and 2 water was used. ■ Placement of the 0.5 m thick lift of sieved till above the till covering the slush grout from 0+089 to 0+105 m. Faults and large cracks have been compacted with a P-10 000 compactor (maximum lift thickness of 300 mm). Otherwise, a minimum thickness of 0.5 m of till was placed on the 5 m of cleaned bedrock. The material was compacted only with the bucket of the excavator. The 10 tonne smooth drum compactor will compact it later.

5.0 BEDROCK MAPPING

No bedrock mapping was done during the reporting period.

Table 5: Bedrock mapping by QA manager

Structure	Station and offset of centreline of the mapped section

6.0 LABORATORY

No sample was taken during the reporting period.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph CD-1783: From 0+90/-35 looking SE. View of the slush grouted cleaned bedrock and the placement of the 0.5 m thick lift of sieved till above the slush grout from Sta. 0+089 + 0+105 m.

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QA DAILY REPORT

DATE September 7th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR SEPTEMBER 6TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 8° C, sunny.

2.0 HEALTH AND SAFETY

- No safety issue was encountered today.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The reporting period of this daily report concerns exceptionally the afternoon (12h00 to 18h00) only. The QA Manager arrived on site at noon.
- The QA Manager pointed out that some small areas of the upstream toe line tie-in need further cleaning with pressurized air stream, both on the northern and southern parts of SD3. This should be done tomorrow, as no personnel was available today.
- The pressurized air stream cleaning of the bedrock performed on SD3 has caused an accumulation of till and rock fragments on the upstream slope of the filters. The slope will need to be cleared and sloped again if need be before construction of the tie-in.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in

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conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
	■

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
	■

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream toe liner tie-in	■ Bedrock mapping of the cleaned upstream toe liner tie-in from Sta. 20+590 to 20+600 m.
Water management	■ Excavation of the new sump on the downstream side of SD3 down to the frozen till and loading of the excavated material from Sta. 20+600 to 20+640 m.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
	■

5.0 BEDROCK MAPPING

One bedrock mapping was done during the reporting period.

Table 5: Bedrock mapping by QA manager

Structure	Station and offset of centreline of the mapped section
SD3	From Sta. 20+589.9/-35.1 to 20+598.7 m/-39.6 m

6.0 LABORATORY

No sample was taken during the reporting period.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD3-250: From 20+630/17 looking N. Excavation of the new sump on the downstream side of SD3 down to the frozen till and loading of the excavated material from Sta. 20+600 to 20+640 m.

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QA DAILY REPORT

DATE September 8th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR SEPTEMBER 7TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 10° C, cloudy.

2.0 HEALTH AND SAFETY

- Dust is an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.
- JHA will be reminded for labour workers coming back to SD3 for pressurized air stream cleaning tomorrow.
- Upcoming coactivity on the dikes: it was reiterated that speed limits must be respected and the correct radio channel used at all time.
- Due to the reopening of the Portage waste dump, traffic in the area has increased and some vehicles have been reported to exceed speed limits. Visibility is an issue in the area. Concerned personnel has been advised and upcoming toolbox meetings will address this point.
- A safety share about a haul truck backing up in a parked pickup on another construction site has been done.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The sump on the downstream side of SD3 is planned to be excavated with one single blast. Regarding blast protection, given the limited number of blast mats, the SD3 side will be prioritized. Drilling is supposed to start tomorrow and should last about 4 days.
- The liner contractors (ZTG) will arrive on site on September 18, instead of September 11 as initially planned.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
	■

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
	■

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream toe liner tie-in	■
Downstream	■ Removal of the old all-weather access road for sump preparation. ■ Excavation of the new sump on the downstream side of SD3 down to the frozen till and loading of the excavated material from Sta. 20+615 to 20+650 m (o.s. 50 to 60 m).

Table 4: QA Observations for Central Dike

Activity or Area	Comments
	■

5.0 BEDROCK MAPPING

No bedrock mapping was done during the reporting period.

Table 5: Bedrock mapping by QA manager

Structure	Station and offset of centreline of the mapped section

6.0 LABORATORY

Two samples were taken during the reporting period.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
437	2017-09-07		Sieved till	(in place) 0+108/-20.9 EL. 143.8 m		

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
CD-545	2017-09-07		Sieved till	(in place) 0+100/-18.7 El. 144.2 m		

7.0 PHOTOGRAPH



Photograph SD3-251: From 20+680/13 looking NW. Excavation of the new sump on the downstream side of SD3 down to the frozen till and loading of the excavated material from Sta. 20+615 to 20+650 m (o.s. 50 to 60 m).

QA DAILY REPORT

DATE September 9th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR SEPTEMBER 8TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 15° C, cloudy and windy.

2.0 HEALTH AND SAFETY

- Dust is still an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.
- It was reminded that the pressurized air stream cleaning requires a safety perimeter.
- The JHA for liner installation has been verified by the health and safety representatives and are to be accepted by AEM soon.
- There is important heavy equipment coactivity on SD3: personnel on foot must make sure to be visible at all time.
- Drilling will take place soon near the Saddle Road. Due to the potential hazard posed by underground utilities, a 15 m safety perimeter will be set up around the drill. This may affect traffic on Saddle Road. Coordination between the different operations may help reduce the delays.
- A truck transporting seacans tilted and fell on the road because of an unbalanced weight inside the seacans. Always make sure that the load is balanced before transporting.
- The QA Manager presented Golder's Fatal Risk Control safety approach during the daily meeting.
- Blasting is planned at Vault at 12:45 and in Pit E5 at 18:30.

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3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- Till quantities planned for next year are being used this year, at tasks planned for next year (upstream liner tie-ins on the dikes) are already in progress.
- The sieved till for the protection layer of the liner in SD3 is being transported from the Central Dike stockpiles and dumped directly on the existing compacted sieved till, and then placed by the excavator. Given that there will be no contamination of the till (same material), it was deemed unnecessary to use a metal box. The box will be used where it is impossible to ensure the non-contamination of the sieved till.
- A fault zone has been identified on the north part of SD3. As on SD4, the excavation was stopped when the filling material in the fractures (very dense till and gouge) was deemed suitable to provide a low-permeability surface for grouting.
- The first lift of sieved till placed on the upstream toe liner tie-in zone of Central Dike has a water content below the optimum, probably due to the repeated handling of the till. The till has not been watered during the placement and has been sealed. However, compaction results given by the Portable Nuclear Gauge (PNG) indicates that compaction still meets the specifications.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream toe liner tie-in	■ Compaction of the first 0.5 m-thick lift of Compacted Sieved Till with a 10 tonne smooth-drum compactor with vibration from Sta. 40+600 to 40+620. PNG tests will be performed tomorrow.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
	■

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream toe liner tie-in	■ Cleaning of the upstream slope with a 420 excavator on the north and south parts of SD3.

Activity or Area	Comments
	■ Bedrock cleaning of the upstream toe liner tie-in from Sta. 20+570 to 20+590 m and from Sta. 20+800 to 20+820 m. ■ Bedrock mapping of the cleaned upstream toe liner tie-in from Sta. 20+590 to 20+591 m. The zone is 10 m long and almost perpendicular to the centreline due to the curve in the key trench in that area. ■ Bedrock mapping of the cleaned upstream toe liner tie-in from Sta. 20+591 to 20+581 m. ■ Placement of a first 0.5 m-thick lift of Compacted Sieved Till at El. 142 m over the LLDPE geomembrane from Sta. 20+640 to 20+740 m. The lift was compacted using the bucket of the excavator.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
Upstream toe line tie-in	■ Compaction of the first 0.5 m-thick lift of Compacted Sieved Till with a 10 tonne smooth-drum compactor with vibration from Sta. 0+089 to 0+105 m. PNG tests were conducted and results met Technical Specifications (results not yet given by the QC).

5.0 BEDROCK MAPPING

Two bedrock mappings were done during the reporting period.

Table 5: Bedrock mapping by QA manager

Structure	Station and offset of centreline of the mapped section
SD3	Sta. 20+589.90/-30.4 to 20+591/-30.4 m
SD3	Sta. 20+581/-30.4 to 20+591/-30.4 m

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 6 and 7 present the samples collected or tested by the QA and QC as well as PNG field results.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
436	2017-09-08		Sieved till	(in place) 20+651/-38.3 EL. 141.2 m		

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
SD3-08	2017-09-08		Sieved till	(in place) 20+644/-45.6 El. 139.0 m		

7.0 PHOTOGRAPH



Photograph SD3-252: From 20+605/-34 looking NE. Bedrock cleaning of the upstream toe liner tie-in from Sta. 20+570 to 20+590 m.



Photograph SD3-253: From 20+750/-25 looking E. Placement of a first 0.5 m-thick lift of Compacted Sieved Till at El. 142 m over the LLDPE geomembrane from Sta. 20+640 to 20+740 m.



Photograph SD3-254: From 20+785/-25 looking S. Cleaning of the upstream slope with a 420 excavator.

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QA DAILY REPORT

DATE September 10th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR SEPTEMBER 9TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 5° C, cloudy and windy.

2.0 HEALTH AND SAFETY

- Dust is still an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.
- There is still important heavy equipment coactivity on SD3: personnel on foot must make sure to be visible at all time.
- A spill (20L) occurred on Saddle Road yesterday.
- Strong winds: wear safety glasses and appropriate clothing.
- Blasting is planned in Phaser Pit at 12:45.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- AEM's representative was exceptionally unable to attend the daily meeting.
- It was discussed with AEM that foundation approvals are needed for the key trench preparation, in addition to bedrock mapping. Foundation approvals will be done for all upstream liner tie-in sections that have already been completed.

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- The construction of the sump at SD3 will likely required more than one blast, as drilled holes will quickly freeze during delay between drilling and blasting operations.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream toe liner tie-in	■ Testing of compaction with a PNG on the section of the Compacted Sieved Till lift compacted yesterday, from Sta. 40+600 to 40+620 m. Results met Technical Specifications (details will be available in the next few days).

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream toe liner tie-in	■ Compaction of the first 0.5 m-thick lift of Compacted Sieved Till with a 10 tonne smooth-drum compactor with vibration from Sta. 40+100 + 40+105 m, from Sta. 40+420 to 40+465 m and from Sta. 40+560 to 40+600 m. PNG tests were conducted and results met Technical Specifications (detailed results will be available in the next few days).

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream toe liner tie-in	■ Bedrock mapping of the cleaned upstream toe liner tie-in from Sta. 20+572 to 20+581 m. ■ Bedrock mapping of the cleaned upstream toe liner tie-in from Sta. 20+797 to 20+817 m. ■ Grouting of the fractured zones of the bedrock from Sta. 20+572 to 20+599 m (o.s. -46 to -36 m). Most of the grout was quickly covered with a thin lift of till to fill the depressions and to allow a good contact before the grout dries. Due to delays in till supply, a small portion of grout was partially dry when covered. A recipe by volume of 1.5 cement, 1 sand and 1 water was used and adjusted for consistency when needed. ■ Placement of the 0.5 m thick lift of sieved till above the till covering the slush grout from 20+572 to 20+599 m (o.s. -46 to -36 m). Faults and large cracks have been compacted with a P-10 000 compactor (maximum lift thickness of 300 mm). Otherwise, a minimum thickness of 0.5 m of till was placed on the 5 m of cleaned

Activity or Area	Comments
	bedrock and compacted with a 10 tonne smooth drum compactor. PNG tests will be performed tomorrow.
Upstream	■ Placement of a first 0.5 m-thick lift of Compacted Sieved Till at El. 142 m over the LLDPE geomembrane from Sta. 20+630 to 20+750 m. The lift was compacted using the bucket of the excavator. The upper part of the lift is incomplete on the north part because the excavator was unable to reach El. 142 m. The lift will be completed when the progression of the second class till lifts allow access to this zone. ■ Placement of a first 0.5 m-thick, 1.5 m wide lift of second class till over the Compacted Sieved Till lift from Sta. 20+675 to 20+735 m.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
Upstream toe line tie-in	■

5.0 BEDROCK MAPPING

Three bedrock mappings were done during the reporting period.

Table 5: Bedrock mapping by QA manager

Structure	Station and offset of centreline of the mapped section
SD3	Sta. 20+572/-33.5 to 20+581/-30.4 m
SD3	Sta. 20+797.3/-34.9 to 20+806.7/-32.1 m
SD3	Sta. 20+806.7/-32.1 to 20+817.4/-27.6 m

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 6 and 7 present the samples collected or tested by the QA and QC as well as PNG field results.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
#1 (PNG)	2017-09-08	2017-09-08	Compacted Sieved till	Central Dike (in place) 0+092/-16.9 m EL. 144.9 m	Dry density	2186
					Water content (PNG)	5.9%
#2 (PNG)	2017-09-08	2017-09-08			Dry density	2211

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
			Compacted Sieved till	Central Dike (in place) 0+100/-20.8 m EL. 144.2 m	Water content (PNG)	5.5%
#3 (PNG)	2017-09-08	2017-09-08	Compacted Sieved till	Central Dike (in place) 0+107.7/-17.9 m EL. 143.8 m	Dry density	2249
					Water content (PNG)	5.8%
#4 (PNG)	2017-09-08	2017-09-08	Compacted Sieved till	Central Dike (in place) 0+114.4/-20.1 m EL. 143.4 m	Dry density	2184
					Water content (PNG)	5.8%

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD3-255: From 20+740/-8 looking NE. Placement of a first 0.5 m-thick, 1.5 m wide lift of second class till over the Compacted Sieved Till lift from Sta. 20+675 to 20+735 m.



Photograph SD3-256: From 20+570/-37 looking SW. Grouting of the fractured zones in the bedrock surface from Sta. 20+572 + 20+599 m (o.s. -46 to -36 m). Notice the excavator waiting to place the first till lift on the wet grout.



Photograph SD3-257: From 20+590/-43 looking SW. Placement of the 0.5 m thick lift of sieved till above the till covering the slush grout from 20+570 to 20+595 m (o.s. -46 to -36 m).



Photograph SD3-258: From 20+580/-24 looking E. Compaction of the lift of sieved till above the till covering the slush grout from 20+570 to 20+595 m (o.s. -46 to -36 m).

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QA DAILY REPORT

DATE September 11th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR SEPTEMBER 10TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 5° C, sunny.

2.0 HEALTH AND SAFETY

- Dust is still an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.
- There is still important heavy equipment coactivity on SD3: personnel on foot must make sure to be visible at all time.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QA manager pointed out that the according to the PNG results, the till in place has a lower water content than the requirement (it should be 9 to 12%). The measured water content was around 5% in the compacted sieved till placed on Central Dike, SD4 and SD5 (measured several days after compaction), and around 7% on SD3 (measured the day after compaction). Given that the till comes from the same stockpile, it is supposed that the till had a water content of 7% during placement on all the dikes and that the till on Central Dike, SD4 and SD5 had dried during the delay before the PNG measurements.
- In order to increase till moisture, the till lift on the south part of SD3 was watered during placement (watering every time the lift was raised by approximately 250 mm), before compaction. This operation was sometimes challenging, as the till becomes muddy and extremely difficult to compact at approximately 11% water content. The till was watered as much as possible without reaching this state, in order to allow for a sufficient compaction.

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- It was discussed with the QC representative and AEM's representative that the water contents sampled by the PNG in the first 0.5 m thick layer of compacted sieved till might be underestimated due to the proximity of the dry bedrock 0.5 m below the surface. The water content measured in place is therefore a minimum value.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
	■

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream	■ Placement of a UM rockfill pad on the exposed bedrock for installation of the pig launcher station on the upstream side of SD4 from Sta. 40+470 to 40+490 m (o.s. -31 to -10 m).

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream toe liner tie-in	■ Grouting of the entire cleaned bedrock surface from Sta. 20+797 to 20+817 m (o.s. -36 to -20 m). The grout was quickly covered with a thin lift of till to fill the depressions and to allow a good contact before the grout dries. A recipe by volume of 1.5 cement, 1 sand and 1.5 water was used and adjusted for consistency when needed. ■ Placement of a 0.5 m thick lift of sieved till above the till covering the slush grout from 20+797 to 20+817 m (o.s. -36 to -20 m). Faults and large cracks have been compacted with a P-10 000 compactor (maximum lift thickness of 300 mm). Otherwise, a thickness of 0.5 m of till was placed on the 5 m of cleaned bedrock and compacted with a 10 tonne smooth drum compactor after watering. ■ Placement of a second lift of sieved till from 20+797 to 20+817 m (o.s. -36 to -20 m) to complete the tie-in. The sieved till lift is at El. 145 m from the south extremity and connects to the existing till plug at the north extremity. The sieved till lift was compacted with a 10 tonne smooth drum compactor after watering. PNG tests will be performed tomorrow.

Activity or Area	Comments
	■ Placement of a second lift of sieved till from 20+572 to 20+599 m (o.s. -46 to -36 m) to complete the tie-in. The sieved till lift is at El. 145 m from the north extremity and connects to the existing till plug at the south extremity. The sieved till lift was compacted with a 10 tonne smooth drum compactor after watering. PNG tests will be performed tomorrow.
Downstream	■ Drilling of the blast pattern for the sump preparation from Sta. 20+605 to 20+620 m (o.s. 30 to 57 m). ■ Excavation of the new sump on the downstream side of SD3 down to the frozen till and loading of the excavated material from Sta. 20+620 to 20+630 m (o.s. 30 to 57 m).

Table 4: QA Observations for Central Dike

Activity or Area	Comments
Upstream toe line tie-in	■

5.0 BEDROCK MAPPING

No bedrock mapping was done during the reporting period.

Table 5: Bedrock mapping by QA manager

Structure	Station and offset of centreline of the mapped section

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 6 and 7 present the samples collected or tested by the QA and QC as well as PNG field results.

The PNG results were given by the QC today and were taken yesterday.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
#5 (PNG)	2017-09-09	2017-09-09	Compacted Sieved till	SD5 (in place) 40+615.2/-34 m EL. 143.5 m	Dry density	2225
					Water content (PNG)	5.0%
#6 (PNG)	2017-09-09	2017-09-09	Compacted Sieved till	SD4 (in place) 40+611.3/-34 m EL. 143.6 m	Dry density	2185
					Water content (PNG)	5.1%

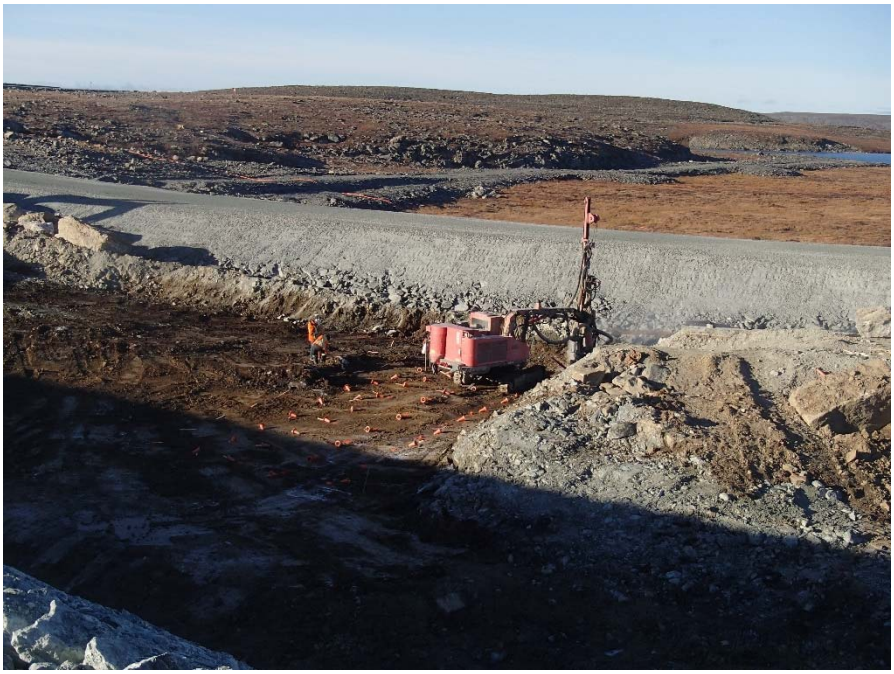
Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
#7 (PNG)	2017-09-09	2017-09-09	Compacted Sieved till	SD4 (in place) 40+602/-31.5 m EL. 143.6 m	Dry density	2198
					Water content (PNG)	5.3%
#8 (PNG)	2017-09-09	2017-09-09	Compacted Sieved till	SD4 (in place) 40+601.7/-35 m EL. 143.6 m	Dry density	2180
					Water content (PNG)	4.4%
#9 (PNG)	2017-09-09	2017-09-09	Compacted Sieved till	SD4 (in place) 40+586/-34 m EL. 143.6 m	Dry density	2193
					Water content (PNG)	4.9%
#10 (PNG)	2017-09-09	2017-09-09	Compacted Sieved till	SD4 (in place) 40+579.7/-35.6 m EL. 143.2 m	Dry density	2203
					Water content (PNG)	5.1%
#11 (PNG)	2017-09-09	2017-09-09	Compacted Sieved till	SD4 (in place) 40+570.6/-30.5 m EL. 143.4 m	Dry density	2258
					Water content (PNG)	4.8%
#12 (PNG)	2017-09-09	2017-09-09	Compacted Sieved till	SD4 (in place) 40+563.0/-29.7 m EL. 144.9 m	Dry density	2203
					Water content (PNG)	5.5%
#13 (PNG)	2017-09-09	2017-09-09	Compacted Sieved till	SD4 (in place) 40+458.6/-28.6 m EL. 144.9 m	Dry density	2282
					Water content (PNG)	4.2%
#14 (PNG)	2017-09-09	2017-09-09	Compacted Sieved till	SD4 (in place) 40+451/-30.8 m EL. 144.8 m	Dry density	2241
					Water content (PNG)	5.2%
#15 (PNG)	2017-09-09	2017-09-09	Compacted Sieved till	SD4 (in place) 40+443.4/-29.8 m EL. 144.7 m	Dry density	2192
					Water content (PNG)	5.3%
#16 (PNG)	2017-09-09	2017-09-09	Compacted Sieved till	SD4 (in place) 40+438.3/-28.6 m EL. 144.7 m	Dry density	2288
					Water content (PNG)	4.7%
#17 (PNG)	2017-09-09	2017-09-09	Compacted Sieved till	SD4 (in place) 40+430/-33.1 m EL. 143.3 m	Dry density	2225.1
					Water content (PNG)	5.4%
#18 (PNG)	2017-09-09	2017-09-09	Compacted Sieved till	SD4 (in place) 40+423.5/-31.4 m EL. 143.9 m	Dry density	2193
					Water content (PNG)	5.2%
#19 (PNG)	2017-09-09	2017-09-09	Compacted Sieved till	SD4 (in place) 40+107/-34.8 m EL. 143.3 m	Dry density	2189
					Water content (PNG)	5.3%

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
#20 (PNG)	2017-09-09	2017-09-09	Compacted Sieved till	SD4 (in place) 40+105.2/-30.7 m EL. 144.1 m	Dry density	2216
					Water content (PNG)	4.9%
#21 (PNG)	2017-09-09	2017-09-09	Compacted Sieved till	SD4 (in place) 40+101.5/-30.6 m EL. 144.6 m	Dry density	2203
					Water content (PNG)	5.1%

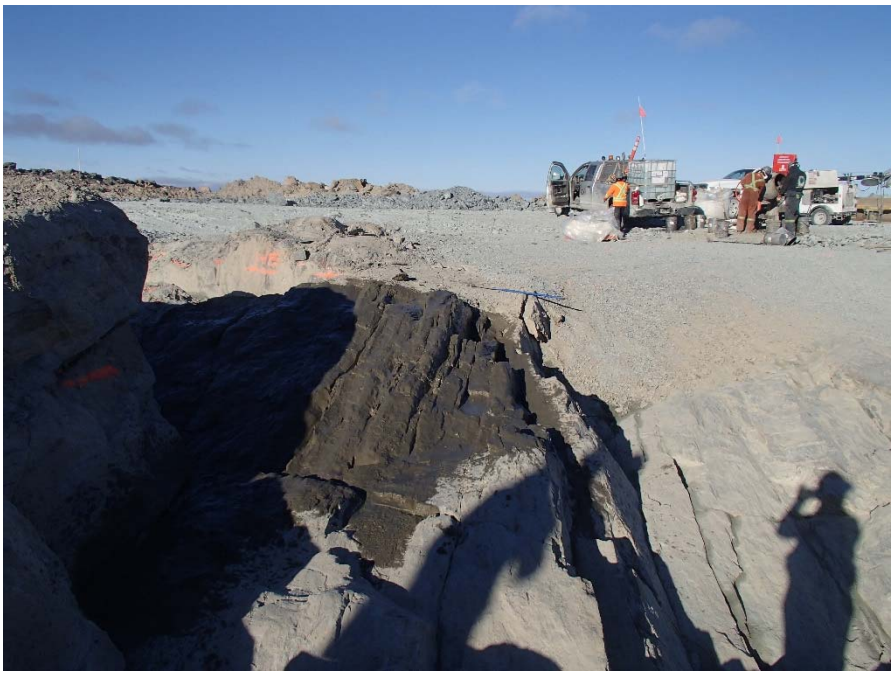
Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD3-259: From 20+820/-32 looking NW. Drilling of the blast pattern for the sump preparation from Sta. 20+605 to 20+620 m (o.s. 30 to 57 m).



Photograph SD3-260: From 20+825/-38 looking E. Grouting of the entire cleaned bedrock surface from Sta. 20+797 to 20+817 m (o.s. -36 to -20 m).



Photograph SD3-261: From 20+840/-39 looking SW. Placement of a thin lift of till to fill the depressions and to allow a good contact before the grout dries.



Photograph SD3-262: From 20+785/-34 looking SW. Compaction of the sieved till lift on the south extremity of SD3 with a 10 tonne smooth drum compactor after watering.



Photograph SD3-263: From 20+600/-37 looking N. Compaction of the sieved till lift on the north extremity of SD3 with a 10 tonne smooth drum compactor after watering. Notice the texture of the humid till, sticking to the compactor drum.

QA DAILY REPORT

DATE September 12th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR SEPTEMBER 11TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 5°, cloudy and windy.

2.0 HEALTH AND SAFETY

- Dust is still an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.
- JHA have been reviewed with new workers on the drill and blast operations.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- During sampling of the sieved till stockpile (0-50) at the SANA crusher site, the QC representative noticed some rock fragments too sharp for use against the liner. The sieving operations have been adapted to reduce crushing of large rocks, in order to limit the amount of sharp 0-50 particles in the till.
- Blasting preparation should be ready by Thursday, however due to a crew change, blasting will be postponed to Friday.
- The sample of sieved till CD-545 taken on September 7 has been re-identified CD-544.
- The 0-300 till is now categorized under “low quality till”.
- The PNG measurements taken by the QC on a section of low quality till placed and compacted today on SD3 indicate that the water content is too high and that compaction is ineffective. This section of the lift has been

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removed and replaced with another load of low quality till with a better water content to ensure sufficient compaction.

- After discussion with AEM's representative and Yves Boulianne, it has been decided that the low quality till protection layer for the liner on SD3 will be compacted with 4 passes of a 10 tonne smooth-drum compactor and that compaction will be only checked visually. 4 passes gave the best results based on the measurements taken on the first lift. A memo will be issued on the use of low quality till as liner protection.
- After discussion with AEM's representative and Yves Boulianne, it has been accepted to place only a 1 m thick layer of fine UM rockfill over the low quality till for liner protection on SD3, provided that the UM rockfill contains enough fine particles to prevent erosion of the till layer by infiltration water.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
	■

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
	■

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream toe liner tie-in	■ Testing of compaction with a PNG on the sieved till lifts compacted yesterday, from Sta. 20+572 to 20+599 m and from Sta. 20+797 to 20+817 m. Results met Technical Specifications (see table 6).
Upstream	■ Placement of a second 0.5 m thick, 1.5 m wide lift of low quality till at El. 140 m over the compacted sieved till lift from Sta. 20+640 to 20+745 m (o.s. -59 to -44 m). The lift was compacted with a 10 tonne smooth drum compactor (4 passes). ■ Removal of a section of the first lift of low quality till at El. 139.5 m that was too wet for compaction from Sta. 20+635 to 20+640 m (o.s. -59 to -44 m) and replacement with drier material. The lift was compacted with a 10 tonne smooth drum compactor (4 passes).

Activity or Area	Comments
Downstream	■ Drilling of the blast pattern for the sump preparation from Sta. 20+605 to 20+620 m (o.s. 30 to 57 m).

Table 4: QA Observations for Central Dike

Activity or Area	Comments
	■

5.0 BEDROCK MAPPING

No bedrock mapping was done during the reporting period.

Table 5: Bedrock mapping by QA manager

Structure	Station and offset of centreline of the mapped section

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 6 and 7 present the samples collected or tested by the QA and QC as well as PNG field results.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
#22 (PNG)	2017-09-11	2017-09-11	Compacted Sieved till	SD3 (in place) 20+821.0/-26.9 m EL. 145.0 m	Dry density	2203
					Water content (PNG)	6.4%
#23 (PNG)	2017-09-11	2017-09-11	Compacted Sieved till	SD3 (in place) 20+814.7/-28.6 m EL. 144.8 m	Dry density	2191
					Water content (PNG)	7.4%
#24 (PNG)	2017-09-11	2017-09-11	Compacted Sieved till	SD3 (in place) 20+806.7/-29.1 m EL. 144.7 m	Dry density	2204
					Water content (PNG)	6.9%
#25 (PNG)	2017-09-11	2017-09-11	Compacted Sieved till	SD3 (in place) 20+800.9/-31.2 m EL. 144.7 m	Dry density	2187
					Water content (PNG)	7.8%
#26 (PNG)	2017-09-11	2017-09-11	Compacted Sieved till	SD3 (in place) 20+592.7/-35.7 m EL. 145.0 m	Dry density	2186
					Water content (PNG)	8.6%
	2017-09-11	2017-09-11		SD3 (in place)	Dry density	2215

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
#27 (PNG)			Compacted Sieved till	20+590.2/-35.5 m EL. 145.0 m	Water content (PNG)	7.5%
#28 (PNG)	2017-09-11	2017-09-11	Compacted Sieved till	SD3 (in place) 20+589.2/-31.6 m EL. 145.0 m	Dry density	2206
					Water content (PNG)	7.5%
#29 (PNG)	2017-09-11	2017-09-11	Compacted Sieved till	SD3 (in place) 20+582.9/-30.1 m EL. 145.1 m	Dry density	2237
					Water content (PNG)	6.7%
#30 (PNG)	2017-09-11	2017-09-11	Compacted Sieved till	SD3 (in place) 20+573.8/-30.7 m EL. 144.7 m	Dry density	2222
					Water content (PNG)	5.6%

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD3-264: From 20+700/-60 looking W. Placement of a second 0.5 m thick, 1.5 m wide lift of low quality till at El. 140 m over the compacted sieved till lift from Sta. 20+640 to 20+745 m (o.s. -59 to -44 m).



Photograph SD3-265: From 20+740/-52 looking NE. Removal of a section of the first lift of low quality till at El. 139.5 m that was too wet for compaction from Sta. 20+635 to 20+640 m (o.s. -59 to -44 m) and replacement with drier material.

QA DAILY REPORT

DATE September 13th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR SEPTEMBER 12TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 5°, sunny.

2.0 HEALTH AND SAFETY

- Dust is still an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.
- Heavy equipment and light vehicles coactivity: was reiterated to make sure to be visible on the dikes and to park backwards.
- Strong winds and cold weather: make sure to dress appropriately.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The new guidelines for placement and compaction of the low quality till and UM rockfill protection layers on SD3 have been presented to all during the daily meeting.
- The blast for the sump on SD3 is supposed to be loaded on Thursday.
- The QA Manager went with Yves Boulianne and the QC representative to inspect the upstream slope of SD4 and SD5 in preparation of the liner installation. Some preparatory work is required before approval of the surface for liner installation:
    - Some bumps and depressions in the slope must be profiled with an excavator and compacted again with the bucket.

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- The existing LLDPE liner must be exposed over a length of at least 1 m. This required to remove some fine filter with a hand shovel. Care must be taken not to damage the membrane.
- The toe of the slope must be cleared of loose till with a hand shovel along the entire length of the dike, to achieve flat surfaces.
- The exposed membrane must be cleaned with brooms to remove all gravel, small rocks and dust over a length of at least 1 m, to allow for welding of the new liner.
- The compacted sieved till used for the toe liner tie-in had a low humidity and cracked after compaction. In order to allow a good contact with the next compacted sieved till lifts, the surface outside the membrane footprint will be scarified with an excavator. A compactor will then re-compact the membrane footprint to remove the excavator's tracks and to ensure a flat and sealed surface for liner installation. This should be done one or two days before liner installation in order to reduce exposure time of the unsealed till.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
	■

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream	■ Placement of a 0.3 m thick lift of fine filter (0-3/4'') on the pig launcher pad on the upstream side of SD4 from Sta. 40+470 to 40+480 m (o.s. -26 to -17 m).

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream	■ Placement of a second 0.5 m thick, 1.5 m wide lift of low quality till at El. 140 m over the compacted sieved till lift from Sta. 20+635 to 20+640 m (o.s. -58 to -42 m). The lift was compacted with a 10 tonne smooth drum compactor (4 passes). ■ Placement of a third 0.5 m thick, 1.5 m wide lift of low quality till at El. 140.5 m over the compacted sieved till lift from Sta. 20+620 to 20+745 m (o.s. -63 to -36 m). The lift was compacted with a 10 tonne smooth drum compactor (4 passes).

Activity or Area	Comments
Downstream	■ Drilling of the blast pattern for the sump preparation from Sta. 20+605 to 20+620 m (o.s. 30 to 57 m).

Table 4: QA Observations for Central Dike

Activity or Area	Comments
	■

5.0 FOUNDATION APPROVAL

No foundation approval was done during the reporting period.

Table 5: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 6 and 7 present the samples collected or tested by the QA and QC as well as PNG field results.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD3-266: From 20+670/-40 looking S. Placement of a third 0.5 m thick, 1.5 m wide lift of low quality till at El. 140.5 m over the compacted sieved till lift from Sta. 20+620 to 20+745 m (o.s. -63 to -36 m).

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QA DAILY REPORT

DATE September 14th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR SEPTEMBER 13TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 8°, sunny.

2.0 HEALTH AND SAFETY

- Dust is still an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.
- There is important heavy equipment coactivity on SD3: personnel on foot must make sure to be visible at all time.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- A new foreman is arriving on the dikes today. He will be supported until Monday (September 18) by FGL's engineer Jeannot Gagnon, and surveyor Francis Pépin.
- The QA Manager went to inspect the LLDPE membrane rolls at the north of Central Dike. The rolls are remaining material from last year and have been stored outside on trailers. About half of the rolls are damaged on the outside (wrinkles, tear and/or worn out spikes). The first few meters of these rolls will have to be discarded and only the good quality, undamaged part will be used for membrane installation.
- The QA Manager detailed the different corrections needed on SD4, SD5 and Central Dike to prepare the surfaces for liner installation during the daily meeting. All the corrections will be done before September 18.
- Since the upstream side of SD3 will not be covered by tailings, the rockfill protection layer should be extended over the whole length of the dike to protect the low quality till layer installed last year from erosion.

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- Alexandre Lavallée and Patrice Gagnon will exceptionally both be out of office from September 18 to 20. Rebecca Cousineau will provide support from AEM if needed and will be AEM's representative for liner approvals during this period.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
	■

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream	■

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream	■ Completion of the 0.5 m thick lift of compacted sieved till against the liner up to El. 142 m from Sta. 20+680 to 20+750 m. The lift was compacted with the bucket of the excavator. ■ Placement of a first 2 m thick, 1 m wide lift of fine UM rockfill at El. 140.5 m over the compacted low quality till lift from Sta. 20+635 to 20+750 m (o.s. -61 to -40 m). The lift was compacted with a 10 tonne smooth drum compactor (8 passes).
Downstream	■ Drilling of the blast pattern for the sump preparation from Sta. 20+605 to 20+620 m (o.s. 30 to 57 m).

Table 4: QA Observations for Central Dike

Activity or Area	Comments
	■

5.0 FOUNDATION APPROVAL

No foundation approval was done during the reporting period.

Table 5: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 6 and 7 present the samples collected or tested by the QA and QC as well as PNG field results.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
436	2017-09-08	2017-09-13	Sieved till	SD5 (in place) 20+651/-38.3 EL. 141.2 m	Gradation	Lacking a little fine, but accepted
					Water content	6.5%
439	2017-09-09	2017-09-13	Sieved till	SANA crusher	Gradation	Lacking a little fine, but accepted
					Water content	8.6%

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD3-267: From 20+690/-84 looking N. Placement of a first 2 m thick, 1 m wide lift of fine UM rockfill at El. 140.5 m over the compacted low quality till lift from Sta. 20+635 to 20+750 m (o.s. -61 to -40 m).



Photograph SD3-268: From 20+600/-205 looking W. Completion of the 0.5 m thick lift of compacted sieved till up to El. 142 m from Sta. 20+680 to 20+750 m. Notice the metal box used to prevent contamination of the till from the rockfill.



Photograph LLDPE-04: At the north Central Dike LLDPE storage site. Tear in the outside of a LLDPE roll. Notice that the rolls are stored outside.

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QA DAILY REPORT

DATE September 15th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR SEPTEMBER 14TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 8°, sunny.

2.0 HEALTH AND SAFETY

- Dust is still an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.
- There is important heavy equipment coactivity on SD3: personnel on foot must make sure to be visible at all time.
- It was recommended to park construction equipment such as compactors on the dikes instead of in the pick-up parking lot near the construction trailer on SD3.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- Due to logistic issues, the liner installers' equipment can only be shipped in on September 20. As a result, the liner installers will be present on the site from September 21.
- Samples have been re-identified: CD-544 is now CD-546 and SD3-008 is now SD3-010.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in

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conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
	■

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream	■ Excavation of the geosynthetics crest tie-in trench from Sta. 40+105 to 40+250 m.
Water management	■ Water is being pumped out of the temporary sump.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream	■ Completion of the 0.5 m thick lift of compacted sieved till against the liner up to El. 142 m from Sta. 20+620 to 20+680 m. The lift was compacted with the bucket of the excavator. ■ Placement of a fourth 0.5 m high, 1.5 m thick lift of low quality till at El. 141 m over the compacted sieved till lift from Sta. 20+670 to 20+735 m (o.s. -39 to -34 m).
Downstream	■ Drilling of the blast pattern for the sump preparation from Sta. 20+605 to 20+620 m (o.s. 30 to 57 m).

Table 4: QA Observations for Central Dike

Activity or Area	Comments
	■

5.0 FOUNDATION APPROVAL

No foundation approval was done during the reporting period.

Table 5: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 6 and 7 present the samples collected or tested by the QA and QC as well as PNG field results.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
438	2017-09-09	2017-09-14	Sieved till	SANA crusher stockpile	Gradation	Lacking a little fine, but accepted
					Water content	8.5%

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD4-176: From 40+250/-24 looking N. Excavation of the geosynthetics crest tie-in trench from Sta. 40+105 to 40+250 m.



Photograph SD3-269: From 20+630/-25 looking S. Placement of a first 0.5 m high, 1.5 m thick lift of low quality till at El. 141 m over the compacted sieved till lift from Sta. 20+670 to 20+735 m (o.s. -39 to -34 m).

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QA DAILY REPORT

DATE September 16th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR SEPTEMBER 15TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 8°, rainy.

2.0 HEALTH AND SAFETY

- The rain is an issue, the muddy and very slippery ground causes a high risk of slips and falls. Extra caution must be applied when walking or driving on wet surfaces.
- There is important heavy equipment coactivity on SD3: personnel on foot must make sure to be visible at all time.
- Blasting is planned at 15:30 at SD3.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The compactor broken down on SD3 as well as the pump in the old sump must be removed from the safety radius before the blast.
- At the request of the QA Manager and the QC representative, placement of low quality till on SD3 was interrupted from around 14:30 because of the rain. The material was becoming too wet. The stockpile at the SANA crusher site was sealed for protection from the rain.
- The QA Manager, the QC representative and AEM's representative went to inspect the liner on SD3 after the blast for possible damage caused by thrown rocks. No damage was found.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
	■

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Water management	■ Water is being pumped out of the temporary sump.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream	■ Placement of a fourth 0.5 m high, 1.5 m thick lift of low quality till at El. 141 m over the compacted sieved till lift from Sta. 20+630 to 20+680 m (o.s. -62 to -34 m). The lift was compacted with a 10 tonne smooth-drum compactor (4 passes). ■ Placement of a fifth 0.5 m high, 1.5 m thick lift of low quality till at El. 141.5 m over the compacted sieved till lift from Sta. 20+650 to 20+735 m (o.s. -39 to -34 m). Placement was interrupted because of the rain and the lift was compacted with a 10 tonne smooth-drum compactor (4 passes).
Downstream	■ Blasting of the footprint of the new sump from Sta. 20+605 to 20+620 m (o.s. 30 to 57 m). The blasted material is still in place.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
	■

5.0 FOUNDATION APPROVAL

No foundation approval was done during the reporting period.

Table 5: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 6 and 7 present the samples collected or tested by the QA and QC as well as PNG field results.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD3-270: From 20+840/-52 looking N. Placement of a fourth 0.5 m high, 1.5 m thick lift of low quality till at El. 141 m over the compacted sieved till lift from Sta. 20+630 to 20+680 m (o.s. -62 to -34 m).

QA DAILY REPORT

DATE September 17th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR SEPTEMBER 16TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 8°, rainy in the morning and sunny in the afternoon.

2.0 HEALTH AND SAFETY

- The rain is an issue, the muddy and very slippery ground causes a high risk of slips and falls. Extra caution must be applied when walking or driving on wet surfaces.
- There is still important heavy equipment coactivity on SD3: personnel on foot must make sure to be visible at all time.
- A safety meeting took place this morning with the operators.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The LLDPE liner and geotextile rolls will be brought to the dikes soon in preparation for liner installation next week. The QA Manager reiterated that the LLDPE liner cannot be stored directly on the ground to avoid damage.
- The QA Manager and the QC representative went to inspect the low quality till placed on SD3 yesterday. Due to the rain, water was ponding on compacted surfaces and one section of not yet compacted till was too wet to be compacted. It was decided to remove 200 mm of material over this section and to drain the water ponds before resuming placement of low quality till.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
	■

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Water management	■ Water is being pumped out of the temporary sump.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream	■ Scraping of approx. 200 mm of the low quality till lift at El. 141.5 m from Sta. 20+650 to 20+690 m to remove the wet surface before placing additional material. Small trenches were dug with the excavator to drain the water ponding on the compacted surfaces. ■ Placement of a fifth 0.5 m high, 1.5 m thick lift of low quality till at El. 141.5 m over the compacted sieved till lift from Sta. 20+620 to 20+650 m (o.s. -63 to -30 m).
Downstream	■ Removal of blast mats and excavation of the blasted material to prepare the next blast pattern from Sta. 20+620 to 20+635 m (o.s. 30 to 57 m). ■ Drilling of the blast pattern for the sump preparation from Sta. 20+620 to 20+635 m (o.s. 30 to 57 m).
Water management	■ Water is being pumped out of the old sump.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
	■

5.0 FOUNDATION APPROVAL

No foundation approval was done during the reporting period.

Table 5: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 6 and 7 present the samples collected or tested by the QA and QC as well as PNG field results.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD3-271: From 20+655/14 looking NW. Removal of blast mats and excavation of the blasted material to prepare the next blast pattern from Sta. 20+620 to 20+635 m (o.s. 30 to 57 m).



Photograph SD3-272: From 20+720/-35 looking NE. Digging of small trenches with the excavator to drain the water ponding on the compacted surfaces.



Photograph SD3-273: From 20+645/-69 looking W. Placement of a fifth 0.5 m high, 1.5 m thick lift of low quality till at El. 141.5 m over the compacted sieved till lift from Sta. 20+620 to 20+650 m (o.s. -63 to -30 m).

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QA DAILY REPORT

DATE September 18th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR SEPTEMBER 17TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 12°, sunny.

2.0 HEALTH AND SAFETY

- Because of recent rain, the muddy and very slippery ground causes a high risk of slips and falls. Extra caution must be applied when walking or driving on wet surfaces.
- There is still important heavy equipment coactivity on SD3: personnel on foot must make sure to be visible at all time.
- The JHA for liner installation has been reviewed during the daily meeting.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- Yesterday, the compactor working on SD3 came too close from the LLDPE liner, drove about 5 m on the liner and damaged it. The liner was exposed with a hand shovel and cleaned, and the QA Manager inspected the liner. The damages (holes and tears) have been marked for repair by the liner installer next week.
- It was reiterated that the excavator cannot circulate over the liner unless there is at least 2 m of material placed over the LLDPE.

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- The UM rockfill removed from SD3 during profiling of the slopes will be used for the upstream rockfill protection layer on SD3. The material was inspected to ensure that it contained enough fine particles. The QA Manager pointed out that some oversize particles will have to be put aside during placement.
- A new 345 excavator will arrive today on the dikes to replace the broken one. It was reiterated that inspection of the heavy equipment will be essential every day during liner installation.
- Error: in Daily Reports for September 14, 15 and 16, the thickness of the low quality till lift on SD3 was 1.5 m and not 1 m.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
	■

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Water management	■ Water is being pumped out of the temporary sump.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream	■ Placement of a sixth 0.5 m high, 1.5 m thick lift of low quality till at El. 142 m over the compacted sieved till lift from Sta. 20+630 to 20+720 m (o.s. -41 to -35 m). The lift was compacted with a 10 tonne smooth-drum compactor (4 passes). ■ Removal of the compacted sieved till layer and cleanup of the LLDPE liner from Sta. 20+620 m (o.s. -51 to -41 m), to inspect the liner. Holes and tears have been marked for repairs. ■ Placement of a second 1.5 m high, 1 m thick lift of fine UM rockfill at El. 142 m over the low quality till lift from Sta. 20+650 to 20+735 m (o.s. -45 to -41 m).
Downstream	■ Drilling of the blast pattern for the sump preparation from Sta. 20+620 to 20+635 m (o.s. 30 to 57 m).
Water management	■ Water is being pumped out of the old sump.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
	■

5.0 FOUNDATION APPROVAL

No foundation approval was done during the reporting period.

Table 5: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 6 and 7 present the samples collected or tested by the QA and QC as well as PNG field results.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



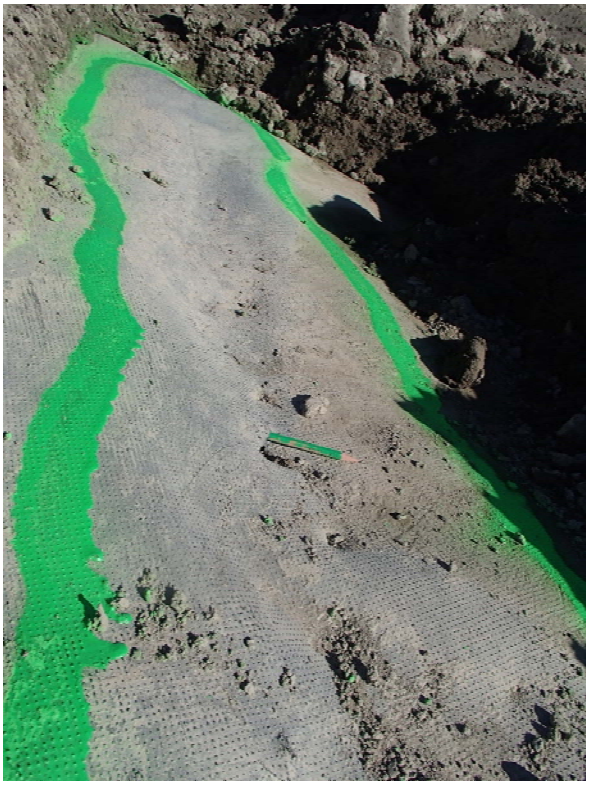
Photograph SD3-274: From 20+640/16 looking NW. Drilling of the blast pattern for the sump preparation from Sta. 20+620 to 20+635 m (o.s. 30 to 57 m).



Photograph SD3-275: From 20+720/-33 looking E. Placement of a sixth 0.5 m high, 1.5 m thick lift of low quality till at El. 142 m over the compacted sieved till lift from Sta. 20+630 to 20+720 m (o.s. -41 to -35 m).



Photograph SD3-276: From 20+715/-28 looking S. Placement of a second 1.5 m high, 1 m thick lift of fine UM rockfill at El. 142 m over the low quality till lift from Sta. 20+650 to 20+735 m (o.s. -45 to -41 m).



Photograph SD3-277: From 20+620/-49 looking N. Damaged LLDPE liner.

QA DAILY REPORT

DATE September 19th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR SEPTEMBER 18TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 8°, foggy in the morning and sunny in the afternoon.

2.0 HEALTH AND SAFETY

- The rain is still an issue, the muddy and very slippery ground causes a high risk of slips and falls. Extra caution must be applied when walking or driving on wet surfaces.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- There was no construction meeting today.
- Due to a crew change and works to do on Amaruq Road, no worker from SANA was present on the dikes today. Only 2 day workers and the drill and blast personnel were present today. Construction will resume tomorrow on the dikes.
- The QA Manager noticed and marked 3 holes in the LLDPE liner on SD4 at approx. Sta. 40+170 m. The damage was probably caused by fine filter particles pushed into the liner by the roller attachment used during the profiling of the upstream slope.
- During clean-up of the existing liner, too much fine filter was removed on SD5 above El. 143 m. The depression will be filled with fine filter at the same time as the toe of the covered bedrock outcrop is backfilled with fine filter.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream	■ Clean-up of the existing LLDPE liner with shovels and pressurized air stream from Sta. 40+635 to 40+720 m in preparation for liner installation. Too much filter has been removed and will be placed back soon.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream	■ Clean-up of the existing LLDPE liner with shovels and pressurized air stream from Sta. 40+110 to 40+410 m in preparation for liner installation.
Water management	■ Water is being pumped out of the temporary sump.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Downstream	■ Drilling of the blast pattern for the sump preparation from Sta. 20+620 to 20+635 m (o.s. 30 to 57 m).
Water management	■ Water is being pumped out of the old sump.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
Upstream	■ Clean-up of the existing LLDPE liner with shovels and pressurized air stream from Sta. 0+155 to 0+170 m in preparation for liner installation. ■ Clean-up of excess till on the upstream slope fine filter.

5.0 FOUNDATION APPROVAL

No foundation approval was done during the reporting period.

Table 5: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 6 and 7 present the samples collected or tested by the QA and QC as well as PNG field results.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD5-075: From 40+670/-24 looking N. Clean-up of the existing LLDPE liner with shovels and pressurized air stream from Sta. 40+635 to 40+720 m in preparation for liner installation. Notice the depression caused by too much filter being removed.



Photograph SD4-177: From 40+170/-30 looking E. Damaged LLDPE.

QA DAILY REPORT

DATE September 20th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR SEPTEMBER 19TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 8°, sunny.

2.0 HEALTH AND SAFETY

- Blasting is planned in Pit E at 12:45.
- The bright sunlight causes reflections in windows and mirrors especially in the morning. Be sure to clean the mirrors and glass.
- There is important heavy equipment coactivity on SD3: personnel on foot must make sure to be visible at all time.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- There will be no AEM supervisor from today until Thursday.
- During compaction of the till plug on SD4 to remove the tracks of the excavator, the compactor drove on the free extremity of the LLDPE liner on the ground and damaged it (Sta. 40+100 m). Holes and folds are visible in the liner over a width of about 0.5 m and were marked by the QA Manager. The liner will be cleaned to allow welding of the next panel on the intact section of the liner in place.
- It was discussed with AEM's representative that the thermistor upstream of SD3 will need to be moved for placement of the rockfill protection layer on the north part of SD3.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream	■ Excavation of the geosynthetics crest tie-in trench from Sta. 40+565 to 40+665 m. ■ Placement of fine filter at approx. Sta. 40+420 and 40+650 m to correct the upstream slope in preparation for liner installation. The material was placed with an excavator and compacted with the bucket.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream toe-liner tie-in	■ Scarification of the till plug outside the liner footprint with an excavator to allow good contact with the second lift of sieved till from Sta. 40+100 to 40+110 m (o.s. -37 to -28 m) and from Sta. 40+415 to 40+455 m (o.s. -25 to -37 m).
Upstream	■ Excavation of the geosynthetics crest tie-in trench from Sta. 40+250 to 40+440 m.
Water management	■ Water is being pumped out of the temporary sump.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream	■ Placement of a second 1.5 m high, 1 m thick lift of fine UM rockfill at El. 142 m over the low quality till lift from Sta. 20+625 to 20+670 m (o.s. -49 to -41 m). The lift was compacted with a 10 tonne smooth-drum compactor (6 passes). ■ Profiling of the upstream slope of the rockfill protection layer up to El. 142 m from Sta. 20+625 to 20+735 m. ■ Removal of oversize boulders left on the crest of SD3.
Downstream	■ Drilling of the blast pattern for the sump preparation from Sta. 20+620 to 20+635 m (o.s. 30 to 57 m).
Water management	■ Water is being pumped out of the old sump.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
	■

5.0 FOUNDATION APPROVAL

No foundation approval was done during the reporting period.

Table 5: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 6 and 7 present the samples collected or tested by the QA and QC as well as PNG field results.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD5-076: From 40+420/-37 looking W. Placement of fine filter at approx. Sta. 40+420 and 40+650 m to correct the upstream slope in preparation for liner installation



Photograph SD4-178: From 40+440/-25 looking N. Excavation of the geosynthetics crest tie-in trench from Sta. 40+250 to 40+440 m.



Photograph SD4-179: From 40+110/-24 looking E. Scarification of the till plug outside the liner footprint with an excavator to allow good contact with the second lift of sieved till from Sta. 40+100 to 40+110 m (o.s. -37 to -28 m).



Photograph SD4-180: From 40+100/-32 looking W. Damaged LLDPE. Notice the holes and folds.



Photograph SD3-278: From 20+650/-61 looking W. Placement of a second 1.5 m high, 1 m thick lift of fine UM rockfill at El. 142 m over the low quality till lift from Sta. 20+625 to 20+670 m (o.s. -49 to -41 m).

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QA DAILY REPORT

DATE September 21st **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer and Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR SEPTEMBER 20TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 8°, cloudy.

2.0 HEALTH AND SAFETY

- Blasting is planned in Vault at 12:45 and at SD3 at 15:30.
- Dust is an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.
- There is important heavy equipment coactivity on SD3: personnel on foot must make sure to be visible at all time.
- Liner installation equipment has been inspected yesterday.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The type of geotextile to be used on the dikes has been clarified with AEM (yellow rolls).
- Safe storage of the LLDPE rolls on the dikes during installation will require the placement of a few layers of geotextile on the rockfill surface to protect the liner
- The alignment of the rockfill protection layer on the north side of SD3 has been adjusted by the surveyor. Patrice Gagnon indicated that the rockfill protection must also be extended to the south extremity of SD3.

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- The heavy fabric used to protect the extremities of the existing liner needs to be removed to finalize preparation works before liner installation.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream toe liner tie-in	■ Scarification of the till plug outside the liner footprint with an excavator to allow good contact with the second lift of sieved till from Sta. 40+550 to 40+620 m (o.s. -46 to -20 m).
Upstream	■ Excavation of the geosynthetics crest tie-in trench from Sta. 40+665 to 40+710 m.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Water management	■ Water is being pumped out of the temporary sump.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream	■ Placement of a 2.0 m thick lift of fine UM rockfill up to El. 140 m over the low quality till on the south extremity of SD3 from Sta. 20+620 to 20+660 m (o.s. -37 to -78 m). ■ Removal of the compacted sieved till layer and cleanup of the LLDPE liner at Sta. 20+620 m (o.s. -51 to -41 m), where the liner was damaged by the compactor few days ago, in order to repair it.
Downstream	■ Blasting of the footprint of the new sump from Sta. 20+620 to 20+635 m (o.s. 30 to 57 m). Blasted materials are still in place.
Water management	■ Water is being pumped out of the old sump.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
Upstream toe liner tie-in	■ Scarification of the till plug outside the liner footprint with an excavator to allow good contact with the second lift of sieved till from Sta. 0+090 to 0+135 m (o.s. -40 to -28 m).
Upstream	■ Excavation of the geosynthetics crest tie-in trench from Sta. 0+095 to 0+110 m.

5.0 FOUNDATION APPROVAL

5 foundation approvals were done during the reporting period. These approvals concern the key trench zone inclusively.

Table 5: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
FND-SD4-31	SD4	40+096 to 40+110 m/o.s. -28 to -37 m	20-09-2017	Compliant
FND-SD4-32	SD4	40+414 to 40+463 m/o.s. -26 to -38 m	20-09-2017	Compliant
FND-SD4-32	SD4	40+549 to 40+600 m/o.s. -24 to -40 m	20-09-2017	Compliant
FND-SD5-16	SD5	40+600 to 40+620 m/o.s. -32 to -39 m	20-09-2017	Compliant
FND-CD-137	CD	0+088 to 0+117 m/o.s. -23 to -36 m	20-09-2017	Compliant

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 6 and 7 present the samples collected or tested by the QA and QC as well as PNG field results.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD5-077: From 40+580/-13 looking S. Excavation of the geosynthetics crest tie-in trench from Sta. 40+665 to 40+710 m.



Photograph SD5-077: From 40+580/-13 looking E. Scarification of the till plug outside the liner footprint with an excavator to allow good contact with the second lift of sieved till from Sta. 40+550 to 40+620 m (o.s. -46 to -20 m).



Photograph SD3-279: From 20+650/-16 looking W. View of the blast of the sump of SD3 that was executed this afternoon. The excavator started to clean the blasted zone.



Photograph SD3-280: From 20+660/-42 looking E. Placement of a 2.0 m thick lift of fine UM rockfill up to El. 140 m over the low quality till on the south extremity of SD3 from Sta. 20+620 to 20+660 m (o.s. -37 to -78 m).

QA DAILY REPORT

DATE September 22nd **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR SEPTEMBER 21ST, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 5°, sunny.

2.0 HEALTH AND SAFETY

- The QA Manager asked for fixing the stop sign on the corner of Saddle road and the West road. The stop sign is currently upside-down.
- It was reminded that wearing a face shield is mandatory while blowing with pressurized air stream.
- The LLDPE geomembrane placement team is supposed to arrive today on the mine site. The JHA concerning the LLDPE geomembrane placement will be explained and signed by the team before any material placement.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QA Manager and the SANA's representative went for a walk to inspect the upstream surface of the dikes before the LLDPE geomembrane placement. More work has to be done (slope correction and clean-up of the geomembrane) on SD4, SD5 and CD. The QA Manager had a talk with the foreman and the work is planned to be done by the end of the day.
- The QA Manager reminded that more sand bags will be needed for the LLDPE geomembrane installation. According to SANA, one of the sea can on CD has many sand bags of the previous year.

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- In order to approve the upstream surface of the dike, it was discussed that Stéphane Vézina (geomembrane foreman) will walk over the dikes with the QA Manager and the Owner representative before the placement of the LLDPE geomembrane.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream toe liner tie-in	■ Clean-up of the LLDPE geomembrane and removal of the fine filter stuck between the geomembrane and the geotextile.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream toe liner tie-in	■ Clean-up of the LLDPE geomembrane and removal of the fine filter stuck between the geomembrane and the geotextile. ■ Removal of the compacted sieved till layer and clean-up of the LLDPE geomembrane on the western part of SD4, where the liner was damaged by the compactor few days ago, in order to repair it.
Water management	■ Water is being pumped out of the temporary sump.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream toe liner tie-in	■ Removal of the compacted sieved till layer and clean-up of the LLDPE geomembrane from 20+610 to 20+620 m (o.s. -43 to -49 m), where the liner was damaged by the compactor few days ago, in order to repair it.
Water management	■ Water is being pumped out of the old sump.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
Upstream	■ Excavation of the geosynthetics crest tie-in trench from Sta. 0+110 to 0+160 m.

5.0 FOUNDATION APPROVAL

No foundation approval was done during the reporting period.

Table 5: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 6 and 7 present the samples collected or tested by the QA and QC as well as PNG field results.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD3-281: From 20+620/-40 looking NE. Further removal of the compacted sieved till layer underneath the LLDPE geomembrane from 20+610 to 20+620 m (o.s. -43 to -49 m)(north of SD3), where the liner was damaged by the compactor few days ago, in order to ensure the liner was not damaged further around the compactor incident.



Photograph SD4-181: From 40+380/-20 looking E. Clean-up of the LLDPE geomembrane and removal of the fine filter stuck between the geomembrane and the geotextile with pressurized air stream.

QA DAILY REPORT

DATE September 23rd **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR SEPTEMBER 22ND, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 10°, sunny.

2.0 HEALTH AND SAFETY

- It will have a blast at Phaser at 12h45
- There is important heavy equipment coactivity on SD4: personnel on foot must make sure to be visible at all time.
- A safety tool box meeting will take place with ZTG and SANA this morning regarding the work methods around the geotextile/LLDPE geomembrane placement.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The Owner's Representatives might want to do horizontal seams on the LLDPE geomembrane for the purpose of saving LLDPE. The QA Engineer recalled that no horizontal seams should be carried out on the LLDPE on the upstream slope as per Technical Specifications. Following a discussion with the Dikes' designer, Golder still believed that horizontal seams shall not be conducted on the LLDPE geomembrane as per Technical Specifications. It should be noted that the International Association of Geosynthetics (IAGI) stated that it does not meet the state of practice. It is believed that this kind of seams weaken the LLDPE behavior in tension on the upstream slope of the structures and that it may contribute to damage the LLDPE once the tailings will weigh downward on it.

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- ZTG has not been able to provide an official on-site QC for testing the geosynthetics. Thus, the ZTG's foreman, with more than 25 years experiences, will be assigned as the QC for all the liner installation period. The QA Manager mentioned that Golder is comfortable with the situation as long as the QC follow the frequency of the tests that have to be performed on the geosynthetics and the tools used to seam (calibration) as mentioned in the Specifications.
- The QA Manager mentioned that his presence is required for all the "air channel" tests. If, inadvertently, he is not present on site at that moment, the foreman should not hesitate to call him.
- It was mentioned that when the operator of the excavator is rolling the upstream slope, in view of the LLDPE geomembrane installation, he has to pay attention to do not roll below the fine filter in order to do not damage the existing LLDPE geomembrane.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream toe liner tie-in	■ Final rolling of the upstream slope in view of the LLDPE geomembrane installation.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Geotextile and LLDPE installation	■ Approbation of the foundation under geosynthetics in view of their installation from Sta. 40+105 to 40+449 (o.s. -23 to -33 m). The entire upstream fine filter slope and the Compacted Sieved Till surface under the LLDPE within the Upstream Toe Liner Tie-In were approved (FND-SD4-34). ■ Installation of the geotextile on the upstream slope 3H:1V between El. 143 m and 145 m from Sta. 40+100 to 40+190. The geotextile surface was inspected before being covered with the LLDPE geomembrane. ■ Installation of the LLDPE on the upstream slope 3H:1V between El. 143 m and 145 m from sta. 40+100 to 40+190. The LLDPE was free of fold and hole. Seam tests were carried out under the supervision of the QA Engineer and results met Technical Specifications. ■ One horizontal seam was made on the LLDPE installed on the upstream 3H:1V slope at SD4. The seam was located on the crest of the dike at Sta. 40+170 m.

Activity or Area	Comments
	■ AM and PM calibration results met Technical Specifications. Loads at failure in peel and shear were greater than minimum values presented in Table 6-2 from Technical Specifications. ■ No destructive test was carried out during the reporting period (less than 150 m linear of LLDPE geomembrane was installed). ■ Backfilling of the geosynthetics tie-in from Sta. 40+100 to 40+170. The material is not compacted yet.
Water management	■ Water is being pumped out of the temporary sump.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Geotextile and LLDPE installation	■ The damaged section of the LLDPE geomembrane on the north part of SD3 (from Sta. 20+610 to 20+620 m/o.s. -43 to -49 m) was repaired this morning. A patch of LLDPE geomembrane was seamed following the Specifications.
Downstream	■ Excavation of the blasted material of the sump.
Water management	■ Water is being pumped out of the old sump.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
	■

5.0 FOUNDATION APPROVAL

No foundation approval was done during the reporting period.

Table 5: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
FND-SD4-34	SD4	Sta. 40+105 to 40+449/o.s. -23 to -33 m.	22-09-2017	Foundation approval in view of the geosynthetics installation.

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 6 and 7 present the samples collected or tested by the QA and QC as well as PNG field results.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD4-182: From 40+190/-23 looking W. View of the geotextile placed over the upstream fine filter slope on the west part of SD4 from Sta. 40+100 to 40+190 m.



Photograph SD4-183: From 40+100/-26 looking E. View of the LLDPE geomembrane placed over the geotextile on the west part of SD4 from Sta. 40+100 to 40+190 m.



Photograph SD3-282: From 20+620/-40 looking NE. View of the reparation of the liner that was damaged by the compactor on the north part of SD3 (from Sta. 20+610 to 20+620 m/o.s. -43 to -49 m).



Photograph SD3-283: From 40+380/-20 looking E. Excavation of the blasted material of the SD3's sump (from Sta. 20+620 to 20+635 m/o.s. 30 to 57 m) with an excavator.

QA DAILY REPORT

DATE September 24th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR SEPTEMBER 23RD, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 0°, cloudy to snowy.

2.0 HEALTH AND SAFETY

- It will have a blast at Vault at 12h45
- There is important heavy equipment coactivity on SD4: personnel on foot must make sure to be visible at all time.
- The cold temperature and the snow are an issue, the very slippery ground causes a high risk of slips and falls. Extra caution must be applied when walking or driving on wet surfaces and especially when walking on the LLDPE geomembrane.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- It was discussed that probably because of an electrical issue, the “vacuum box” and an extruder used for the geosynthetics installation broke yesterday. ZTG will take advantages of the bad weather of this morning to fix their broken tools. If it is not possible to fix it on site, it was planned that new tools will be ordered for the next week. More news to come in the next few days.
- The work regarding the preparation of the foundation under geosynthetics in view of their installation on CD is planned to be completed by the end of the day. The QA Manager mentioned the last corrections that have to be done.

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- It was reminded that the geosynthetics used to protect the dike's abutment have to be removed as soon as possible in order to do not interfere with the geotextile/LLDPE geomembrane installation on SD5 and CD.
- Because of the bad weather of this morning (snow), the geotextile/LLDPE geomembrane was delayed until the afternoon.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream	■ Removal of the geosynthetic used to protect the dike's abutment with an excavator.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Geotextile and LLDPE installation	■ Installation of the geotextile on the upstream slope 3H:1V between El. 143 m and 145 m from Sta. 40+190 to 40+220 m. The geotextile surface was inspected before being covered with the LLDPE geomembrane. ■ Installation of the LLDPE on the upstream slope 3H:1V between El. 143 m and 145 m from Sta. 40+190 to 40+220 m. The LLDPE was free of fold and hole. Seam tests were carried out under the supervision of the QA Engineer and results met Technical Specifications. No horizontal seam was made. ■ Vacuum box tests were performed from Sta. 40+100 à 40+170 m. No leak has been identified. ■ PM calibration results met Technical Specifications. Loads at failure in peel and shear were greater than minimum values presented in Table 6-2 from Technical Specifications. ■ No destructive test was carried out during the reporting period (one will be performed tomorrow morning).
Water management	■ Water is being pumped out of the temporary sump.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Downstream	■ Excavation of the blasted material of the sump.
Water management	■ Water is being pumped out of the old sump.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
Upstream toe liner tie-in	■ Approbation of the foundation under geosynthetics in view of their installation from Sta. 0+093 to 0+161 (o.s. -23 to -27 m). The entire upstream fine filter slope and the Compacted Sieved Till surface under the LLDPE within the Upstream Toe Liner Tie-In were approved (FND-CD-138).
Upstream	■ Removal of the geosynthetic used to protect the dike's abutment with an excavator.

5.0 FOUNDATION APPROVAL

One foundation approval on CD was done during the reporting period.

Table 5: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
FND-CD-138	CD	Sta. 0+093 to 0+161 m/o.s. -23 to -27 m.	23-09-2017	Foundation approval in view of the geosynthetics installation.

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 6 and 7 present the samples collected or tested by the QA and QC as well as PNG field results.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD4-184: From 40+190/-23 looking W. View of the bad weather of this morning that explained the geosynthetics installation delay.



Photograph SD4-185: From 40+225/-23 looking W. View of the LLDPE geomembrane placed over the geotextile on the west part of SD4 from Sta. 40+190 to 40+220 m during the afternoon.



Photograph SD3-284: From 20+655/-14 looking NW. Excavation of the blasted material of the SD3's sump (from Sta. 20+620 to 20+635 m/o.s. 30 to 57 m).

QA DAILY REPORT

DATE September 25th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR SEPTEMBER 24TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 0°, cloudy to sunny.

2.0 HEALTH AND SAFETY

- There is important heavy equipment coactivity on SD4: personnel on foot must make sure to be visible at all time.
- The cold temperature turned the LLDPE geomembrane surface into a very slippery surface (covered in frost) that causes a high risk of slips and falls. Extra caution must be applied when walking on the LLDPE geomembrane.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- It was discussed that a new “vacuum box” has been ordered and will arrive on the mine site tomorrow around noon.
- It was discussed that the west pipe of the pig launcher, on the crest of SD4, might be in the way of the excavator and the 35 tonne when it will be the time to place the rest of the till plug on the east part of SD4. Care must be taken when work will be performed around this section of SD4.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream toe liner tie-in	■ Approbation of the foundation under geosynthetics in view of their installation from Sta. 40+564 to 40+712 (o.s. -23 to -31 m). The entire upstream fine filter slope and the Compacted Sieved Till surface under the LLDPE within the Upstream Toe Liner Tie-In were approved (FND-SD5-17).

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Geotextile and LLDPE installation	■ Installation of the geotextile on the upstream slope 3H:1V between El. 143 m and 145 m from Sta. 40+220 to 40+320 m. The geotextile surface was inspected before being covered with the LLDPE geomembrane. ■ Installation of the LLDPE on the upstream slope 3H:1V between El. 143 m and 145 m from Sta. 40+220 to 40+315 m. The LLDPE was free of fold and hole. Seam tests were carried out under the supervision of the QA Engineer and results met Technical Specifications. No horizontal seam was made. ■ Vacuum box tests were performed from Sta. 40+170 à 40+315 m. No leak has been identified. ■ AM and PM calibration results met Technical Specifications. Loads at failure in peel and shear were greater than minimum values presented in Table 6-2 from Technical Specifications. ■ Destructive test was carried out on sample collected on the LLDPE geomembrane at Sta. 40+210 m. Loads at failure in peel and shear were greater than minimum values presented in Table 6-2 from Technical Specifications. Sample was kept for the Owner's Representative. ■ Backfilling of the geosynthetics tie-in from Sta. 40+170 to 40+305 m. The material is not compacted yet.
Water management	■ Water is being pumped out of the temporary sump.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Downstream	■ Excavation of the blasted material of the sump.
Water management	■ Water is being pumped out of the old sump.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
	■

5.0 FOUNDATION APPROVAL

One foundation approval on SD5 was done during the reporting period.

Table 5: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
FND-SD5-17	SD5	Sta. 40+564 to 40+712 m/o.s. -23 to -31 m.	24-09-2017	Foundation approval in view of the geosynthetics installation.

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 6 and 7 present the samples collected or tested by the QA and QC as well as PNG field results.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD4-186: From 40+320/-22 looking W. View of the placement of the LLDPE geomembrane on SD4 from Sta. 40+220 to 40+315 m.



Photograph SD3-285: From 20+655/-14 looking NW. Excavation of the blasted material of the SD3's sump (from Sta. 20+620 to 20+635 m/o.s. 30 to 57 m). Notice the excavator is done with the till-like material and has reached the blasted rock.

QA DAILY REPORT

DATE September 26th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR SEPTEMBER 25TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 5°, foggy.

2.0 HEALTH AND SAFETY

- There is important heavy equipment coactivity on SD4: personnel on foot must make sure to be visible at all time.
- Because of the presence of a thick fog, it was reminded to turn on the lights of vehicles and always signal yourself and stay visible.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QA Manager reminded to compact (4 passes of a 10 tonne smooth drum compactor) the LLDPE geomembrane anchor on the crest of SD4.
- The fog of this morning may lead to a delay regarding the geosynthetics installation. Extrusion seam is impossible with the fog, because droplets are forming at the surface of the LLDPE geomembrane and affect the quality of the seam.
- The Owner's representative, the QA Manager and the SANA's foreman and surveyor went to inspect the ongoing work on SD3's sump. It was mentioned that the sump seems to be deep enough to ensure an efficient reservoir to drain the dike toe of SD3. An access ramp to the sump and a channel which will join the old sump and the new one are planned to be done within the next few days.

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According to the QA Manager, the design of the sump issued previously by AEM took into account that all the till surrounding the sump would be excavated. The reality is that more till than expected was found around the site of the new sump, and all the till has not been excavated.

That being said, the QA Manager mentioned that the upper part of the slope of the sump (1H:1V) seems to be too steep. Instability issue could occurred during the next summer, since the upper section of the slope is lying over till that could thaw. It was suggested by the QA Manager that a 1 m thick lift of rockfill over the crest of the slope could act has a good isolation barrier to limit the thawing of the till.

For the moment, the Owner's representative is comfortable with the current design and mentioned that further work will be performed during the next summer (2018) to ensure the slope stability (before the thill will have time to thaw). Given that information, Golder is comfortable with the sump of SD3.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
	■

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Geotextile and LLDPE installation	■ Installation of the geotextile on the upstream slope 3H:1V between El. 143 m and 145 m from Sta. 40+320 to 40+455 m. The geotextile surface was inspected before being covered with the LLDPE geomembrane. ■ Installation of the LLDPE on the upstream slope 3H:1V between El. 143 m and 145 m from Sta. 40+320 to 40+455 m. The LLDPE was free of fold and hole. Seam tests were carried out under the supervision of the QA Engineer and results met Technical Specifications. No horizontal seam was made. ■ No vacuum box test was performed during the reporting period ■ AM and PM calibration results met Technical Specifications. Loads at failure in peel and shear were greater than minimum values presented in Table 6-2 from Technical Specifications. ■ Destructive test was carried out on sample collected on the LLDPE geomembrane at Sta. 40+345 m. Loads at failure in peel and shear were greater

Activity or Area	Comments
	than minimum values presented in Table 6-2 from Technical Specifications. Sample was kept for the Owner's Representative. ■ Backfilling of the geosynthetics tie-in from Sta. 40+305 to 40+455 m. The material was compacted with a 10 tonne smooth drum compactor (4 passes).
Water management	■ Water is being pumped out of the temporary sump.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Downstream	■ Excavation of the blasted material of the sump.
Water management	■ Water is being pumped out of the old sump.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
	■

5.0 FOUNDATION APPROVAL

No foundation approval was done during the reporting period.

Table 5: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 6 and 7 present the samples collected or tested by the QA and QC as well as PNG field results.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD4-187: From 40+460/-23 looking W. View of the placement of the LLDPE geomembrane on SD4 from Sta. 40+315 to 40+455 m. Notice the bottom of the LLDPE geomembrane is being seamed further on the dike.



Photograph SD3-286: From 20+655/-14 looking NW. Excavation of the blasted material of the SD3's sump (from Sta. 20+620 to 20+635 m/o.s. 30 to 57 m).

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QA DAILY REPORT

DATE September 27th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR SEPTEMBER 26TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 5°, cloudy.

2.0 HEALTH AND SAFETY

- It will have a blast at Vault pit at 12h45.
- There is important heavy equipment coactivity on SD4 and SD5: personnel on foot must make sure to be visible at all time.
- It was discussed that the use of English is mandatory when talking on radio.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- It is possible that ZTG does not have the time to complete their work on SD5 and CD by Thursday (the last flight before Monday). If it happens, installation of geosynthetics on SD3 will be considered. The QA Manager inspected the surface of SD3 and informed SANA's foreman about the work that must being done before any geosynthetics placement.
- It was mentioned that a "trammack" might be necessary to break the frozen soil on SD3 in order to dig the channel between the temporary sump and the new sump. AEM's foreman mentioned that he'll take care of it.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Geotextile and LLDPE installation	■ Installation of the geotextile on the upstream slope 3H:1V between El. 143 m and 145 m from Sta. 40+550 to 40+770 m. The geotextile surface was inspected before being covered with the LLDPE geomembrane. ■ Installation of the LLDPE on the upstream slope 3H:1V between El. 143 m and 145 m from Sta. 40+550 to 40+770 m. The LLDPE was free of fold and hole. Seam tests were carried out under the supervision of the QA Engineer and results met Technical Specifications. No horizontal seam was made. ■ AM and PM calibration results met Technical Specifications. Loads at failure in peel and shear were greater than minimum values presented in Table 6-2 from Technical Specifications. ■ The destructive test on the LLDPE geomembrane was postponed till tomorrow. ■ Backfilling of the geosynthetics tie-in from Sta. 40+550 to 40+770 m. The material is not compacted yet.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Geotextile and LLDPE installation	■ Completion of the extrusion seaming on the eastern part of SD4, from Sta. 40+400 to 40+415 m. ■ Vacuum box tests were performed from Sta. 40+315 à 40+415 m. No leak has been identified. ■ AM calibration results met Technical Specifications. Loads at failure in peel and shear were greater than minimum values presented in Table 6-2 from Technical Specifications.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Downstream	■ Excavation of the blasted material of the sump.
Water management	■ Water is being pumped out of the old sump.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
	■

5.0 FOUNDATION APPROVAL

No foundation approval was done during the reporting period.

Table 5: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 6 and 7 present the samples collected or tested by the QA and QC as well as PNG field results.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD5-079: From 40+455/-23 looking E. View of the placement of the LLDPE geomembrane on SD5 from Sta. 40+550 to 40+770 m.



Photograph SD4-188: From 40+420/-33 looking W. Completion of the extrusion seaming at the eastern part of SD4, from Sta. 40+400 to 40+415 m.

QA DAILY REPORT

DATE September 28th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR SEPTEMBER 27TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 5°, cloudy to rainny.

2.0 HEALTH AND SAFETY

- An hydraulic oil spill occurred on a 35 tonne truck yesterday. The spill has been cleaned and an environmental report sent to all concerns.
- A safety tool box meeting took place this morning with SANA's crew.
- It was reminded that the LLDPE geomembrane surface is very slippery, especially with the little rain of this morning. Care must be taken when walking on it.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QA Manager reminded the procedure regarding the placement of the compacted sieved till, given that the material is judged too dry.
    1. Placement of a first 250 mm thick lift of sieved till with an excavator, then wet the surface.
    2. Placement of the second 250 mm thick lift of sieved till with an excavator, then wet the surface.
    3. Compaction of the 500 mm thick lift of wetted sieved till with a 10 tonne smooth drum compactor under the supervision of the QC, who will performed nucleodensimeter testing.

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- Regarding the LLDPE geomembrane installation on SD5, two panels are still missing to complete the SD5's surface. It has been mentioned that it might be possible to let it this way for this year and resume the LLDPE geomembrane placement on the 2018 construction season. More news to come within the next days.
- Because of the bad weather (little rain), no fusion and extrusion seaming is possible for the day. ZTG jumped on CD for the geotextile placement.
- It is planned that a "tramack hammer" will be on SD3 this afternoon in order to break the frozen soil and thus excavate a channel between the old sump and the new sump.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
	■

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
	■

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Downstream	■ Excavation of the blasted material of the sump. ■ Excavation of the channel between the old and the new sump with the "tramack hammer" and the excavator.
Water management	■ Water is being pumped out of the old sump.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
Geotextile and LLDPE installation	■ Installation of the geotextile on the upstream slope 2H:1V between El. 143 m and 145 m from Sta. 0+095 to 0+165 m. The geotextile surface was inspected and is ready for being covered with the LLDPE geomembrane.

5.0 FOUNDATION APPROVAL

No foundation approval was done during the reporting period.

Table 5: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 6 and 7 present the samples collected or tested by the QA and QC as well as PNG field results.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
SD3-010	2017-09-08	2017-09-27	Sieved till	(as placed) Sta. 20+644 m/o.s. -45.6 m, El. 139.0 m	Gradation + water content	Sandy part is little too fine, but compliant. W: 6,7%

7.0 PHOTOGRAPH



Photograph SD3-287: From 20+575/-10 looking SW. Excavation of the channel between the old and the new sump with the "tramack hammer" and an excavator from 20+580 to 20+620 m /o.s. -45 m.



Photograph CD-1784: From 0+090/-38 looking S. View of the placed geotextile on CD from El. 143 to 145 m from Sta. 0+095 to 0+165 m. No LLDPE geomembrane has been installed because of the rain.

QA DAILY REPORT

DATE September 29th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR SEPTEMBER 28TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around -5°, cloudy.

2.0 HEALTH AND SAFETY

- Winter is coming; it was reminded to wear the proper clothes and take time to warm yourself up when needed.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The work on SD3's sump is almost done. The dewatering foreman will go on-site and verify if the pad for the pump of the sump is well located.
- The QA Manager reminded that a foundation approval is required for the section of the bedrock where will lay the compacted till (0-150 mm) and the granular protection (fine/coarse filters and fine rockfill). These foundation approvals concern SD4 and SD5. Regarding CD, the compacted till (0-150 mm) and the granular protection will end on the natural ground.
- Stéphane Côté (ZTG's foreman) suggested an idea that could allow AEM to save time and money about the geosynthetics installation for the next year.

  When it will be time to lift up the filters over the existing LLDPE geomembrane on the upstream slope of CD, place a layer of geotextile over the LLDPE geomembrane and make sure to extend it at least 1.0 m down the slope, then place the fine filter over as usual. When it will be time to install the geosynthetics, the extended portion of geotextile will be flipped over and seamed to the usual geotextile that it is installed over the fine filter surface, just before the LLDPE geomembrane (see the sketch attached).

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According to Stéphane Côté, this modification would help to limit the spread of fine filter on the existing LLDPE geomembrane (less clean-up while installing) and would give better results as the extrusion seam would be straighter.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Geotextile and LLDPE installation	■ Completion of the extrusion seaming on the LLDPE geomembrane from Sta. 40+620 to 40+685 m. ■ Destructive test was carried out on sample collected on the LLDPE geomembrane at Sta. 40+620 m. Loads at failure in peel and shear were greater than minimum values presented in Table 6-2 from Technical Specifications. Sample was kept for the Owner's Representative. ■ AM and PM calibration results met Technical Specifications. Loads at failure in peel and shear were greater than minimum values presented in Table 6-2 from Technical Specifications. ■ Vacuum box tests were performed from Sta. 40+620 à 40+685 m. No leak has been identified.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream toe liner tie-in	■ Placement of the second 0.5 m thick lift of sieved till of the upstream toe liner tie-in on the western part of SD4 from Sta. 40+100 to 40+120 m/o.s. -23 to -41 m. A compaction attempt was done with a 10 tonne smooth drum compactor under the supervision of the QC. The compaction has been postponed to tomorrow given that the sieved till was too wet.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Downstream	■ Construction of the pad of the pump at SD3's sump. ■ Sloping of the south ditch of the downstream dike toe of SD3 with an excavator.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
	■

5.0 FOUNDATION APPROVAL

No foundation approval was done during the reporting period.

Table 5: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 6 and 7 present the samples collected or tested by the QA and QC as well as PNG field results.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
SD3-010	2017-09-08	2017-09-27	Sieved till	(as placed) Sta. 20+644 m/o.s. -45.6 m, El. 139.0 m	Gradation + water content	Sandy part is little too fine, but compliant. W: 6,7%

7.0 PHOTOGRAPH



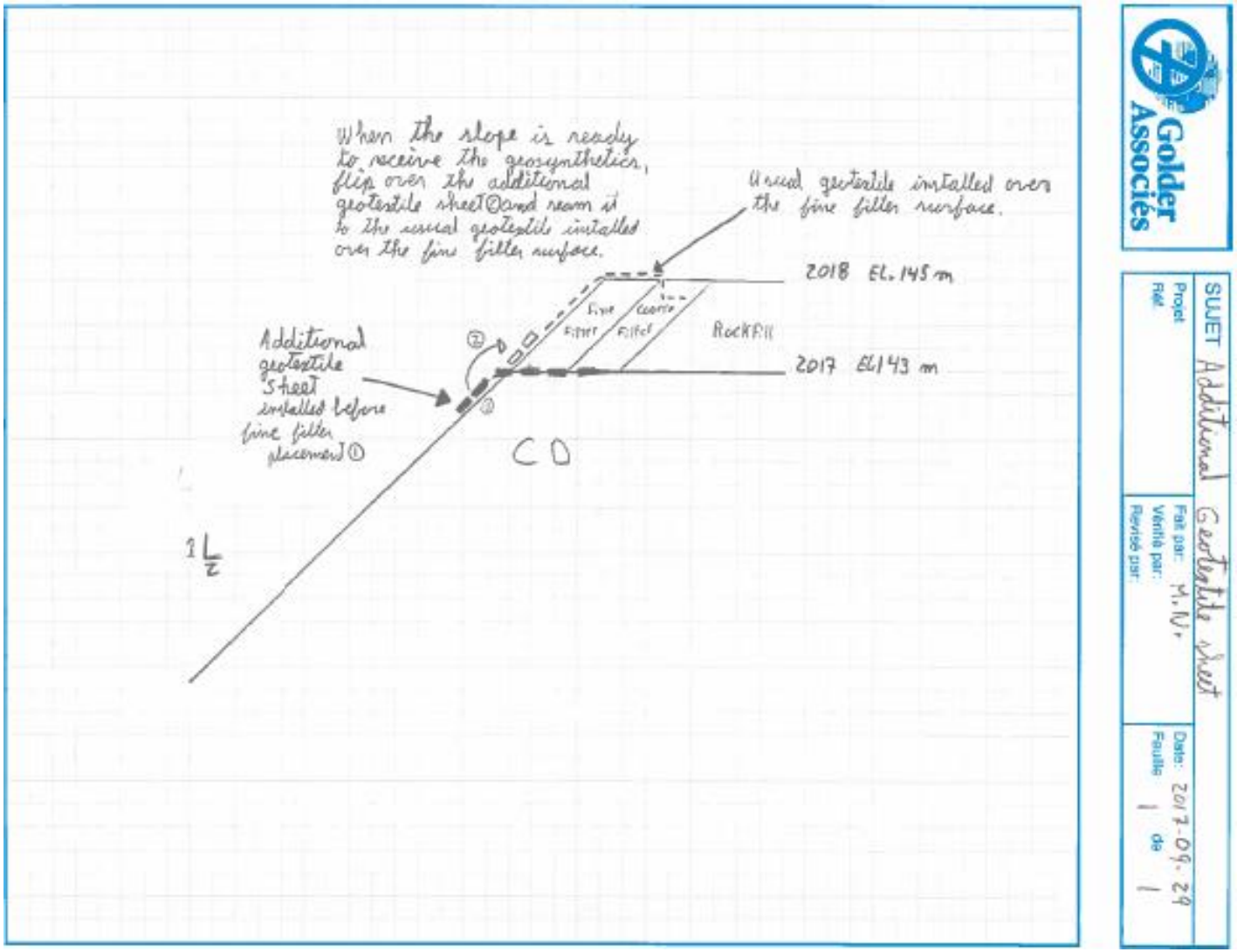
Photograph SD5-080: From 40+635/-27 looking W. View of the vacuum box testing on SD5 from Sta. 40+620 to 40+685 m. No leak has been detected.



Photograph SD4-189: From 40+120/-23 looking NW. Compaction of the second 0.5 m thick lift of sieved till of the upstream toe liner tie-in with a 10 tonne smooth drum compactor. The compaction has been postponed to tomorrow given that the sieved till was too wet.



Photograph SD3-288: From 20+570/-20 looking NW. View of the new sump at SD3. Notice the channel between the old and the new sump. Also, the excavator doing the slope of the south ditch of the downstream dike toe of SD3.



Golder Associés

SUJET Additional Geotextile sheet
Projet
Réf.
Fait par: M. Nr
Vérifié par:
Revisé par:
Date: 2017-09-29
Feuille 1 de 1

Additional geotextile sheet for the geosynthetics placement of the 2018 construction season.

QA DAILY REPORT

DATE September 30th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR SEPTEMBER 29TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around -5°, snowy to rainy.

2.0 HEALTH AND SAFETY

- It will have a blast at Vault pit at 12h45.
- Winter is coming; it was reminded to wear the proper clothes and take time to warm yourself up when needed.
- It was mentioned that the gap between the Baker road and the SD3's sump is important (few meters) and could be a safety issue. It was then agreed that the information have to be transmitted to those responsible of the road security.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- According to the fluctuating weather and the winter that is coming, it was discussed that the till placement is now the number 1 priority on the construction field. Given that the till has a water content between 6 and 10 %, the QA Manager reminded that the till placement has to be done as much as possible when the temperature is above 0 degrees to ensure the quality of the placement and especially, the compaction.
- Because of the bad weather (snow/rain), no geosynthetics have been installed during the day.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream toe liner tie-in	■ Excavation on the upstream side of SD5 in view of the foundation approval required for the section of the bedrock where will lay the compacted till (0-150 mm) and the granular protection (fine/coarse filters and fine rockfill) from Sta. 40+560 to 40+630 m/o.s. -30 to -50 m.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream toe liner tie-in	■ Excavation on the upstream side of SD4 in view of the foundation approval required for the section of the bedrock where will lay the compacted till (0-150 mm) and the granular protection (fine/coarse filters and fine rockfill) from Sta. 40+390 to 40+440 m/o.s. -36 to -60 m.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Downstream	■ Sloping of the south ditch of the downstream dike toe of SD3 with an excavator.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
	■

5.0 FOUNDATION APPROVAL

One LLDPE geomembrane approval was done during the reporting period.

Table 5: Details of the Foundation/LLDPE Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
LLDPE-SD4-003	SD4	Sta. 40+102 to 40+453 m/o.s. -22 to -36 m.	2017-09-26	Compliant

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 6 and 7 present the samples collected or tested by the QA and QC as well as PNG field results.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
SD4-010	2017-09-02	2017-09-28	Sieved till	(as placed) Sta. 40+430 m/o.s. -30.0 m, El. 144.5 m	Gradation + water content	Sandy part is little too coarse, but accepted.
						W: 7.4%
CD-546	2017-09-07	2017-09-28	Sieved till	(as placed) Sta. 0+100 m/o.s. -18.7 m, El. 144.2 m	Gradation + water content	Sandy part is little too coarse, but accepted.
						W: 6.4%

7.0 PHOTOGRAPH



Photograph SD5-081: From 40+630/-40 looking W. Excavation on the upstream side of SD5 in view of the foundation approval required for the section of the bedrock where will lay the compacted till (0-150 mm) and the granular protection (fine/coarse filters and fine rockfill) from Sta. 40+560 to 40+630 m/o.s. -30 to -50 m..



Photograph SD4-190: From 40+420/-44 looking NW. Excavation on the upstream side of SD4 in view of the foundation approval required for the section of the bedrock where will lay the compacted till (0-150 mm) and the granular protection (fine/coarse filters and fine rockfill) from Sta. 40+390 to 40+440 m/o.s. -36 to -60 m.



Photograph SD3-289: From 20+620/-17 looking SW. Sloping of the south ditch of the downstream dike toe of SD3 with an excavator.

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QA DAILY REPORT

DATE October 1st **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR SEPTEMBER 30TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around -5°, sunny.

2.0 HEALTH AND SAFETY

- It will have a blast at Vault pit at 12h45.
- Winter is coming; it was reminded to wear the proper clothes and take time to warm yourself up when needed.
- A fuel spill occurred yesterday when a haul truck slowly collide with a loader while charging. No injurie or major damage occurred. The spill contained less than 10 liters of fuel. It has been cleaned and a report sent to all concerns.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- In order to move along more quickly with the till placement, the two excavators available on the construction field will be assigned to the task.
- The QA Manager reminded that the till where it had a patch of LLDPE geomembrane on the north part of SD3 still need to be replace. But before, water in the hole has to be pumped out, then fill with till (see photograph attached).
- It was mentioned that before any placement of till, the surface where it will be placed needs to be scarify in order to break the thin frozen layer and ensure a good contact between the different lift of till.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream toe liner tie-in	■ Placement of the first 0.5 m thick lift of till 0-150 mm of the upstream toe liner tie-in from Sta. 40+500 to 40+610 m. The material was compacted with a 10 tonne smooth drum compactor under the supervision of the QC (4 passes).

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
	■

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream	■ Placement of the second 2.0 m thick lift of fine UM rockfill of the protection against erosion over the low quality till on the north part of SD3. The lift was placed with an excavator from Sta. 20+620 to 20+660 m. The material is not compacted yet.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
Geotextile and LLDPE installation	■ Installation of the LLDPE on the upstream slope 2H:1V between El. 143 m and 145 m from sta. 0+095 to 0+160 m. The LLDPE was free of fold and hole. Seam tests were carried out under the supervision of the QA Engineer and results met Technical Specifications. ■ Extrusion seam was performed from Sta. 0+140 to 0+160 m to seam the existing and the new LLDPE geomembrane. ■ Vacuum box tests were performed from Sta. 0+140 to 0+160 m. No leak has been identified. ■ No horizontal seam was made on the LLDPE installed on the upstream 2H:1V slope at CD.

Activity or Area	Comments
	■ AM and PM calibration results met Technical Specifications. Loads at failure in peel and shear were greater than minimum values presented in Table 6-2 from Technical Specifications. ■ Destructive test was carried out on sample collected on the LLDPE geomembrane at Sta. 0+130 m. Loads at failure in peel and shear were greater than minimum values presented in Table 6-2 from Technical Specifications. Sample was kept for the Owner's Representative. ■ Backfilling of the geosynthetics tie-in from Sta. 0+095 to 0+160 m. The material is not compacted yet.
Upstream toe liner tie-in	■ Placement of the second 0.5 m thick lift of sieved till of the upstream toe liner tie-in from 40+100 to 40+140 m/o.s. -24 to -34 m. The material was compacted with a 10 tonne smooth drum compactor under the supervision of the QC, but not finished yet. The material was tested with PNG.

5.0 FOUNDATION APPROVAL

One LLDPE geomembrane approval and three foundation approvals were done during the reporting period.

Table 5: Details of the Foundation/LLDPE Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
LLDPE-SD5-003	SD5	Sta. 40+561 to 40+683 m/o.s. -22 to -33 m	2017-09-30	Compliant
FND-SD5-18	SD5	To come	2017-09-30	Compliant
FND-SD4-35	SD4	Sta. 40+094 to 40+117 m/o.s.-33 to -54 m	2017-09-30	Compliant
FND-SD4-36	SD4	Sta. 40+390 to 40+448 m/o.s. -34 to -59 m	2017-09-30	Compliant

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 6 and 7 present the samples collected or tested by the QA and QC as well as PNG field results.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

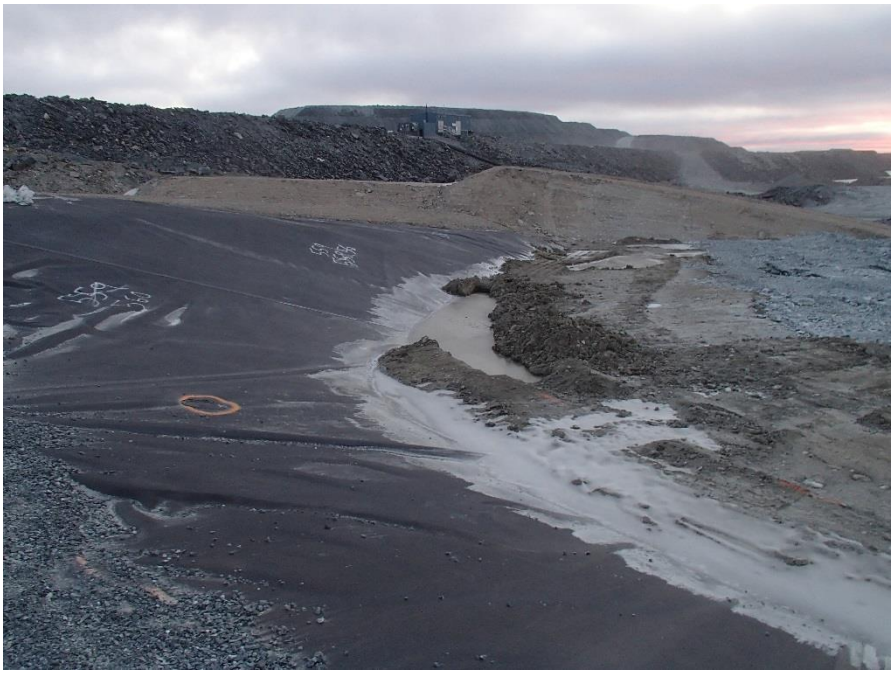
Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD5-082: From 40+630/-25 looking W. Placement of the first 0.5 m thick lift of till 0-150 mm of the upstream toe liner tie-in from Sta. 40+500 to 40+610 m. The 10 tonne smooth drum compactor is compacting the material (4 passes).



Photograph SD3-290: From 20+620/-40 looking NE. View of the hole in the sieved till that was dig for the LLDPE geomembrane repair. The water in the hole will have to be pumped out before any placement of sieved till.



Photograph CD-1785: From 0+160/-23 looking N. View of the placed LLDPE geomembrane on the north part of CD. Notice the excavator placing the second 0.5 m thick lift of sieved till.



Photograph CD-1786: From 0+080/-36 looking S. View of the excavator placing the second 0.5 m thick lift of sieved till of the upstream toe liner tie-in. The compaction will be done right after the placement under the supervision of the QC with a nucleodensimeter.

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QA DAILY REPORT

DATE October 2nd **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR OCTOBER 1ST, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 0°, sunny.

2.0 HEALTH AND SAFETY

- It will have a blast at Vault at 12h45
- A spill occurred yesterday (around 50 L) with a haul truck (a hose broke). The spill got cleaned and report sent to all concerns.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QA Manager asked SANA for the daily quantities. It has been 3 days since the last update. The QA Manager mentioned that this information is really important for the sampling frequency of the material, and if the information does not come soon, the placement of the 0-150 mm till will have to wait.
- It has been mentioned that large particles of UM rockfill (>500 mm) are present on the second lift of the granular protection on the north part of SD3. Given that the maximum particle size should be 500 mm, it might be possible that an excavator will be assigned to sort those large particles.
- The QC mentioned that 6 passes of the 10 tonne smooth drum compactor is needed to reach the desired level of compaction with the sieved till (0-50 mm).
- The geosynthetics installation for the 2017 construction season is officially completed. All of the geosynthetics have been tested and approved by the ZTG's QC, QA Manager and Owner's representative.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream toe liner tie-in	■ Placement of the 0.5 m thick lift of finer filter of the granular protection with an excavator from Sta. 40+560 to 40+600 m. The material was compacted with the bucket (slope only). ■ Placement of the first 0.5 m thick lift of the till 0-150 mm of the upstream toe liner tie-in with an excavator from Sta. 40+610 to 40+625 m. The material was compacted with a 10 tonne smooth drum compactor (6 passes)

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
	■

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Downstream	■ Placement of the second 2.0 m thick lift of fine UM rockfill up to El. 142 m over the low quality till on the north extremity of SD3 from 20+620 to 20+660 m/o.s. -37 to -78 m.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
Upstream toe liner tie-in	■ Correction of the second 0.5 m thick lift of sieved till of the upstream toe liner tie-in by adding a 200 mm thick lift of sieved till with an excavator from Sta. 40+100 to 40+140 m/o.s. -24 to -34 m. The compaction was then completed under the supervision of the QC with a PNG. Results met Technical Specifications (see table 6)

5.0 FOUNDATION APPROVAL

No foundation approval was done during the reporting period.

Table 5: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 6 and 7 present the samples collected or tested by the QA and QC as well as PNG field results.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
#5 (PNG)	2017-10-01	2017-10-01	Compacted Sieved till	CD (in place) 0+138.0/-36.3 m EL. 142.7 m	Dry density	2140
					Water content (PNG)	8.7%
#6 (PNG)	2017-10-01	2017-10-01	Compacted Sieved till	CD (in place) 0+128.7/-35.6 m EL. 143.2 m	Dry density	2159
					Water content (PNG)	7.9%
#7 (PNG)	2017-10-01	2017-10-01	Compacted Sieved till	CD (in place) 0+121.1/-33.5 m EL. 143.5 m	Dry density	2210
					Water content (PNG)	7.2%

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD5-083: From 40+635/-25 looking W. View of the placed material on SD5 from Sta. 40+560 to 40+625 m : sieved till (0-50 mm), till (0-150 mm) and fine filter.



Photograph SD3-291: From 20+680/-42 looking N. Placement of the second 2.0 m thick lift of fine UM rockfill up to El. 142 m over the low quality till on north extremity of SD3 from 20+620 to 20+660 m/o.s. -37 to -78 m.



Photograph CD-1787 From 0+080/-36 looking S. View of the second 0.5 m thick lift of compacted sieved till of the upstream toe liner tie-in of CD from Sta. 40+100 to 40+140 m/o.s. -24 to -34 m.

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QA DAILY REPORT

DATE October 3rd **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR OCTOBER 2ND, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around 0°, cloudy and snowy.

2.0 HEALTH AND SAFETY

- It was reminded to clean your mirrors and always make sure to verify your blind spot when you drive reverse.
- Because of the recent snow/rain, the ground surface is very slippery. Care must be taken when driving/walking on site.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- Regarding the till placement, the QA Manager mentioned that the thin layer of ice present on the top of the existing till layer has to be removed with an excavator before further till placement.
- It was discussed that the south part of SD3 needs to be completed up to El.142 m by the end of the construction season. Thus, the till plug and the granular protection have to be completed before the placement of the granular protection against the water (up to El. 142 m).
- The 0-150 mm till has an important moisture and is difficult to compact. The QC representative tested the water content with the PNG in the stockpile at Pit E5 and found 9.6% water content. Measurements were taken on the 0-150 mm till lift placed at Central Dike and readings ranged from 7.9 to 14%. Compaction will be done tomorrow if the moisture allows.
- The QA Manager noticed than a small stockpile of fine filter left on the granular protection on the West extremity of SD4 still needs to be moved.

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- The articulated trucks supplying 0-150 mm till at Central Dike have formed tracks on the first lift of compacted sieved till. The tracks were mostly located outside of the liner tie-in limit (5 m) and were evened out by the bucket of the excavator before placement of the next lift.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream toe liner tie-in	■ Placement of the first 0.5 m thick lift of sieved till over the LLDPE with an excavator from Sta. 40+550 to 40+560 m. The material has not been compacted yet. ■ Placement of a first 0.5 m thick lift of 0-150 mm till along the sieved till layer with an excavator from Sta. 40+550 to 40+560 m. The material has not been compacted yet.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
	■

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
	■

Table 4: QA Observations for Central Dike

Activity or Area	Comments
Upstream toe liner tie-in	■ Removal of the thin frozen layer present on the top of the second 0.5 m thick lift of sieved till. ■ Placement of the first 0.5 m thick lift of 0-150 mm till of the upstream toe liner tie-in from 0+100 to 0+150 m (o.s. -36 to -28 m). The lift will be compacted tomorrow if possible.

5.0 FOUNDATION APPROVAL

Two foundation approval were done during the reporting period.

Table 5: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
FND-SD5-18	SD5	Sta. 40+541 to 40+623 m/o.s. -27 to -50 m	2017-09-30	Compliant
LLDPE-CD-30	CD	Sta. 0+096 to 0+157 m/o.s. -20 to -28 m	2017-10-01	Compliant

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 6 and 7 present the samples collected or tested by the QA and QC as well as PNG field results.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD5-084: From 40+625/-25 looking W. Placement of the first 0.5 m thick lift of sieved till over the LLDPE geomembrane with an excavator from 40+550 to 40+560 m.



Photograph CD-1788: From 0+160/-23 looking N. Removal of the thin frozen layer present on the top of the second 0.5 m thick lift of sieved till on the north part of CD.



Photograph CD-1789: From 0+100/-34 looking W. Placement of the first 0.5 m thick lift of till (0-150 mm) of the upstream toe liner tie-in from 0+100 to 0+150 m (o.s. -36 to -28 m). Notice the truck tracks on the compacted sieved till lift.

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QA DAILY REPORT

DATE October 4th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR OCTOBER 3RD, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around -2°, cloudy and snowy.

2.0 HEALTH AND SAFETY

- Blasting is planned at 12:45 in Pit E.
- Strong winds and snow: keep good radio communication, stay visible and apply caution when driving or walking on icy surfaces.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- It was decided with AEM and SANA that given the issue posed by the overly moist 0-150 mm till, all the upstream toe liner tie-in will be completed with 0-50 mm sieved till only. The stockpile of 0-50 mm till at the SANA crusher site obtained by sieving earlier in the season will provide the required quantities to complete all the dikes. The QC representative will continue to monitor the sieved till moisture during placement and the sieved till lifts will be compacted with 6 passes of a 10 tonne smooth-drum compactor.
- It was reiterated that the till lifts need to be compacted at the end of each shift before the till freezes. If a frozen layer is present on the surface of the lift, it must be removed before compaction or placement of the subsequent lift.
- The QA Manager indicated that the surface of the till lifts have cracked and thus scarification is needed to ensure a good contact with the next lift of sieved till.

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- The QA Manager reiterated that a minimum thickness of 2.0 m of material is required above the LLDPE liner before the excavator can circulate over it. Only the compactor is allowed on the second 0.5 m thick till lift above the liner, corresponding to the minimum thickness of 1.0 m over the liner.
- PNG tests #5, #6 and #7 have been re-identified #31, #32 and #33 respectively.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream toe liner tie-in	■ Placement of the first 0.5 m thick lift of sieved till over the LLDPE liner with an excavator from Sta. 40+560 to 40+610 m (o.s. -37 to -28 m). The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (6 passes). ■ Placement of the 0.5 m thick lift of sieved till over the LLDPE liner on the upstream slope of SD5 with an excavator from Sta. 40+610 to 40+675 m. The lift was compacted with the bucket of the excavator. ■ Placement of the 0.5 m thick lift of fine filter on the upstream slope of the upstream toe liner tie-in from Sta. 40+560 to 40+630 m.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
	■

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
	■

Table 4: QA Observations for Central Dike

Activity or Area	Comments
Upstream toe liner tie-in	■ Removal of the 0.5 m thick lift of overly wet 0-150 mm till on the upstream toe liner tie-in from 0+100 to 0+150 m (o.s. -36 to -28 m) and loading of the excavated material.

Activity or Area	Comments
	■ Placement of the second 0.5 m thick lift of sieved till of the upstream toe liner tie-in from 0+100 to 0+150 m (o.s. -36 to -28 m). The lift was compacted with a 10 tonne smooth-drum compactor without vibrations (6 passes). ■ Placement of the third 0.5 m thick lift of sieved till of the upstream toe liner tie-in from 0+100 to 0+150 m (o.s. -40 to -25 m). The lift was compacted with a 10 tonne smooth-drum compactor without vibrations (6 passes). ■ Completion of the 0.5 m thick lift of sieved till over the LLDPE liner on the upstream slope of Central Dike with an excavator from Sta. 0+100 to 0+150 m. The lift was compacted with the bucket of the excavator. ■ The till placement on the upstream toe liner tie-in of Central Dike is now complete.

5.0 FOUNDATION APPROVAL

No foundation approval was done during the reporting period.

Table 5: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 6 and 7 present the samples collected or tested by the QA and QC as well as PNG field results.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
#34 (PNG)	2017-10-03	2017-10-03	Compacted sieved till	SD5 (in place) 40+570.2/-34.0 m EL. 144.7 m	Dry density	2067
					Water content (PNG)	10.1%
#35 (PNG)	2017-10-03	2017-10-03	Compacted sieved till	SD5 (in place) 40+581.3/-36.6 m EL. 143.9 m	Dry density	2036
					Water content (PNG)	9.8%
#36 (PNG)	2017-10-03	2017-10-03	Compacted sieved till	SD5 (in place) 40+600.0/-35.5 m EL. 144.23 m	Dry density	2053
					Water content (PNG)	9.4%
#37 (PNG)	2017-10-03	2017-10-03	Compacted sieved till	SD5 (in place) 40+614.7/-36.3 m EL. 143.9 m	Dry density	2080
					Water content (PNG)	7.7%

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD5-085: From 40+620/-21 looking E. Placement of the first 0.5 m thick lift of sieved till over the LLDPE with an excavator from Sta. 40+560 to 40+610 m (o.s. -37 to -28 m).



Photograph SD5-086: From 40+610/-34 looking S. Placement of the 0.5 m thick lift of sieved till over the LLDPE on the upstream slope of SD5 with an excavator from Sta. 40+610 to 40+675 m.



Photograph SD5-087: From 40+580/-42 looking S. Placement of the 0.5 m thick lift of fine filter on the upstream slope of the upstream toe liner tie-in from Sta. 40+560 to 40+630 m.



Photograph CD-1790: From 0+140/-23 looking N. Removal of the lift of overly wet 0-150 mm till on the upstream toe liner tie-in from 0+100 to 0+150 m (o.s. -36 to -28 m).



Photograph CD-1791: From 0+150/-23 looking NE. Placement of the second 0.5 m thick lift of sieved till of the upstream toe liner tie-in from 0+100 to 0+150 m (o.s. -36 to -28 m).

QA DAILY REPORT

DATE October 5th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR OCTOBER 4TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around -3°, cloudy and snowy with strong winds.

2.0 HEALTH AND SAFETY

- Blasting is planned at 18:30 in Pit E.
- Strong winds and snow: keep good radio communication, stay visible and apply caution when driving or walking on icy surfaces.
- Coactivity is expected of the next days around Saddle Road.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- Remaining stockpiles of 0-6'' and fine rockfill will be used for rockfill protection placement on SD3, as they are compliant with the required gradation.
- Teranap panels will be installed on the open end of the LLDPE liner on SD5, at the junction with Central Dike, in order to protect it from the wind.
- The frozen surface (approx. 15 cm thick) of the first lift of compacted sieved till outside the LLDPE liner footprint on SD4 was removed. A patch of hard frozen till was left in place at the extremity of the lift, at the junction with the existing toe liner tie-in (approx. Sta. 40+410 m), as it was too hard to remove without risking damaging the nearby liner.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream toe liner tie-in	■ Placement of the 0.5 m thick lift of coarse filter on the upstream slope of the upstream toe liner tie-in from Sta. 40+560 to 40+630 m, up to the first 0.5 m thick sieved till lift in place above the LLDPE liner.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream toe liner tie-in	■ Removal of the frozen till layer from Sta. 40+410 to 40+450 m (o.s. -39 to -29 m) of the bedding of the LLDPE liner. The till has been replaced with new sieved till and compacted with a 10 tonne smooth-drum compactor with vibrations (6 passes). The compaction was tested with PNG and met the Specifications (see Table 6). ■ Placement of the first 0.5 m thick lift of sieved till over the LLDPE liner with an excavator from Sta. 40+410 to 40+450 m (o.s. -39 to -24 m). The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (6 passes). Testing of the compaction with PNG is ongoing and will be completed tomorrow.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
	■

Table 4: QA Observations for Central Dike

Activity or Area	Comments
	■

5.0 FOUNDATION APPROVAL

No foundation approval was done during the reporting period.

Table 5: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 6 and 7 present the samples collected or tested by the QA and QC as well as PNG field results.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
380	2017-10-04		Fine filter	SD5 (in place) 40+610/-37 m		
#38 (PNG)	2017-10-04	2017-10-04	Compacted sieved till	SD4 (in place) 40+416.0/-38.3 m EL. 143.1 m	Dry density	1982
					Water content (PNG)	8.9%
#39 (PNG)	2017-10-04	2017-10-04	Compacted sieved till	SD4 (in place) 40+423.9/-36.5 m EL. 143.9 m	Dry density	2060
					Water content (PNG)	8.5%
#40 (PNG)	2017-10-04	2017-10-04	Compacted sieved till	SD4 (in place) 40+419.2/-35.4 m EL. 144.08 m	Dry density	2043
					Water content (PNG)	8.0%

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD5-088: From 40+550/-30 looking SE. Placement of the 0.5 m thick lift of coarse filter on the upstream slope of the upstream toe liner tie-in from Sta. 40+560 to 40+630 m.



Photograph SD4-191: From 40+385/-18 looking S. Removal of the frozen till layer from Sta. 40+410 to 40+450 m (o.s. -39 to -29 m).



Photograph SD4-192: From 40+410/-29 looking SE. Placement of the first 0.5 m thick lift of sieved till over the LLDPE liner with an excavator from Sta. 40+410 to 40+450 m (o.s. -39 to -24 m).

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QA DAILY REPORT

DATE October 6th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR OCTOBER 5TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around -3°, cloudy with strong winds.

2.0 HEALTH AND SAFETY

- Strong winds and snow: keep good radio communication, stay visible and apply caution when driving or walking on icy surfaces, wear appropriate clothing. Hard hats and other PPE need to be adapted for the strong winds.
- It was reiterated that the use of seat belts in light vehicles is mandatory for everyone, driver and passengers.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- Due to the cold weather, a layer of frozen till (approx. 5 to 15 cm thick) is present on top of each compacted sieved till layer in place at the time of placing the subsequent layer. The QA Manager reiterated that the till layer in place must be scarified before placement of material on top of it to ensure a good contact through the frozen surface between the layers within the till plug.
- Cracks up to 2 cm wide are present in the compacted sieved till surface at the extremity of the till plug on SD4, on the Pig Launcher side (see photograph below). Given that this area is at El. 145 m and that it will not be exposed to water or tailings, the QA Manager and AEM agreed that it was not a concern.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream toe liner tie-in	■ Placement of the 1 m thick lift of fine rockfill on the upstream slope of the upstream toe liner tie-in from Sta. 40+560 to 40+620 m, up to the first 0.5 m thick sieved till lift in place above the LLDPE liner.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream toe liner tie-in	■ Completion of the testing of the compaction of the first lift of compacted sieved till placed yesterday over the LLDPE liner with a PNG. Compaction met the Specifications (see Table 6). ■ Placement of the second 0.5 m thick lift of sieved till over the LLDPE liner with an excavator from Sta. 40+400 to 40+430 m (o.s. -41 to -26 m). The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (6 passes). ■ Placement of the 0.5 m thick lift of sieved till over the LLDPE liner on the upstream slope of SD4 with an excavator from Sta. 40+390 to 40+420 m. The lift will be completed up to its final elevation later when the excavator can access the upper part of the slope. The lift was compacted with the bucket of the excavator. ■ Placement of the third 0.5 m thick lift of sieved till over the LLDPE liner with an excavator from Sta. 40+400 to 40+430 m (o.s. -41 to -22 m). The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (6 passes).

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
	■

Table 4: QA Observations for Central Dike

Activity or Area	Comments
	■

5.0 FOUNDATION APPROVAL

No foundation approval was done during the reporting period.

Table 5: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 6 and 7 present the samples collected or tested by the QA and QC as well as PNG field results.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
380	2017-10-04	2017-10-05	Fine filter	SD4 (in place) 40+610/-37 m	Gradation	Compliant
					Water content	3.2 %
#41 (PNG)	2017-10-05	2017-10-05	Compacted sieved till	SD4 (in place) 40+439.5/-33.9 m EL. 145.1 m	Dry density	2016
					Water content (PNG)	10.0%
440	2017-10-05		Compacted sieved till	SD4 (in place) 40+420/-26 m		

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD5-089: From 40+550/-29 looking SE. Placement of the 1 m thick lift of fine rockfill on the upstream slope of the upstream toe liner tie-in from Sta. 40+560 to 40+620 m.



Photograph SD4-193: From 40+430/-17 looking NE. Placement of the second 0.5 m thick lift of sieved till over the LLDPE liner with an excavator from Sta. 40+400 to 40+430 m (o.s. -41 to -26 m).



Photograph SD4-194: From 40+440/-36 looking SW. View of cracks in the compacted sieved till layer (approx. El. 145 m).

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QA DAILY REPORT

DATE October 7th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR OCTOBER 6TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around -3°, sunny.

2.0 HEALTH AND SAFETY

- Cold weather and ice: apply caution when driving or walking on icy surfaces, wear appropriate clothing.
- It was reiterated that although time is an issue at this stage of the construction, safety must remain the priority.
- A blast is planned at 12:45 at Vault.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The frozen compacted sieved till layer on SD5 has been scarified and left in place before placement of the next lift of sieved till. About only half of the thickness of the frozen layer has been scarified, but it was judged that it still provided a good contact for the subsequent lift of till.
- The patch of LLDPE liner that has been repaired on SD3 at El. 142 m still need to be backfilled with sieved till. The water ponding in the depression is frozen and must be removed. It was discussed with AEM that since this cannot be done at the moment without risking damaging the membrane, the water removing and backfilling will be done during the next construction season after the ice has thawed.
- In the past, compaction of the sieved till lift on the west extremity of SD4 was a challenge due to the compactor being unable to climb up the slope. In order to solve this problem, the compactor was tied to an excavator during compaction of the first and second lifts of sieved till over the LLDPE liner today (see photograph below). SANA health and safety representative (Raphaël Simard) was present during the operation.

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- Error in the Daily Report for October 5: the thickness of the fine rockfill lift on the upstream slope of the upstream toe liner tie-in on SD5 is 1 m and not 0.5 m.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream toe liner tie-in	■ Placement of the 1 m thick lift of fine rockfill on the upstream slope of the upstream toe liner tie-in from Sta. 40+620 to 40+630 m, up to the first 0.5 m thick sieved till lift in place above the LLDPE liner. ■ Scarification of the frozen layer of compacted sieved till from Sta. 40+570 to 40+ 630 m (o.s. -48 to -25 m). ■ Placement of the second 0.5 m thick lift of sieved till over the LLDPE liner with an excavator from Sta. 40+570 to 40+ 630 m (o.s. -48 to -25 m). The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (6 passes) ■ Placement of the third 0.5 m thick lift of sieved till over the LLDPE liner with an excavator from Sta. 40+575 to 40+630 m (o.s. -48 to -25 m). The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (6 passes). ■ The till placement on the upstream toe liner tie-in of SD5 is now complete.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream toe liner tie-in	■ Placement of the 0.5 m thick lift of fine filter on the upstream slope of the upstream toe liner tie-in from Sta. 40+390 to 40+400 m and from Sta. 40+435 to 40+445 m. ■ Placement of the 0.5 m thick lift of fine filter on the upstream toe liner tie-in from Sta. 40+390 to 40+400 m (o.s. -47 to -28 m). The lift has not been compacted yet. ■ Removal of the overly wet sieved till outside of the LLDPE liner footprint on the west extremity of SD4 from Sta. 40+100 to 40+110 m (o.s. -45 to -29 m). ■ Placement of the first 0.5 m thick lift of sieved till over the LLDPE liner with an excavator from Sta. 40+100 to 40+110 m (o.s. -45 to -29 m). The lift was

Activity or Area	Comments
	compacted with a 10 tonne smooth-drum compactor with vibrations (6 passes). The compaction was tested with PNG and met the Specifications (see Table 6). ■ Placement of the second 0.5 m thick lift of sieved till over the LLDPE liner with an excavator from Sta. 40+100 to 40+120 m (o.s. -45 to -28 m). The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (6 passes). ■ Completion of the 0.5 m thick lift of sieved till over the LLDPE liner on the upstream slope of SD4 with an excavator from Sta. 40+380 to 40+390 m. The lift was compacted with the bucket of the excavator. ■ Placement of the 0.5 m thick lift of sieved till over the LLDPE liner on the upstream slope of SD4 with an excavator from Sta. 40+110 to 40+120 m. The lift will be completed up to its final elevation later when the excavator can access the upper part of the slope. The lift was compacted with the bucket of the excavator.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
	■

Table 4: QA Observations for Central Dike

Activity or Area	Comments
	■

5.0 FOUNDATION APPROVAL

No foundation approval was done during the reporting period.

Table 5: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 6 and 7 present the samples collected or tested by the QA and QC as well as PNG field results.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
441	2017-10-06		Compacted sieved till	SD4 (in place) 40+570/-25 m		
#42 (PNG)	2017-10-06	2017-10-06	Compacted sieved till	SD4 (in place) 40+105.5/-36.7 m EL. 143.9 m	Dry density	2119
					Water content (PNG)	7.9%
#43 (PNG)	2017-10-06	2017-10-06	Compacted sieved till	SD4 (in place) 40+111.4/-39.2 m EL. 142.5 m	Dry density	2132
					Water content (PNG)	7.8%

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



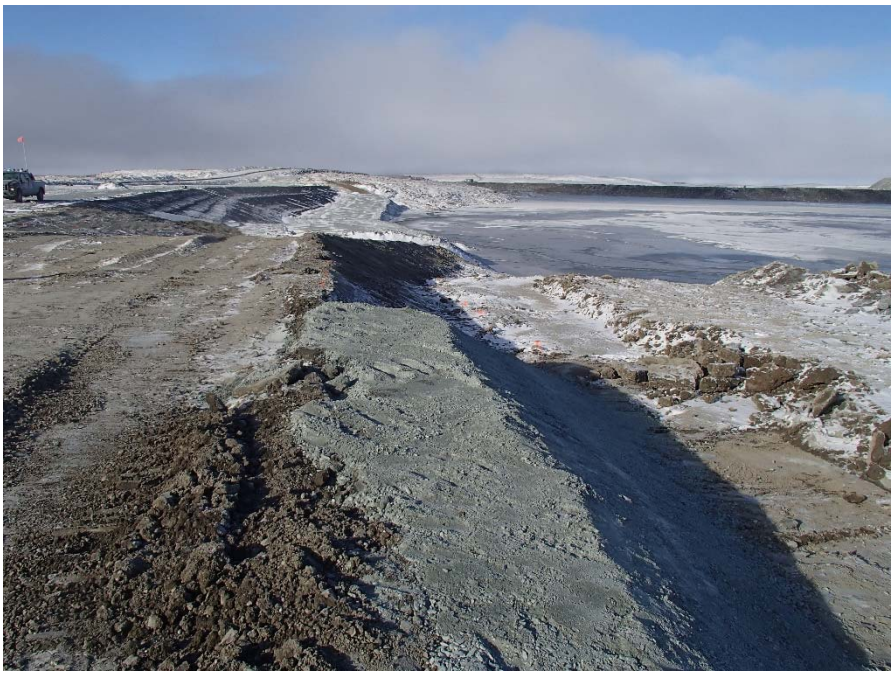
Photograph SD5-090: From 40+605/-31 looking N. Scarification of the frozen layer of compacted sieved till from Sta. 40+570 to 40+ 630 m (o.s. -48 to -25 m).



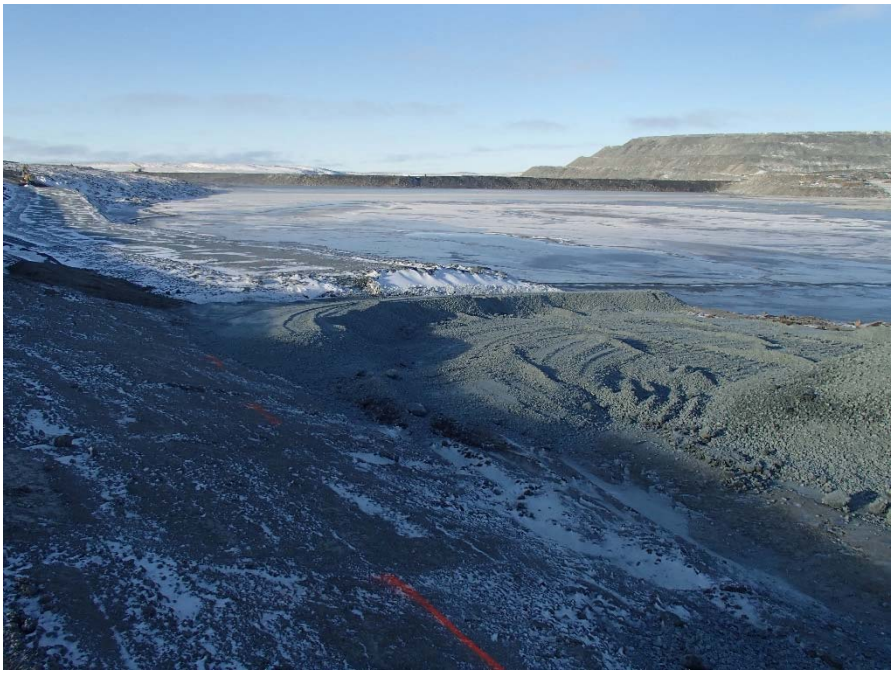
Photograph SD5-091: From 40+605/-31 looking S. Placement of the second 0.5 m thick lift of sieved till over the LLDPE liner with an excavator from Sta. 40+570 to 40+ 630 m (o.s. -48 to -25 m).



Photograph SD4-195: From 40+125/-20 looking N. Compaction of the first 0.5 m thick lift of sieved till over the LLDPE liner with an excavator from Sta. 40+100 to 40+110 m (o.s. -45 to -29 m). Notice the compactor tied to the excavator.



Photograph SD4-196: From 40+450/-33 looking NW. Placement of the 0.5 m thick lift of fine filter on the upstream slope of the upstream toe liner tie-in from Sta. 40+390 to 40+445 m.



Photograph SD4-197: From 40+415/-25 looking NW. Placement of the 0.5 m thick lift of fine filter on the upstream toe liner tie-in from Sta. 40+390 to 40+435 m (o.s. -47 to -32 m).

QA DAILY REPORT

DATE October 8th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR OCTOBER 7TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around -2°, sunny.

2.0 HEALTH AND SAFETY

- Cold weather and ice: apply caution when driving or walking on icy surfaces, wear appropriate clothing.
- A blast is planned at 12:45 at Phaser.
- There is important heavy equipment coactivity on SD4-SD5: personnel on foot must make sure to be visible at all time.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The trucks supplying fine filter material to SD5 leave tracks on the top layer of compacted sieved till at approx. El. 145 m (see photograph). The excavator flattened the layer with its bucket as much as possible.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

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Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream toe liner tie-in	■ Placement of the 0.5 m thick lift of fine filter on the top of the upstream toe liner tie-in from Sta. 40+610 to 40+640 m (o.s. -49 to -25 m). The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (4 passes). ■ Placement of the 0.5 m thick lift of fine filter on the slope of the upstream toe liner tie-in from Sta. 40+560 to 40+640 m. ■ Placement of the 0.5 m thick lift of fine filter over the sieved till protection layer on the upstream slope of SD5 from Sta. 40+610 to 40+640 m. The lift was compacted with the bucket of the excavator. ■ Placement of the 0.5 m thick lift of coarse filter on the top of the upstream toe liner tie-in from Sta. 40+615 to 40+640 m (o.s. -49 to -28 m). The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (4 passes). ■ Placement of the 0.5 m thick lift of coarse filter on the slope of the upstream toe liner tie-in from Sta. 40+560 to 40+640 m. ■ Placement of the 0.5 m thick lift of coarse filter over the fine filter protection layer on the upstream slope of SD5 from Sta. 40+615 to 40+640 m. The lift was compacted with the bucket of the excavator.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream toe liner tie-in	■ Placement of the third 0.5 m thick lift of sieved till over the LLDPE liner with an excavator from Sta. 40+100 to 40+120 m (o.s. -47 to -25 m) after scarification of the previous lift. The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (6 passes). ■ Completion of the 0.5 m thick lift of sieved till over the LLDPE liner on the upstream slope of SD4 with an excavator from Sta. 40+115 to 40+120 m. The lift was compacted with the bucket of the excavator. ■ The till placement on the upstream toe liner tie-in of SD4 is now complete. ■ Placement of the 0.5 m thick lift of fine filter on the top of the upstream toe liner tie-in from Sta. 40+400 to 40+425 m (o.s. -45 to -23 m). The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (4 passes). ■ Placement of the 0.5 m thick lift of fine filter on the slope of the upstream toe liner tie-in from Sta. 40+400 to 40+435 m and from Sta. 40+100 to 40+120 m.

Activity or Area	Comments
	■ Placement of the 0.5 m thick lift of fine filter over the sieved till protection layer on the upstream slope of SD4 from Sta. 40+400 to 40+425 m. The lift was compacted with the bucket of the excavator.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
	■

Table 4: QA Observations for Central Dike

Activity or Area	Comments
	■

5.0 FOUNDATION APPROVAL

No foundation approval was done during the reporting period.

Table 5: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 6 and 7 present the samples collected or tested by the QA and QC as well as PNG field results.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
440	2017-10-05	2017-10-07	Compacted sieved till	SD4 (in place) 40+420/-26 m	Gradation	Compliant
					Water content	9.2 %

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD5-092: From 40+650/-31 looking N. Placement of the 0.5 m thick lift of fine filter on the top of the upstream toe liner tie-in from Sta. 40+610 to 40+640 m (o.s. -49 to -25 m).



Photograph SD5-093: From 40+620/-22 looking NE. View of the truck tracks on the top layer of compacted sieved till (approx. El. 145 m) on SD5.



Photograph SD5-094: From 40+645/-44 looking NW. Placement of the 0.5 m thick lift of coarse filter on the top of the upstream toe liner tie-in from Sta. 40+615 to 40+640 m (o.s. -49 to -28 m).



Photograph SD4-198: From 40+390/-25 looking SE. Placement of the 0.5 m thick lift of fine filter on the top of the upstream toe liner tie-in from Sta. 40+400 to 40+425 m (o.s. -45 to -23 m).



Photograph SD4-199: From 40+150/-23 looking N. Completion of the 0.5 m thick lift of sieved till over the LLDPE liner on the upstream slope of SD4 with an excavator from Sta. 40+115 to 40+120 m.

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QA DAILY REPORT

DATE October 9th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR OCTOBER 8TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around -3°, cloudy to sunny.

2.0 HEALTH AND SAFETY

- Cold weather and ice: apply caution when driving or walking on icy surfaces, wear appropriate clothing.
- A blast is planned at 12:45 at Vault.
- There is important heavy equipment coactivity on SD3 and SD4: personnel on foot must make sure to be visible at all time.
- Work in remote areas: the necessity of JHA and increased caution was reiterated.
- A safety meeting took place at the engineering office to review recent lost-time incidents.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- There was no three-weeks meeting this week.
- The remaining UM rockfill piles on SD3 will be used for the construction of the south cell internal structure. The construction of a UM rockfill pad will be monitored by the QA Manager over the next few days and sampled for future gradations tests by AEM.
- The last till placement was done on SD3 today. The stockpile of sieved till at the SANA crusher site was then sealed until next year's construction season.

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- The QA Manager noticed a small hole in a repair patch on the LLDPE liner on SD3, at approx. Sta. 20+780 m (above El. 142 m).

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream toe liner tie-in	■

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream toe liner tie-in	■ Placement of the 0.5 m thick lift of fine filter over the sieved till protection layer on the upstream slope of SD4 from Sta. 40+110 to 40+130 m. The lift was compacted with the bucket of the excavator. ■ Placement of the 0.5 m thick lift of fine filter on the top of the upstream toe liner tie-in from Sta. 40+105 to 40+120 m (o.s. -47 to -25 m). The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (4 passes). ■ Placement of the 0.5 m thick lift of coarse filter on the top of the upstream toe liner tie-in from Sta. 40+395 to 40+420 m (o.s. -45 to -28 m). The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (4 passes). ■ Placement of the 0.5 m thick lift of coarse filter on the top of the upstream toe liner tie-in from Sta. 40+110 to 40+140 (o.s. -50 to -28 m). The lift has not been compacted yet. ■ Placement of the 0.5 m thick lift of coarse filter on the slope of the upstream toe liner tie-in from Sta. 40+095 to 40+140 m and from Sta. 40+390 to 40+445 m. ■ Placement of the 0.5 m thick lift of coarse filter over the fine filter protection layer on the upstream slope of SD4 from Sta. 40+110 to 40+140 m and from Sta. 40+380 to 40+420 m. The lift was compacted with the bucket of the excavator.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream toe-liner tie-in	■ Placement of the two remaining 0.5 m thick lifts of sieved till on the slope of the upstream toe liner tie-in from Sta. 20+770 to 20+790 m, up to the elevation of the first compacted sieved till layer above the LLDPE (placed last year). ■ Placement of the 0.5 m thick lift of fine filter on the slope of the upstream toe liner tie-in from Sta. 20+770 to 20+790 m, up to the elevation of the first compacted sieved till layer above the LLDPE (placed last year). ■ Placement of the 0.5 m thick lift of coarse filter on the slope of the upstream toe liner tie-in from Sta. 20+770 to 20+790 m, up to the elevation of the first compacted sieved till layer above the LLDPE (placed last year). ■ These 4 lifts were compacted with the bucket of the excavator only, due to their limited extend which was too small for the 10 tonne smooth-drum compactor to traffic over.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
Upstream toe liner tie-in	■ Placement of the 0.5 m thick lift of fine filter on the top of the upstream toe liner tie-in from Sta. 0+115 to 0+155 m (o.s. -40 to -25 m). The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (4 passes). ■ Placement of the 0.5 m thick lift of fine filter on the slope of the upstream toe liner tie-in from Sta. 0+115 to 0+155 m. ■ Placement of the 0.5 m thick lift of fine filter over the sieved till protection layer on the upstream slope of SD4 from Sta. 0+125 to 0+150 m. The lift was terminated at a safe distance of the zone where LLDPE liner will be completed next year. The lift was compacted with the bucket of the excavator. ■ Placement of the 0.5 m thick lift of coarse filter on the top of the upstream toe liner tie-in from Sta. 0+125 to 0+160 m (o.s. -45 to -25 m). The lift has not been compacted yet. ■ Placement of the 0.5 m thick lift of coarse filter on the slope of the upstream toe liner tie-in from Sta. 0+125 to 0+160 m. ■ Placement of the 0.5 m thick lift of coarse filter over the fine filter protection layer on the upstream slope of SD4 from Sta. 0+125 to 0+150 m. The lift was compacted with the bucket of the excavator.

5.0 FOUNDATION APPROVAL

No foundation approval was done during the reporting period.

Table 5: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 6 and 7 present the samples collected or tested by the QA and QC as well as PNG field results.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
442	2017-10-08		Compacted sieved till	SD3 (in place) 20+780/-50 m		

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD4-200: From 40+155/-23 looking N. Placement of the 0.5 m thick lift of fine filter over the sieved till protection layer on the upstream slope of SD4 from Sta. 40+110 to 40+130 m.



Photograph SD4-201: From 40+395/-17 looking SE. Placement of the 0.5 m thick lift of coarse filter on the top of the upstream toe liner tie-in from Sta. 40+395 to 40+420 m (o.s. -45 to -28 m).



Photograph SD3-292: From 20+780/-31 looking NW. View of the hole in the repair patch on SD3 (approx. Sta. 20+780 m).



Photograph SD3-293: From 20+750/-50 looking SE. Placement of the remaining layers of till plug and granular protection on the upstream slope of the upstream toe liner tie-in from Sta. 20+770 to 20+790 m, up to El. 142 m.



Photograph CD-1792: From 0+130/-22 looking W. Placement of the 0.5 m thick lift of fine filter on the top of the upstream toe liner tie-in from Sta. 0+115 to 0+155 m (o.s. -40 to -25 m).



Photograph CD-1793: From 0+165/-27 looking NE. Placement of the 0.5 m thick lift of coarse filter on the top of the upstream toe liner tie-in from Sta. 0+125 to 0+160 m (o.s. -45 to -25 m).

QA DAILY REPORT

DATE October 10th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR OCTOBER 9TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around -3°, sunny.

2.0 HEALTH AND SAFETY

- Cold weather and ice: apply caution when driving or walking on icy surfaces, wear appropriate clothing.
- A blast is planned at 12:45 at Vault.
- There is important heavy equipment coactivity on SD3 and Central Dike: personnel on foot must make sure to be visible at all time.
- It was mentioned that a JHA for working around water (south cell internal structure) has been issued.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- AEM representatives Frédérick Bolduc and Alexandre Lavallée went to inspect the dike construction with the QA Manager and the mine and SANA foremen to identify the remaining tasks to be done before closure of the construction season.
- Blocks larger than 0.5 m will be accepted on the south extremity of the fine rockfill erosion protection layer on SD3 (approx. Sta. 20+750 to 20+790 m), provided there is still a sufficient content of fine particles. This adjustment was decided by AEM, as this section of the protection layer is already shielded from water by the adjacent road material.

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- The SANA foreman left the site today. The surveyor will provide support to the operators until the end of the construction.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream toe liner tie-in	■ Placement of the 1 m thick lift of fine UM rockfill on the slope of the upstream toe liner tie-in from Sta. 40+560 to 40+610 m.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream toe liner tie-in	■ Compaction of the 0.5 m thick lift of coarse filter on the top of the upstream toe liner tie-in from Sta. 40+110 to 40+140 (o.s. -50 to -28 m) with a 10 tonne smooth-drum compactor with vibrations (4 passes). ■ Placement of the 1 m thick lift of fine UM rockfill on the slope of the upstream toe liner tie-in from Sta. 40+095 to 40+130 m.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream	■ Placement of a 1 m thick, 2 m high lift of fine UM rockfill of the erosion protection over the low quality till from Sta. 20+735 to 20+780 m (o.s. -63 to 46 m). The lift has not been compacted yet.

Table 4: QA Observations for Central Dike

Activity or Area	Comments
Upstream toe liner tie-in	■ Compaction of the 0.5 m thick lift of coarse filter on the top of the upstream toe liner tie-in from Sta. 0+125 to 0+160 m (o.s. -45 to -25 m) with a 10 tonne smooth-drum compactor with vibrations (4 passes). ■ Placement of the 1 m thick lift of fine UM rockfill on the top of the upstream toe liner tie-in from Sta. 0+130 to 0+175 m (o.s. -47 to -29 m). The lift was terminated at a distance of the slope where the LLDPE liner will be completed next year, to keep the area clear. The lift has not been compacted yet.

Activity or Area	Comments
	■ Placement of the 1 m thick lift of fine UM rockfill on the slope of the upstream toe liner tie-in from Sta. 0+115 to 0+175 m.

5.0 FOUNDATION APPROVAL

No foundation approval was done during the reporting period.

Table 5: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 6 and 7 present the samples collected or tested by the QA and QC as well as PNG field results.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
441	2017-10-06	2017-10-09	Compacted sieved till	SD4 (in place) 40+570/-25 m	Gradation	Compliant
					Water content	8.9 %
442	2017-10-08	2017-10-09	Compacted sieved till	SD3 (in place) 20+780/-50 m	Gradation	Compliant
					Water content	9.5 %

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD3-294: From 20+615/-60 looking SW. Placement of the 1 m thick, 2 m high lift of fine UM rockfill from Sta. 20+735 to 20+780 m (o.s. -63 to 46 m).



Photograph CD-1794: From 0+175/-37 looking E. Placement of the 1 m thick lift of fine UM rockfill on the top of the upstream toe liner tie-in from Sta. 0+130 to 0+175 m (o.s. -47 to -29 m). Notice the gap left to keep a distance from the zone of LLDPE to be completed.

QA DAILY REPORT

DATE October 11th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR OCTOBER 10TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around -5°, cloudy.

2.0 HEALTH AND SAFETY

- Cold weather and ice: apply caution when driving or walking on icy surfaces, wear appropriate clothing.
- A blast is planned at 18:30 in Pit E.
- There is important heavy equipment coactivity on SD4 and SD5: personnel on foot must make sure to be visible at all time.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- One of the two shovels on the dikes went to SD3 to break the ice of the south cell for the construction of the south cell internal structure before going back to SD5. As a result, there were delays in rockfill placement.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Golder Associés Ltée
7250, Rue Du Mile End, 3ème étage, Montréal (Québec) H2R 3A4
Tel: +1 (514) 383-0990 Fax: +1 (514) 850-2401 www.golder.com

Golder Associates: Operations in Africa, Asia, Australasia, Europe, North America and South America

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Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream toe liner tie-in	■ Placement of the 1 m thick lift of fine UM rockfill on the slope of the upstream toe liner tie-in from Sta. 40+610 to 40+650 m. ■ Placement of the 1 m thick lift of fine UM rockfill on the top of the upstream toe liner tie-in from Sta. 40+610 to 40+650 m (o.s. -47 to -30 m). The lift has not been compacted yet.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream toe liner tie-in	■ Placement of the 1 m thick lift of fine UM rockfill on the top of the upstream toe liner tie-in from Sta. 40+105 to 40+130 m (o.s. -47 to -28 m) and from Sta. 40+380 to 40+420 m (o.s. -51 to -30 m). The lift was only compacted from Sta. 40+105 to 40+130 m (o.s. -47 to -28 m) with a 10 tonne smooth-drum compactor with vibrations (6 passes). ■ Placement of the 1 m thick lift of fine UM rockfill on the slope of the upstream toe liner tie-in from Sta. 40+385 to 40+445 m.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream	■ Compaction of the 1 m thick, 2 m high lift of fine UM rockfill of the erosion protection over the low quality till from Sta. 20+735 to 20+780 m with a 10 tonne smooth-drum compactor with vibrations (8 passes), and from 20+620 to 20+660 m (6 passes).

Table 4: QA Observations for Central Dike

Activity or Area	Comments
	■

5.0 FOUNDATION APPROVAL

No foundation approval was done during the reporting period.

Table 5: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 6 and 7 present the samples collected or tested by the QA and QC as well as PNG field results.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD4-202: From 40+170/-24 looking N. Placement of the 1 m thick lift of fine UM rockfill on the top of the upstream toe liner tie-in from Sta. 40+105 to 40+130 m (o.s. -47 to -28 m).



Photograph SD3-295: From 20+620/-73 looking SW. Compaction of the 1 m thick, 2 m high lift of fine UM rockfill of the erosion protection over the low quality till from 20+620 to 20+660 m (6 passes).

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QA DAILY REPORT

DATE October 11th **REFERENCE No.** Doc 1566 1777687 Rev 0

TO Patrice Gagnon, Alexandre Lavallée
AEM

CC Pierre McMullen, Michel Groleau, Frédérick Bolduc, Yves Boulianne

FROM Marion Habersetzer **EMAIL** mhabersetzer@golder.com

QA DAILY REPORT FOR OCTOBER 11TH, 2017 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1777687)

1.0 WEATHER

- Temperature around -5°, cloudy to snowy.

2.0 HEALTH AND SAFETY

- Cold weather and ice: apply caution when driving or walking on icy surfaces, wear appropriate clothing.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- A debriefing session took place with the construction team and AEM this morning to review the construction season. The construction globally went very well despite potential for improvement in the planning. All parties involved were satisfied with the outcome.
- The construction of SD3, SD4, SD5 and the north abutment of Central Dike is now complete for 2017. The QA Manager did a final inspection of the dikes.
- The QC representative left the site today, and the QA Manager will leave the site tomorrow (October 12).

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Golder Associés Ltée
7250, Rue Du Mile End, 3ème étage, Montréal (Québec) H2R 3A4
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Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream toe liner tie-in	■ Compaction of the 1 m thick lift of fine UM rockfill on the top of the upstream toe liner tie-in from Sta. 40+610 to 40+650 m (o.s. -47 to -30 m) with a 10 tonne smooth-drum compactor with vibrations (6 passes).

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream toe liner tie-in	■ Compaction of the 1 m thick lift of fine UM rockfill on the top of the upstream toe liner tie-in from Sta. 40+380 to 40+420 m (o.s. -51 to -30 m) with a 10 tonne smooth-drum compactor with vibrations (6 passes).

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
	■

Table 4: QA Observations for Central Dike

Activity or Area	Comments
Upstream toe liner tie-in	■ Compaction of the 1 m thick lift of fine UM rockfill on the top of the upstream toe liner tie-in from Sta. 0+130 to 0+175 m (o.s. -47 to -29 m) with a 10 tonne smooth-drum compactor with vibrations (6 passes).

5.0 FOUNDATION APPROVAL

No foundation approval was done during the reporting period.

Table 5: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 6 and 7 present the samples collected or tested by the QA and QC as well as PNG field results.

Table 6: Sample taken by the QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

Table 7: Sample taken by the QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPH



Photograph SD5-095: From Sta. 40+610/-37 looking S. View of SD5 at the end of the 2017 construction phase.



Photograph SD4-203: From Sta. 40+405/-46 looking NW. View of SD4 at the end of the 2017 construction phase.



Photograph SD3-296: From Sta. 20+600/-41 looking SW. View of SD3 at the end of the 2017 construction phase.



Photograph CD-1795: From Sta. 0+075/-28 looking W. View of Central Dike at the end of the 2017 construction phase.

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APPENDIX F - QC DAILY REPORTS

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 28-Jun-17 Inspector - Day/Night: Hugues Potvin, day

Weather : Sunny

Project: Saddle dams 3,4 and 5 Contractor: GHD

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): bedrock cleaning at SD-5

General Activities: see work in progress

Soft Sediment Excavation	☐	Key Excavation	☐	Coarse Filter	☐	Drilling/Blasting	☐
Foundation Preparation	☐	LLDPE/Geotextile	☐	Till	☐		
Water Control	☐	Fine Filter	☐	Rockfill	☐		

Description:

Bedrock cleaning from ch. 40+740 (begin 2017-06-26) at ch 40+536. Average of 20 meter width (see sketch join to the report).

Presence of water between ch 40+740 and ch 40 + 724 appoximatively (see sketch). At the other place the cleaning seems ok.

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345

Manpower:

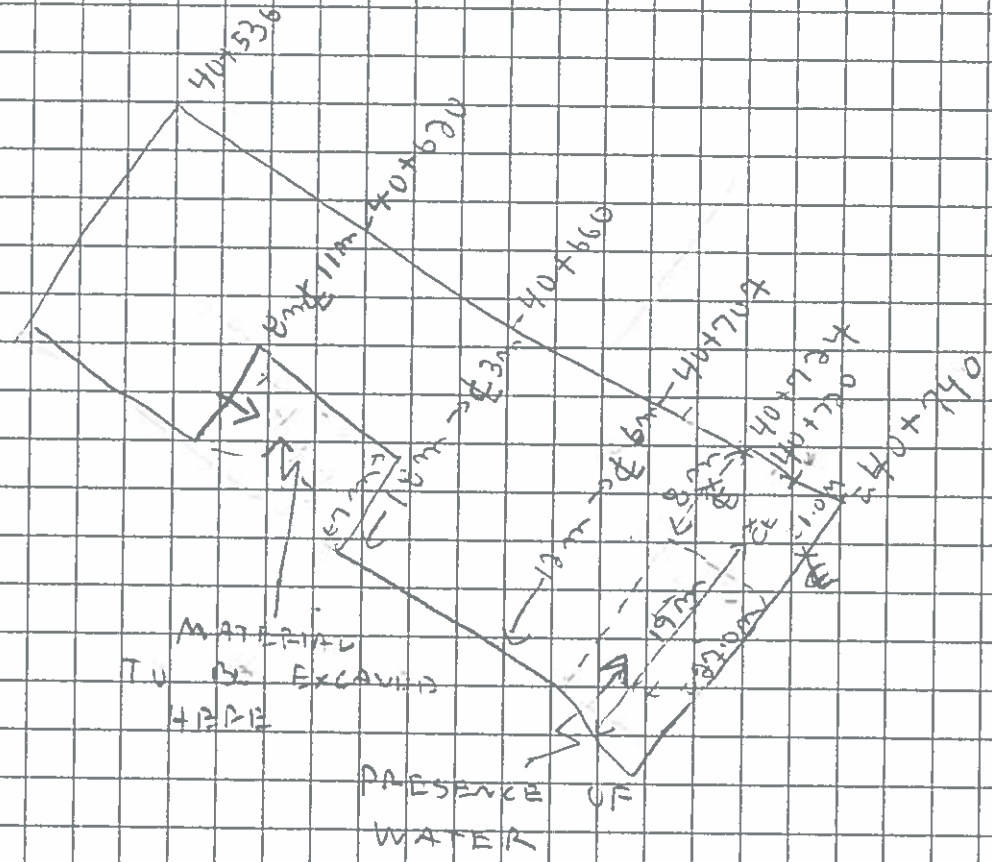
Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Sketch

Client: AGNICO EAGLE MINES LIMITED	Project no.: 11118538 -B1
Project: SADDLE DAMS 3, 4 AND 5 CONSTRUCTION	Page 1 of 1
Inspection date: 2017-06-28	

BED MUCK CLEANING ADVANCEMENT AT SD-5



Prepared by: HUGUES PUTVIN Verified by:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 28 juin 2017 **Inspector - Day/Night:** Sébastien Blackburn, Night shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): bedrock cleaning at SD-5

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

- Bedrock cleaning from ch. 40+620 at ch 40+660. Average of 10 meters width (see sketch join to the report).
- Bedrock cleaning at the end of SD-5 just next to SD-4. Average of 20 meters X 10 meters (see sketch join to the report).
- We still have presence of water between ch 40+740 and ch 40 + 724 appoximatively (see sketch). At the other place the cleaning seems ok.
- We tried to push the water of SD-4 near de water pump with the excavator and the tire but it doesnt works very well. Anyway, the water pump is empty of gasoline. We tried to call someone to fill de tank but no one can help us.

Delays: We waited around 2 hours because the excavator was broken.

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D

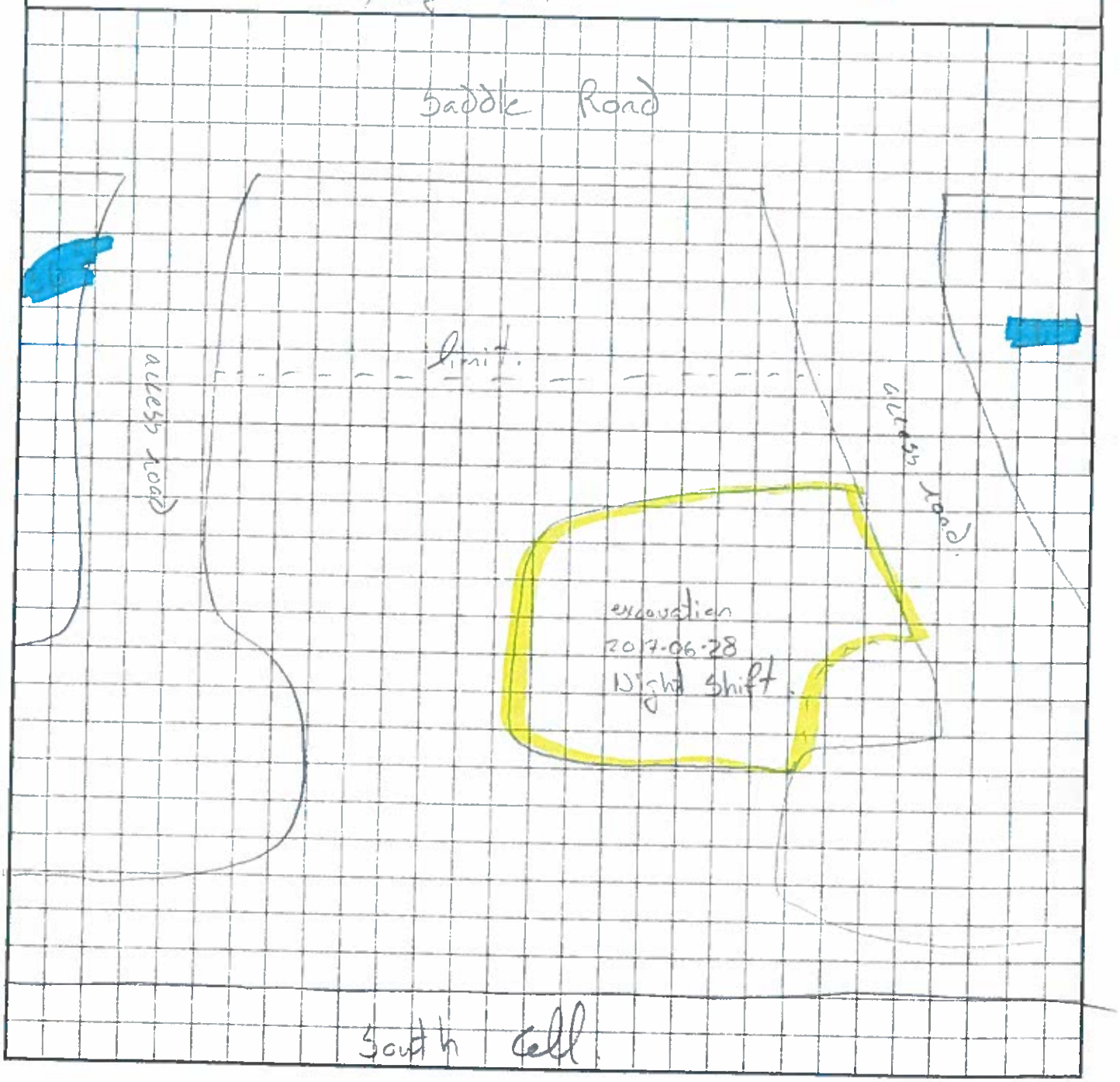
Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Sketch

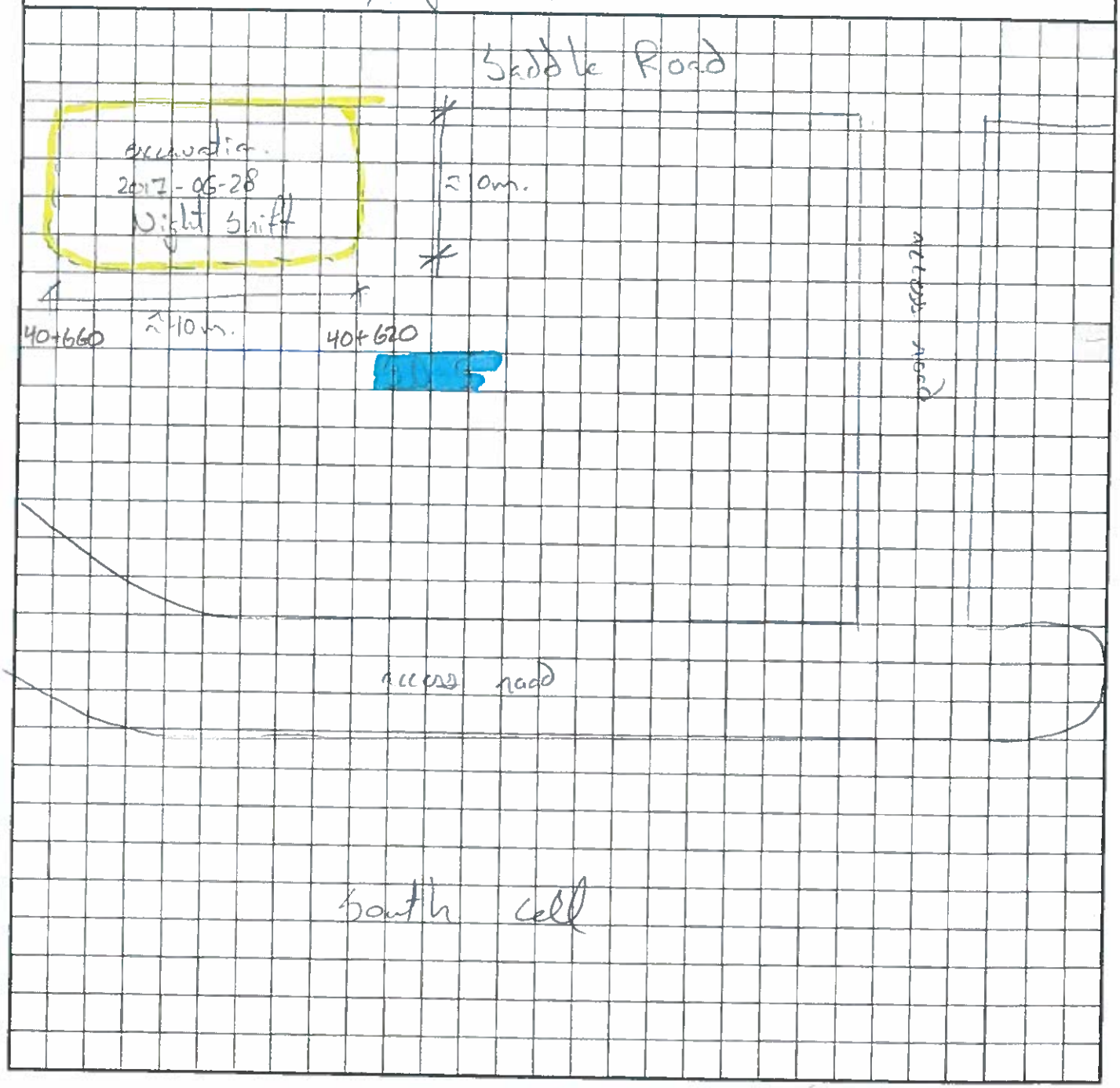
Client: AEM Limited	Project no.: 11128533-01
Project: OL 3-4-5	Page 1 of 2
Inspection date: 2017-06-28 / Night shift	



Prepared by: _____ Verified by: _____

Plan/Sketch

Client: A.E.M. Limited	Project no.: 11118538-G1
Project: SD-3-4-5	Page 2 of 2
Inspection date: 2017-06-28 / Night shift	



Prepared by: _____ Verified by: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 29 /06/2017 **Inspector - Day/Night:** Hugues Potvin, day

Weather : Sunny

Project: Saddle dams 3,4 and 5 **Contractor:** GHD

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): bedrock cleaning between Sd-4 and SD-5,

General Activities: see work in progress materiel evacuation and rockfill on SD-5.

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

Fondation cleaning from ch. 40+488 at ch 40+502, 27 meters right to 25 meters left of central line. Approximately 15 meters of the south part of the cleaned zone (right of the center line) is mainly on frozen till. The rest of the fondation is on bedrok

Evacuation of excaved materiel and rockfill on a portion of SD-5 (see sketch). The thickness of rockfill is about 1.5 meters neau the excavated material pile at ch. 40+582. I advise the manager.

A fondation approval was made on a portion of SD-5.

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345, Cat 365 ands two trucks

Manpower:

Photos Location:

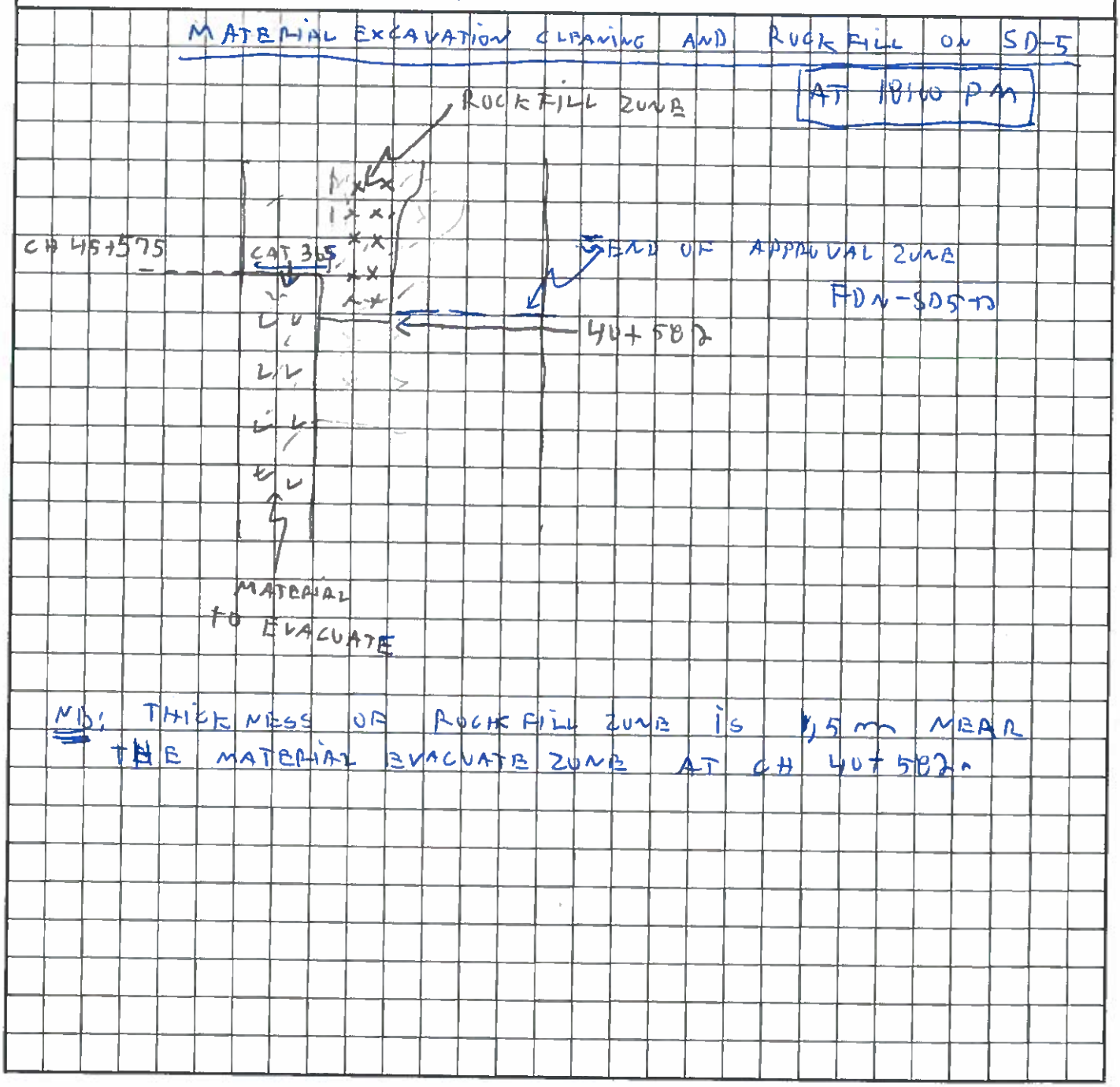
* **Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

Client: AGNICO EAGLE MINES LIMITED	Project no.: 1111 8538 -131
Project: SADDLE DAMS 3, 4 AND 5	Page 1 of 2
Inspection date: 2017-06-29 DAY	

MATERIAL EXCAVATION CLEANING AND ROCKFILL ON SD-5

AT 10h00 PM



NB: THICKNESS OF ROCK FILL ZONE IS 1,5 m NEAR THE MATERIAL EVACUATE ZONE AT CH 40+582.

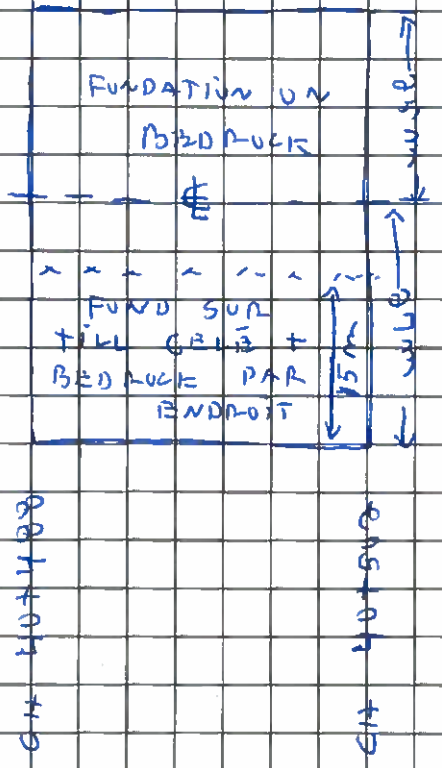
Prepared by: HUGUES PUTVIN Verified by: _____

Plan/Sketch

Client: AGNICO EAGLE MINES LIMITED	Project no.: 11118538-131
Project: SADDLE DAMS 3, 4 AND 5	Page 2 of 2
Inspection date: 2017-06-29 DAY	

FOUNDATION CLEANING BETWEEN SD-5 AND SD-4

* ADVANCEMENT AT 1000 PM



Prepared by: HUGUES POTVIN Verified by:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 29 juin 2017 **Inspector - Day/Night:** Sébastien Blackburn, Night shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): bedrock cleaning between SD-5 and SD-4

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: **- Bedrock cleaning at the end of SD-5 just next to SD-4. (see sketch join to the report).**

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D

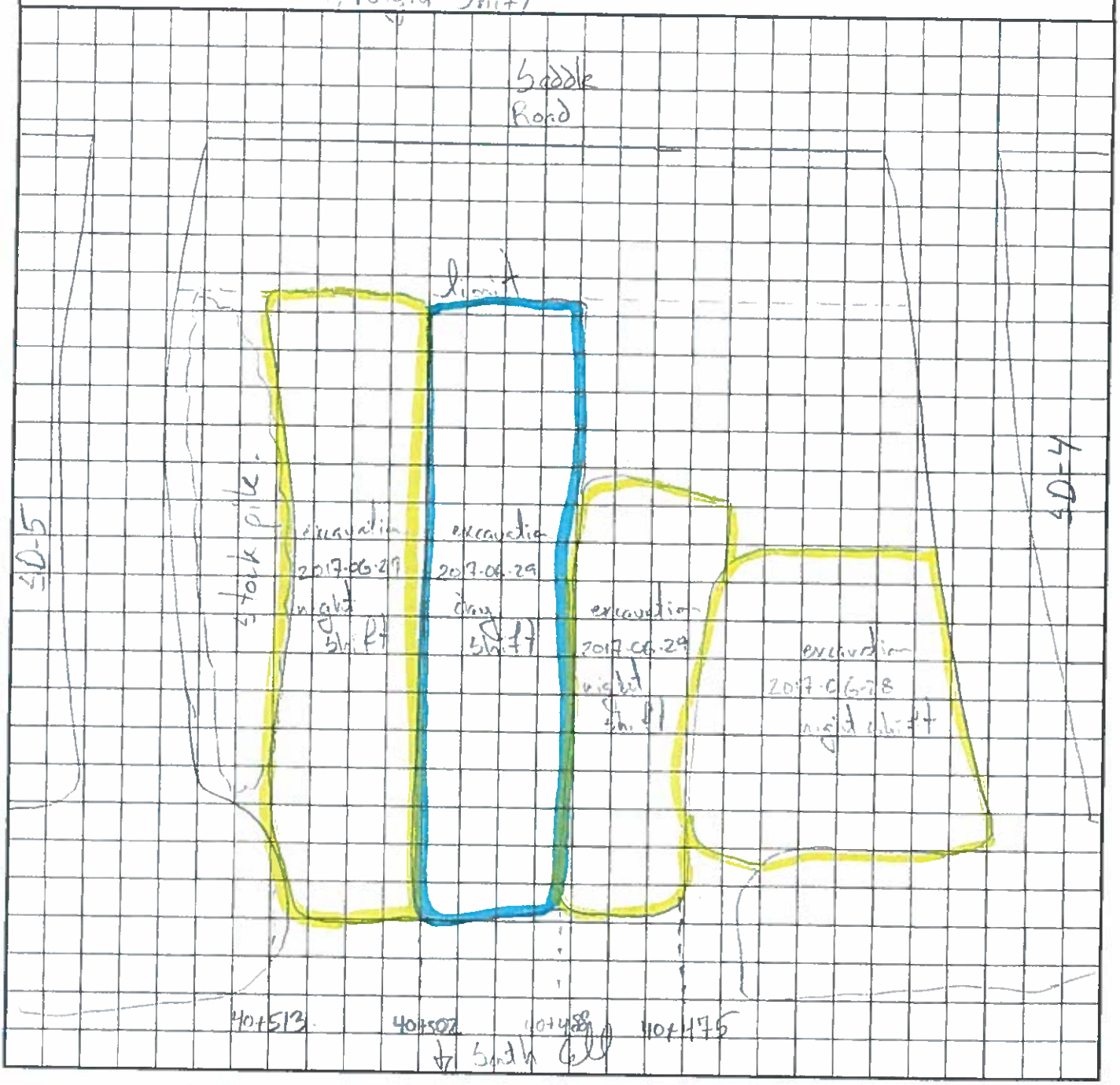
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

Client: A.E.M. Limited	Project no.: 11118538-B1
Project: Meadowbank, SD-3-4 and 5	Page 1 of 1
Inspection date: 2017-06-29, Night Shift	



Prepared by: Verified by:

C:\Users\mbeliveau\Desktop\Meadowbank 2017\Daily inspection report\[QC Daily Inspection Report 2017-06-30 Day Shift.xls]Daily Report

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 30 /06/2017 **Inspector - Day/Night:** Hugues Potvin, day

Weather : Sunny

Project: Saddle dams 3,4 and 5 **Contractor:** GHD

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): bedrock cleaning , materiel evacuation and rockfill on SD-5.

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

Fondation cleaning between ch. 40+535 and 40+572 on the 7.0 meters at the downstream of SD-5 and east of approval fondation #13 on SD-5.

Rockfill on SD-5 until ch. 40+630, average width of 10 to 15 meters (see sketch).

Evacuation of excaved materiel coming from fondation cleaning between Sd-4 and 5.

See sketch for additional details.

Fondation approval was made on a portion of SD-5.

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345, Cat 365, two trucks and a Dozer.

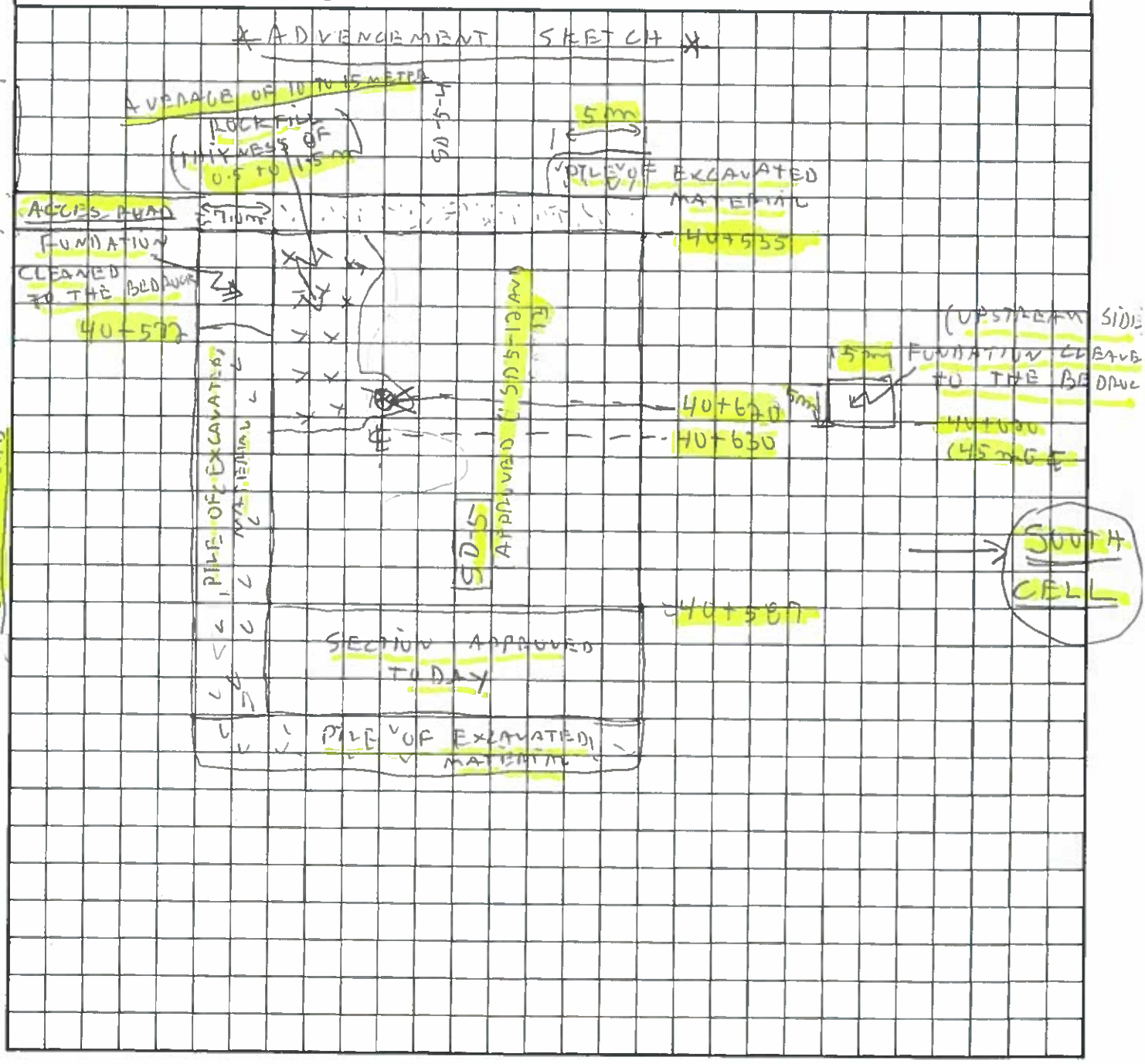
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

Client: AGNICO EAGLE MINES LIMITED	Project no.: 11118538-B1
Project: MEADOW BANK SADDLE DAMS 3-4 AND 5	Page 1 of 1
Inspection date: 2017-06-30	



Prepared by: Hugues Putvin Verified by: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 30 juin 2017 **Inspector - Day/Night:** Sébastien Blackburn, Night shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): bedrock cleaning and getting rockfill on SD-5

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: **- Bedrock cleaning between 40+620 and 40+525 about 45m left of the centre line. (see sketch join to the report).**

- Installation of only 2 Haultrucks of rockfill on SD-5. The guys on the radio told us that the rockfill they have at the moment, contains a lot of big bolders bigger than 1.3meters. Than, we had to wait all the rest of the shift, but still the same problem.

(see sketch join to the report)

Delays: The excavator was broken for about 1h30. A Hose broke and spell some oil on the ground. We put the contaminate soil on a little pile next to our stock pile and they will clean it tomorrow morning.

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, one hauletruck (100 tonnes) and a D8 dozer.

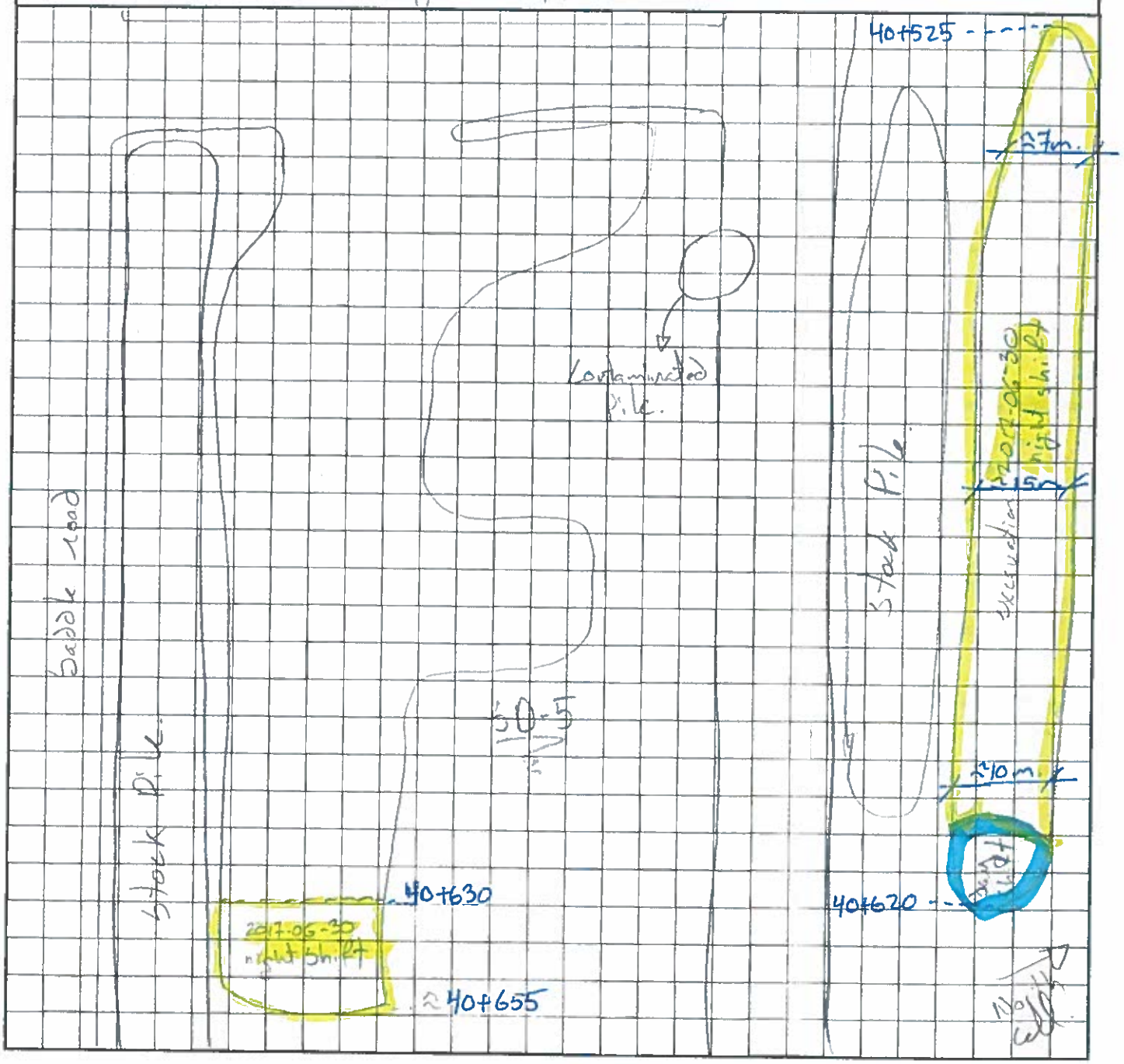
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

Client: A.E.M. limited	Project no.: 1111 8538-B1
Project: Saddle dam 3-4-5	Page 1 of 1
Inspection date: 2017-06-30 Night Shift	



Prepared by: _____ Verified by: _____

C:\Users\hdelachaux\Desktop\Meadowbank 2017\Daily inspection report\[QC-Daily Inspection Report 2017-07-01 Day Shift.xls]Daily Report

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 01 juillet 2017 **Inspector - Day/Night:** Hugues Potvin, day shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): fondation cleaning between SD-4 and 5 and

General Activities: see work in progress and evacuation of excavated materials at SD-4

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

- Installation of only 1 Haultrucks of rockfill on SD-5 (to much boulders bigger than 1.3 meters at the chagement place) on SD-5.

Rockfill was complete until approximately ch. 40+675 from about 7 to 15 meters right to the central line.

Drilling holes were cleaning on the SD-3 site.

Fine fondation cleaning between SD-5 and 4, Some piles of excavated material are in place.

Evacuation of excavated material piles on SD-4 between ch. 40+400 and 40+360 approximatively (see sketch for more details).

nb: D8 Dozer quit at about 12:00 hours.

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, hauletrucks (100 tonnes),D8 dozer and RH-120 excavator.

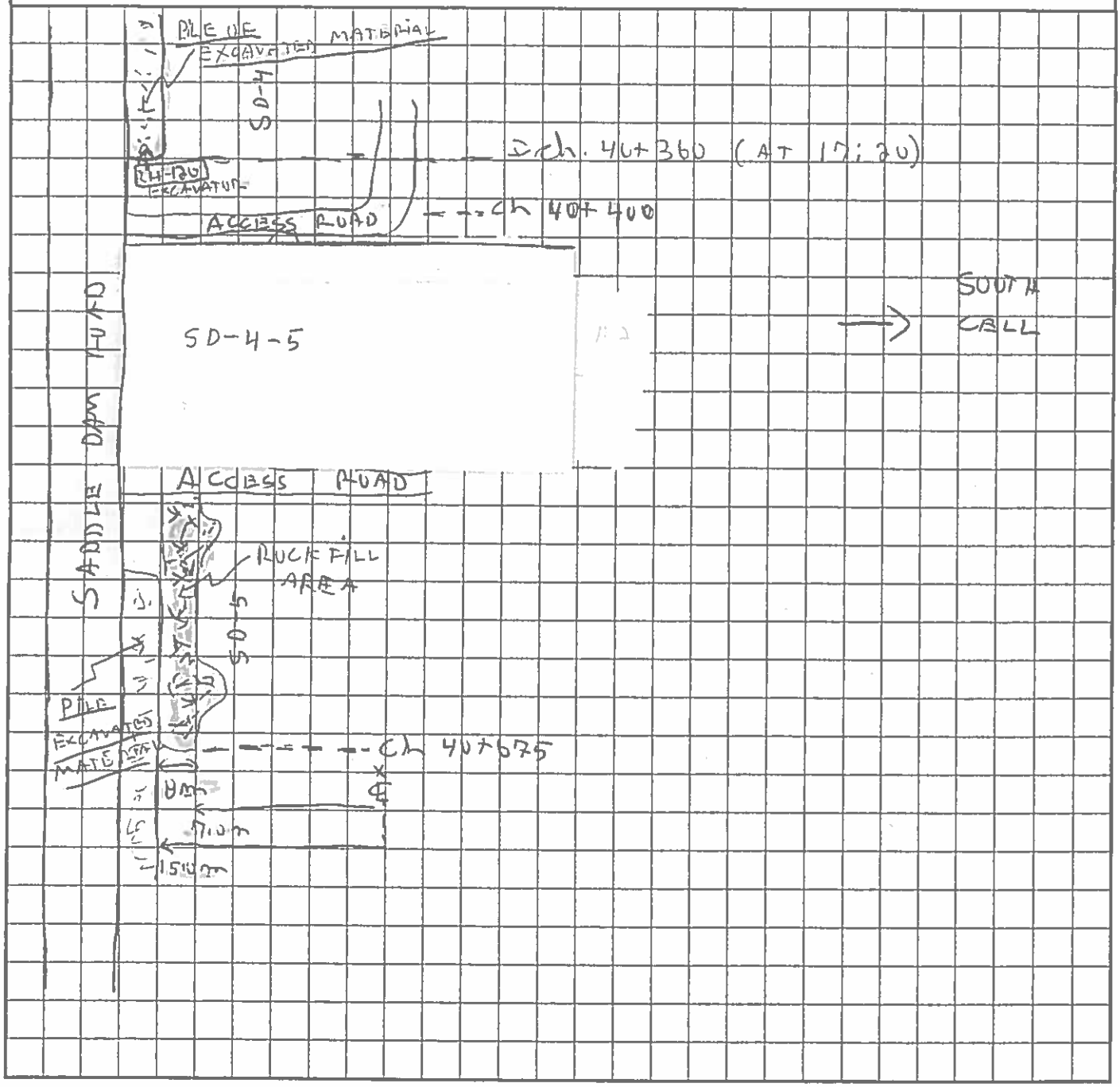
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

Client: AGNICO EAGLE MINES LIMITED	Project no.: 1111 8538-B1
Project: SADDLE DAMS 3, 4 AND 5	Page 1 of 1
Inspection date: 2017-07-01	



Prepared by: HUGUES PUTVIN Verified by: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 01 Juillet 2017 **Inspector - Day/Night:** Sébastien Blackburn, Night shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): bedrock cleaning and dispose a part of the SD-4's stock pile

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: **- Bedrock cleaning between SD-4 and SD-5 (see sketch join to the report).**

- Dispose around of 80 meters lenght of the SD-4 stock pile. (approximatively 40+360 to 40+280). (see sketch join to the report)

Delays: nothing

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, hauletrucks (100 tonnes) and a RH-120 front shovel.

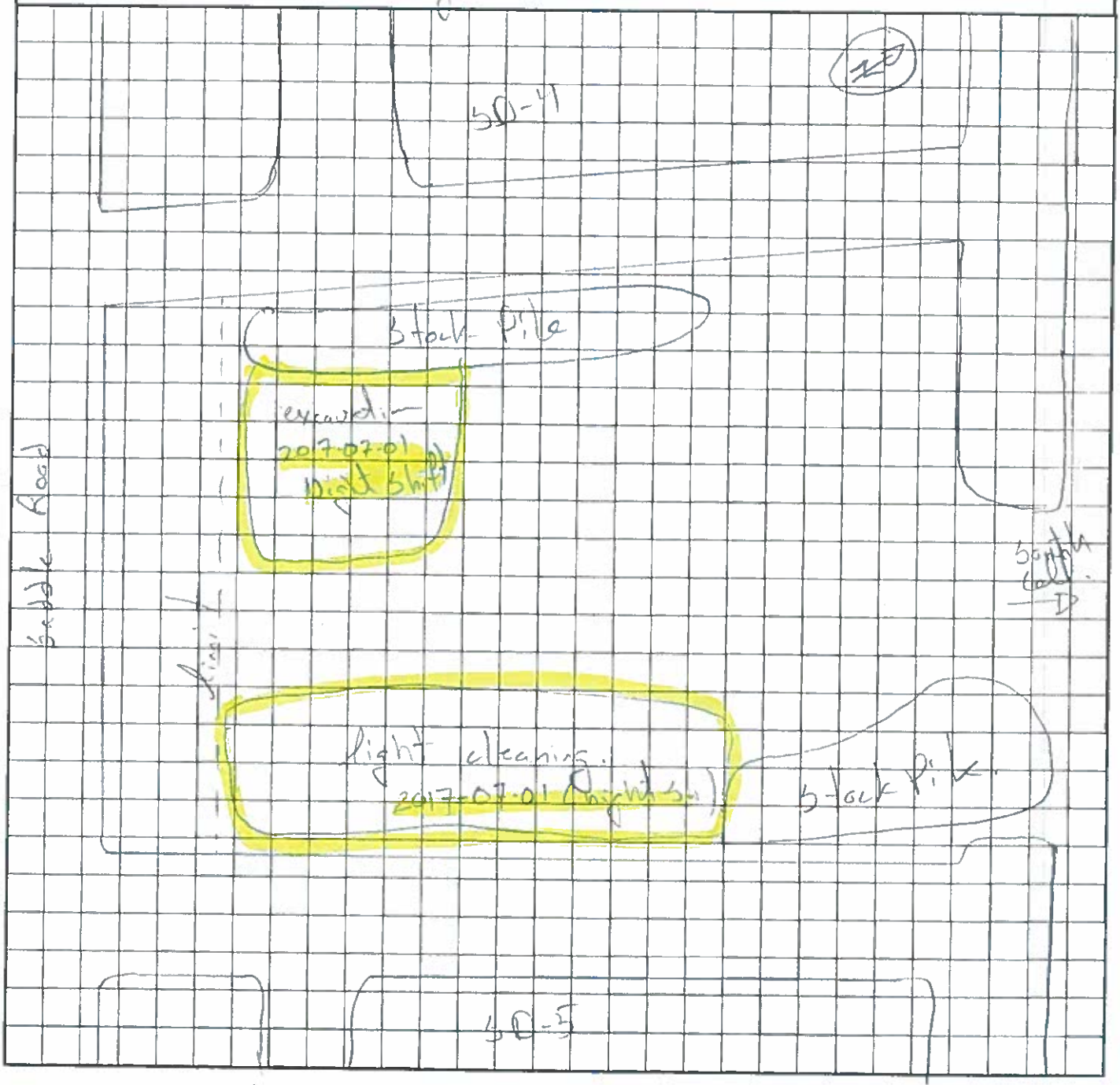
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

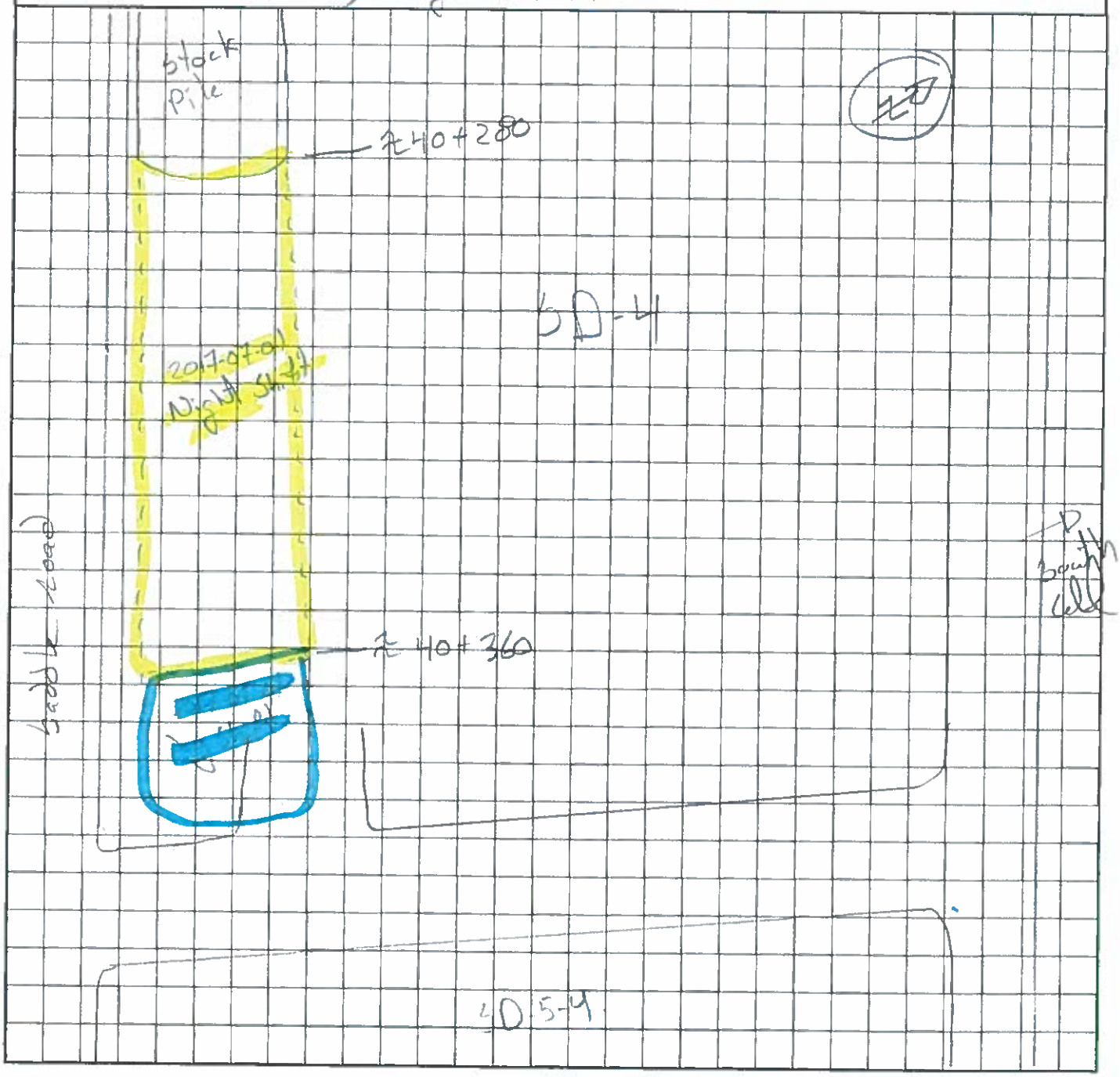
Client: A.E.M. Limited	Project no.: 11118538 - B1
Project: Saddle Dam #3,4 and 5	Page 1 of 2
Inspection date: 2017-07-01 Night shift	



Prepared by: BB Verified by:

Plan/Sketch

Client: A.E.M. Limited	Project no.: 11118538-B1
Project: Saddle dam #3, 4 and 5	Page 2 of 2
Inspection date: 2017-07-01 / Night Shift	



Prepared by: _____ Verified by: _____

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

: 02 Juillet 2017 **Inspector - Day/Night:** Hugues Potvin, Day shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): bedrock cleaning on SD-4 and evacuation of excavated material

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: - Bedrock cleaning in SD-4 from ch. 40+616 To ch. 40+545 , between approximatively 6 m left and 19 m right to the center line (see sketch). Cleaning seems ok but some spot of water are presents.

- Evacuation of excavated material stocked in pile at SD-5. A pile of rock will be moved to the dump due to the presence of about 80% of fines (a part of this pile was already moved). See sketch for more details.

Delays: Waiting for trucks (only one truck at the end of afternoon)

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Cat 365, Doxer and 2 or 3 hauletrucks (100 tonnes).

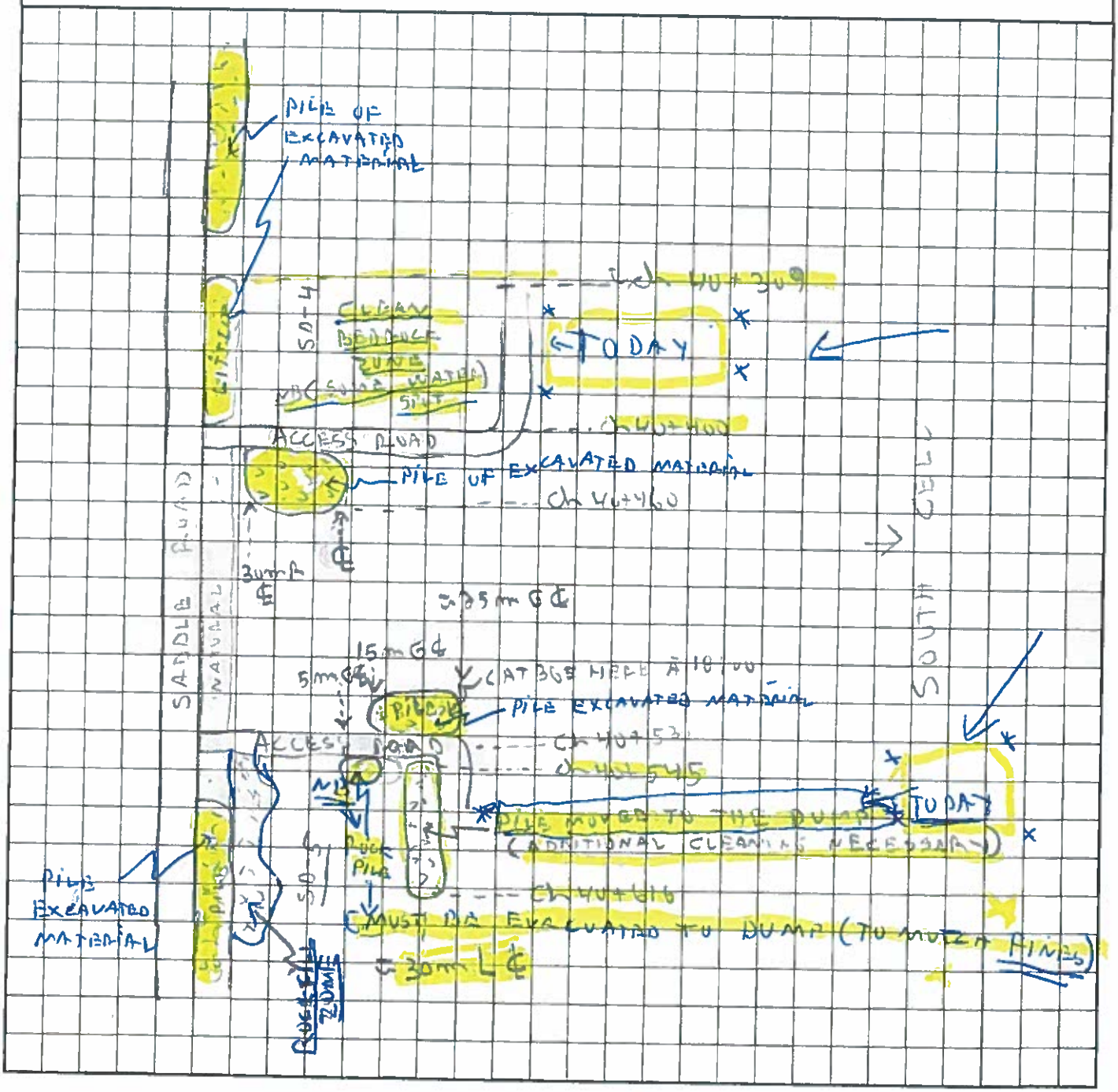
Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Sketch

Client: AGNICO EAGLE MINE LIMITED	Project no.: 11118538
Project: SADDLE DAMS 3, 4 AND 5	Page 1 of _____
Inspection date: 2017-07-02	



Prepared by: HUGUES POTVIN Verified by: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 02 Juillet 2017 Inspector - Day/Night: Sébastien Blackburn, Night shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 Contractor: Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): bedrock cleaning on SD-4

General Activities: see work in progress

Soft Sediment Excavation	☐	Key Excavation	☐	Coarse Filter	☐	Drilling/Blasting	☐
Foundation Preparation	☐	LLDPE/Geotextile	☐	Till	☐		
Water Control	☐	Fine Filter	☐	Rockfill	☐		

Description: - Bedrock cleaning on SD-4 at 2 places (see sketch join to the report).

Delays: the excavator must be repaired with the mechanic. It took about 1h30.

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D.

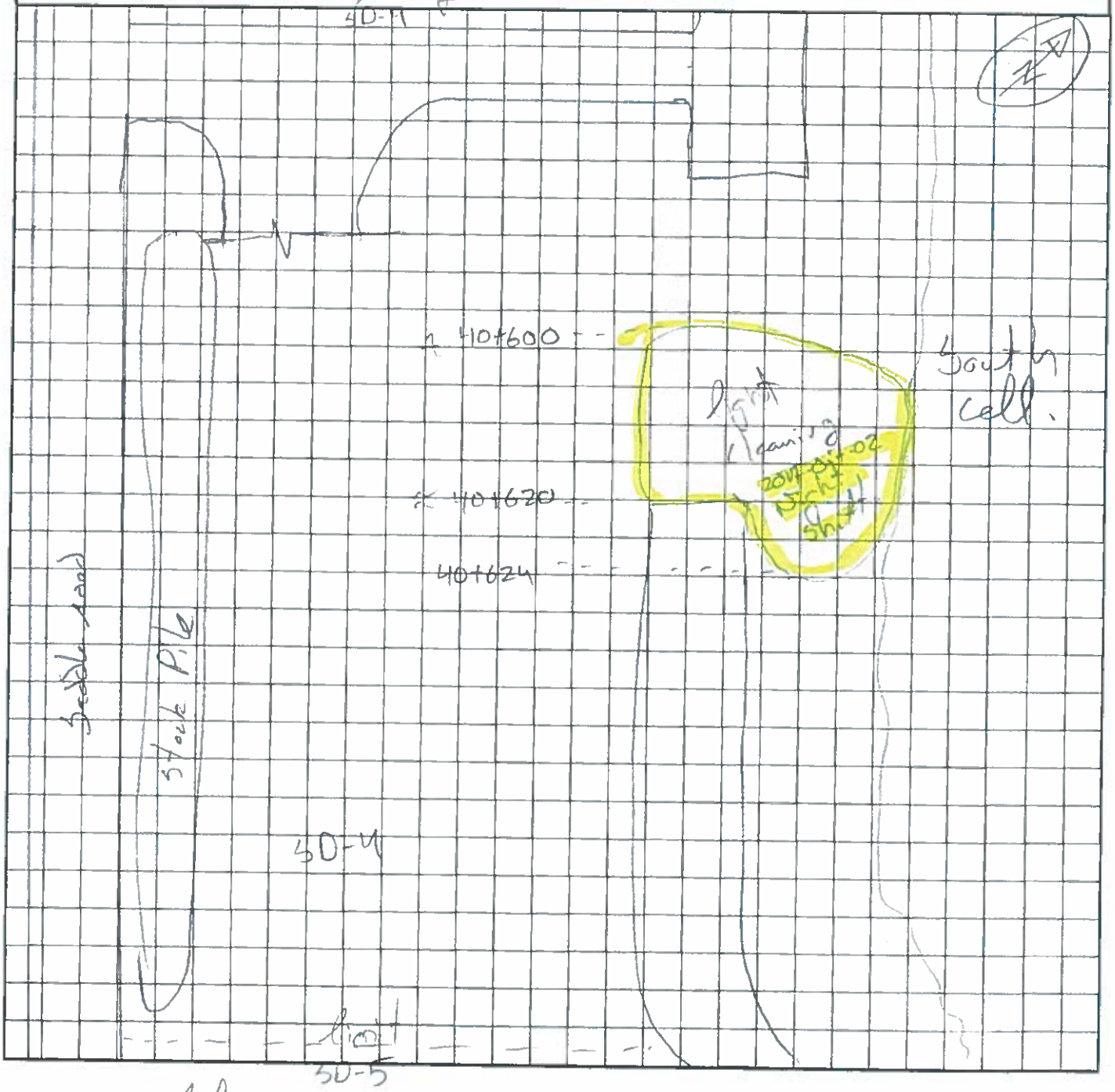
Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Sketch

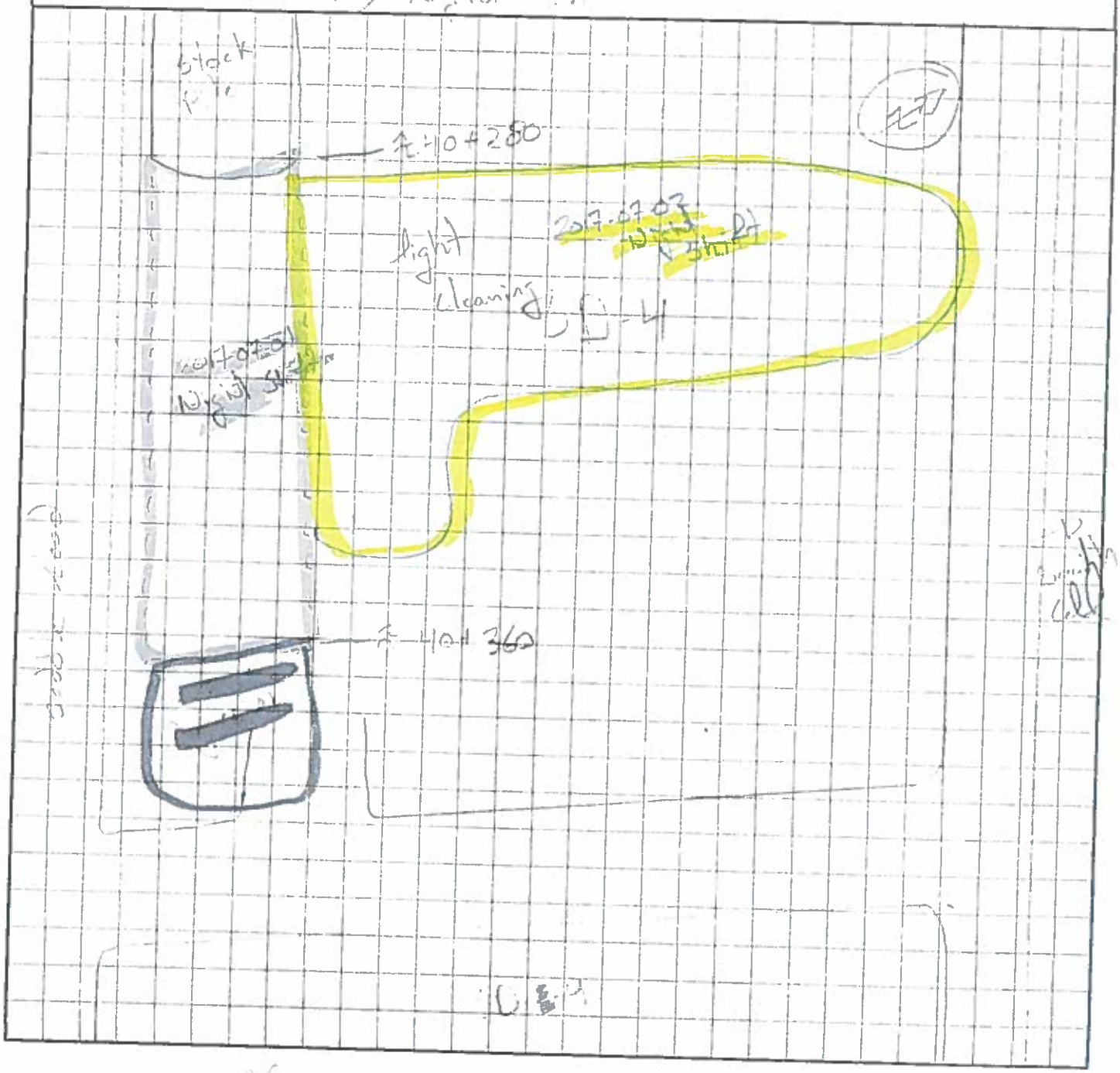
Client: A.E.M. limited	Project no.: 11118535.01
Project: Saddle dam #3 - 1 and 5	Page 1 of 2
Inspection date: 2017.07.02 / Night Shift	



Prepared by: L.B. Verified by:

Plan/Sketch

Client: A.E.H. Limited	Project no.:
Project:	Page ___ of ___
Inspection date: 2017-07-02 / Nad	



Prepared by: _____ Verified by: _____

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

03 Juillet 2017 **Inspector - Day/Night:** Hugues Potvin, Day shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): evacuation of excavated material and fondation cleaning

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: - Cleaning in SD-3 during the morning (see sketch 2 for approximate location). Till was partially cleared of the fondation area, cleaning job stop due to a hydraulis breakage on the D0zer D3T at 11:30.

- Evacuation of excavated material stocked in pile at SD-4 (see sketch 1).

Delays: Nothing

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 365, Dozer D8T and 2 or 3 hauletrucks (100 tonnes).

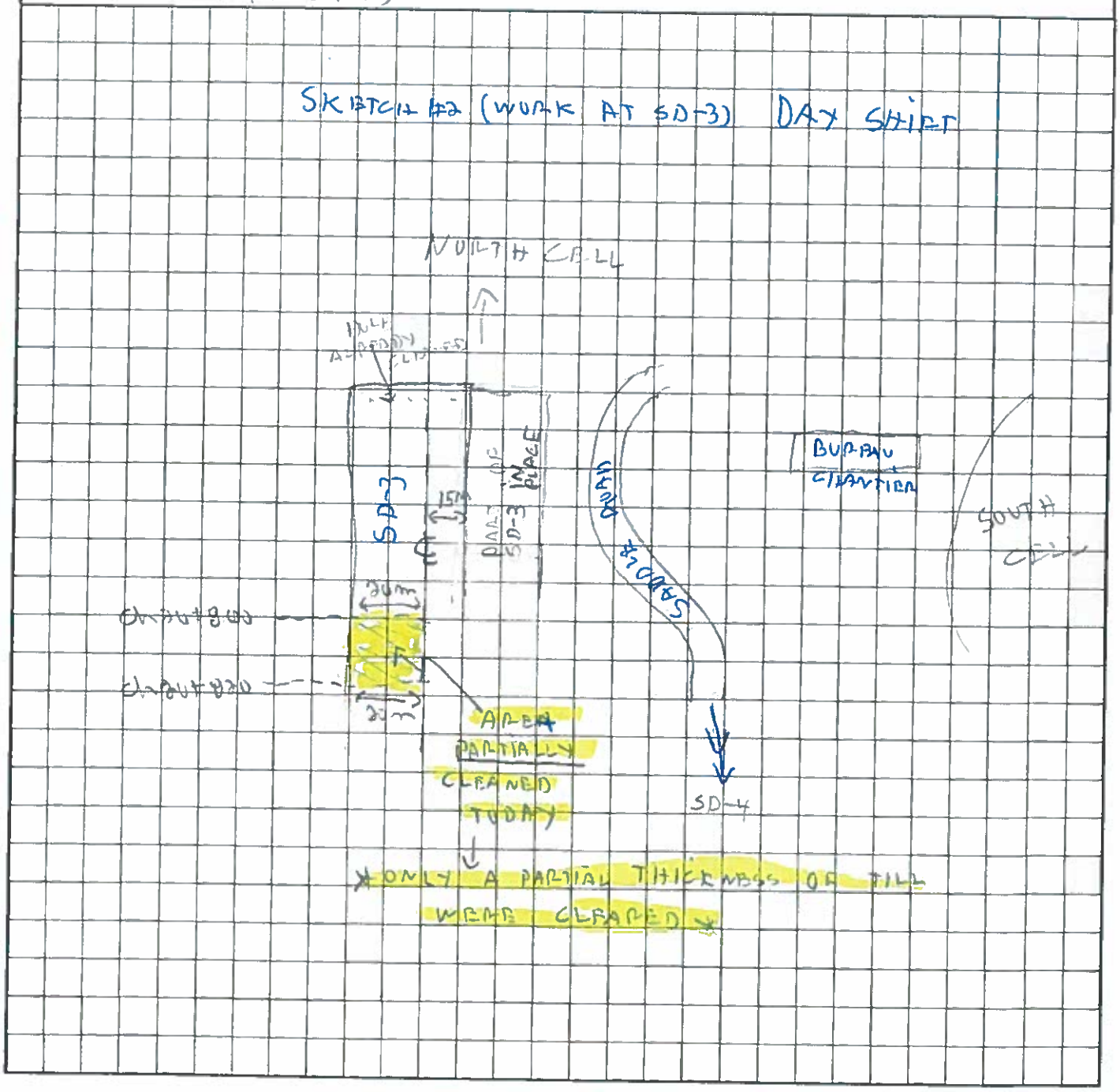
Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Sketch

Client: AGNICO EAGLE MINES LIMITED	Project no.: 1111853e-B1
Project: SADDLE DAM 3, 4 AND 5	Page 2 of 2
Inspection date: 2017-07-03	

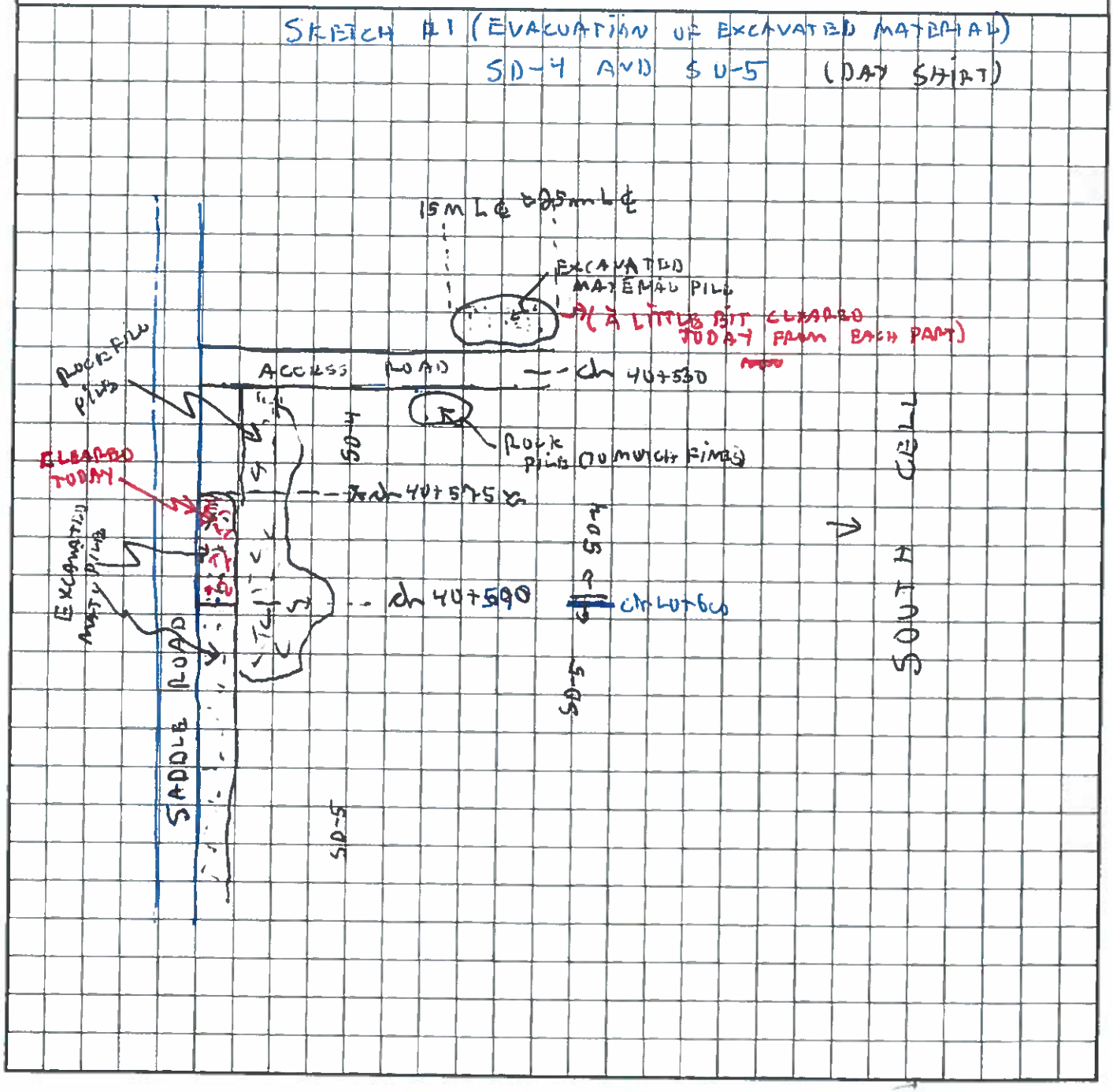


Prepared by: Hayden Rutter Verified by:

Plan/Sketch

Client: AGNICO EAGLE MINES LIMITED	Project no.: 11 11 8538-B1
Project: SADDLE DAMS 3, 4 AND 5	Page 1 of 1
Inspection date: 2017-07-03	

SKETCH #1 (EVACUATION OF EXCAVATED MATERIALS)
SD-4 AND SD-5 (DAY START)



Prepared by: HUGUES POTVIN Verified by:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 03 Juillet 2017 **Inspector - Day/Night:** Sébastien Blackburn, Night shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work In Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): bedrock cleaning on SD-3

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: **- Bedrock cleaning on SD-3. He didnt use the tire to clean it up, because the job was only to prepare the ground to drill some holes (see sketch join to the report). We have intercepted permafrost at some places**

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D.

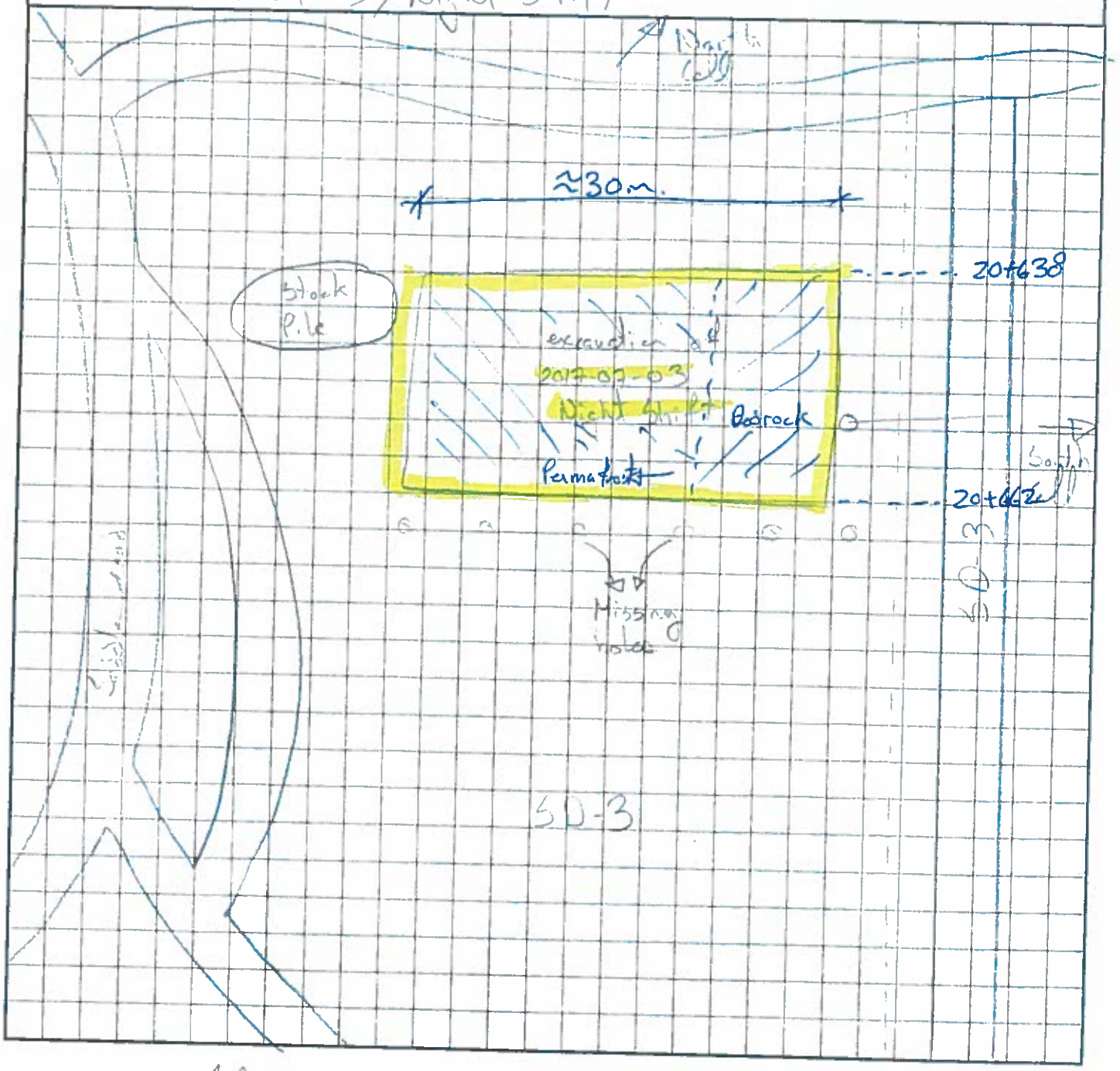
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

Client: A.E.M. Limited	Project no.: 111838538-B1
Project: Meadowbank, SD-3, Lift-5	Page 1 of 1
Inspection date: 2017-07-03 / Night Shift	



Prepared by: SB

Verified by:

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

: 04 Juillet 2017 **Inspector - Day/Night:** Hugues Potvin, Day shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): bedrock cleaning on SD-3, evacuation of excavated material on SD-4 and 5, rockfill on SD-5

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: -Cleaning on SD-3 until the frozen till. This job is done to prepare the ground to drill holes for future blasting. We see ice at unless on place (see sketch #1 to more details).

Evacuation of material on SD-4 and SD-5 (see sketch #2 for details).

Rockfill on SD-5 until ch. 40+693, the material contain fines but it's acceptable (2 trucks were placed) (see shetch #2).

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, CAT 365D, Trucks.

Manpower:

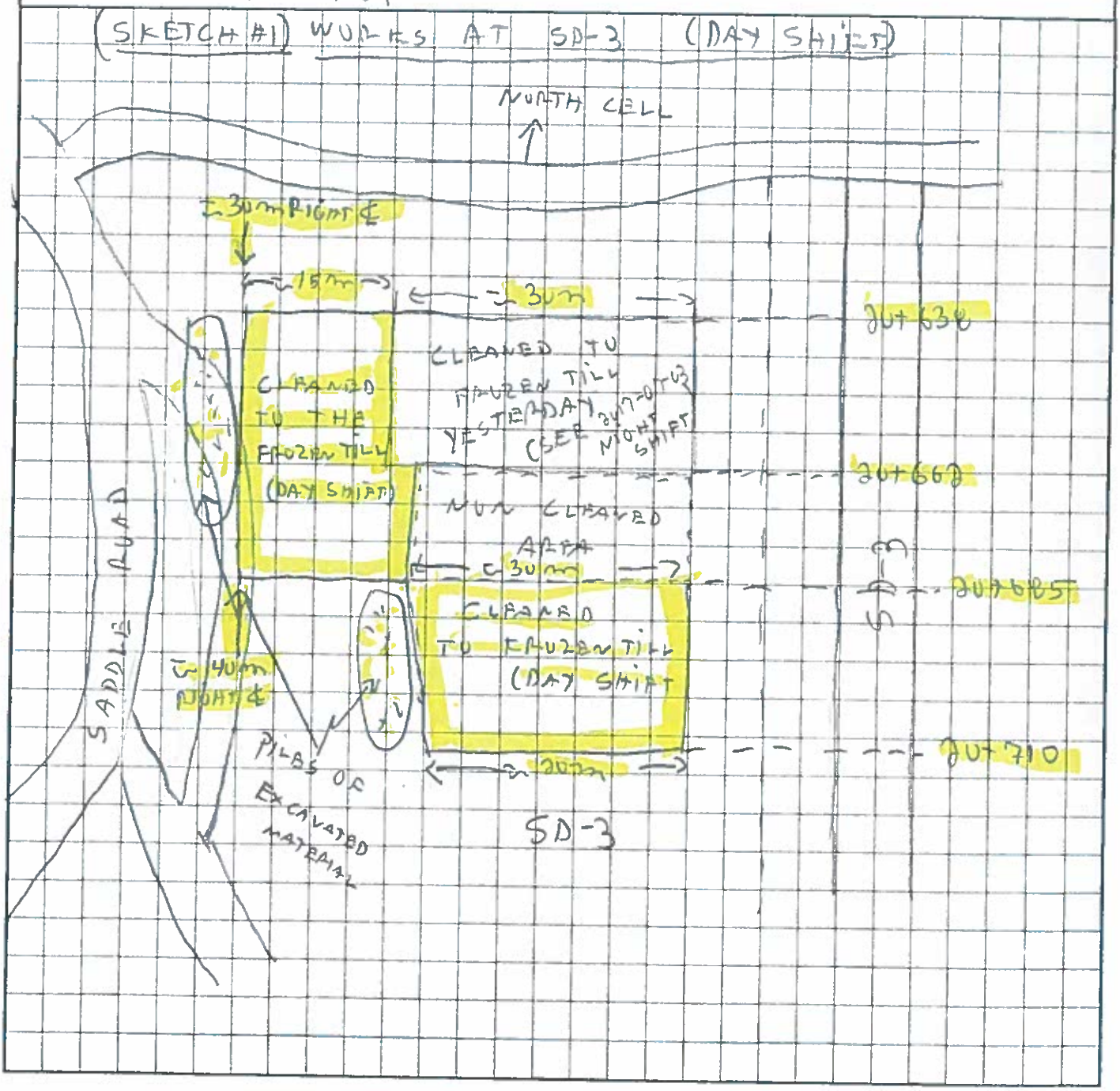
Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Sketch

Client: AGNICO EAGLE MEADOWBANK	Project no.: 11118538-B1
Project: SADDLE DAM 3, 4 AND 5	Page 1 of 2
Inspection date: 2017-07-04	

(SKETCH #1) WORKS AT SD-3 (DAY SHIFT)

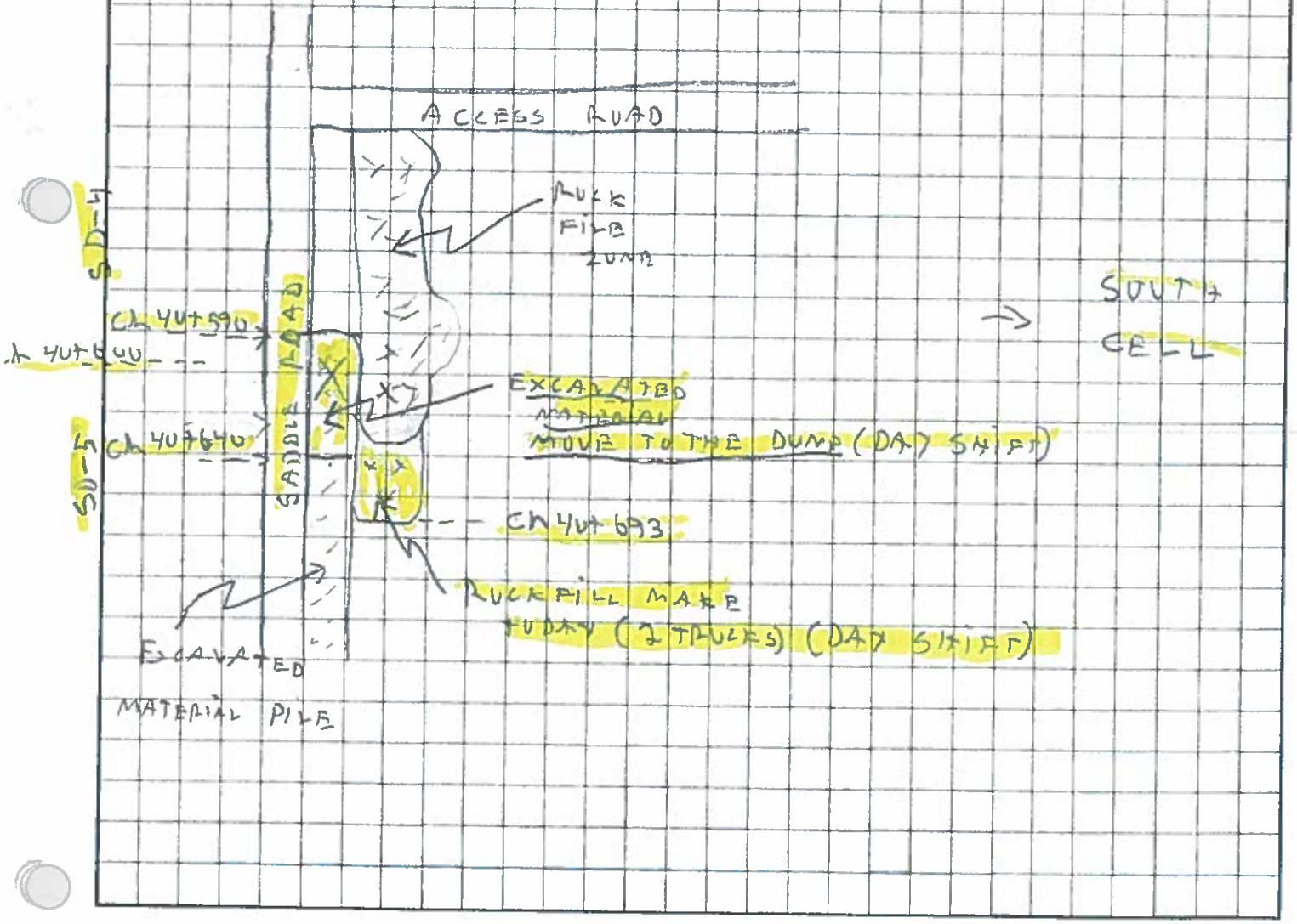


Prepared by: Hugues Putvin Verified by:

Plan/Sketch

Client: AGNICO EAGLE MEADOWBANK	Project no.: 11165 32 -B1
Project: SADDLE DAM 3, 4 AND 5	Page 1 of 1
Inspection date: 2017-07-04	

SKETCH #2 : WORKS ON SD-5 AND SD-5 (DAY SHIFT)



Prepared by: HUGUES PUTVIN Verified by: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 04 Juillet 2017 **Inspector - Day/Night:** Sébastien Blackburn, Night shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work In Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): ground cleaning on SD-3

General Activities: see work in progress

Soft Sediment Excavation	☐	Key Excavation	☐	Coarse Filter	☐	Drilling/Blasting	☐
Foundation Preparation	☐	LLDPE/Geotextile	☐	Till	☐		
Water Control	☐	Fine Filter	☐	Rockfill	☐		

Description: - Ground cleaning on SD-3. He didnt use the tire to clean it up, because the job was only to prepare the ground to drill some holes. We have intercepted permafrost on different levels. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D.

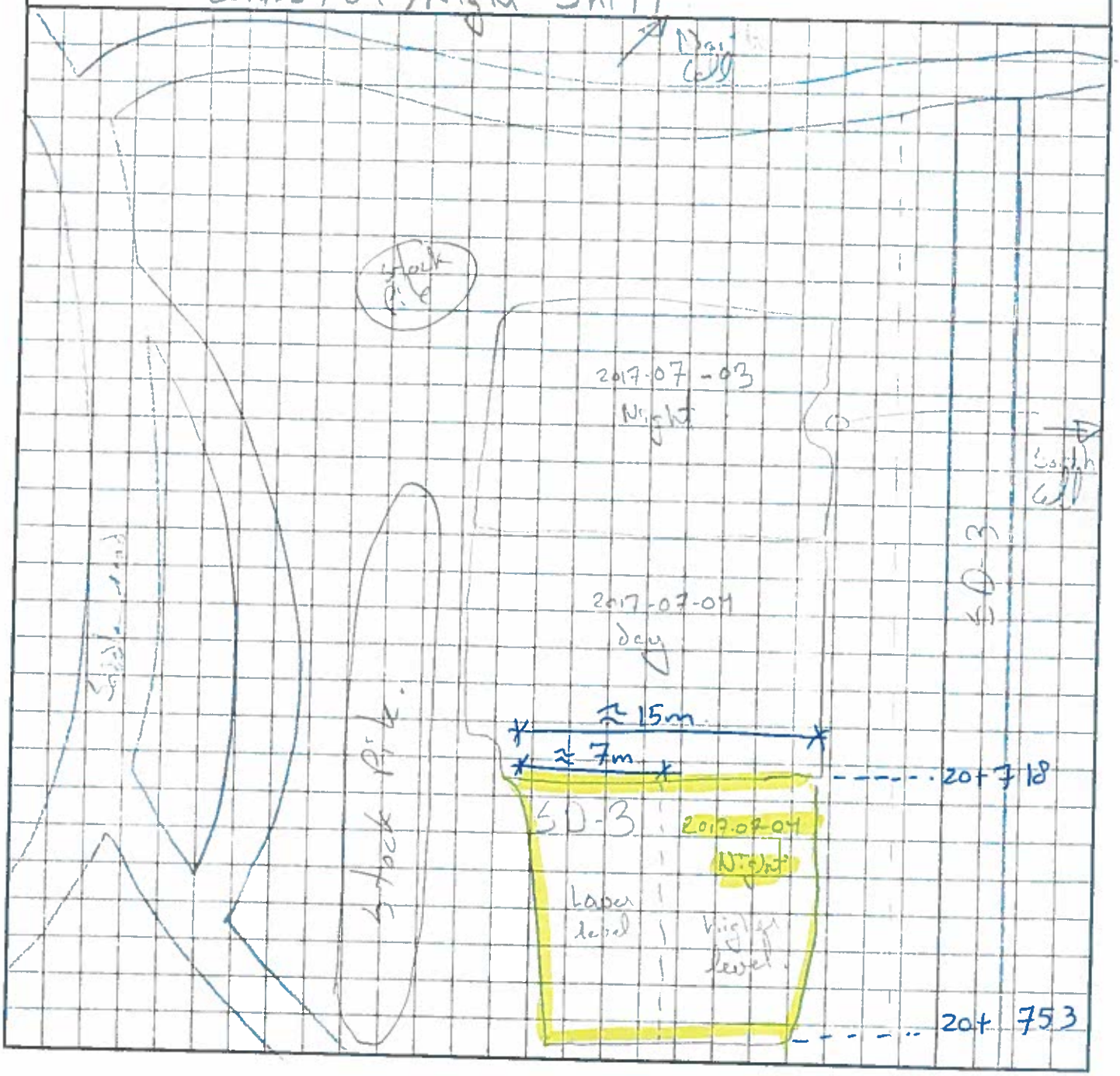
Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Sketch

Client: A.E.M. Limited	Project no.: 11125538-B1
Project: Meadowbank SD-3, 4 and 5	Page 1 of 1
Inspection date: 2017-07-04 / Night Shift	



Prepared by: JB. Verified by:

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 05 Juillet 2017 **Inspector - Day/Night:** Hugues Potvin, Day shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): bedrock cleaning on SD-3 and SD-4,

General Activities: see work in progress evacuation of material at SD-5.

Soft Sediment Excavation	☒	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: **-Cleaning on SD-3 until the bedrock (see sketch #1).**

- Evacuation of excavated material near the Saddle road on SD-5 between ch. 40+640 and approximately ch. 40+680 (see sketch #2).

- Cleaning on SD-4 between ch. 40+530 and 40+550 at approximately 40 meters left to center line (fine cleaning will be necessary in this area).

- Fine bedrock cleaning on SD-4 on a future approval sector (see sketch #2 for details).

- Bedrock cleaning on a zone of about 2 to 3 m width between approximately ch. 40+550 and ch. 40+578 on SD-4 (this cleaning mostly consist to excavate rockfill placed at this place).

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, CAT 365D, Trucks.

Manpower:

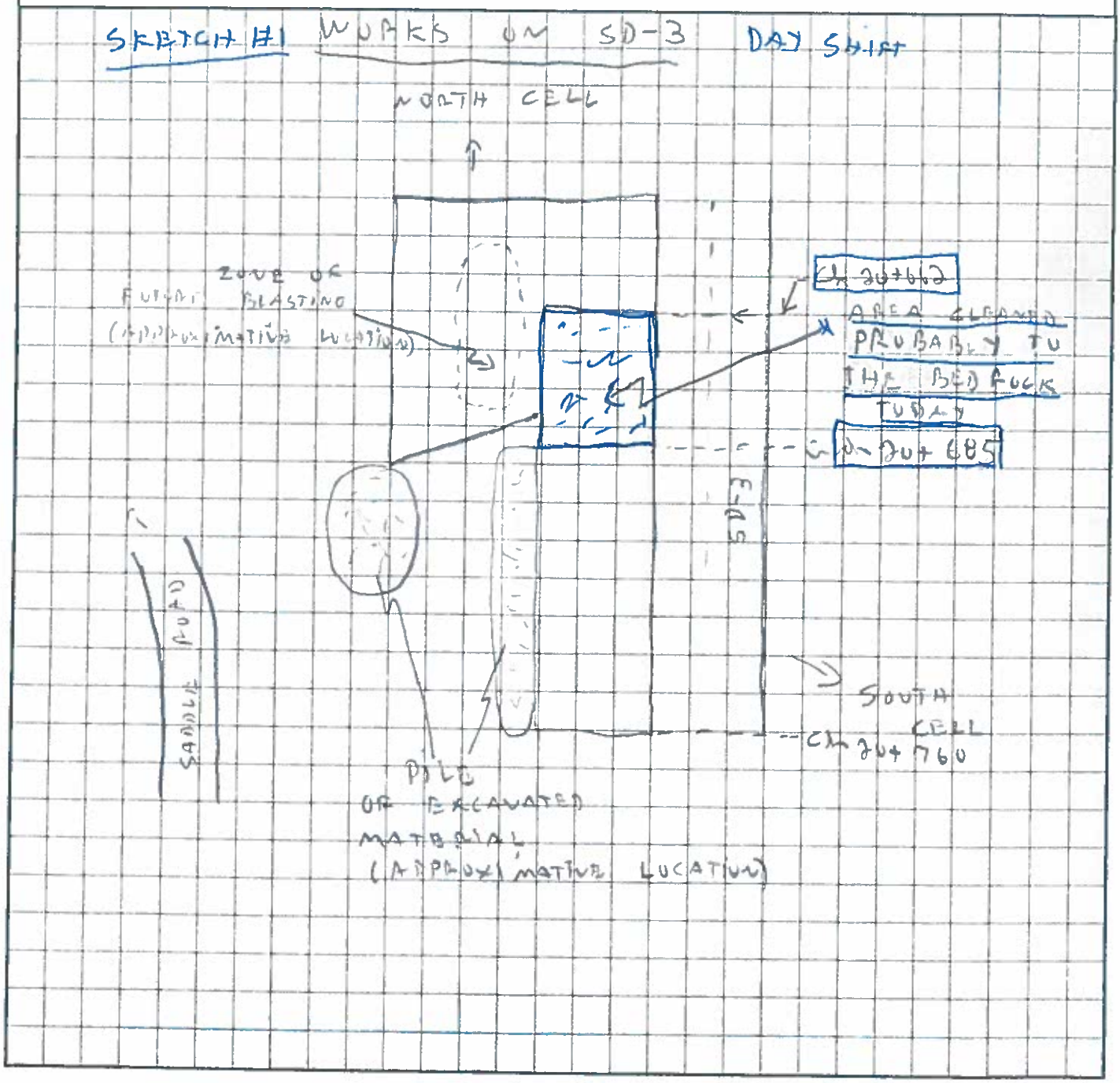
Photos Location:

GHD

Plan/Sketch

Client: AGNICO EAGLE MINES LIMITED.	Project no.: 11118538-B1
Project: MEADOW BANK SD-3, 4 AND 5	Page 1 of 2
Inspection date: 2017-07-05	

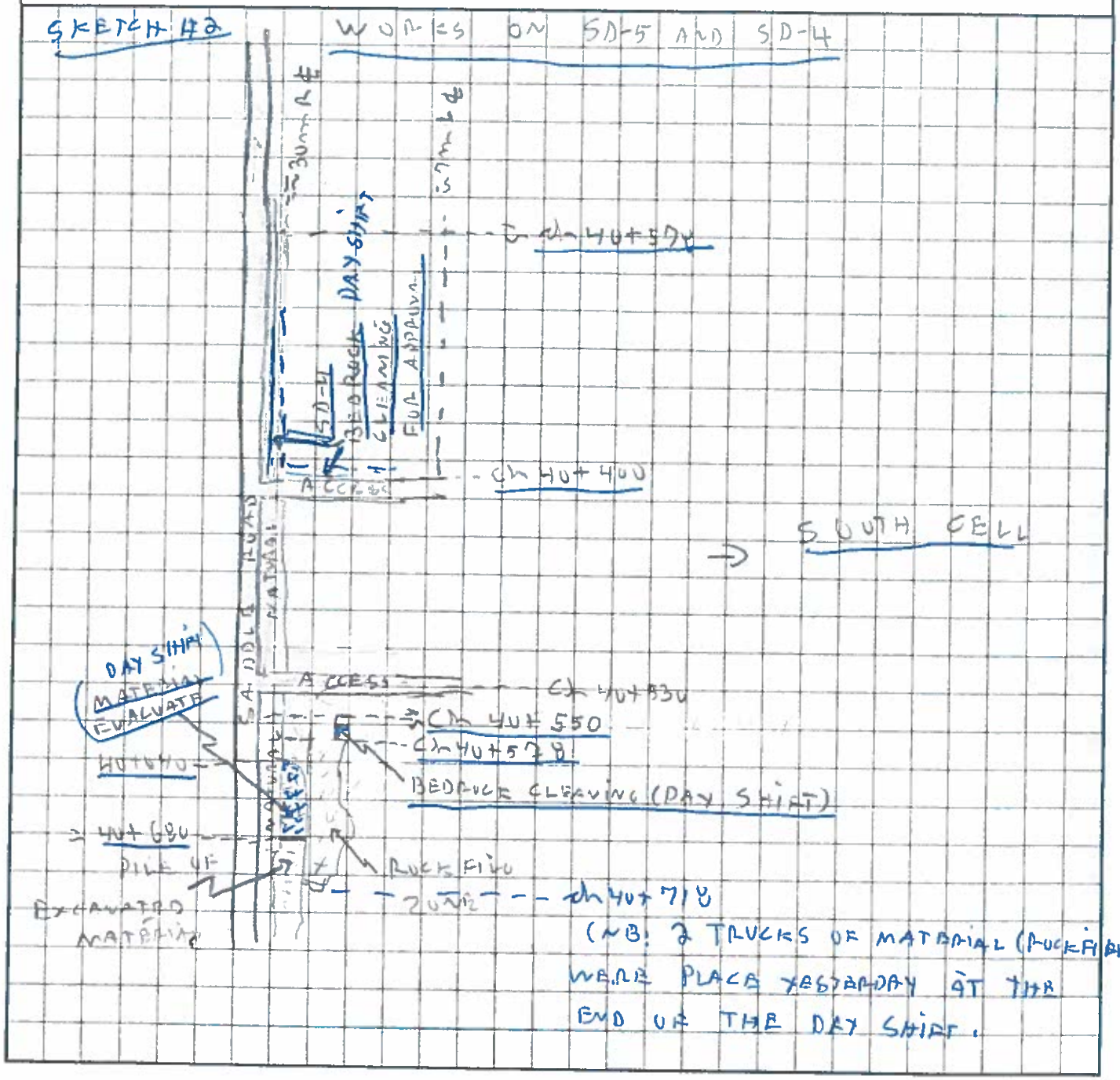
SKETCH #1 WORKS ON SD-3 DAY SHIFT



Prepared by: Hugues Potvin Verified by:

Plan/Sketch

Client: AGNICO EAGLE MINES LIMITED	Project no.: 1111 8538-B1
Project:	Page 2 of 2
Inspection date: 2017-07-05	



Prepared by: HUGUES POTVIN Verified by:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 05 Juillet 2017 **Inspector - Day/Night:** Sébastien Blackburn, Night shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work In Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): bedrock cleaning on SD-4

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: - Bedrock cleaning on SD-4. 3 places have been cleaned. Between 40+360 and 40+325, we had no more place to store de material, than we had to stop at 40+325. (see sketchs join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D.

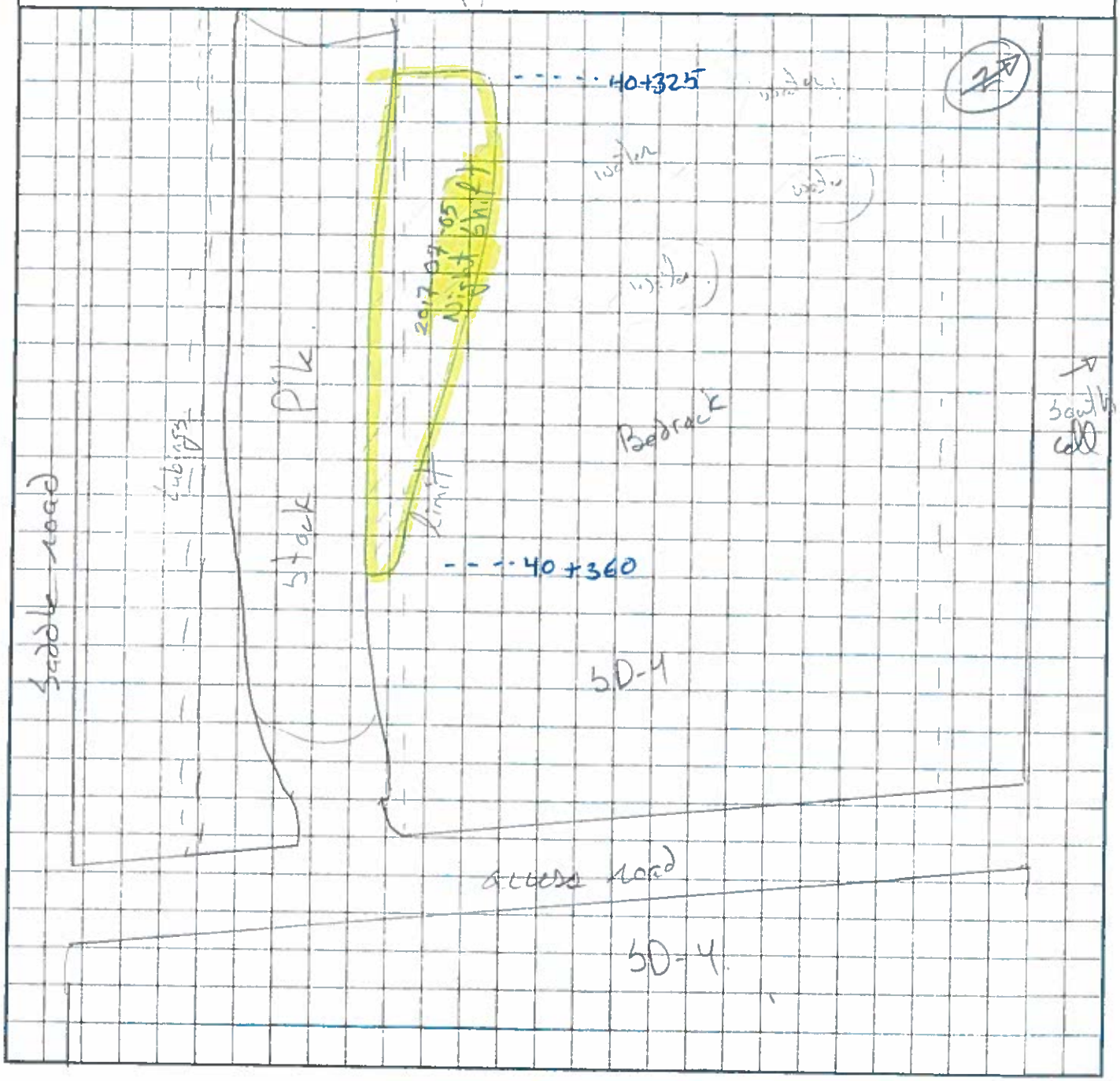
Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Sketch

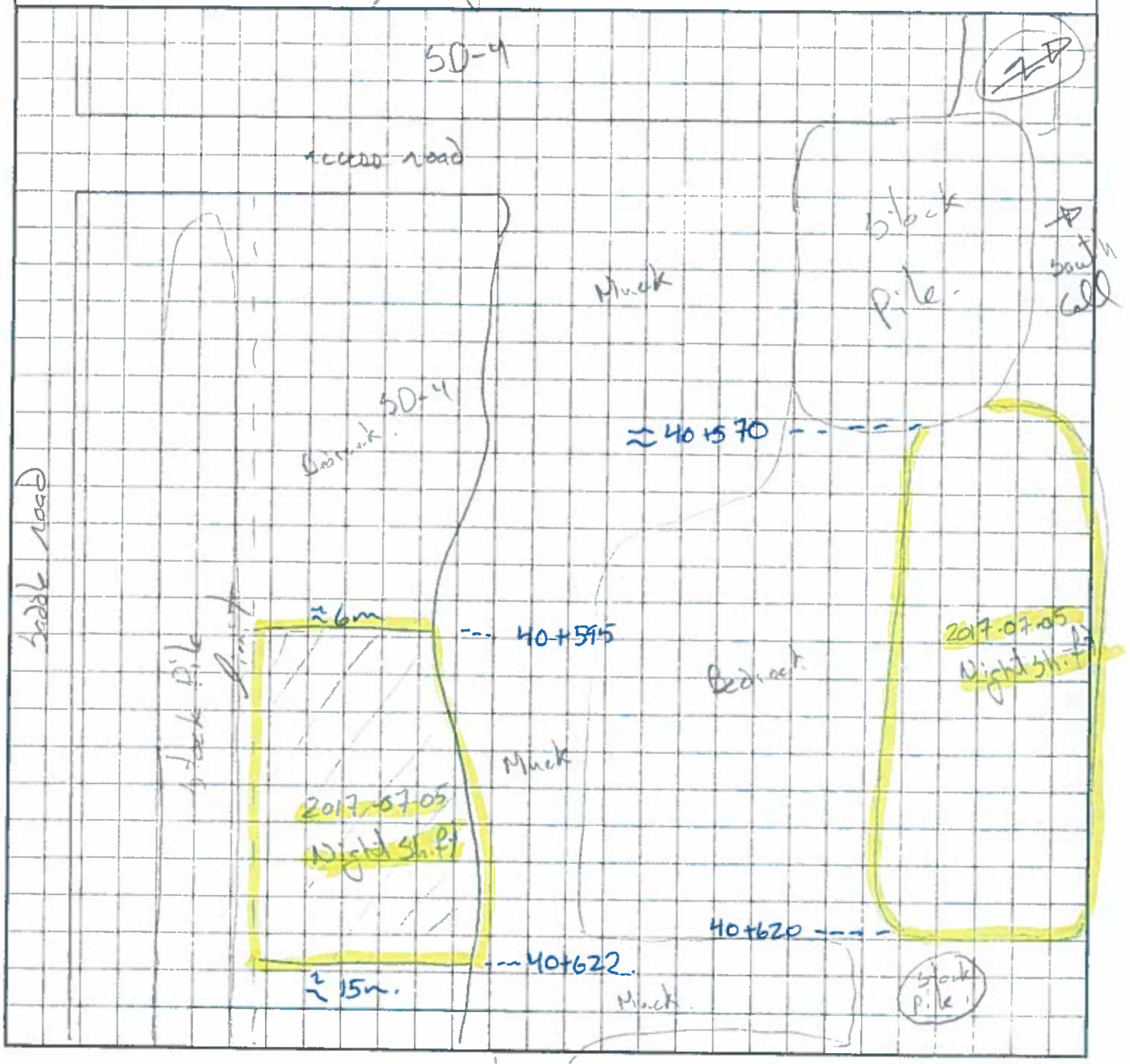
Client: A.E.M. Limited	Project no.: 11118538-B1
Project: Saddle dam # 3-4-5	Page 1 of 2
Inspection date: 2017-07-05 / Night shift	



Prepared by: JB. Verified by:

Plan/Sketch

Client: A.E.M. limited	Project no.: 11118538-01
Project: Saddle dam #3-4-5	Page 2 of 2
Inspection date: 2017-07-05 / Night Shift	



Prepared by: BB. Verified by:

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 06 Juillet 2017 | Inspector - Day/Night: Hugues Potvin, Day shift

Weather : Cloudy with wind

Project: Saddle dams 3,4 and 5 | Contractor: Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Evacuation of material and Rockfill (Sd-4 and 5)

General Activities: see work in progress Blast (SD-3)

Soft Sediment Excavation	☐	Key Excavation	☐	Coarse Filter	☐	Drilling/Blasting	☐
Foundation Preparation	☐	LLDPE/Geotextile	☐	Till	☐		
Water Control	☐	Fine Filter	☐	Rockfill	☐		

Description:

- Evacuation of excavated material mostly between ch. 40 + 680 and 40+710, approximately 25 m right to the center line, also ch. 40+545 (approx. 5m left center line).
- Bedrock cleaning at some place on SD-4 (location not noted).
- Rockfill on SD-5 and SD-4 (see sketch for location). This is the first layer place directly on bedrock, the width is between less than 1 m to 2 m max.
- Blast at SD-3 at 15:30.

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, CAT 365D, Trucks and Dozer D8..

Manpower:

Photos Location:

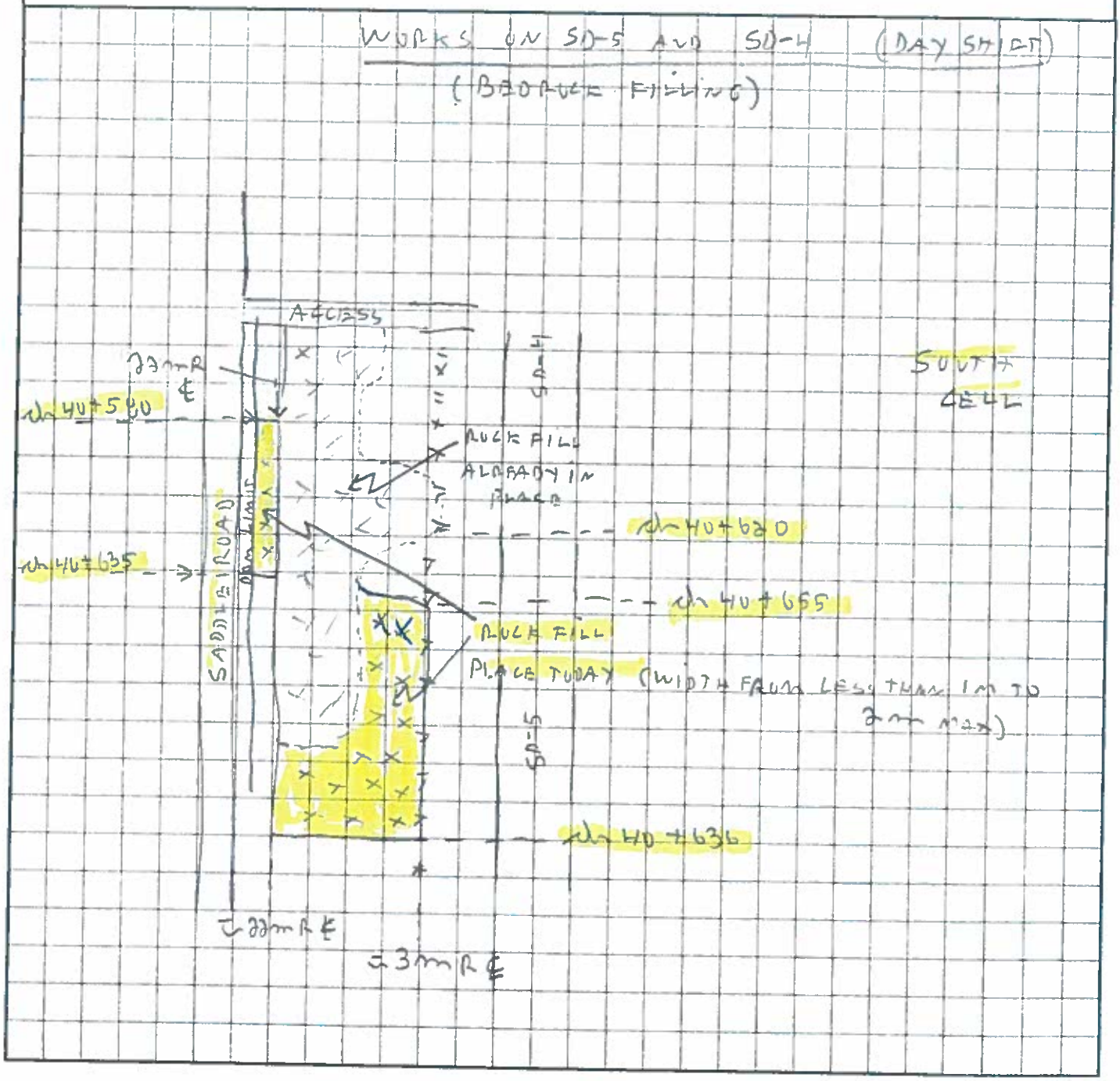
* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Sketch

Client: AGNICO EAGLE MINES LIMITED	Project no.: 11118538-B1
Project: MEADOW BANK	Page 1 of 1
Inspection date: 2017-07-06	

WORKS ON SD-5 AND SD-4 (DAY SHIFT)

(BACKFILLING)



Prepared by: HUGUES PUTNIN Verified by:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 06 Juillet 2017 **Inspector - Day/Night:** Sébastien Blackburn, Night shift

Weather : Cloudy and rainy

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Installation of 2 metres maximum of rockfill on SD-4

General Activities: see work in progress

Soft Sediment Excavation	☐	Key Excavation	☐	Coarse Filter	☐	Drilling/Blasting	☐
Foundation Preparation	☐	LLDPE/Geotextile	☐	Till	☐		
Water Control	☐	Fine Filter	☐	Rockfill	☐		

Description: - Installation of 2 metres maximum of rockfill on SD-4. (see sketchs join to the report)

- Ground cleaning on SD-3. (see sketchs join to the report)

Delays: The Cat 345D broke for the rest of the shift. He had to use the Cat 365 (May be 1hour of delay)

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D change for a Cat 365, Cat D9T dozer.

Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Sketch

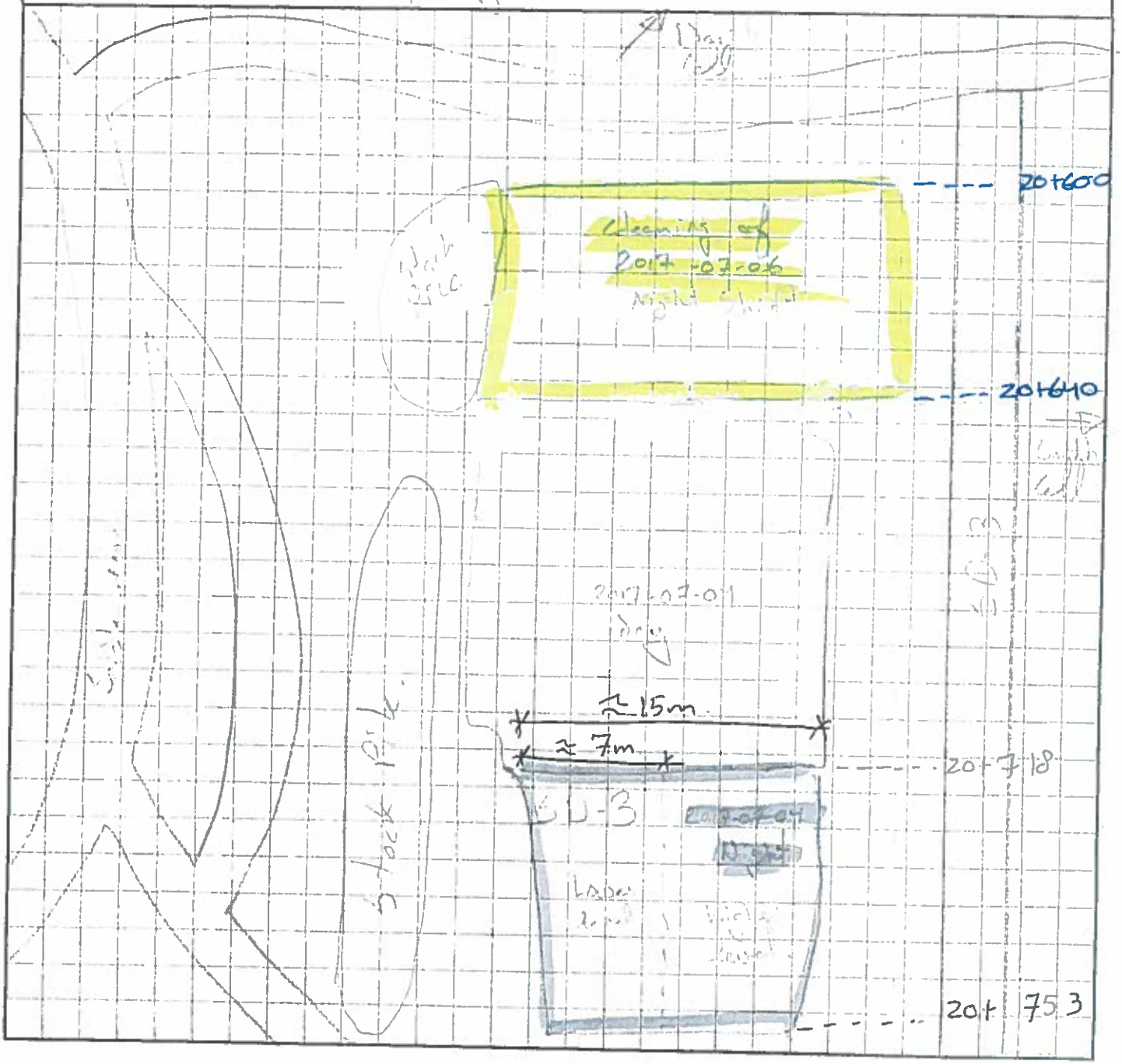
Client: A.E.M. Limited

Project no.: [illegible]

Project: [illegible]

Page 1 of 2

Inspection date: 2017-07-06 / Night shift

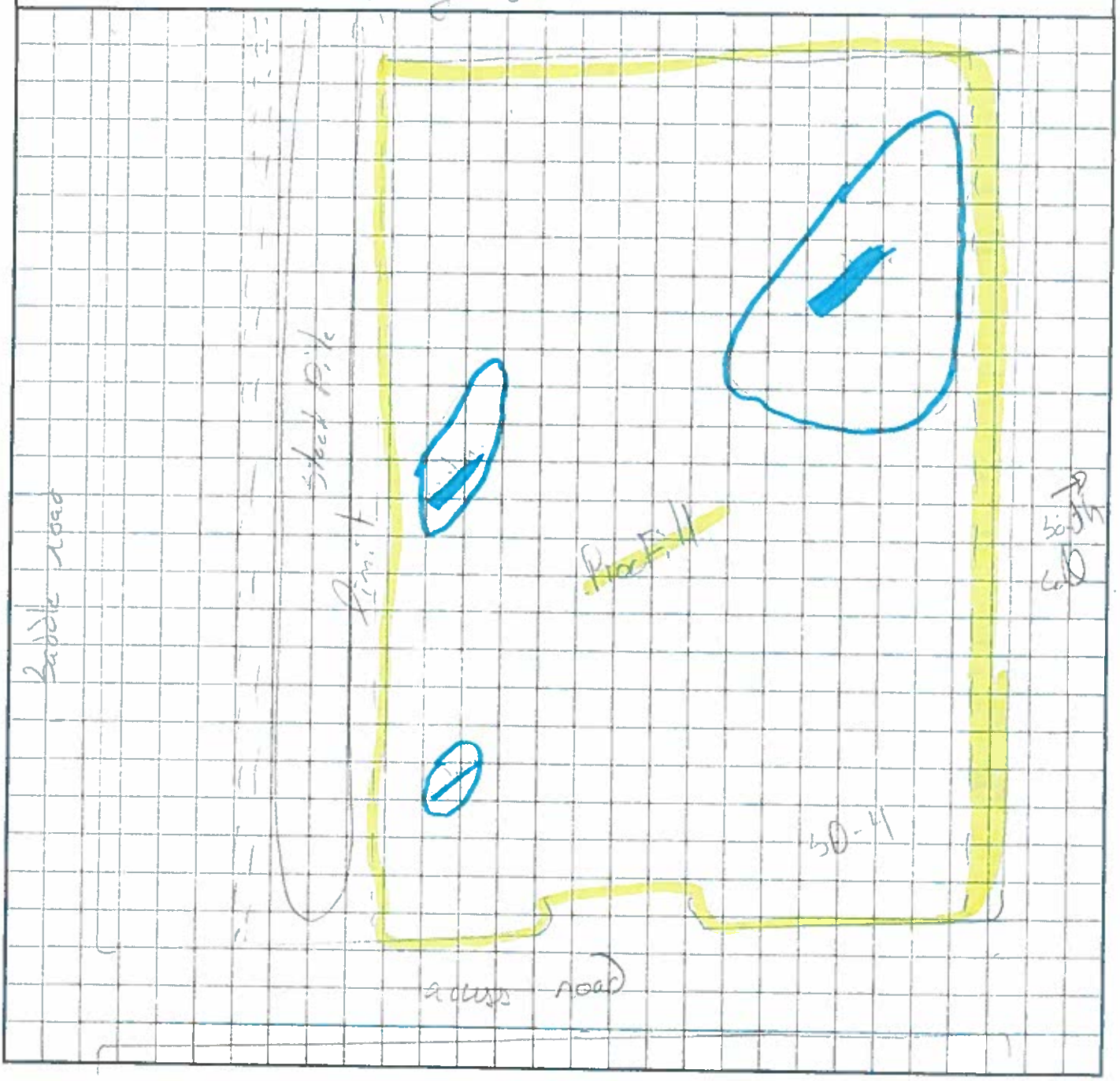


Prepared by: [signature]

Verified by:

Plan/Sketch

Client: A.F.M Limited	Project no.: 11118538-B1
Project: Meadow bank 50-3-4 and 5	Page 2 of 2
Inspection date: 2017-07-06 / Night shift	



Prepared by: _____ Verified by: _____

C:\Users\...\QC Daily inspection Report 2017.07.07 Day Shift.xlsx]Daily Report

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

: 07 Juillet 2017 Inspector - Day/Night: Hugues Potvin, Day shift

Weather : ~~Cloudy with wind~~ RAIN + CLOUDY

Project: Saddle dams 3,4 and 5 Contractor: Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Evacuation of material and compaction.

General Activities: see work in progress

Soft Sediment Excavation	☐	Key Excavation	☐	Coarse Filter	☐	Drilling/Blasting	☐
Foundation Preparation	☐	LLDPE/Geotextile	☐	Till	☐		
Water Control	☐	Fine Filter	☐	Rockfill	☐		

Description:

- Compaction (8 simple pass) on SD-5 and SD-4, sone zones were not compacted because the irregular surface of the rock placed at these places (see sketch).
- Mechanical problem with the compactor at 16:00.
- Evacuation of excavated material of SD-4 (approx. Ch.40+460, 20 m right center line) and of SD-3 (location not measured).
- Cleaning on SD-3 with the Dozer (approx. Ch. 20+590 between 30 to 40 m right of center line).

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: CAT 365D, Trucks, compactor and Dozer

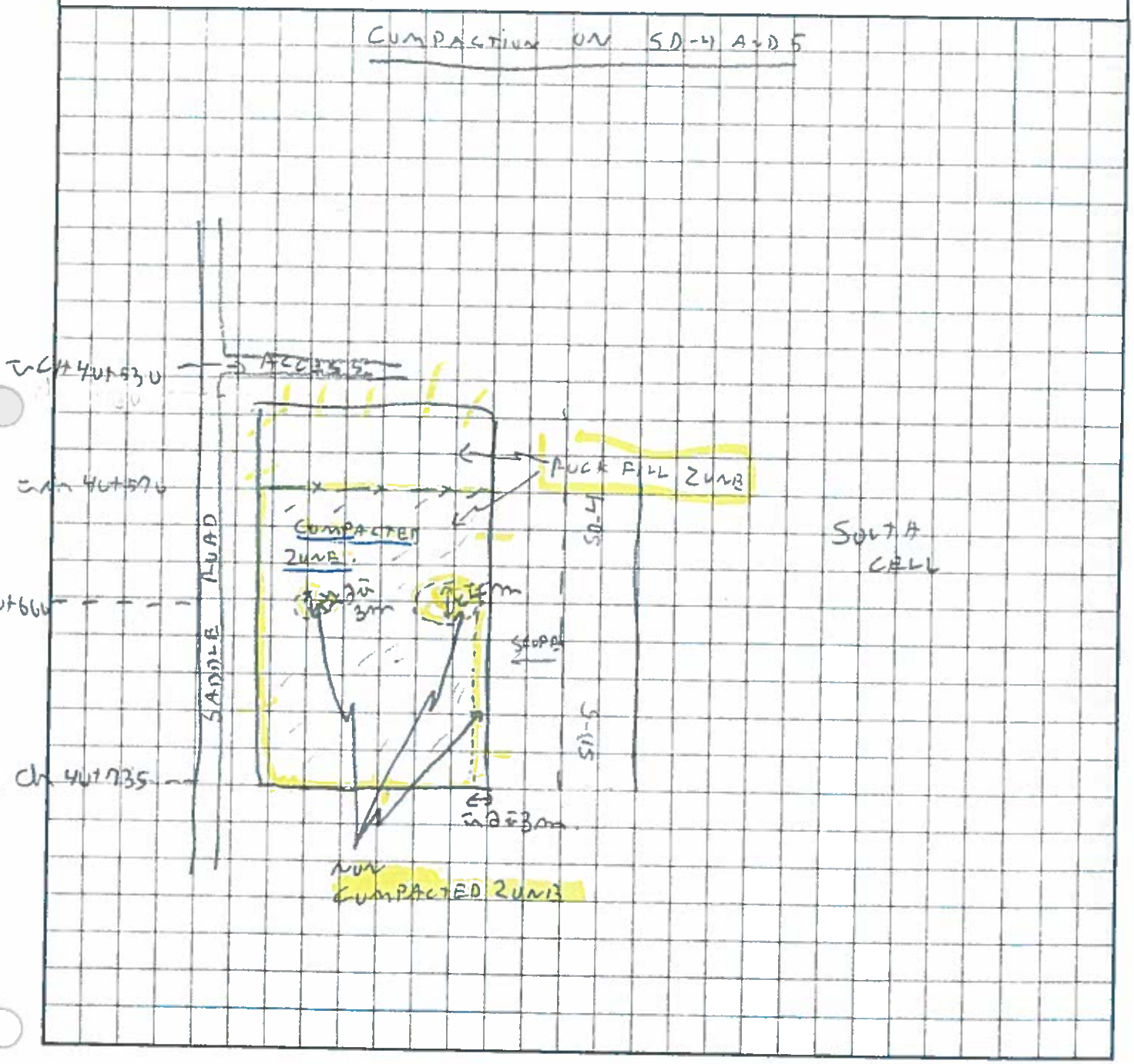
Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Sketch

Client: AGNICO EAGLE MINES LIMITED	Project no.: 11118538-B1
Project: MEADOW BANK S.D-3, 4 AND 5	Page 1 of 1
Inspection date: 2017-07-07	



Prepared by: HUGUES POTVIN

Verified by:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 07 Juillet 2017 **Inspector - Day/Night:** Sébastien Blackburn, Night shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Dispose a part of the SD-3's stock piles

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: Disposing of a SD-3 stock pile. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 365C, 2 Haule trucks

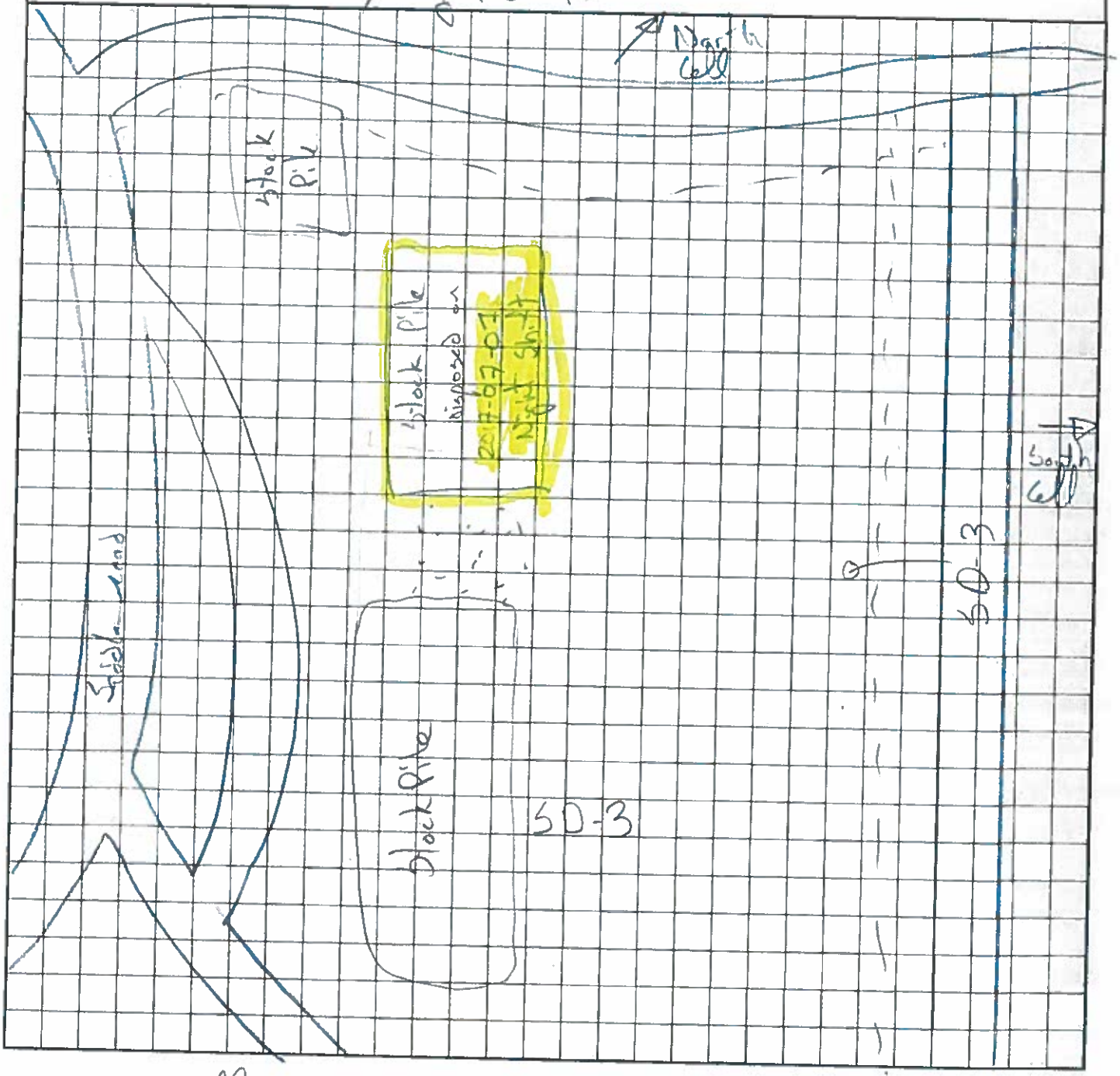
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

Client: A.E.M. Limited	Project no.: 11118538-B1
Project: Meadowbank, SD-3-4 and 5	Page 1 of 1
Inspection date: 2017-07-07 / Night Shift	



Prepared by: _____ Verified by: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

08 Juillet 2017 — **Inspector - Day/Night:** Hugues Potvin, Day shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 — **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Dispose a part of the SD-5's stock piles,

General Activities: see work in progress — Bedrock cleaning on SD-5 and compaction

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: Disposing of a part of a SD-5 stock pile located near Saddle road (progression not measured).

- Bedrock cleaning on SD-5 approximately to ch. 40+635 and ch. 40+730, approx. 17 to 28 m right to the center line (see sketch #1).

- Compaction on SD-4 and SD-5 (see sketch #1).

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345, Cat 365, Hauletrucks and compactor

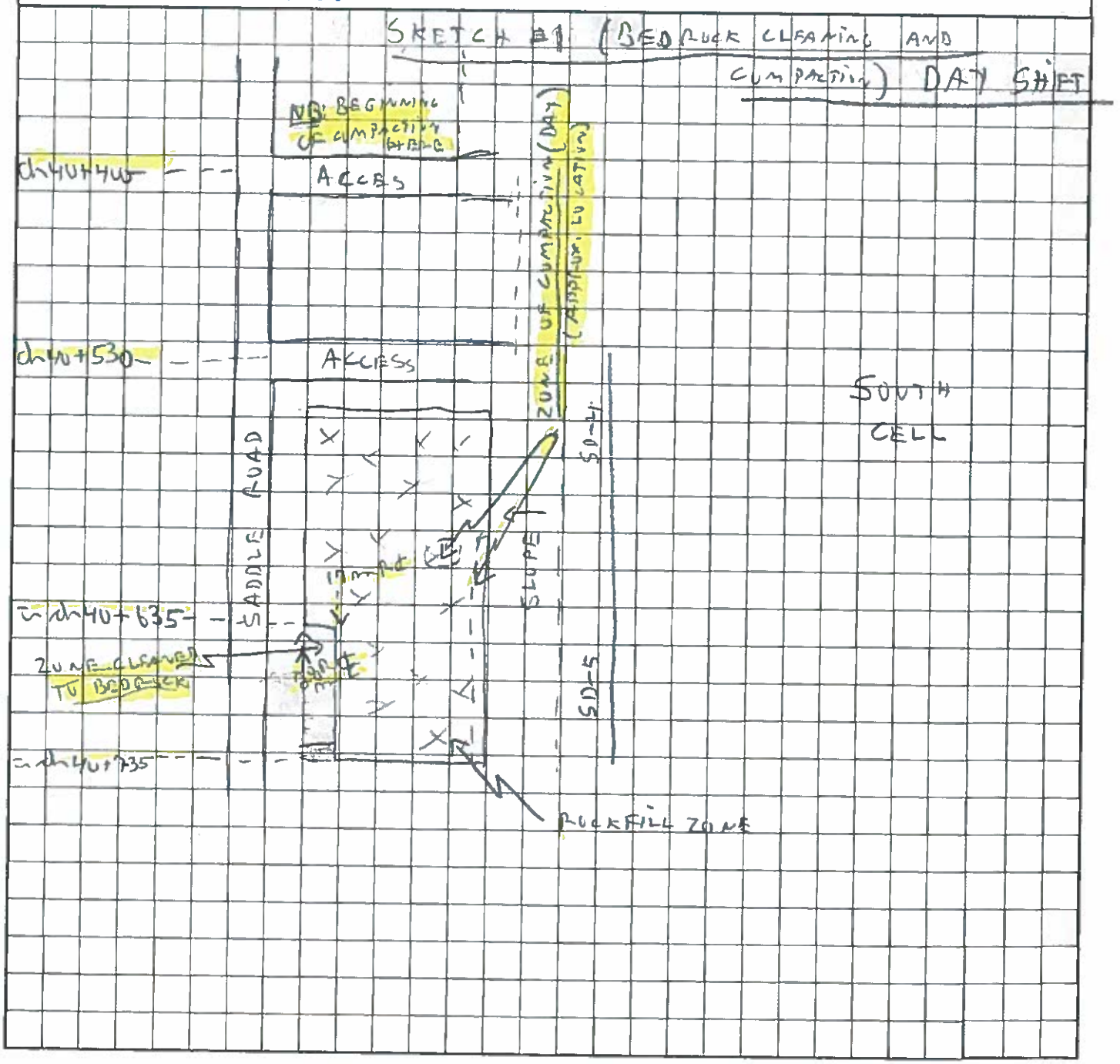
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

Client: AGNICO EAGLE MINES LIMITED	Project no.: 11118538-B1
Project: MEADOWBANK SD-4 AND SD-5	Page 1 of 1
Inspection date: 2017-07-08	



Prepared by: Hugues Putvin Verified by: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 08 Juillet 2017 **Inspector - Day/Night:** Sébastien Blackburn, Night shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Dispose a part of the SD-4 and SD-5 stock piles

General Activities: see work in progress Ground cleaning on SD-3 and laboratory tests

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: Disposing of a SD-4 and SD-5 stock pile. (see sketch join to the report)

- Ground cleaning on SD-3. (see sketch join to the report)

- Gradation ans water content on the coarse filter, sapple #367 and fine filter, sapple #372. On the #367, the little gradation will be done on the day shift.

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 365C (75%), Cat 345D(25%) and Haule trucks

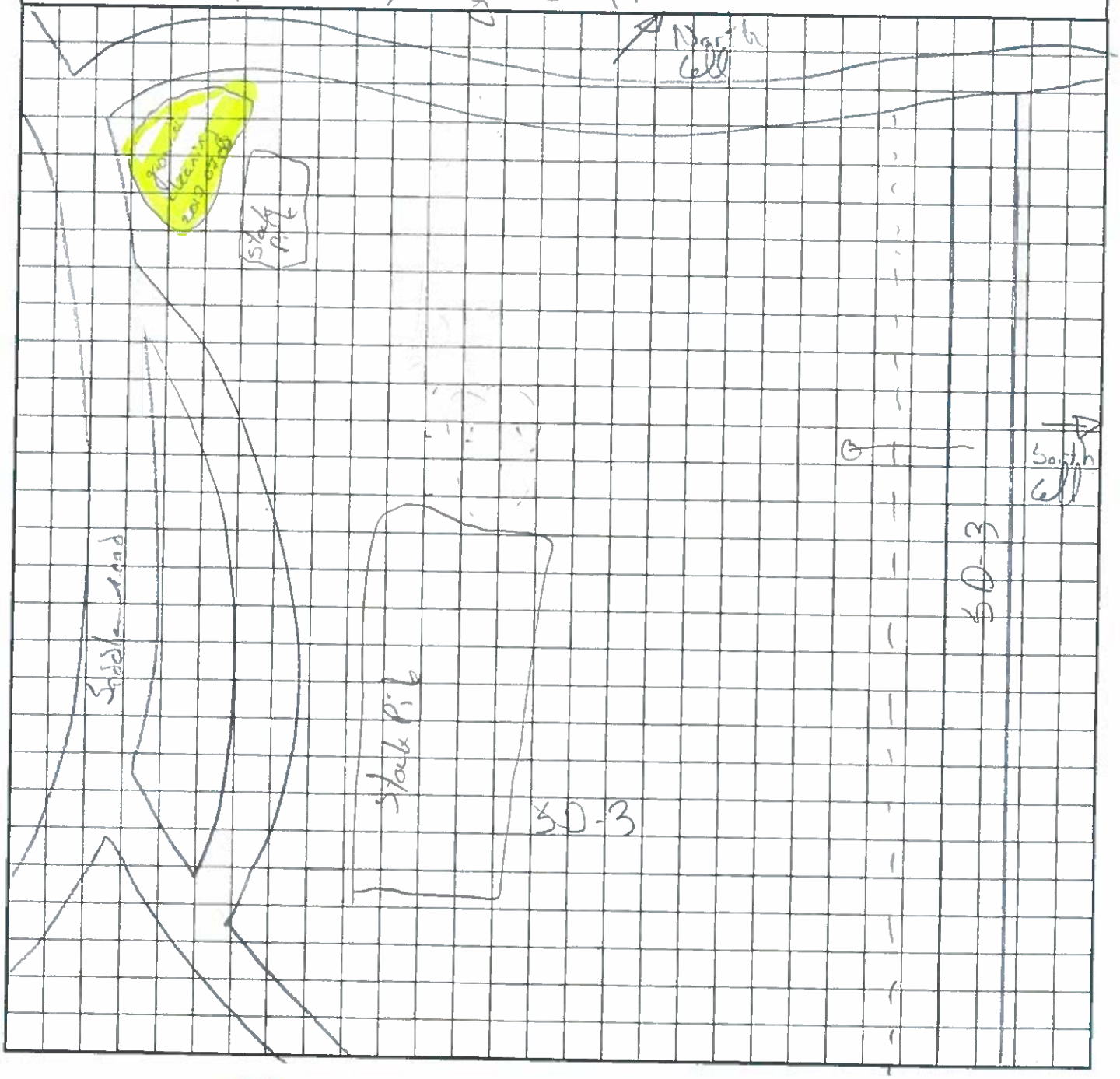
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

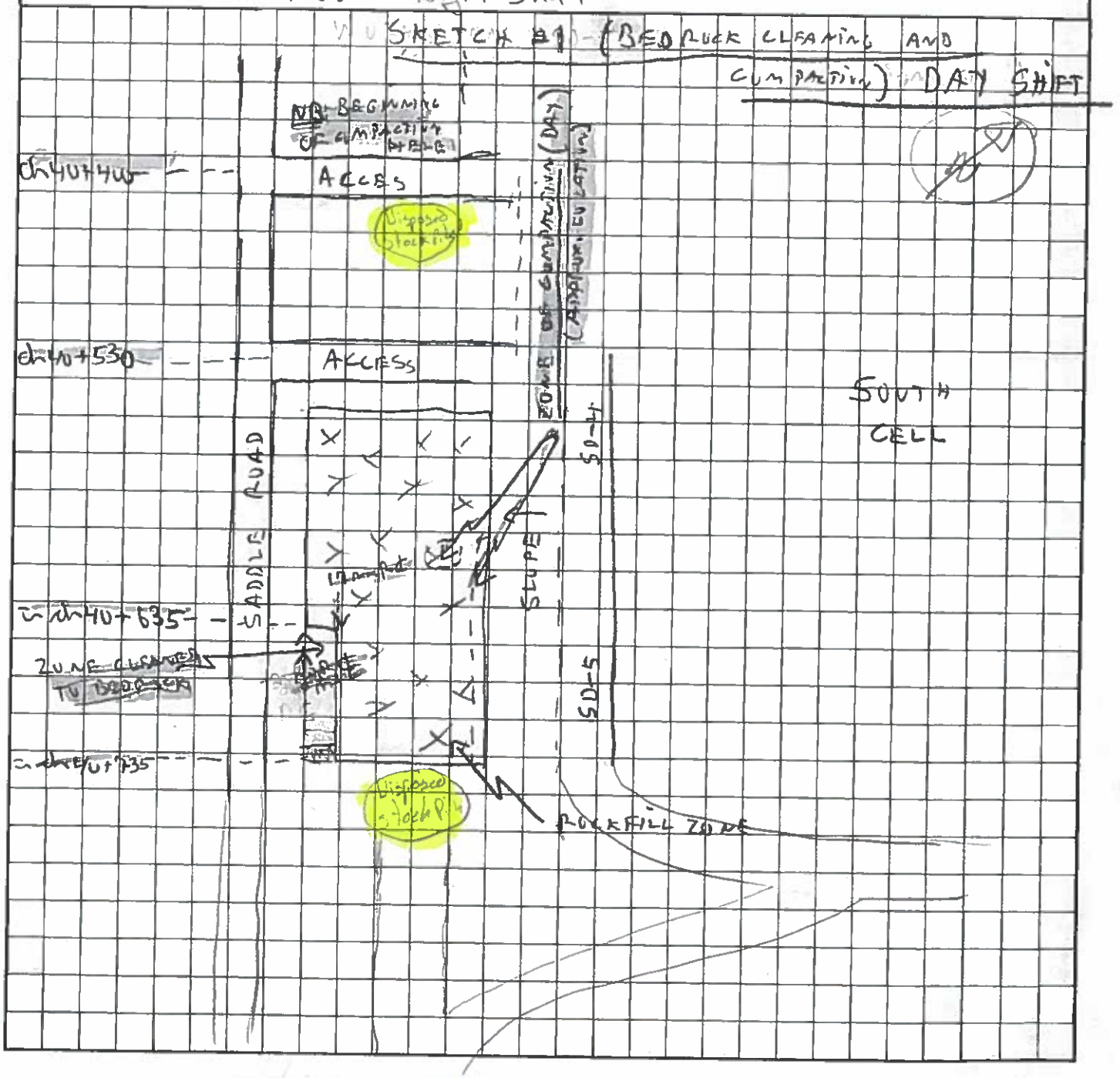
Client: A.E.M. Limited	Project no.: 1118538-B1
Project: Meadowbank, SD-3-4 and-5	Page 1 of 2
Inspection date: 2017-07-08 / Night Shift	



Prepared by: SB. Verified by:

Plan/Sketch

Client: AGNICO EAGLE MINES LIMITED	Project no.: 1111 0538-B1
Project: MEADOWBANK SD-4 AND SD-5	Page 1 of 2
Inspection date: 2017-07-08 Night Shift	



Prepared by: _____ SB. Verified by: _____

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 09 Juillet 2017 Inspector - Day/Night: Hugues Potvin, Day shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 Contractor: Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Dispose a part of the SD-4's stock piles,

General Activities: see work in progress Rockfill and compaction on SD-4

Soft Sediment Excavation	☐	Key Excavation	☐	Coarse Filter	☐	Drilling/Blasting	☐
Foundation Preparation	☐	LLDPE/Geotextile	☐	Till	☐		
Water Control	☐	Fine Filter	☐	Rockfill	☐		

Description: Disposing of a part of a SD-4 stock pile located near Saddleroad untill ch.40+310 approximately.

- Rockfill in SD-4 between ch. 40+298 and 40+328 approximately, width of approx. 20 m and thickness of 1.0 m. All this area was compacted (note that a zone of 5 to 6 m width was only compacted without vibration to avoid water raise).

- Preparation for a blast at SD-3.

nb: Two sample were take on Sana Crusher site for gradation yesterday, one on Fine filter pit (result ok) and the other on Coarse filter pit (result not good, too mutch fines).

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345, Cat 365, Hauletrucks and compactor

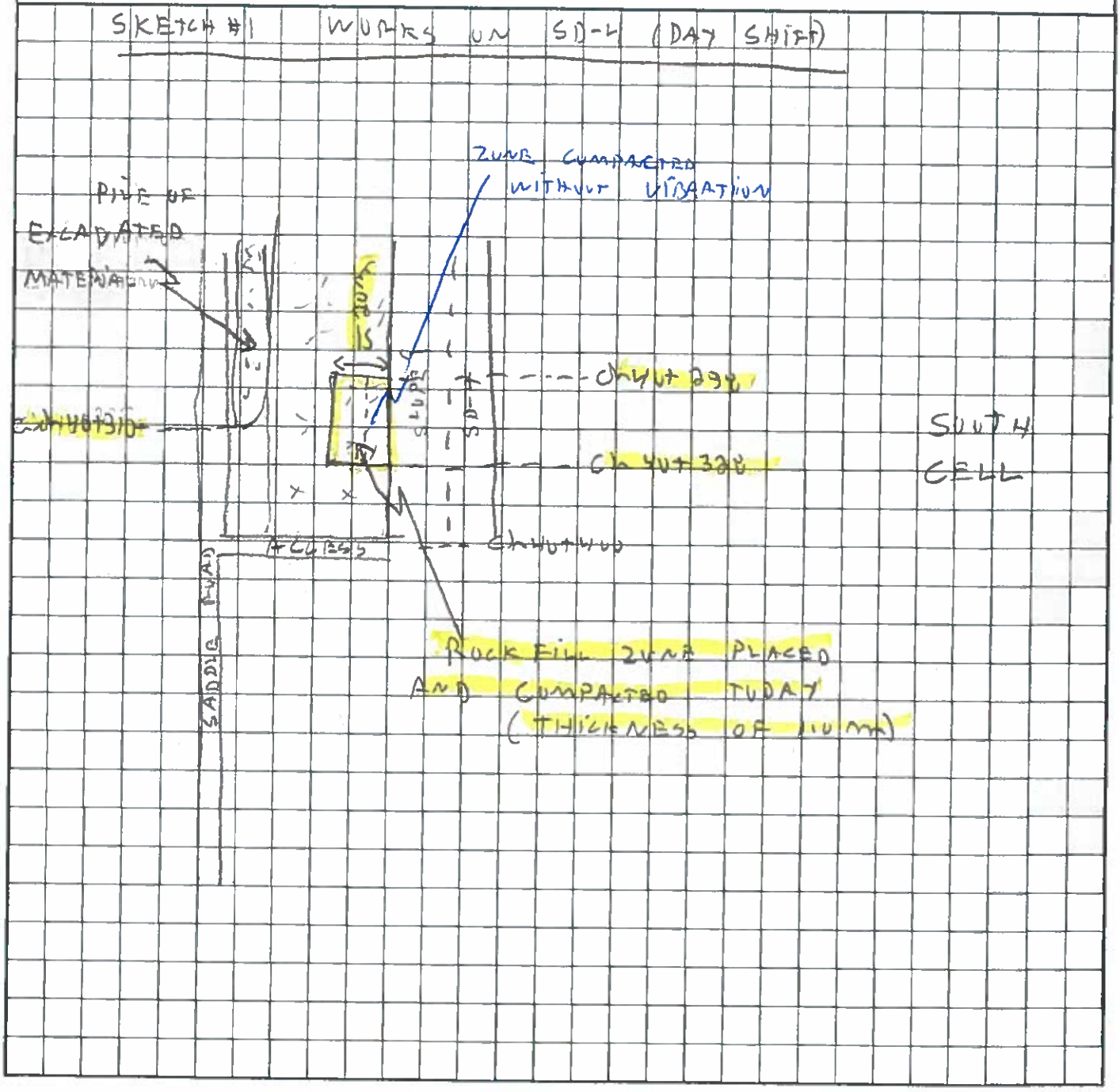
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

Client: AGNICO EAGLE MINES LIMITED	Project no.: 1111 8538-81
Project: MEADOW BANK SD-3, 4 AND 5	Page 1 of 1
Inspection date: 2017-07-09	



Prepared by: _____ Verified by: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 09 Juillet 2017 **Inspector - Day/Night:** Sébastien Blackburn, Night shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work In Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Dispose a part of the SD-4 stock piles

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: Disposing a part of the SD-4 stock piles. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 365C and 2-Haule trucks

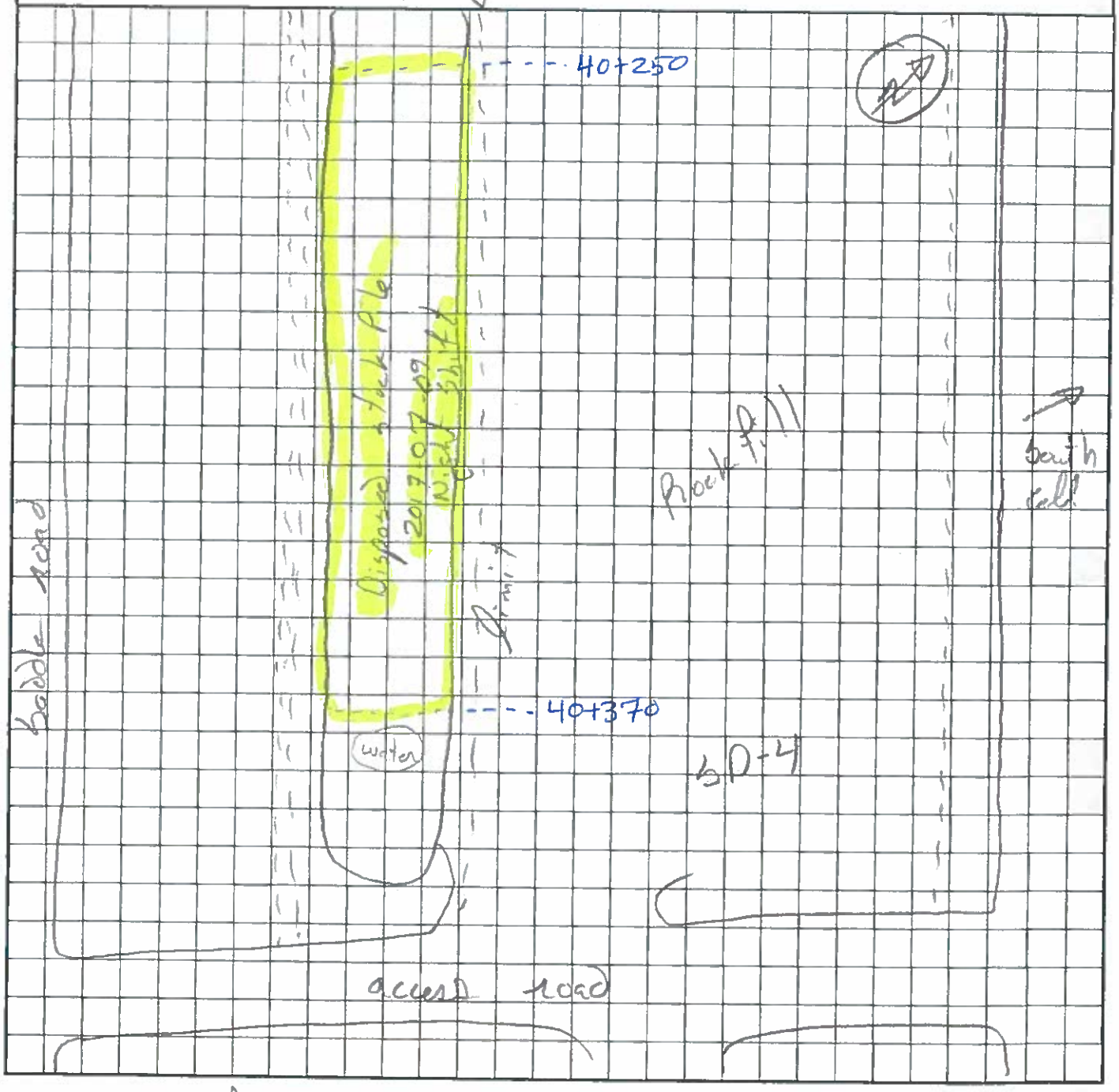
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

Client: A.E.M. Limited	Project no.: 11118538-B1
Project: Meadowbank 5D-3-4-5	Page 1 of 1
Inspection date: 2017-07-09 / Night Shift	



Prepared by: SB. Verified by: _____

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

: 10 Juillet 2017 Inspector - Day/Night: Hugues Potvin, Day shift (AM only) until 10:30

Weather : Sunny

Project: Saddle dams 3,4 and 5 Contractor: Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Dispose a part of the SD-4's stock piles,

General Activities: see work in progress Preperation to a blast on SD-3

Soft Sediment Excavation	☐	Key Excavation	☐	Coarse Filter	☐	Drilling/Blasting	☐
Foundation Preparation	☐	LLDPE/Geotextile	☐	Till	☐		
Water Control	☐	Fine Filter	☐	Rockfill	☐		

Description: Disposing of a part of a SD-4 stock pile located near Saddle road. The upper portion of this pile was already evacuated, we just evacuate the base of the pile (see sketch #1).

- Preparation for a blast on the site of the future water place for water evacuation north of SD-3.

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345, Cat 365, Hauletrucks

Manpower:

Photos Location:

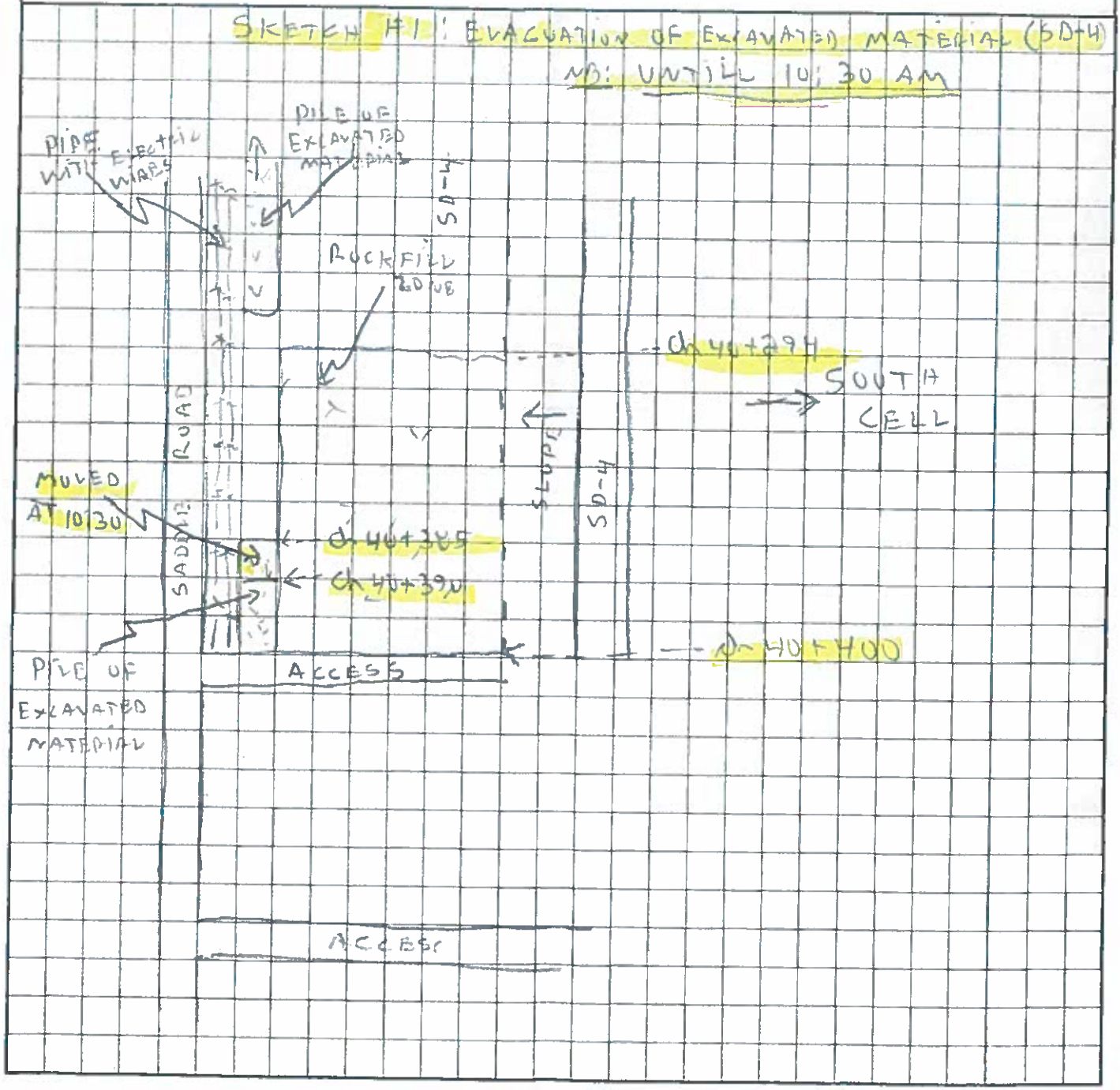
* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Sketch

Client: AGNICO EAGLE MINES LIMITED	Project no.: 1111853B-B1
Project: SADDLE DAMS SD-3-4 AND 5	Page 1 of 1
Inspection date: 2017-07-10	

SKETCH #1 : EVACUATION OF EXCAVATED MATERIAL (SD-4)

NB: UNTIL 10:30 AM



Prepared by: HUGUES POTVIN Verified by: _____

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 2017-07-10 Inspector - Day/Night: Maryanne Beaudremp 6PM to 12Am

Weather : Sunny

Project: Contractor: Ferand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities:

Soft Sediment Excavation	☐	Key Excavation	☐	Coarse Filter	☐	Drilling/Blasting	☐
Foundation Preparation	☐	LLDPE/Geotextile	☐	Till	☐		
Water Control	☐	Fine Filter	☐	Rockfill	☐		

Description: Around cleaning on SP-3

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D 2 Haule Trunk #04 et #07

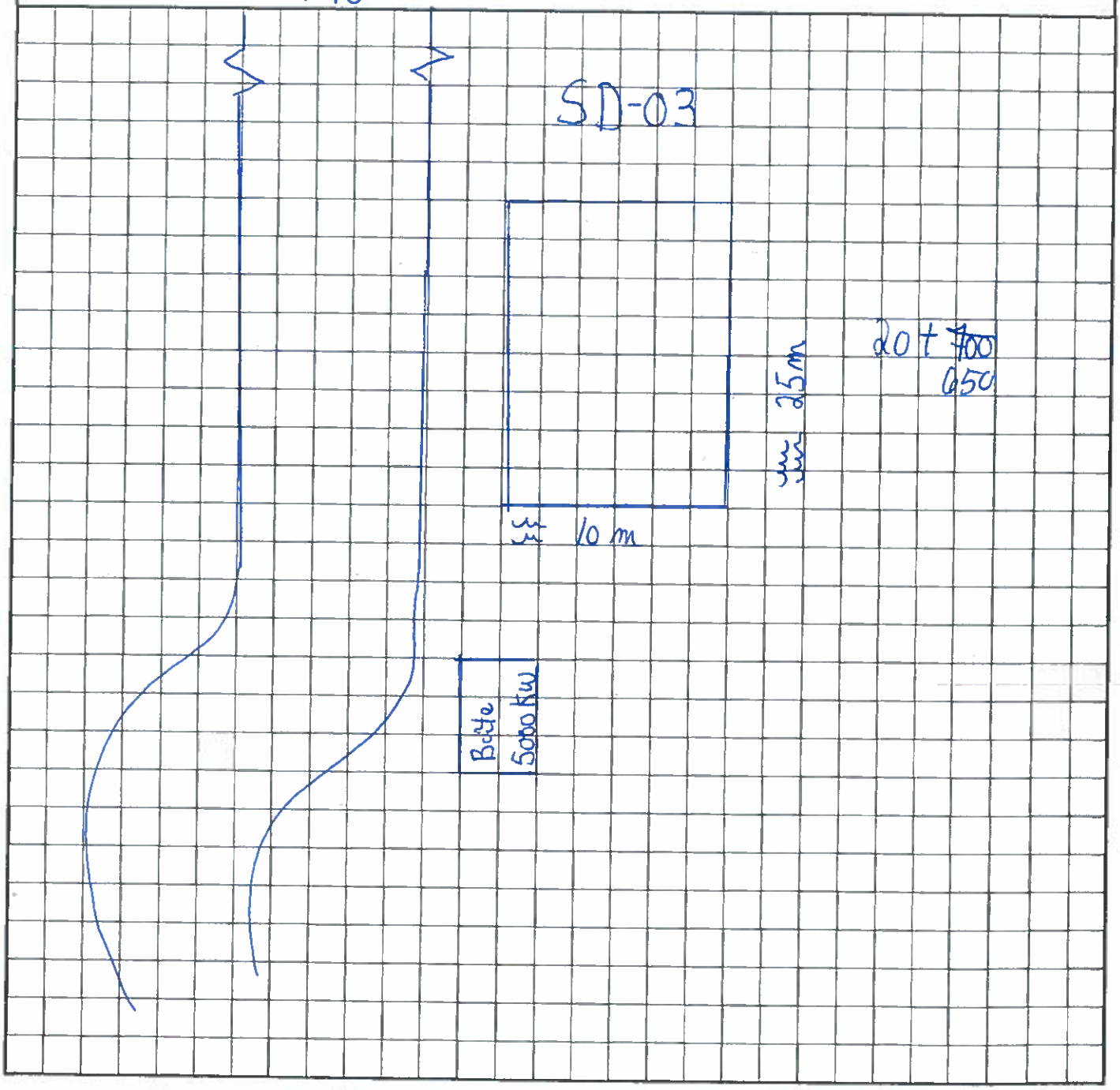
Manpower:

Photos
Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Sketch

Client: Agricoeagle	Project no.: 11118538-B1
Project: Meadowbank	Page 1 of 1
Inspection date: 2017-07-10	



Prepared by: Jacqueline Beaudamp Verified by: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 11 Juillet 2017 **Inspector - Day/Night:** Pierrick Trecasse, Day shift (AM only) until 10:30

Weather : Sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Dispose a part of the SD-5 and SD-4's stock piles,

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description : QC activities : finalize to clean up bed roc to SD3 , pomping water SD3, finalize to clean up bed roc to SD5, pomping water SD5 and we are approuved the fondation of bed roc to SD5.

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345, Cat 365, Hauletrucks

Manpower:

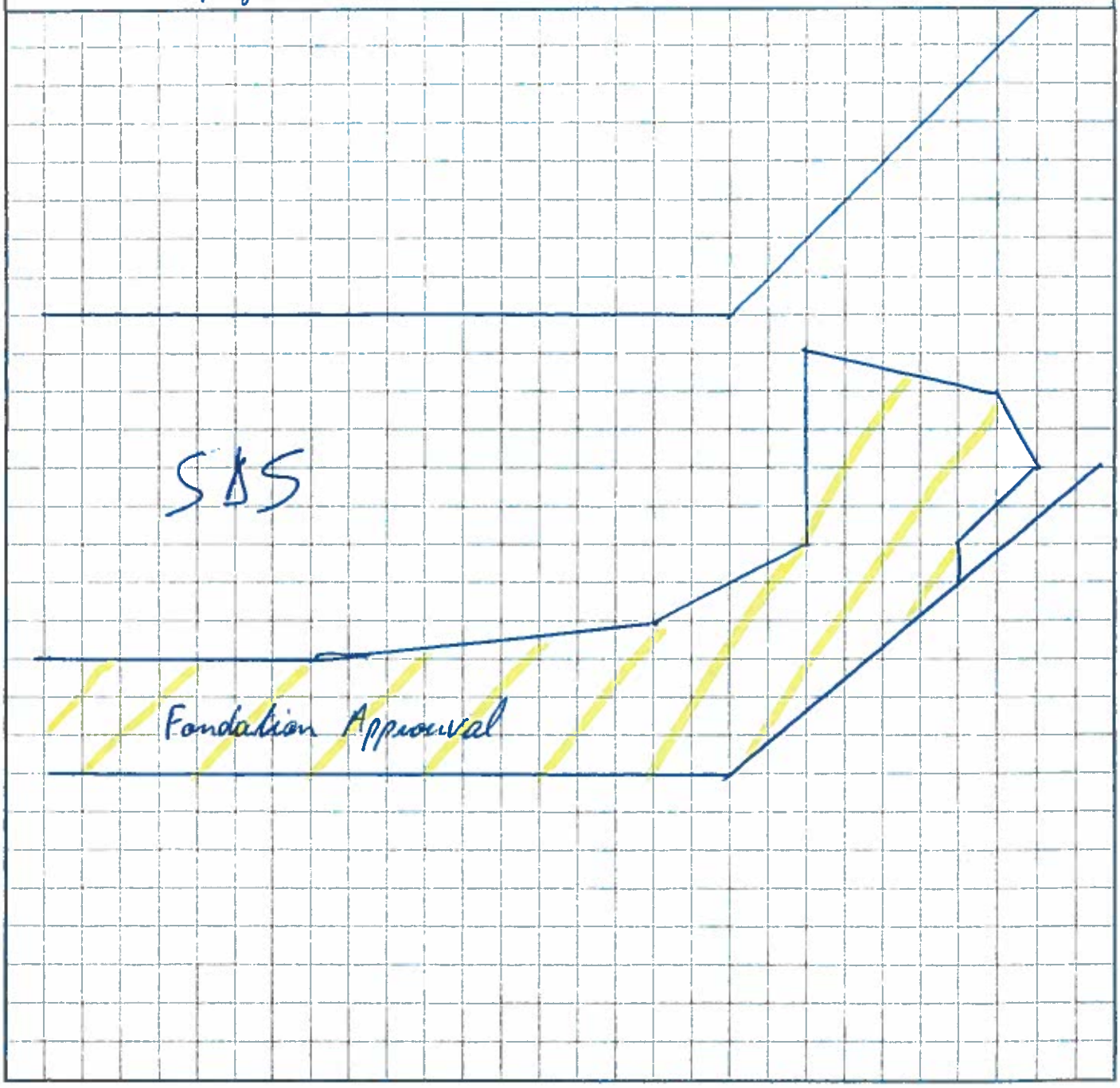
Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

GHD

Plan/Sketch

Client: Agnico Eagle	Project no.: 11 11 85 38
Project: SAS	Page 1 of 1
Inspection date: 11 july 2017	



Prepared by: Pierrick Trecasse Verified by:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 11-Jul-17 **Inspector - Day/Night:** Guyaume Beauchamp

Weather : Sunny

Project: Saddle dam 3 **Contractor:** Fernand Gilbert

Work In Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities:

Soft Sediment Excavation	☑	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: Bedrock cleaning on SD-3.I been put in pills and will be charge on trunk later.

Excacation on SD-3 and fill with rock for pumping water

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 365C and 1 load of rock for a Haule trunk no. 8

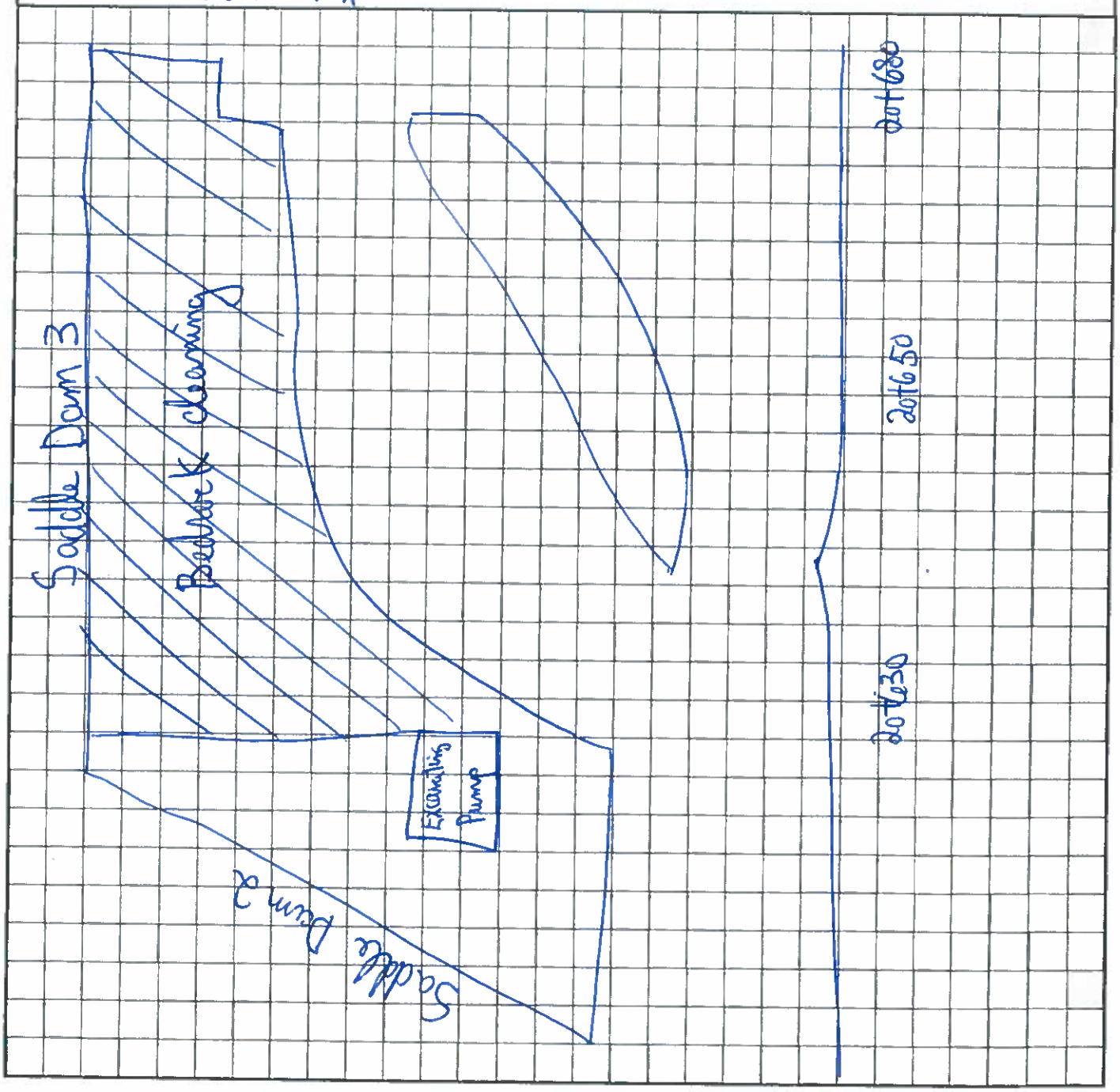
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

Client: Agricoeagle	Project no.: 11118538-B1
Project: Meadowbank	Page 1 of 1
Inspection date: 2017-07-11	



Prepared by: Maryanne Beauchamp Verified by: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 13 Juillet 2017 **Inspector - Day/Night:** Pierrick Trecasse, Day shift

Weather : Cloudy

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description : QC activities : loading of excavated materiel to SD3 , pomping water in sompe to SD3.

Compact rockfill to SD4 (see sketch)

cleanup of bedrock to SD4

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345, Cat 365, Hauletrucks

Dozer D9T 06 CAT

Compactor 3625

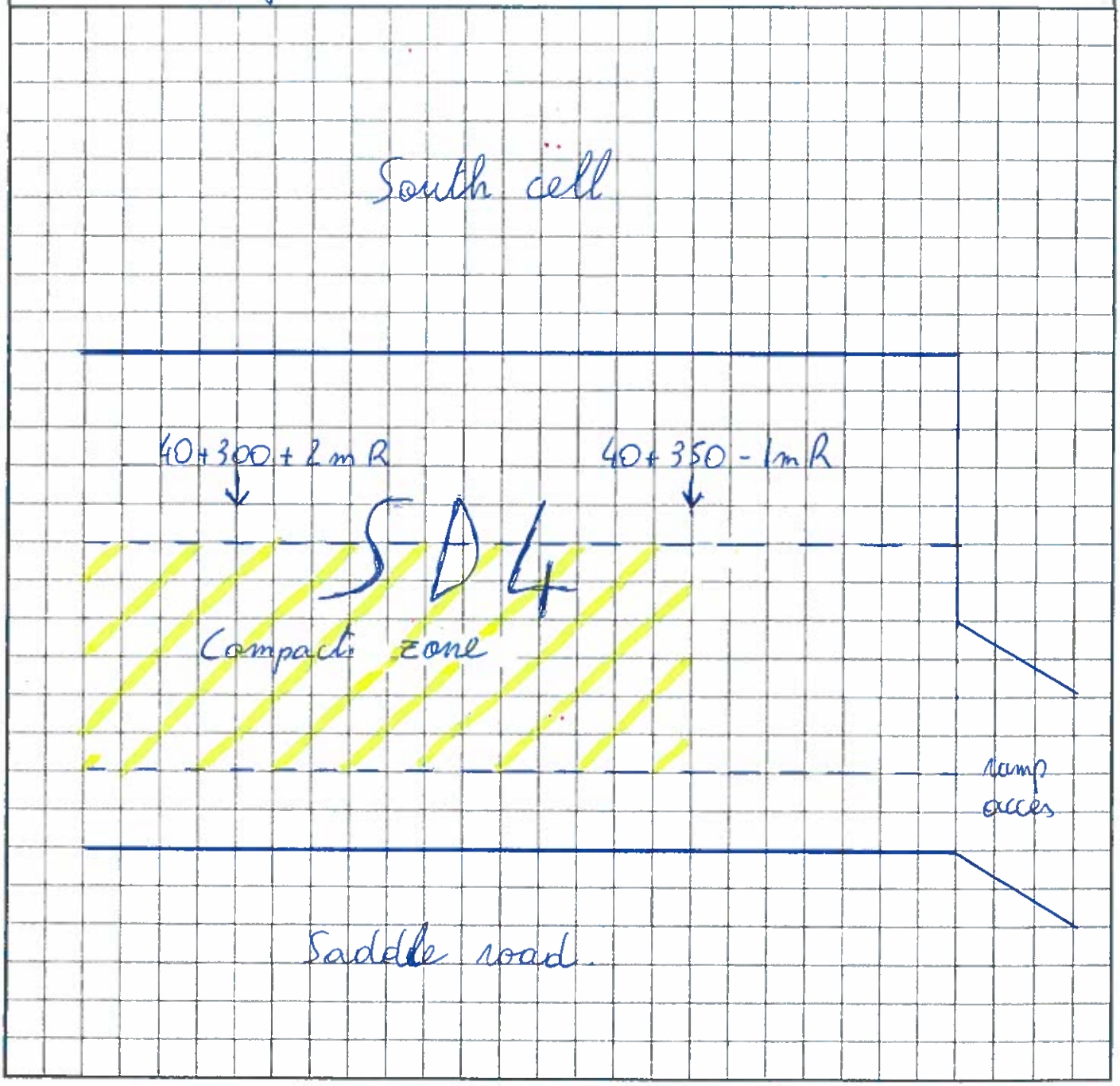
Manpower:

Photos Location:

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Plan/Sketch

Client: Agnico Eagle	Project no.: 11 11 85 38 - B1
Project: SD4	Page 1 of 1
Inspection date: 13 july 2017	



Prepared by: Pierrick Trecarre Verified by:

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 13-Jul-17 **Inspector - Day/Night:** Guyaume Beauchamp

Weather : Sunny and cloudy

Project: Saddle dam 3 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities:

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: Removal of the soft soil and loose rocks from the SD-3 site in haul trucks from 20+690 ending at 20+750

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 365C , haul trunk no.6 :23 loads (all night), no. 7 : 6 loads(starding at 4h01)

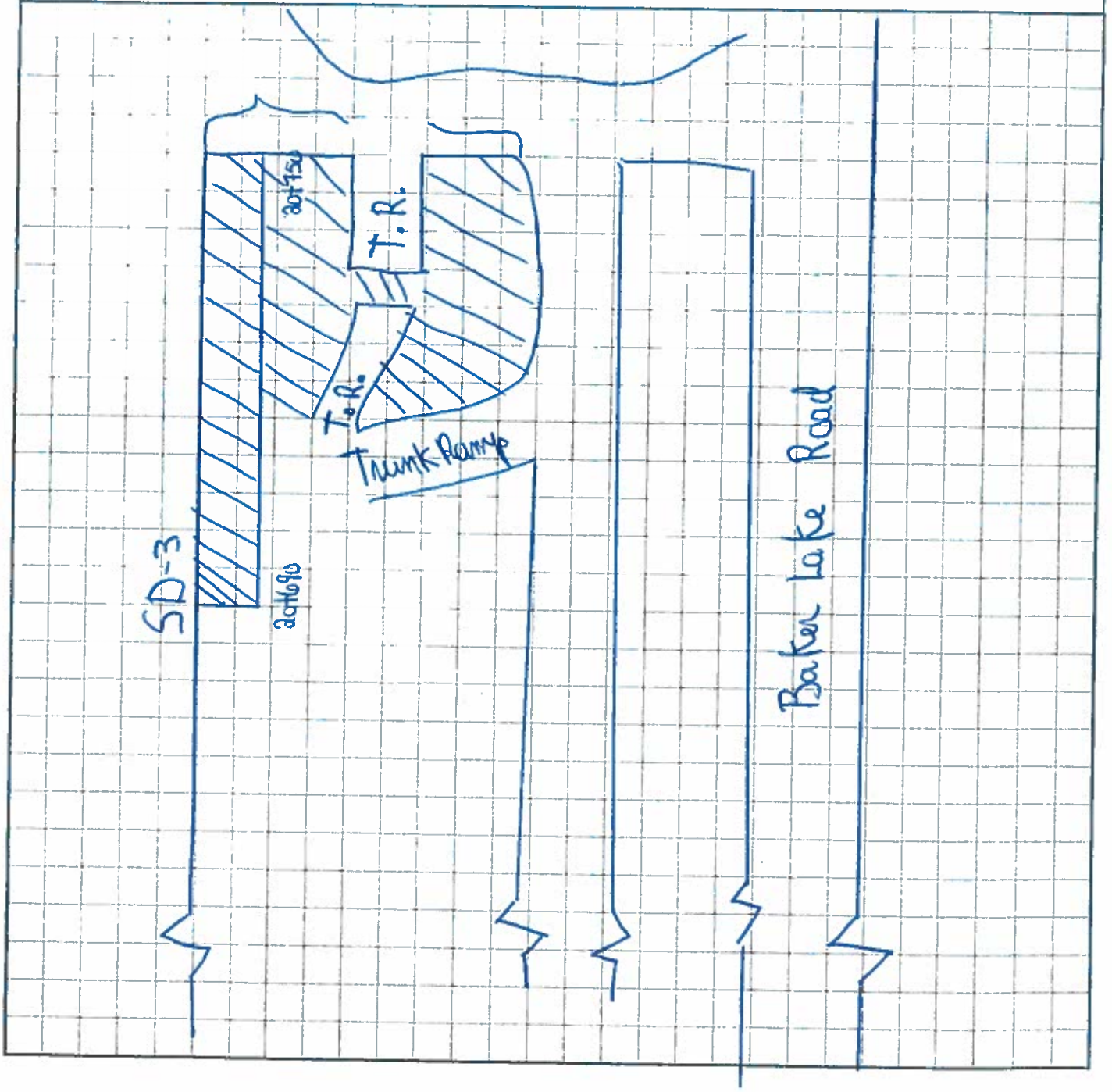
Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Sketch

Client: Agnico Eagle	Project no.: 11118538-B1
Project: Saddle Dam 3	Page 1 of 1
Inspection date: 2017-07-13	



Prepared by: _____ Verified by: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 14 Juillet 2017 **Inspector - Day/Night:** Pierrick Trecasse, Day shift

Weather : Cloudy

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities: see work in progress

Soft Sediment Excavation	☑	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☑	**Fine Filter**	☐	**Rockfill**	☑		

Description : QC activities :pomping water in sump to SD3.

cleanup of bedrock to SD4, loading of excavated materiel to SD4.

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345, Cat 365, Hauletrucks

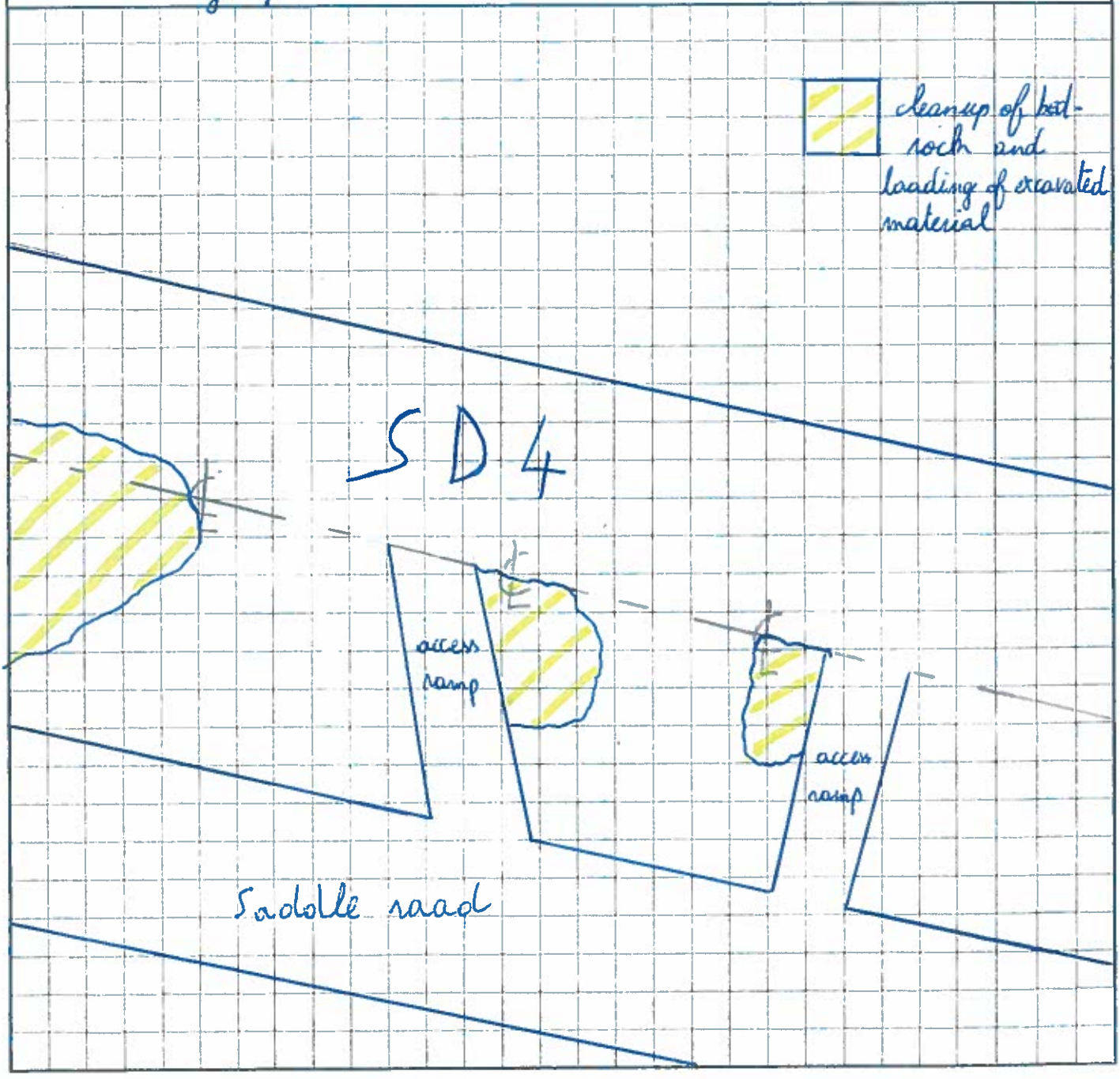
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

Client: Agnico Eagle	Project no.: 11185 38-B1
Project: Saddle Dam 4	Page 1 of 1
Inspection date: 14 july 2017	



Prepared by: Pierrick Trecarre Verified by:

F:\CHDO\Guyaume Beauchamp\QC-Daily Inspection Report_ok 2017-07-14.xls]Daily Report

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 14-Jul-17 **Inspector - Day/Night:** Guyaume Beauchamp

Weather : Mostly cloudy and rain starding at 5h15

Project: Saddle dam 3-4 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities:

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: Removal of the soft soil and loose rocks from the SD-4 site in haul trucks at 40+280 and at 40+200

Removal of the soft soil and loose rocks from the SD-3 site in haul trucks 20+840 ending at 20+860

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 365C , haul trunk no.7 :31 loads (all night), no. 6 : 7 loads(ending at at 21h30), no. 2: 20 loads (starding at 21h55)

Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

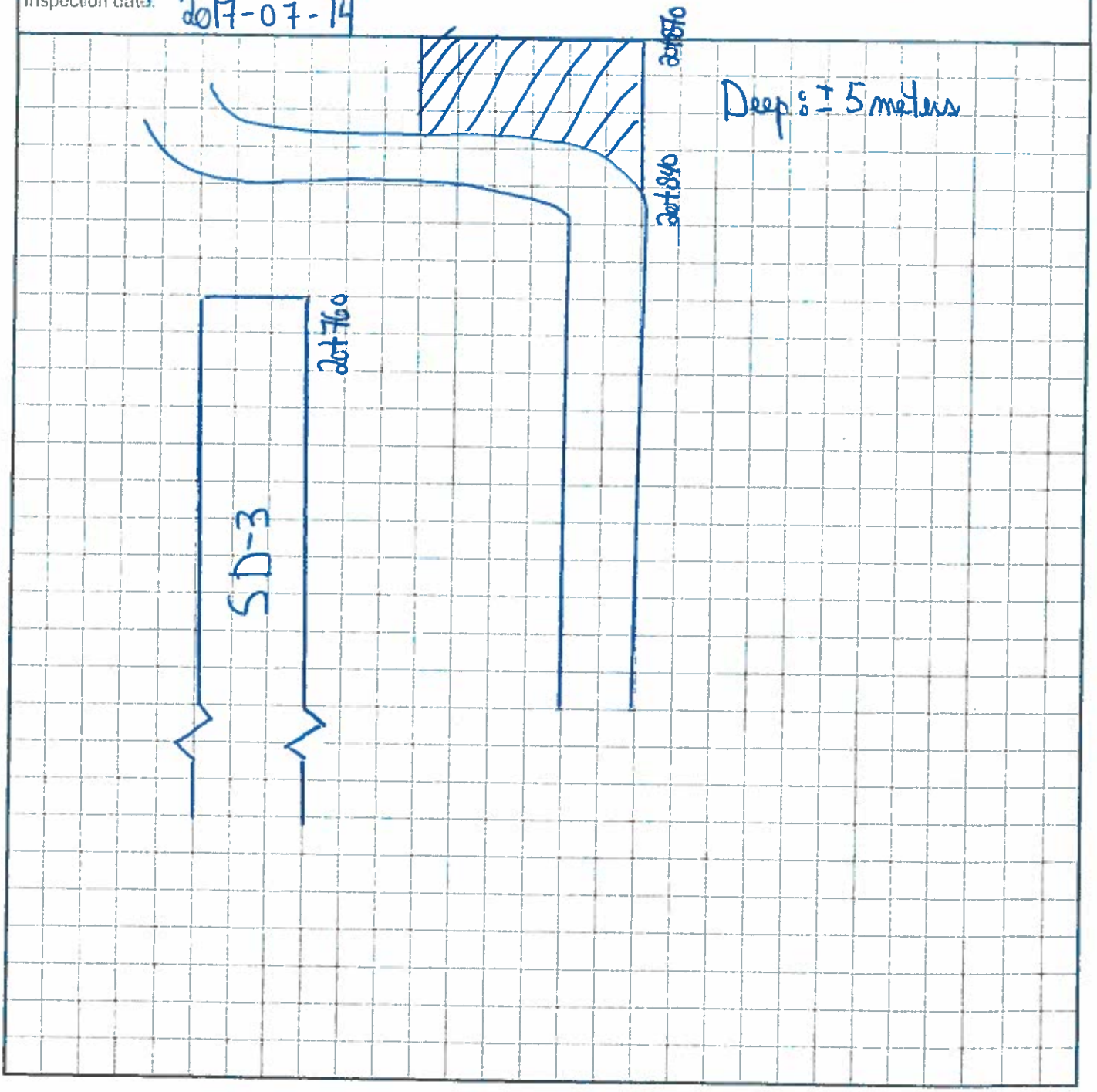
Client: Agnico Eagle

Project: SD-3

Project no.: 1111 8538

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Inspection date: 2017-07-14

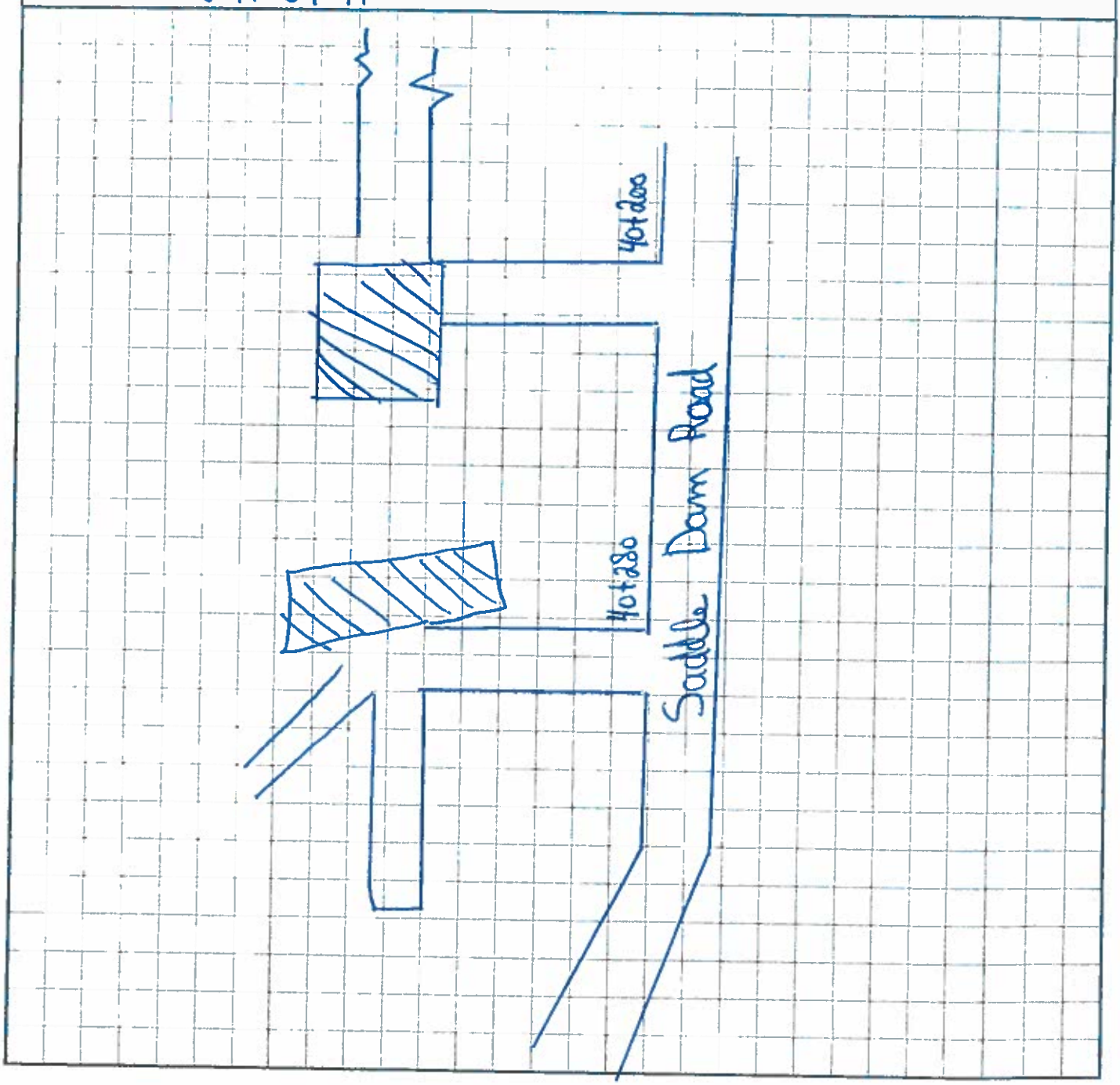


Prepared by: Maryleine Beaudoin

Verified by:

Plan/Sketch

Client: Agnico Eagle	Project no.: 11118538-B1
Project: SD-4	Page 2 of 2
Inspection date: 2017-07-14	



Prepared by: _____ Verified by: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 15 Juillet 2017 **Inspector - Day/Night:** Pierrick Trecasse, Day shift

Weather : Cloudy

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities: see work in progress

Soft Sediment Excavation	☒	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☒	**Fine Filter**	☐	**Rockfill**	☒		

Description : QC activities :pomping water in sump to SD3.

Cleanup of bedrock to SD4, loading of excavated materiel to SD4.

Fondation approuval to SD4 (FND #28 et FND #29)

Cleanup of bedrock to SD3, loading of excavated materiel to SD3.

Test pit to SD3 (soundings)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345, Cat 365, Hauletrucks

Dozer D8T

Manpower:

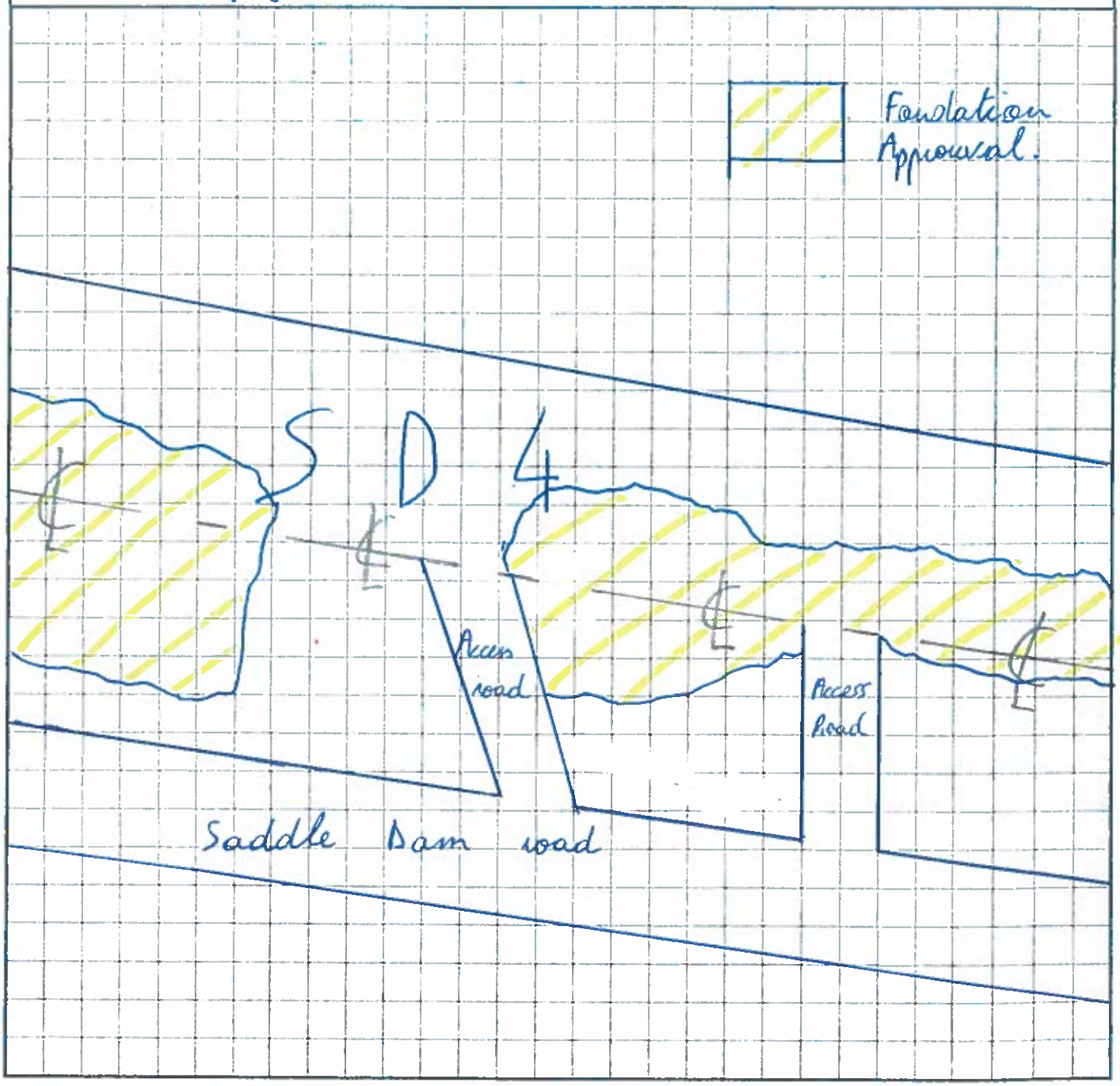
Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

GHD

Plan/Sketch

Client: Agnico Eagle	Project no.: 11 11 85 38 - B1
Project: Saddle Dam 4	Page 1 of 1
Inspection date: 15 july 2017	



Prepared by: Prenich Trecarre Verified by:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 15-Jul-17 **Inspector - Day/Night:** Guyaume Beauchamp

Weather : Cloudy and rain starding at 3h35

Project: Saddle dam 3 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities:

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: Removal of the soft soil and loose rocks from the SD-3 site in haul trucks 20+840 ending at 20+860

Loading of excavated materiel at 20+680

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 365C , haul trunk no.7 :24 loads (all night), no. 2 : 2 loads(ending at at 19h40), no. 8: 4 loads (starding at 3h40)

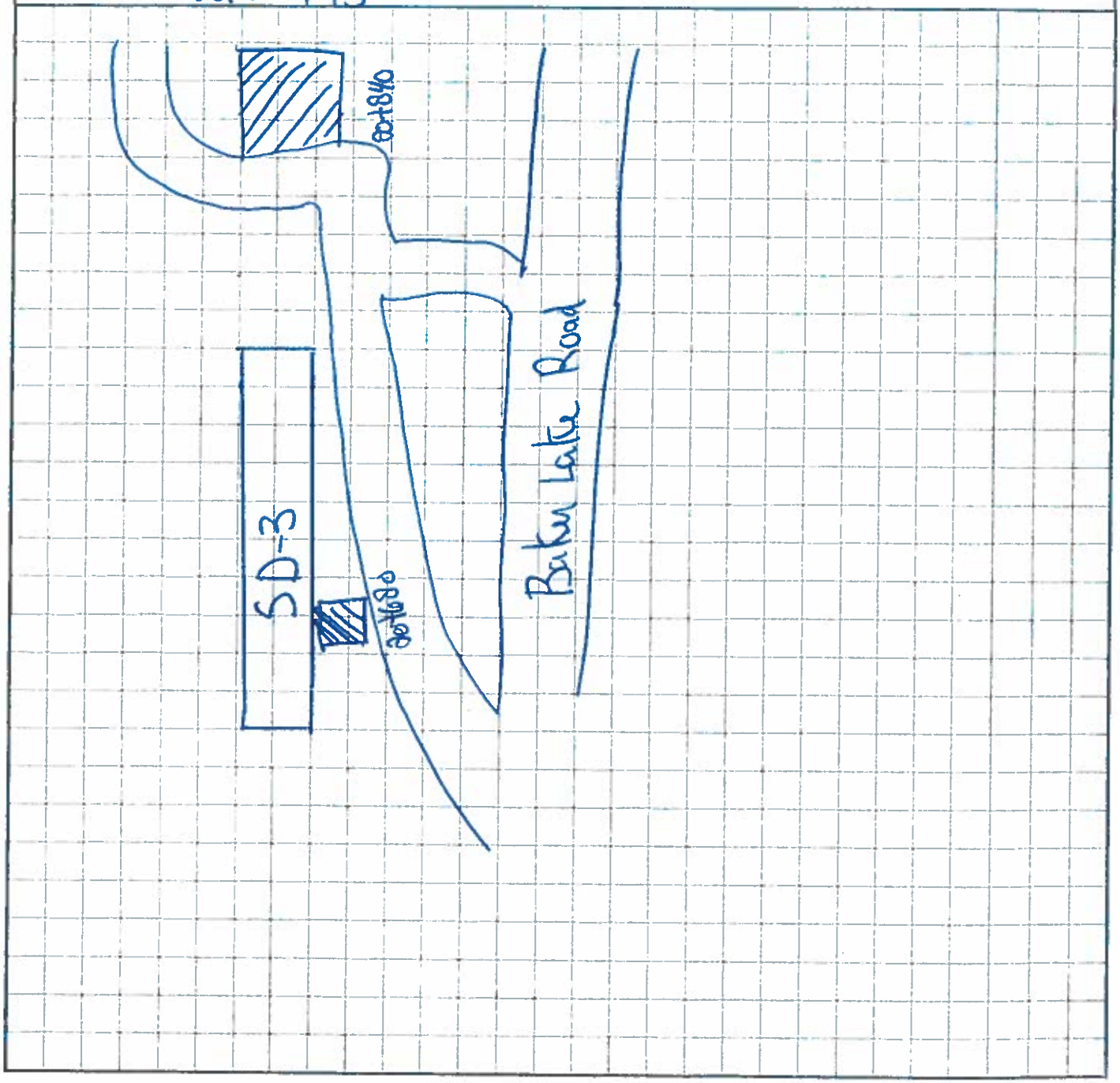
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

Client: Agnico Eagle
Project: SD-3
Project no.: 1111538-B
Page 1 of 1
Inspection date: 2017-07-15



Prepared by: Jacqueline Beaudoin Verified by:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 16 Juillet 2017 Inspector - Day/Night: Pierrick Trecasse, Day shift

Weather : Cloudy

Project: Saddle dams 3,4 and 5 Contractor: Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities: see work in progress

Soft Sediment Excavation	☐	Key Excavation	☐	Coarse Filter	☐	Drilling/Blasting	☐
Foundation Preparation	☐	LLDPE/Geotextile	☐	Till	☐		
Water Control	☐	Fine Filter	☐	Rockfill	☐		

Description : QC activities :pomping water in sump to SD3.

'Cleanup of bedrock to SD3, loading of excavated materiel to SD3.

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345, Cat 365, Hauletrucks

Dozer D8T

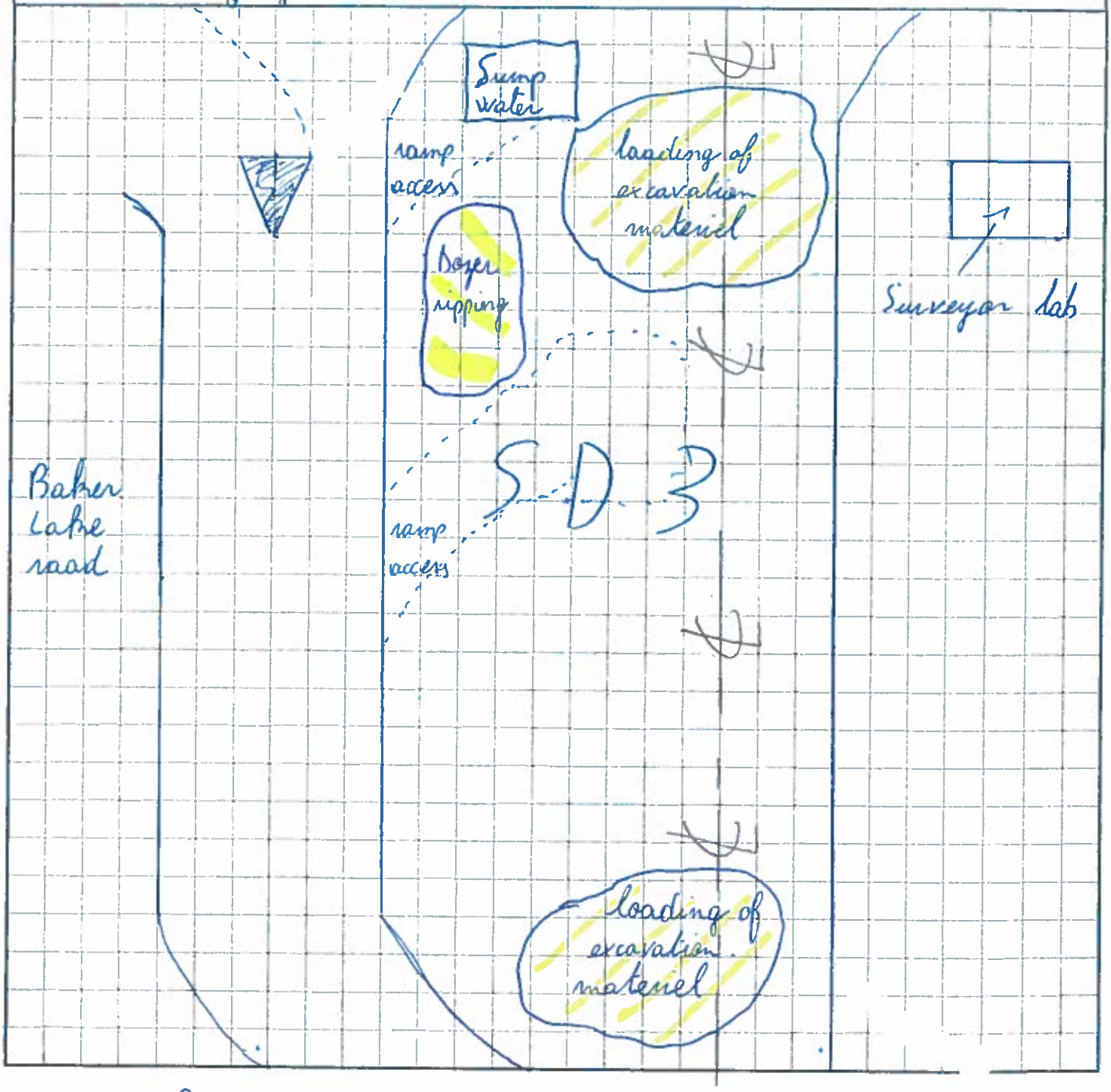
Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Sketch

Client: Agnico Eagle Mine	Project no.: 11118538-B1
Project: SD3	Page 1 of 1
Inspection date: 16 july 2017	



Prepared by: Pierrich Treasse Verified by:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 16-Jul-17 **Inspector - Day/Night:** Guyaume Beauchamp

Weather : Sunny and Cloudy and rain ending at 20h00

Project: Saddle dam 3 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities:

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: Removal of the soft soil and loose rocks from the SD-3 site in haul trucks 20+840 ending at 20+860

Loading of excavated materiel at 20+820

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 365C , haul trunk no.4 :23 loads (all night),

Manpower:

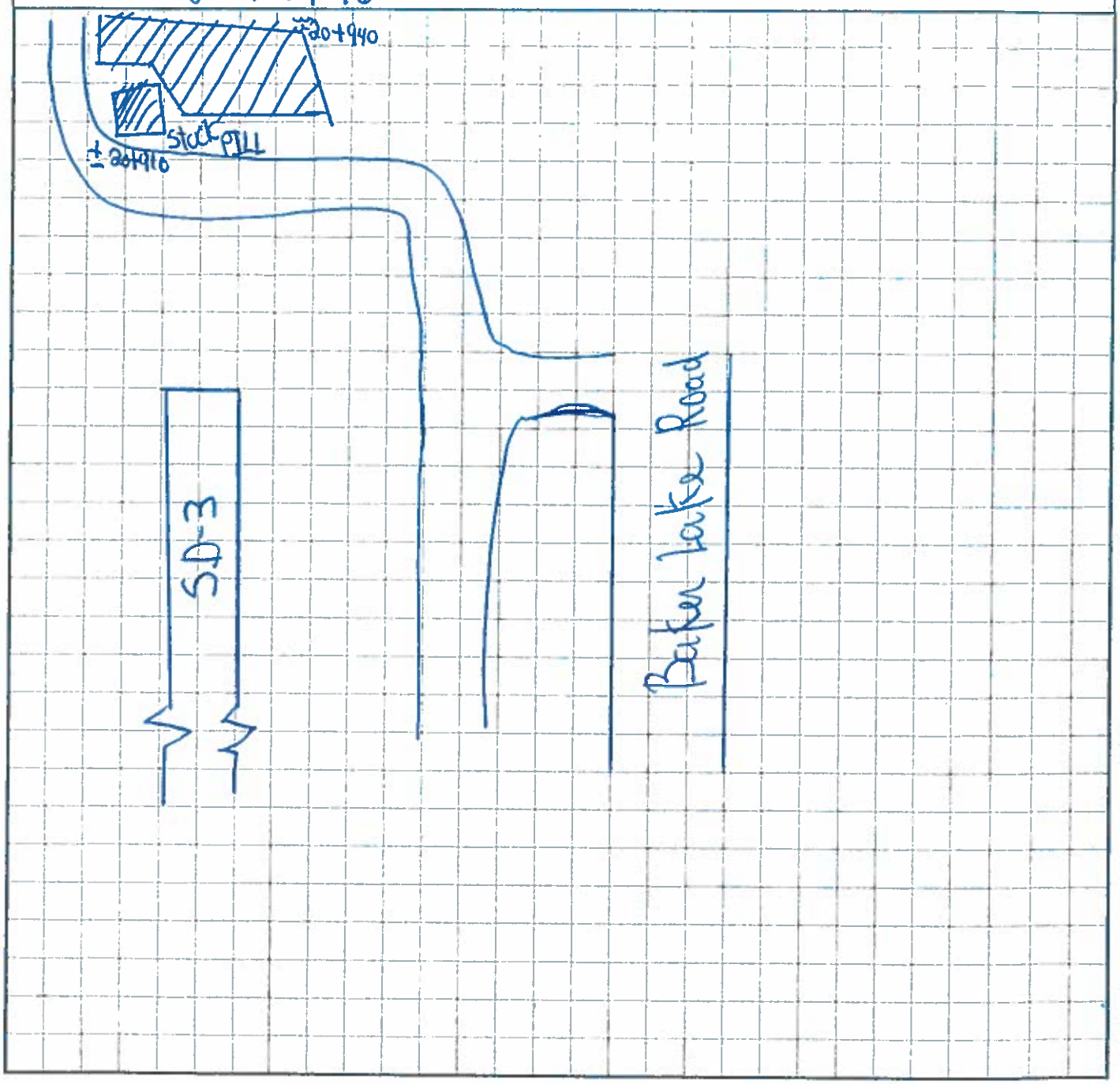
Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

GHD

Plan/Sketch

Client: Agnico Eagle	Project no.: 11118538-B1
Project: 11118538-B1 SD-3	Page 1 of 1
Inspection date: 2017-07-16	



Prepared by: Suzanne Beaudemoulin Verified by: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 17 Juillet 2017 Inspector - Day/Night: Pierrick Trecasse, Day shift

Weather : Cloudy

Project: Saddle dams 3,4 and 5 Contractor: Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities: see work in progress

Soft Sediment Excavation	☐	Key Excavation	☐	Coarse Filter	☐	Drilling/Blasting	☐
Foundation Preparation	☐	LLDPE/Geotextile	☐	Till	☐		
Water Control	☐	Fine Filter	☐	Rockfill	☐		

Description : QC activities :pomping water in sump to SD3.

Cleanup of bedrock to SD3, loading of excavated materiel to SD3.

Placement of rockfill to SD5 on the approuval zone #15, and compaction with Dozer D8T. (see sketch)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345, Cat 365, Hauletrucks

Dozer D8T

Compactor 3625

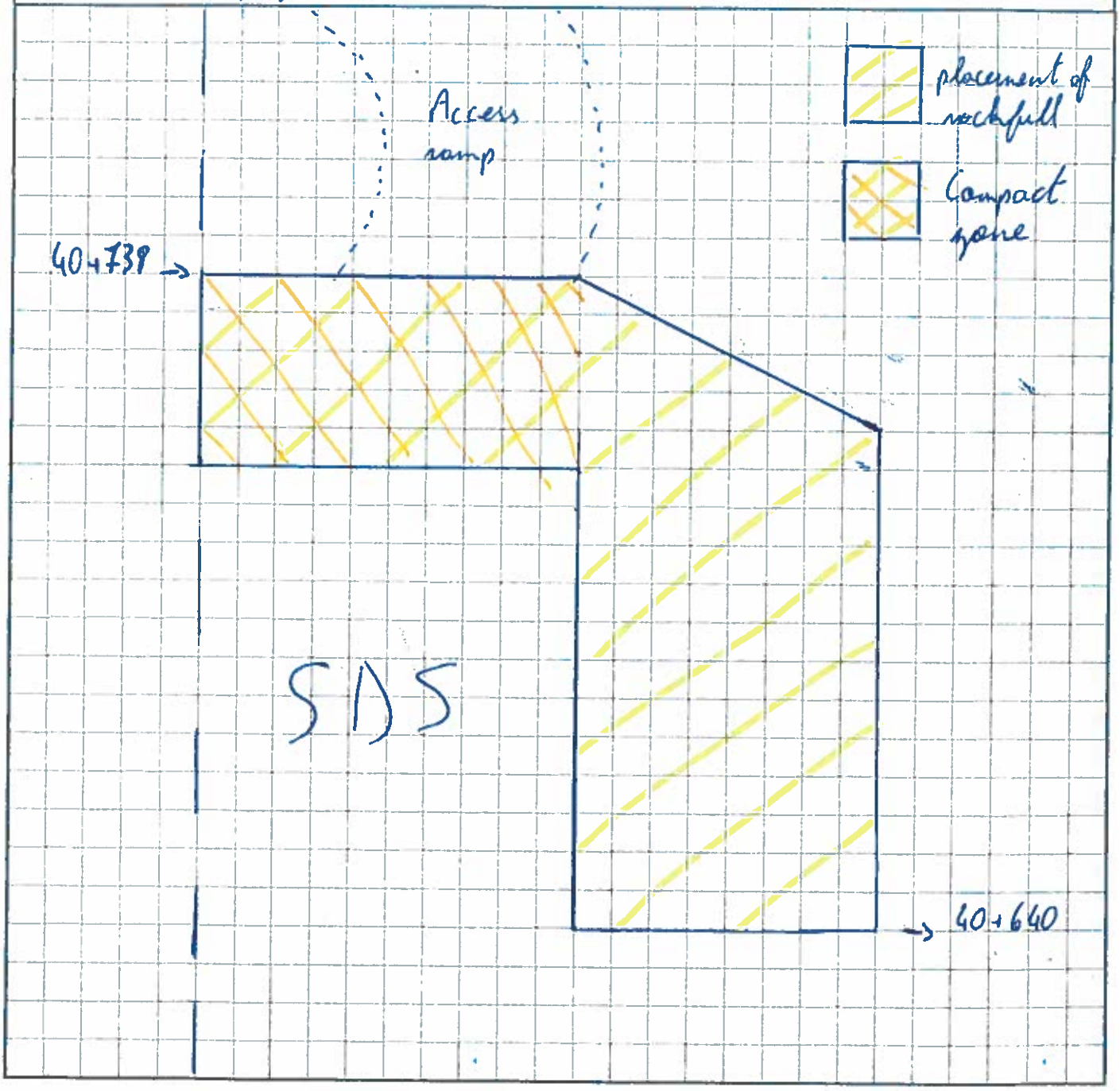
Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Sketch

Client: Agnico Eagle Mine	Project no.: 11 11 85 38 - B1
Project: SAS	Page 1 of 1
Inspection date: 17 july 2017	



Prepared by: Pierrick Trecarre Verified by:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 17-Jul-17 **Inspector - Day/Night:** Guyaume Beauchamp

Weather : Cloudy with somes showers

Project: Saddle dam 3 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities:

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: Removal of the soft soil and loose rocks from the SD-3 site in haul trucks 20+640 ending at 20+690

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 365C , haul trunk no.5 :11 loads (starding at 23h50), trunk no. 8: 8 loads (starding at 2h32)

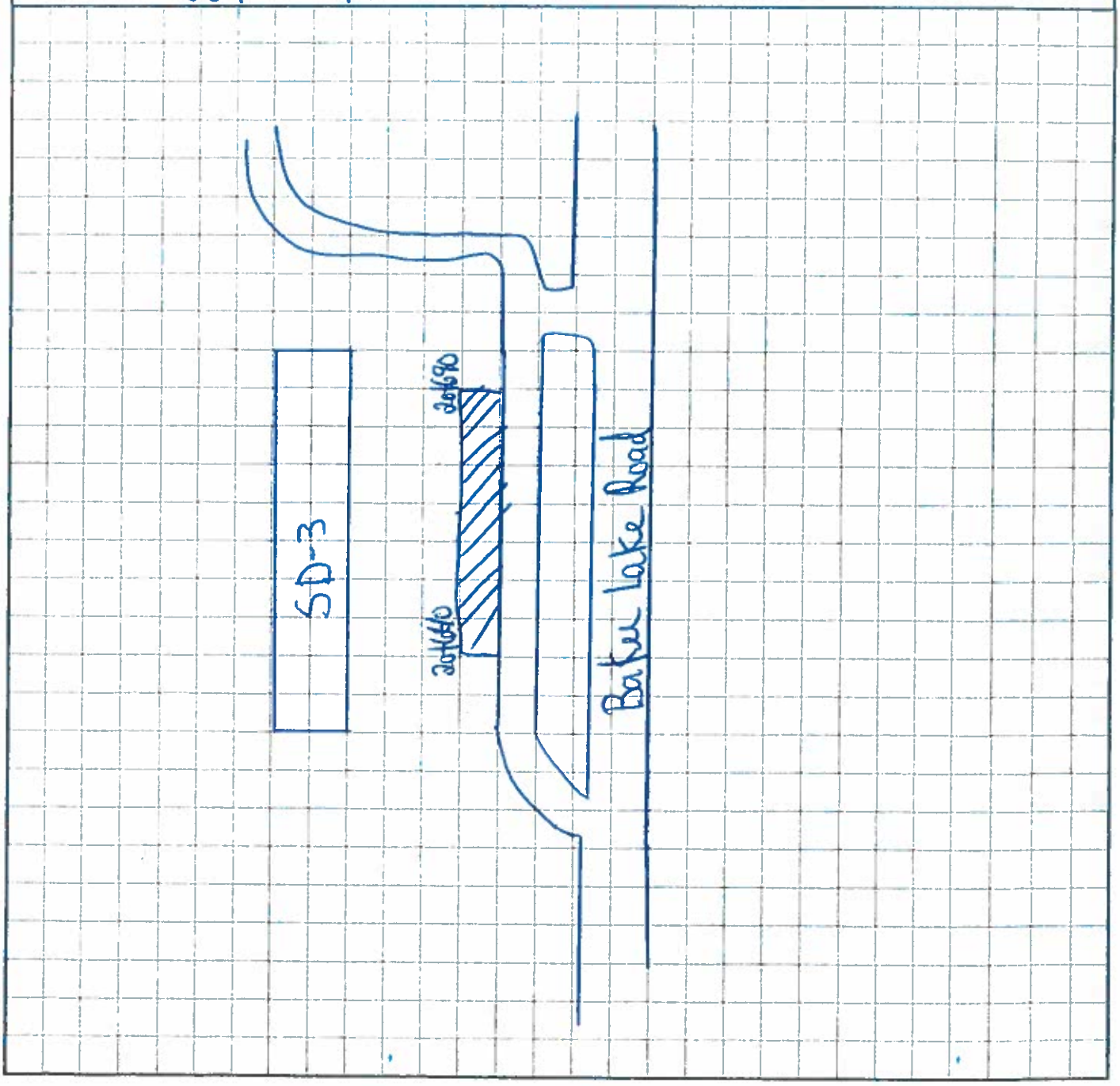
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

Client: Agnico Eagle	Project no.: 11118538-B1
Project: SD-3	Page 1 of 1
Inspection date: 2017-07-17	



Prepared by: Maryanne Beauchamp Verified by:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 18 Juillet 2017 **Inspector - Day/Night:** Pierrick Trecasse, Day shift

Weather : Cloudy

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities: see work in progress

Soft Sediment Excavation	☒	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☒	**Fine Filter**	☐	**Rockfill**	☒		

Description : QC activities :pomping water in sump to SD3.

Cleanup of bedrock to SD3, loading of excavated materiel to SD3.

Placement of rockfill to SD5 on the approuval zone #15, and compaction with Dozer D8T. (see sketch)

Pomping water to SD4.

Placement of rockfill to SD4 on the approuval zone #29. (see sketch)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345, Cat 365, Hauletrucks

Dozer D8T

Compactor 3625

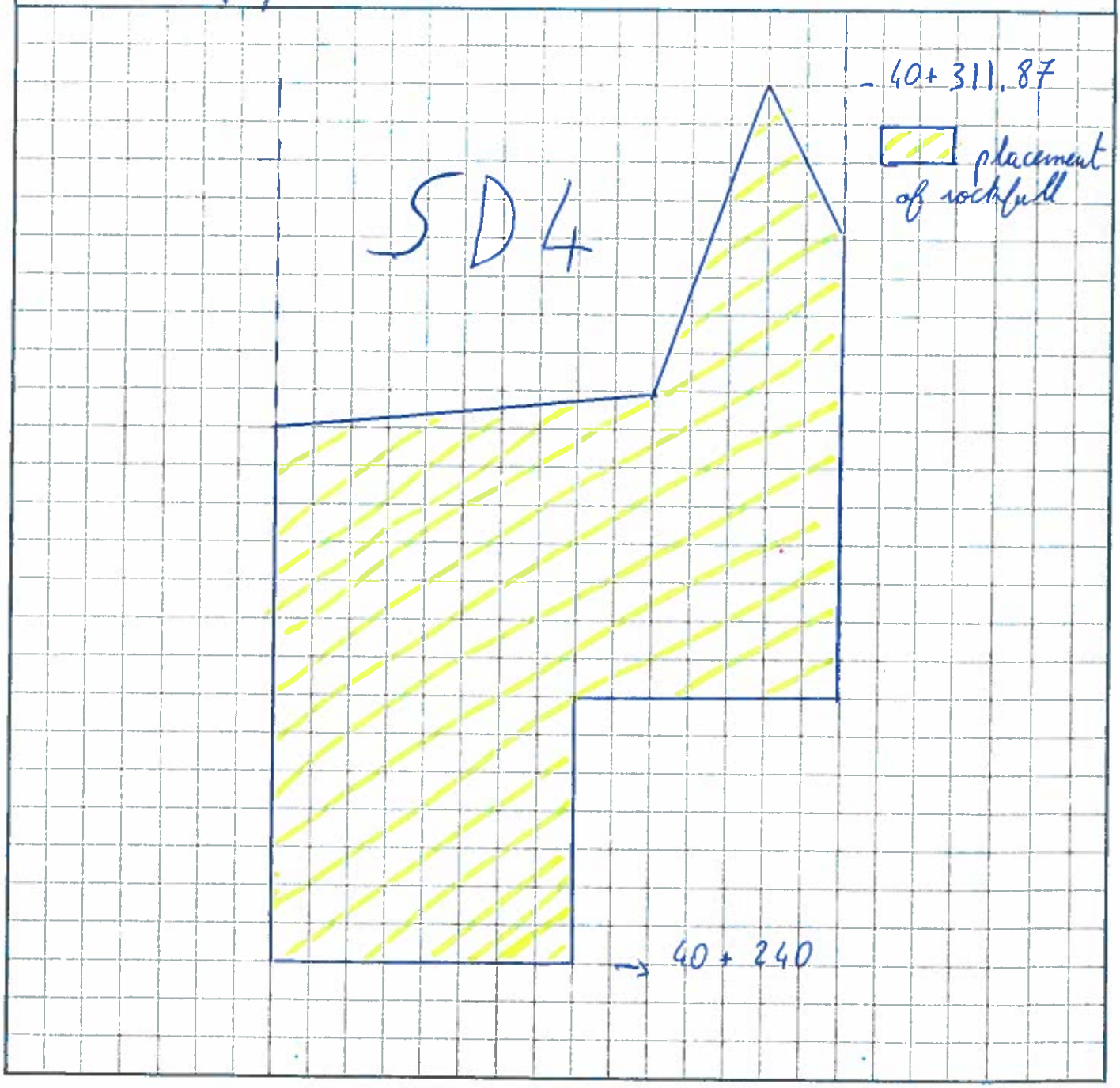
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

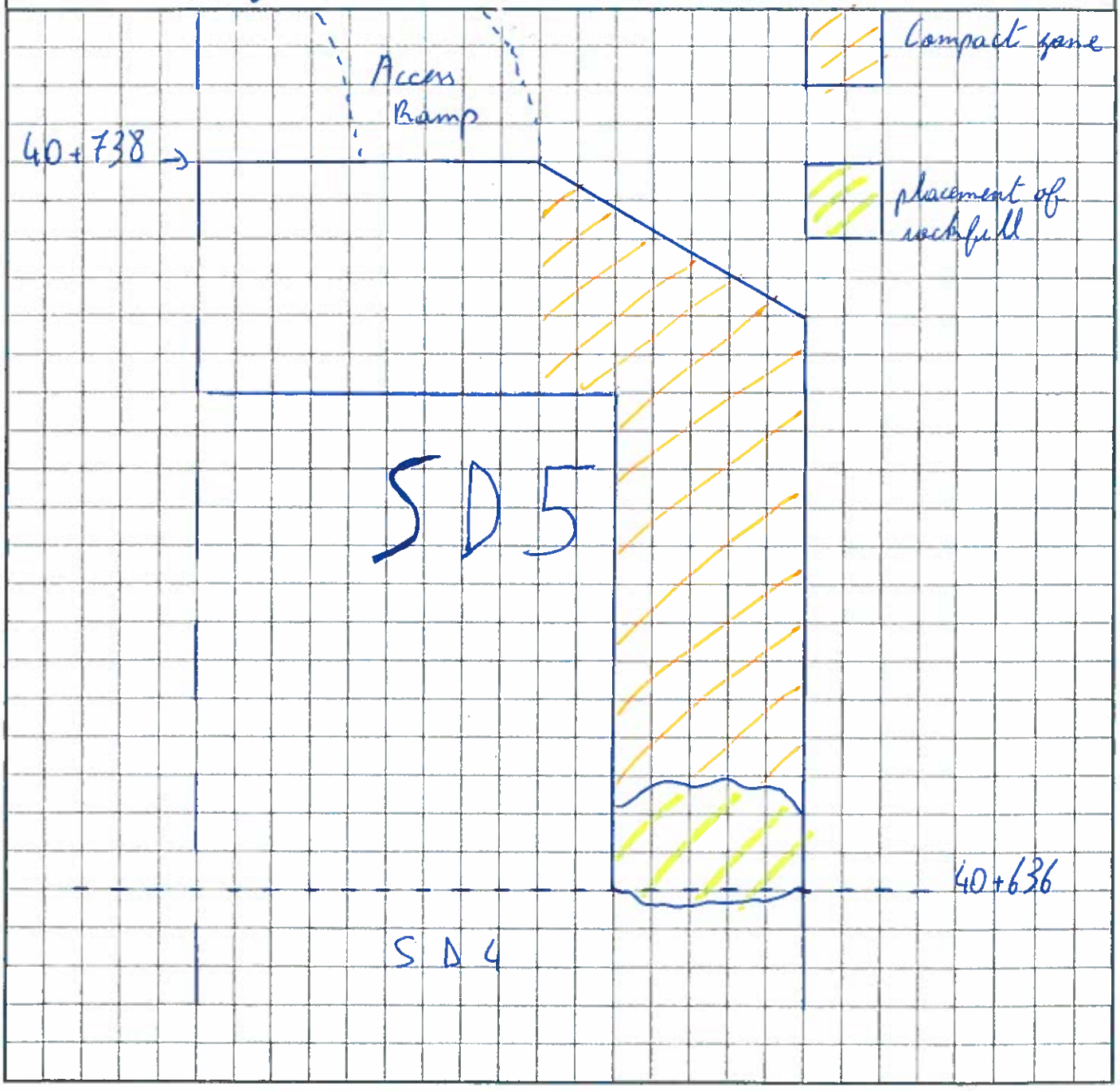
Client: Agnico Eagle Mines	Project no.: 11185538-B1
Project: SD4	Page 1 of 1
Inspection date: 18 july 2017	



Prepared by: Pierrick Tacaane Verified by:

Plan/Sketch

Client: Agnico Eagle Mines	Project no.: 11118538-B1
Project: SD5	Page 1 of 1
Inspection date: 18 july 2017	



Prepared by: Dimitri Tavasse Verified by:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 18-Jul-17 **Inspector - Day/Night:** Guyaume Beauchamp

Weather : Cloudy with somes showers

Project: Saddle dam 3 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities:

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: Removal of the soft soil and loose rocks from the SD-3 site in haul trucks 20+690 ending at 20+720 and at 21+050

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 365C , haul trunk no.6 :21 loads (all night), trunk no. 2: 7 loads (ending at 22h07),
trunk no. 7: 2 loads (starding at 23h18, ending at 00h05)

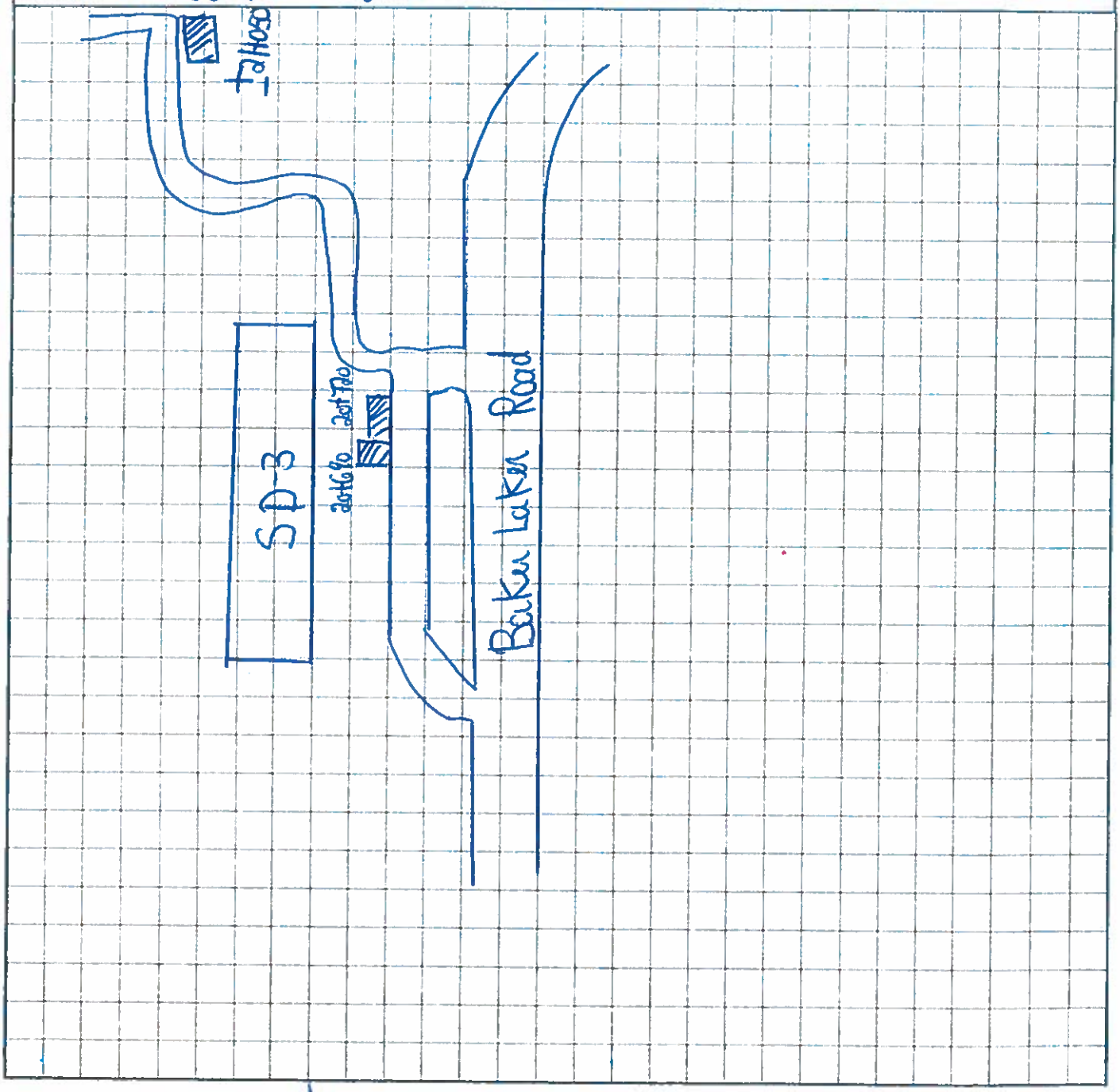
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

Client: Agnico Eagle	Project no.: 11118538-B1
Project: SD-3	Page 1 of 1
Inspection date: 2017-07-18	



Prepared by: Maryanne Beaudamp Verified by:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

D Juillet 2017 **Inspector - Day/Night:** Pierrick Trecasse, Day shift

ather : Cloudy with somes showers

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities: see work in progress

Soft Sediment Excavation	☑	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☑	**Fine Filter**	☐	**Rockfill**	☑		

Description : QC activities :pomping water in sump to SD3.

Cleanup of bedrock to SD3, loading of excavated materiel to SD3.

Placement of rockfill and compaction to SD4. (see sketch)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345, Cat 365, Hauletrucks

Dozer D8T

Compactor 3625

Manpower:

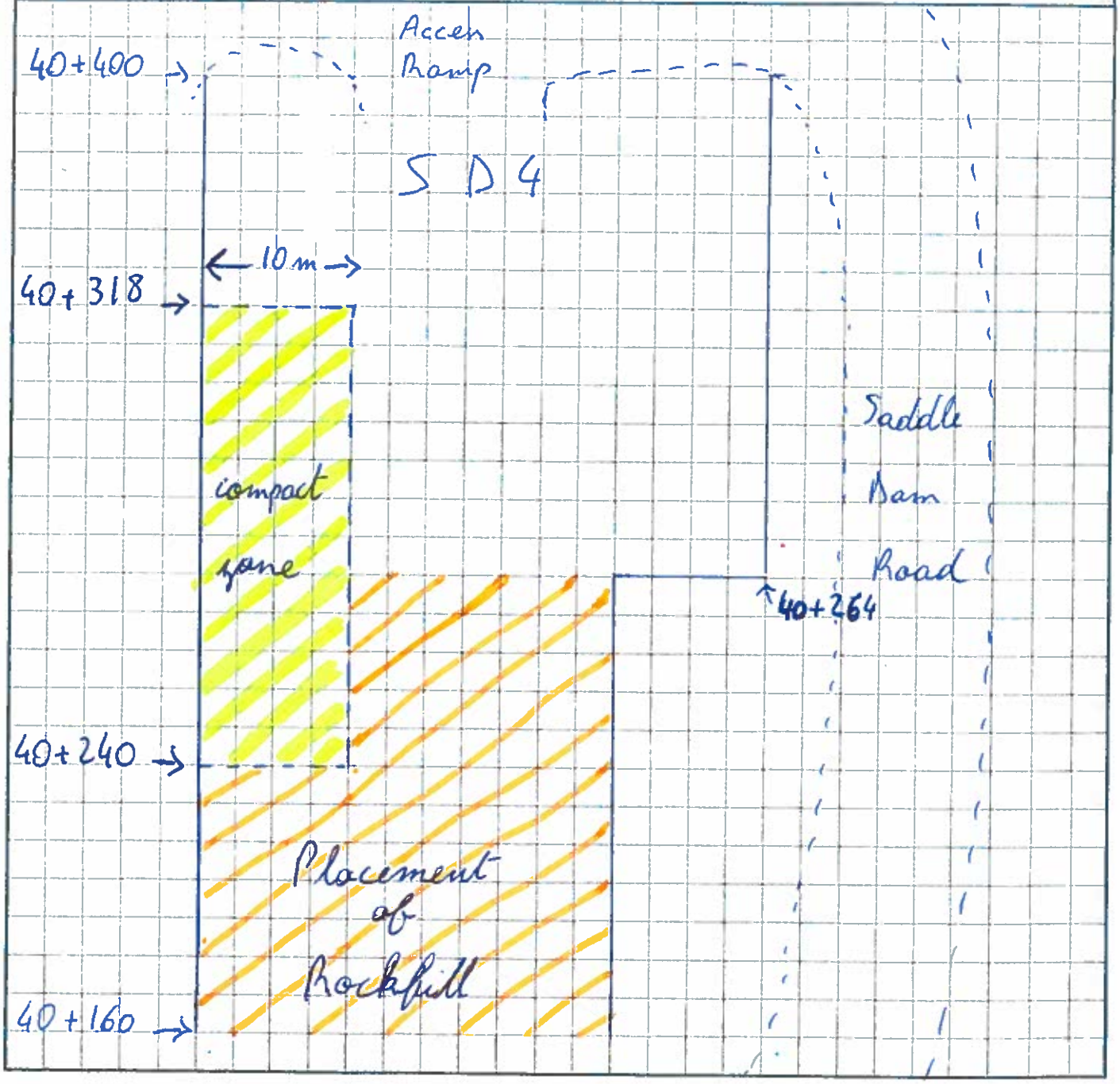
Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

GHD

Plan/Sketch

Client: Agnico Eagle Mine	Project no.: 11 11 85 38 - B1
Project: SD4	Page 1 of 1
Inspection date: 19 july 2017	



Prepared by: Pierrich Trecarre Verified by:

F:\QHD\Guyaume Beauchamp\QC-Daily Inspection Report on 2017-07-19.xls]Daily Report

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 19-Jul-17 **Inspector - Day/Night:** Guyaume Beauchamp

Weather : Cloudy

Project: Saddle dam 4 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities:

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: Removal of the soft soil and loose rocks from the SD-4 site in haul trucks 40+240 ending at 40+290

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 365C , haul trunk no.1 :21 loads (mostly all night), trunk no. 8: 8 loads (ending at 22h40),

Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

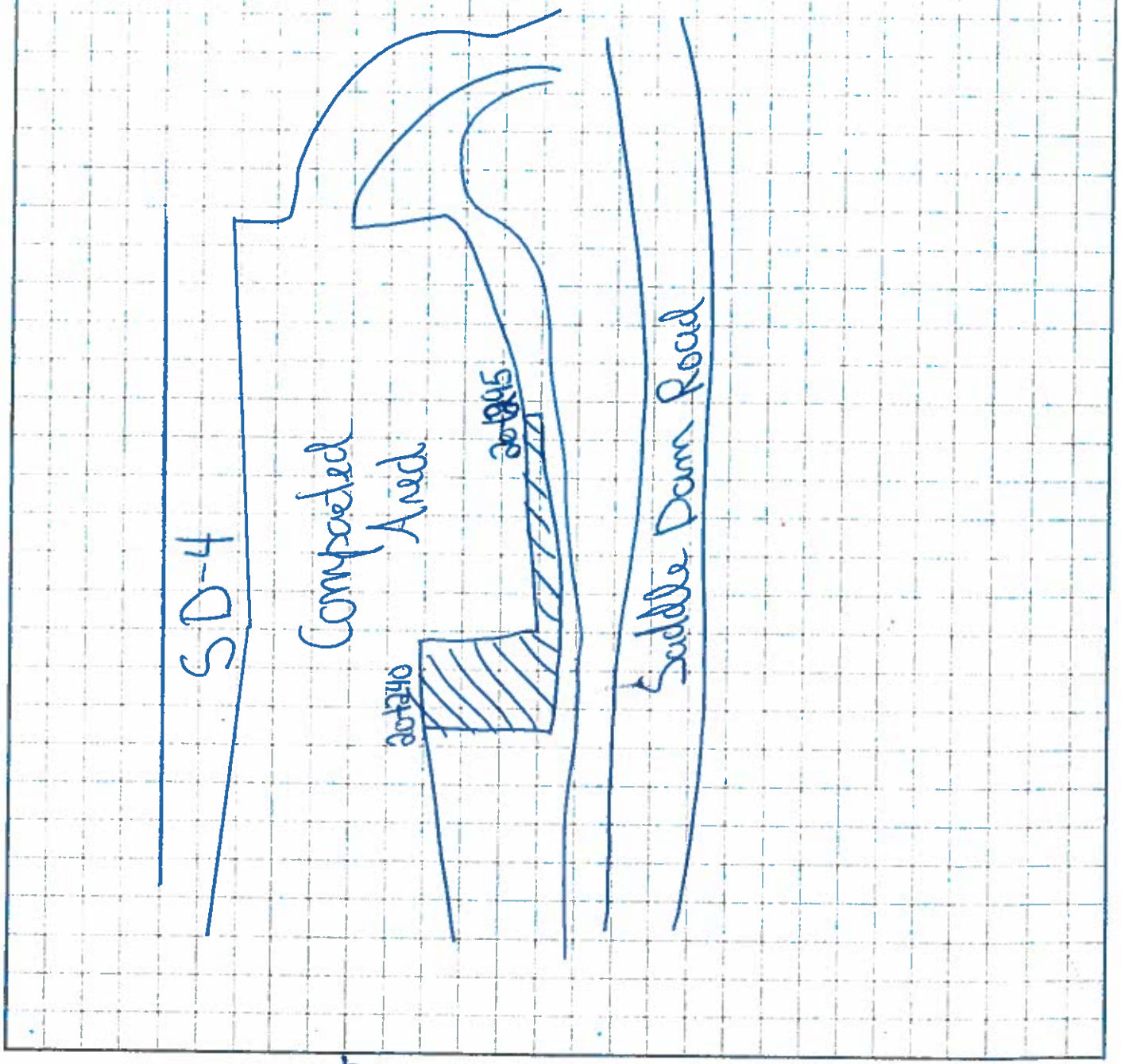
Client: Agnico Eagle

Project: SD-4

Project no.: 11118538-81

Page 1 of 1

Inspect on date: 2017-07-19



Prepared by: Maryanne Beauchamp

Verified by:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 20 Juillet 2017 **Inspector - Day/Night:** Pierrick Trecasse, Day shift

Weather : Cloudy/ sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description : QC activities :pomping water in sump to SD3.

Cleanup of bedrock to SD3, loading of excavated materiel to SD3.

Placement of rockfill and compaction to SD4. (see sketch)

Placement of rockfill to SD4/SD5 (pig launcher). (see sketch)

Pumping water to SD4.

Take a sample of till for gradation test

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345, Cat 365, Hauletrucks

Dozer D8T

Compactor 3625

Manpower:

Photos Location:

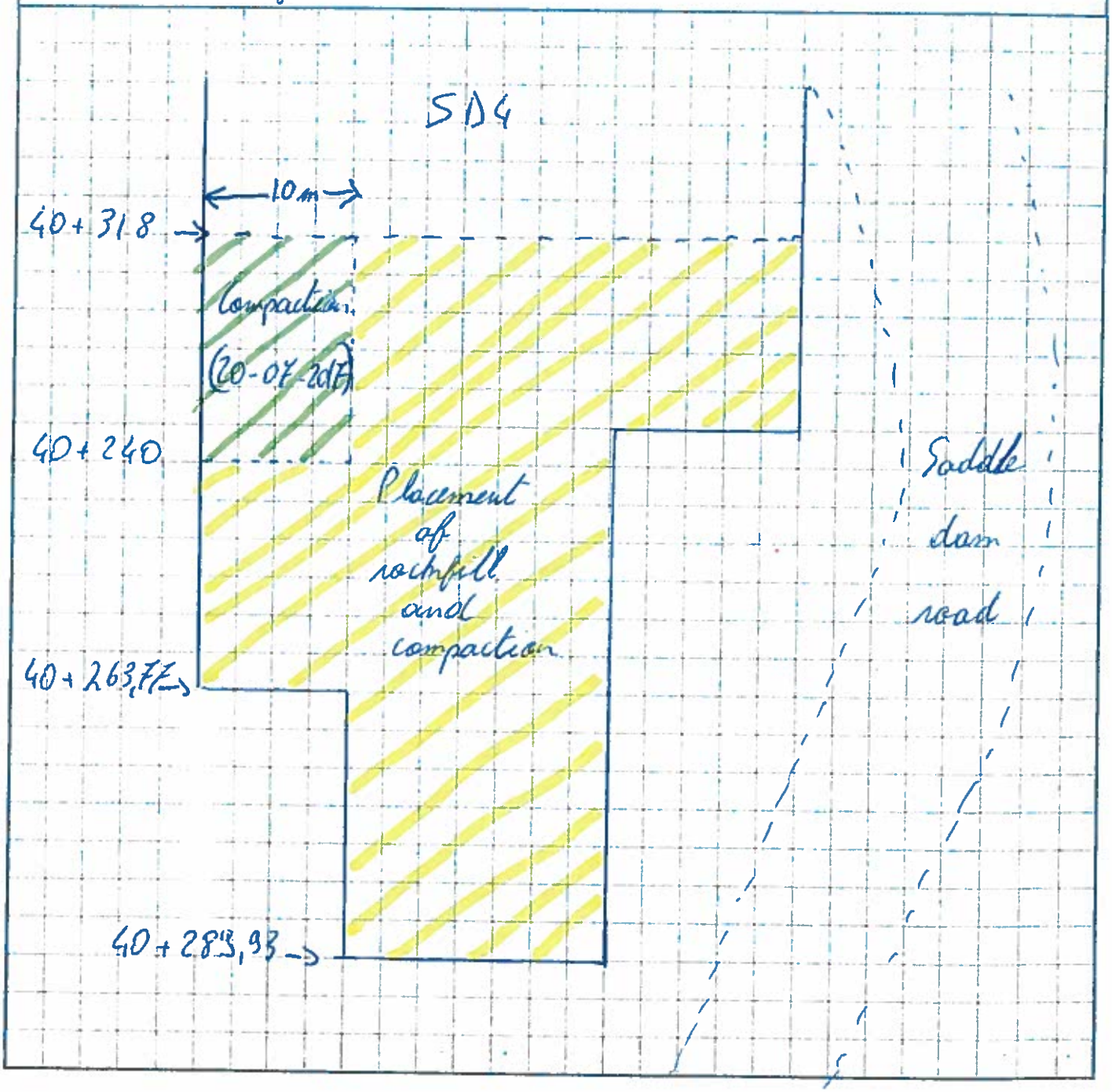
*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

Client: Agnico Eagle Mine | Project no.: 11 11 85 38-B1

Project: SD4 | Page 1 of 1

Inspection date: 20 july 2017



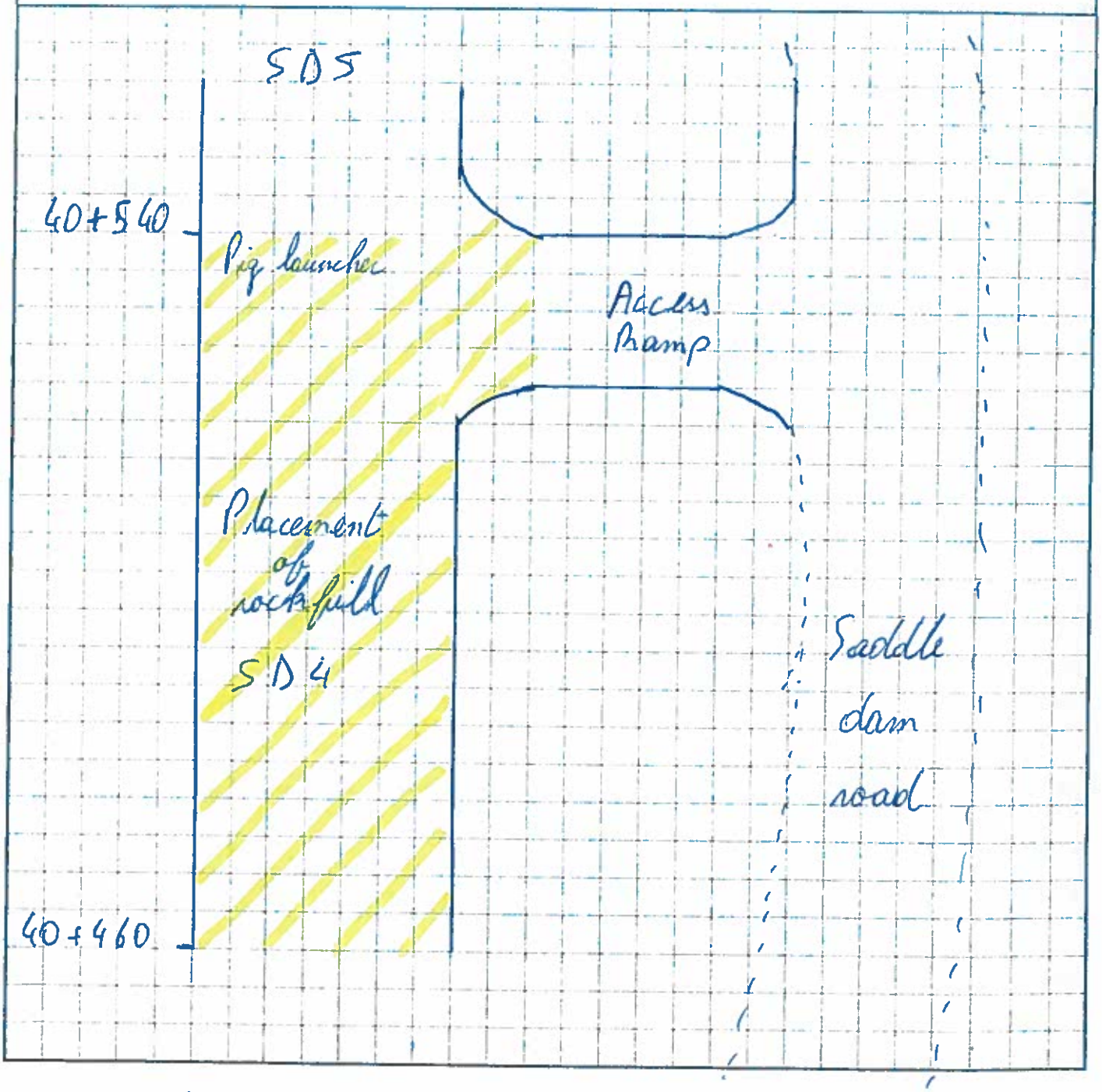
Prepared by: Pierrick Trecarte | Verified by:

Plan/Sketch

Client: Agnico Eagle Mine | Project no.: 11 11 85 38

Project: SD4/SD5 (pig launcher) | Page 1 of 1

Inspection date: 20 july 2017



Prepared by: Pierrich Tiecoura

Verified by:

P:\QHD\Guyaume Beauchamp\QC-Daily Inspection Report ste 2017-07-18.xls]Daily Report

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 20-Jul-17 **Inspector - Day/Night:** Guyaume Beauchamp

Weather : Cloudy and sunny

Project: Saddle dam 4 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities:

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: Removal of the soft soil and loose rocks from the SD-4 site in haul trucks 40+250 ending at 40+190

Removal of the soft soil and loose rocks from the SD-4 site in haul trucks 40+570 ending at 40+635

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 365C , haul trunk no.5 (all night), trunk no.6 (all night)

Manpower:

Photos Location:

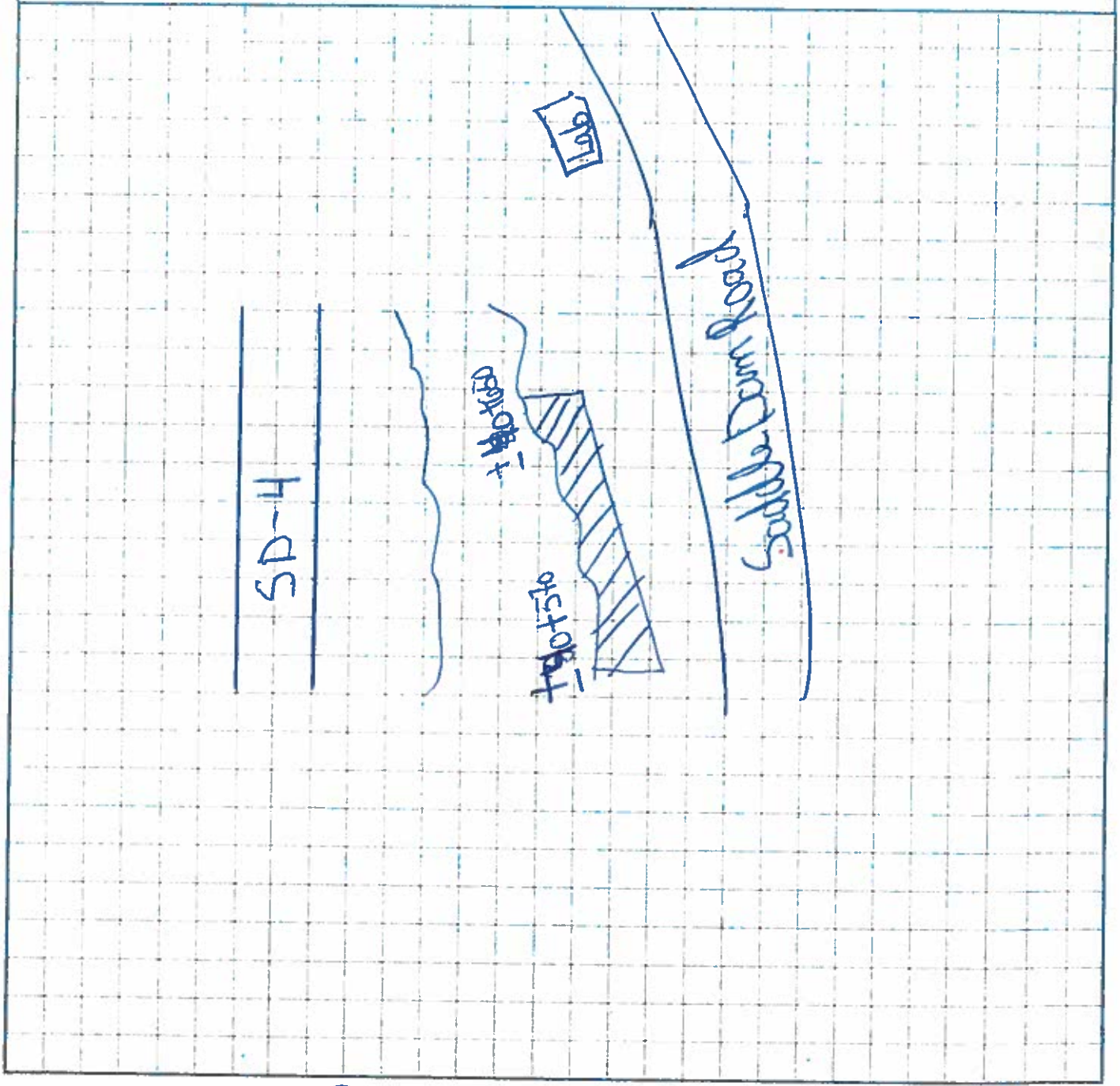
*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

Client: Agnico Eagle | Project no.: 11118538-B1

Project: SD-4 | Page 1 of 2

Inspection date: 2017-07-20



Prepared by: Suzanne Beaudamp Verified by:

Plan/Sketch

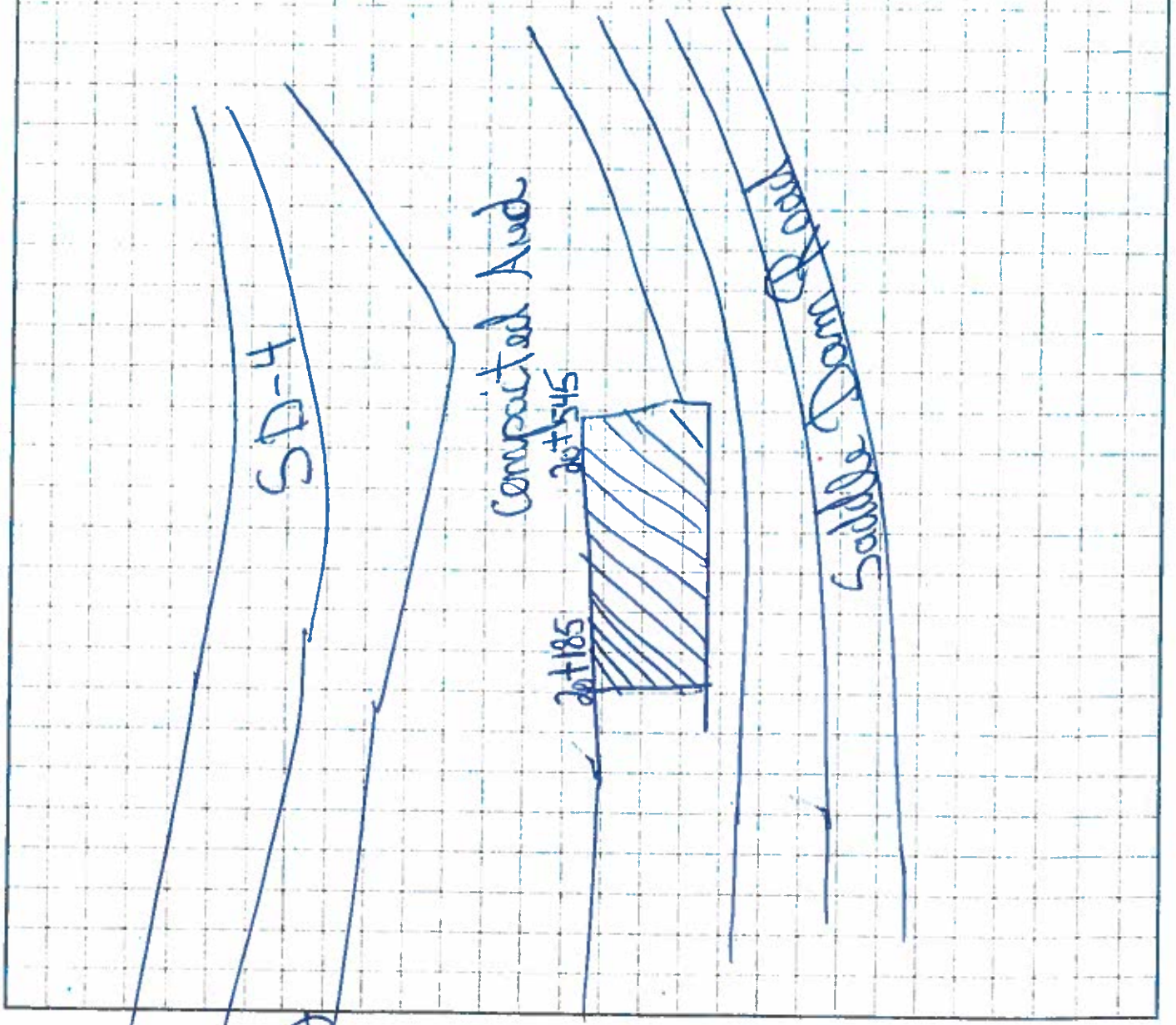
Client: Aquico Eagle

Project: SD-4

Project no.: 11118538-B1

Page 2 of 2

Inspection date: 2017-07-20



Prepared by: Maxime Beaudoin

Verified by:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 21 Juillet 2017 **Inspector - Day/Night:** Pierrick Trecasse, Day shift

Weather : Cloudy/ sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description : QC activities :pomping water in sump to SD3.

Cleanup of bedrock to SD3.

Placement of rockfill and compaction to SD4.Elevation 137.00m (see sketch)

Finish the placement of rockfill to SD4/SD5 (pig launcher).

Loading of excavated till to SD5.

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345, Cat 365, Haulelrucks

Dozer D8T

Compactor 3625

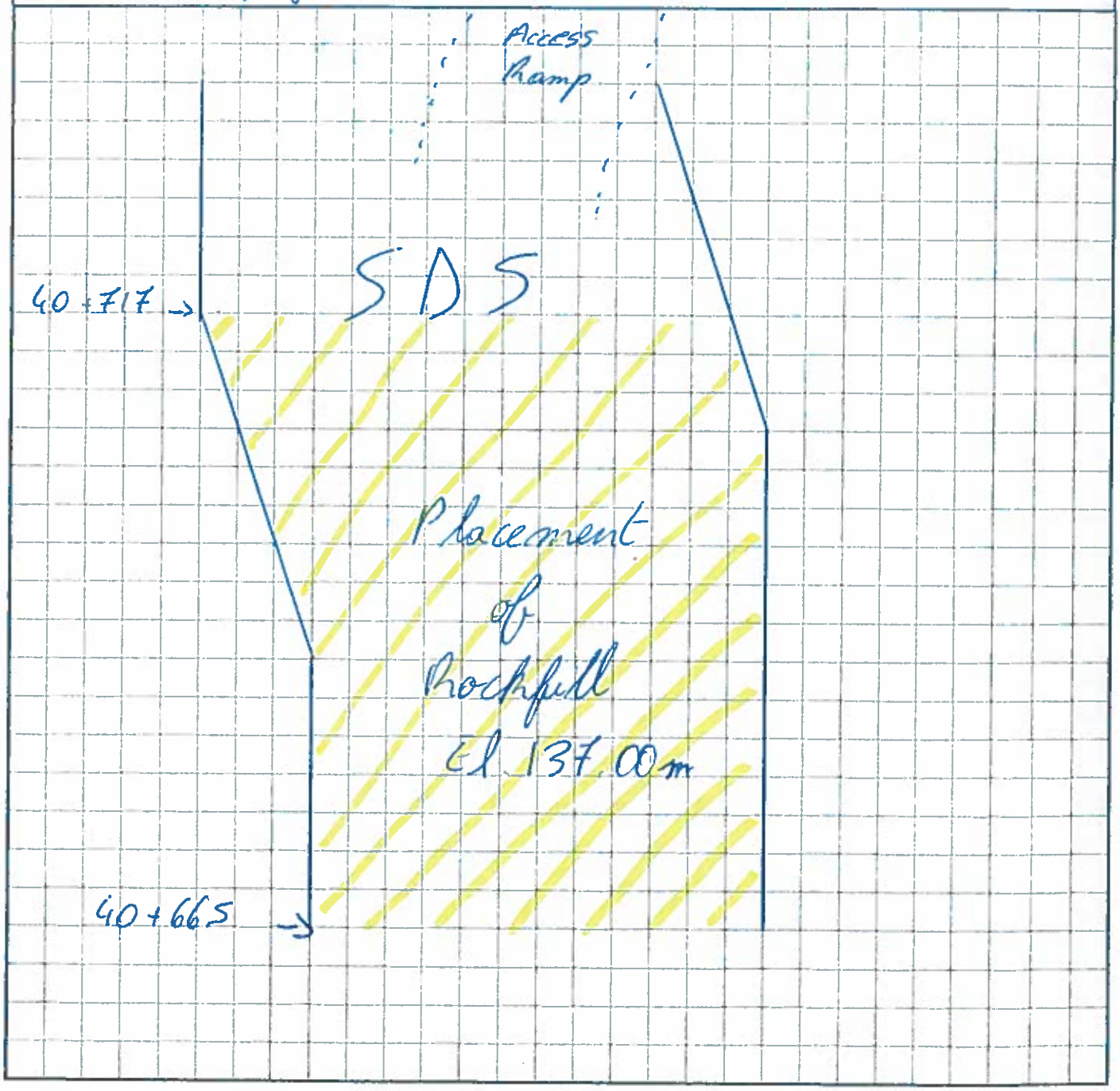
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

Client: Agnico Eagle Mine	Project no.: 11 11 85 38 - B1
Project: SDS	Page 1 of 1
Inspection date: 21 july 2017	



Prepared by: Pierrick Trecone Verified by:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 21-Jul-17 **Inspector - Day/Night:** Guyaume Beauchamp

Weather : Sunny

Project: Saddle dam 4 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities:

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: Removal of the soft soil and loose rocks from the SD-4 site in haul trucks 40+150 ending at 40+090

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 365C , haul trunk no.5: 20 loads (all night), trunk no.6:20 loads (all night)

Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

GHD

Plan/Sketch

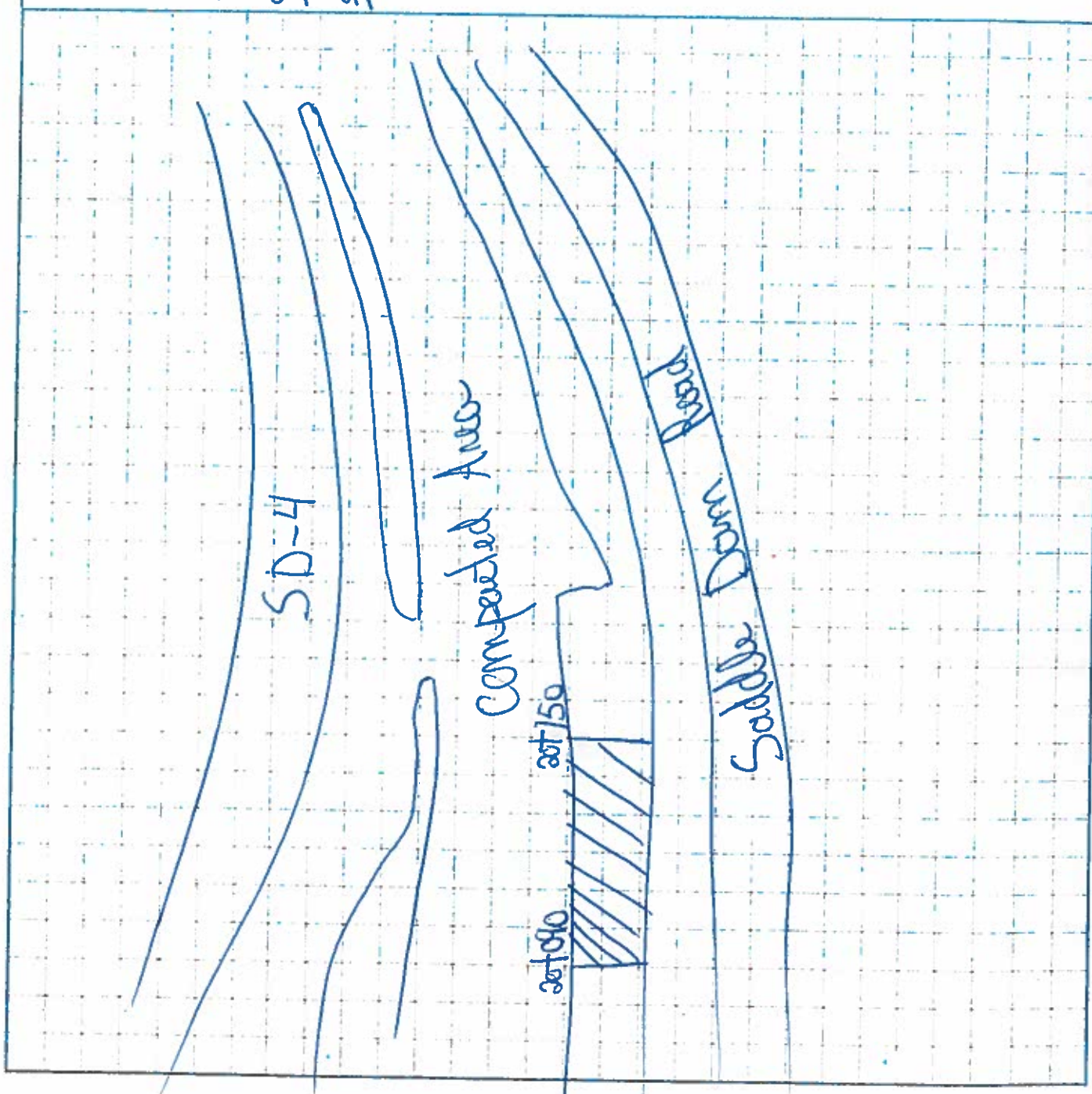
Client: Aquila Eagle

Project: 11118538-B1 SD-4

Project no.: 11118538-B1

Page: 1 of 1

Inspection date: 2017-07-21



Prepared by: Suzanne Beaudoin

Verified by:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 22 Juillet 2017 **Inspector - Day/Night:** Pierrick Trecasse, Day shift

Weather : sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description : QC activities.

Cleanup of bedrock to SD3.

Placement of rockfill and compaction to SD4/SD5 (pig launcher). El.139.60m (see sketch)

Finish to loading of excavated till to SD4.

Placement of rockfill and compaction to SD5. El.137.00m (see sketch)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345, Cat 365, Hauletrucks

Dozer D8T

Compactor 3625

Manpower:

Photos Location:

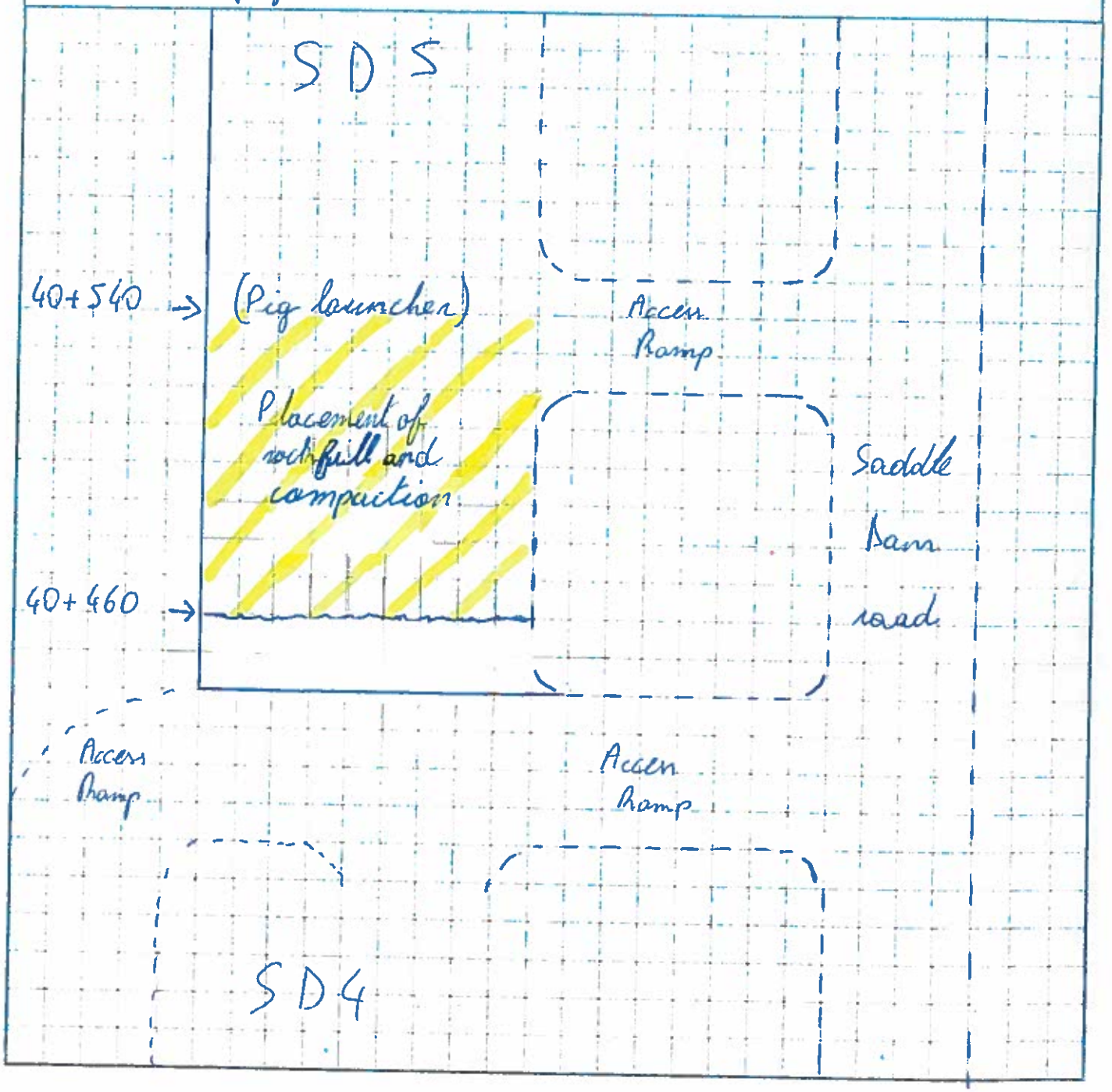
*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

Client: Agnico Eagle Mines | Project no: 11 11 85 38-B1

Project: SD4/SD5 (pig launcher) | Page: 1 of 1

Inspection date: 22 july 2017



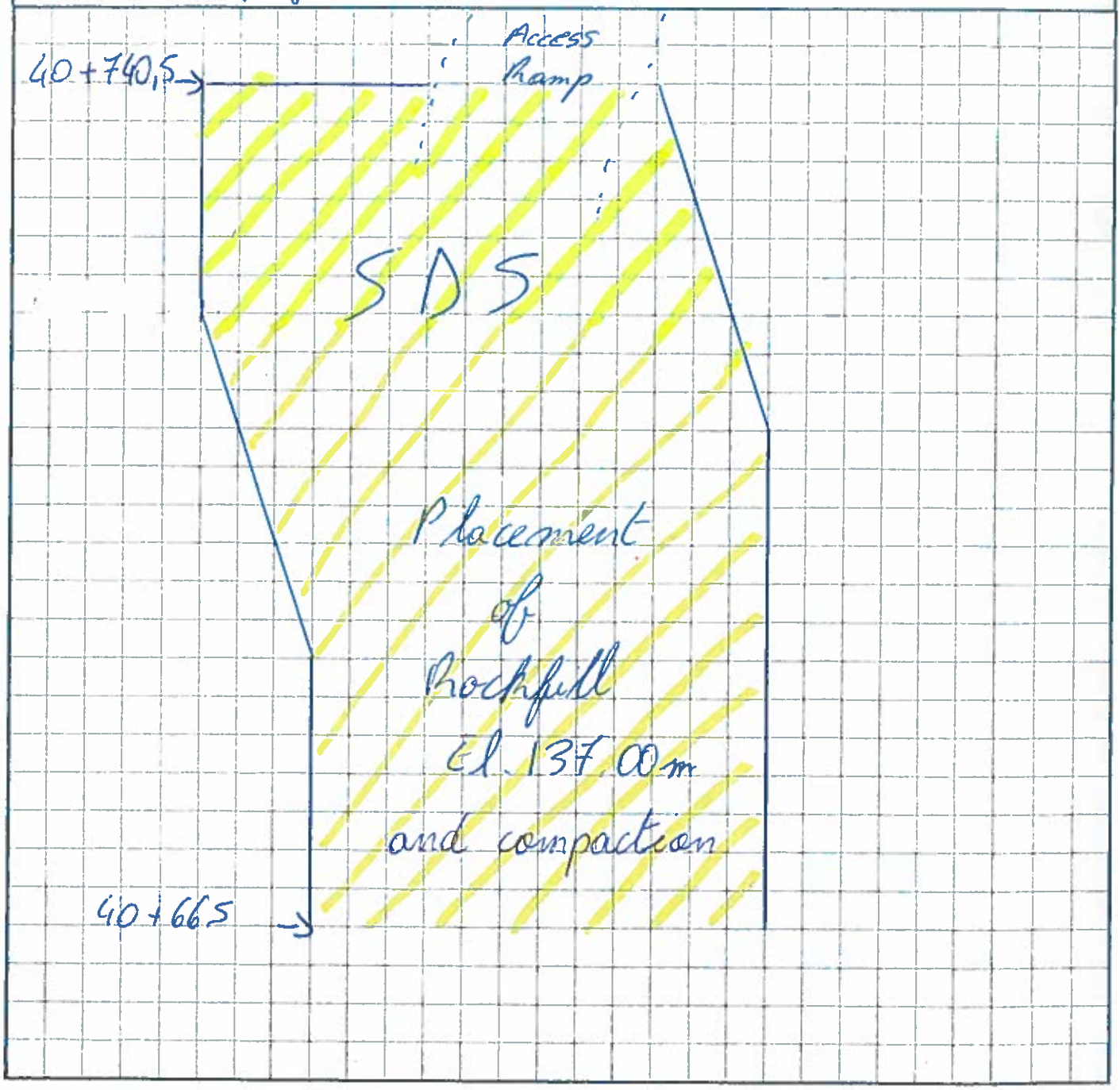
Prepared by:

Verified by:

GHD

Plan/Sketch

Client: Agnico Eagle Mine	Project no.: 11 11 85 38 - B1
Project: SDS	Page 1 of 1
Inspection date: 22 july 2017	



Prepared by: Pierrick Trecarre Verified by:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 22-Jul-17 Inspector - Day/Night: Guyaume Beauchamp

Weather : Sunny

Project: Saddle dam 4-5 Contractor: Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities:

Soft Sediment Excavation	☐	Key Excavation	☐	Coarse Filter	☐	Drilling/Blasting	☐
Foundation Preparation	☐	LLDPE/Geotextile	☐	Till	☐		
Water Control	☐	Fine Filter	☐	Rockfill	☐		

→ Final clean-up

Description: Removal of the soft soil and loose rocks from the SD-4 site in haul trucks 40+280 ending at 40+100

Placement of rockfill with a dozer 12 loads between 21h40 and 5h25

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 365C , dozer D8t, haul trunk no.6:, no 5 and no.7

Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

GHD

Plan/Sketch

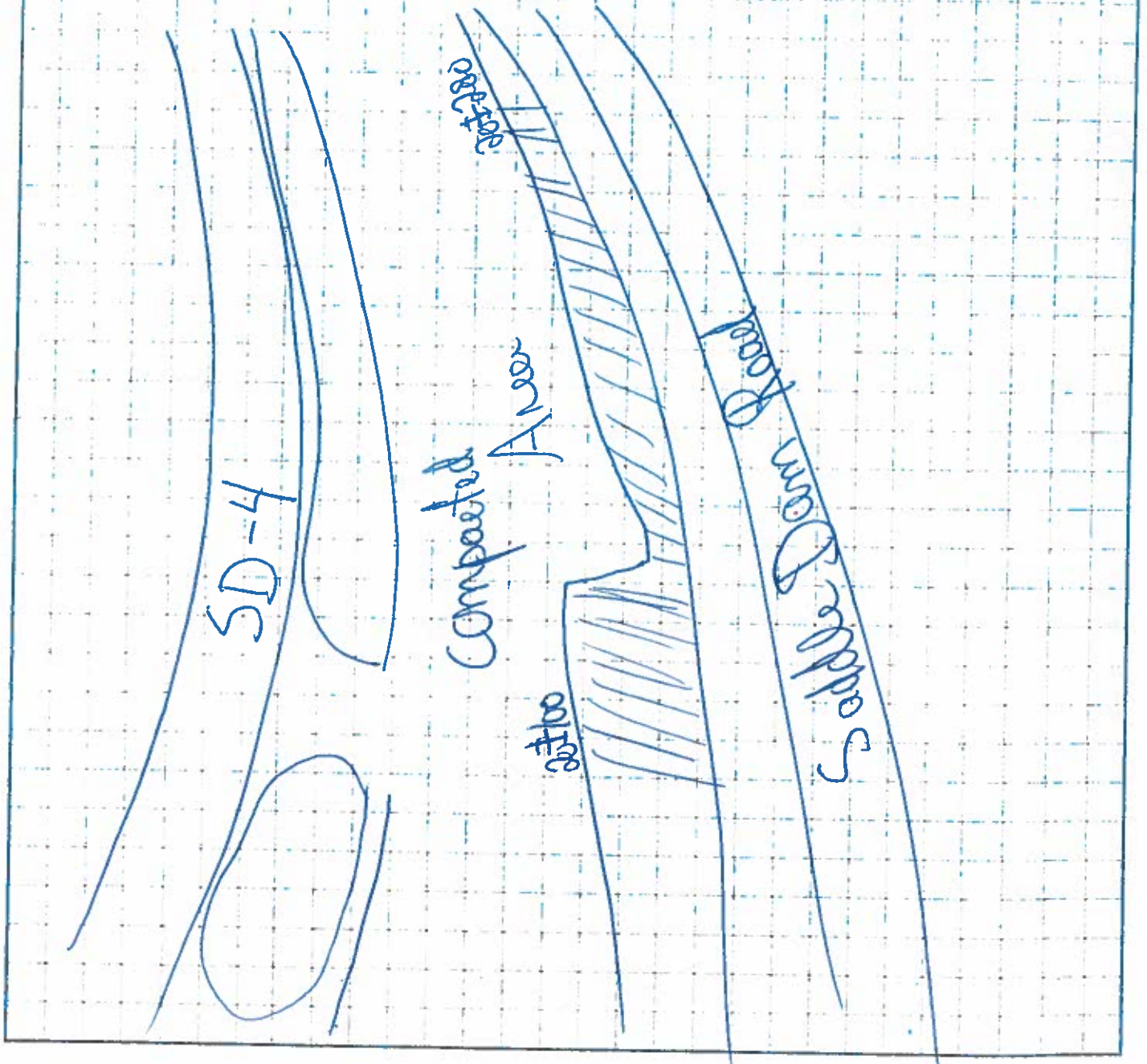
Client: Aquice Eagle

Project: SD-4

Project no: 11118538-B1

Page 1 of 2

Inspection date: 2017-07-22



Prepared by

Verified by

GHD

Plan/Sketch

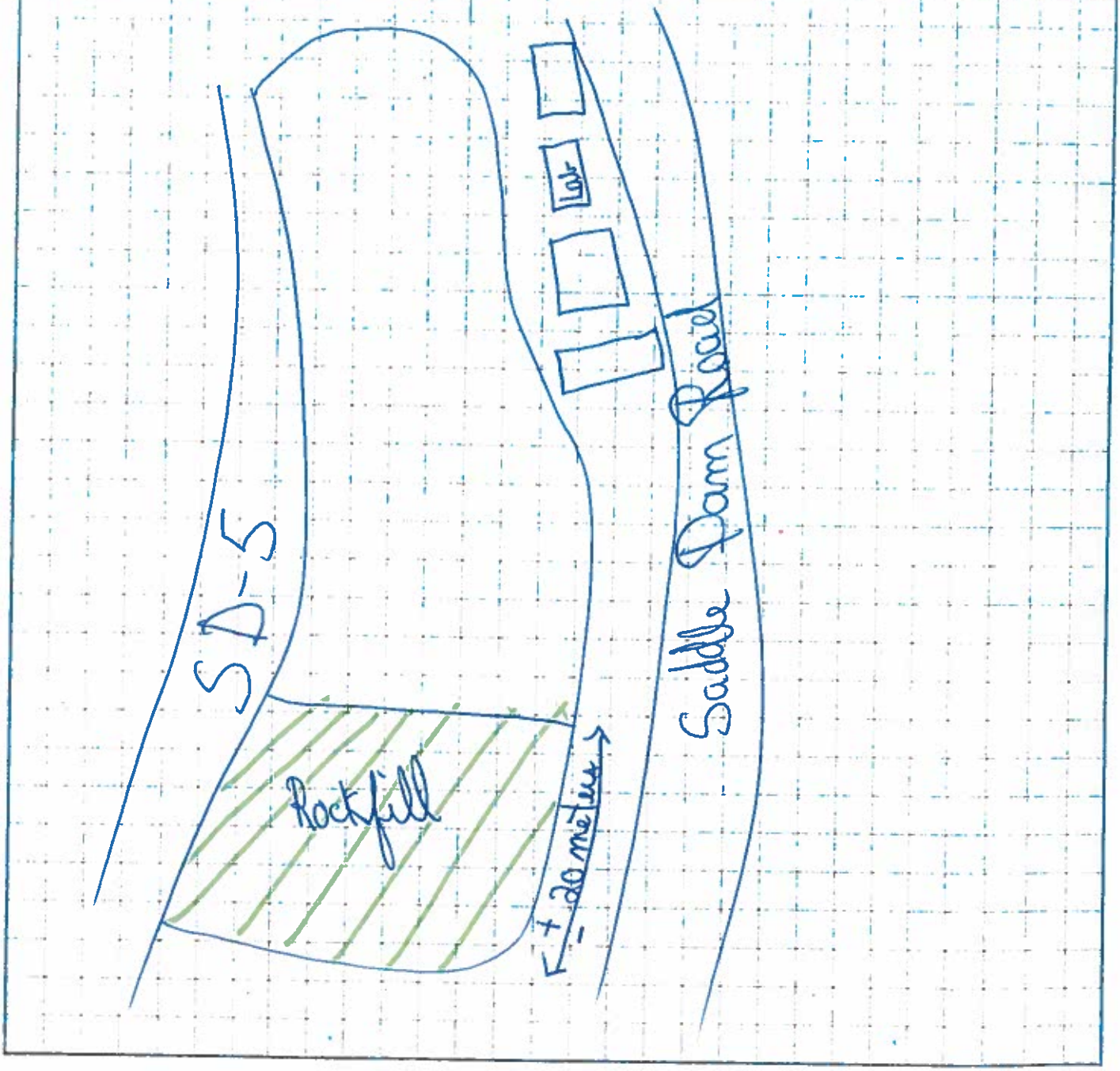
Client: Agnico Eagle

Project: SD-5

Project no: 11118538-B1

Page: 2 of 2

Inspection date: 2017-07-22



Prepared by:

Verified by:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 23 Juillet 2017 Inspector - Day/Night: Pierrick Trecasse, Day shift

Weather : sunny/rainny

Project: Saddle dams 3,4 and 5 Contractor: Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities: see work in progress

Soft Sediment Excavation	Key Excavation	Coarse Filter	Drilling/Blasting
Foundation Preparation	LLDPE/Geotextile	Till	
Water Control	Fine Filter	Rockfill	

Description : QC activities.

Cleanup of bedrock to SD3.

Finish placement of rockfill and compaction to SD4/SD5 (pig launcher). El.139.60m (see sketch)

Finish to loading of excavated till to SD4.

Placement of rockfill and compaction to SD4 (see sketch)

Make a slope (1.5/1) to SD5.

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345, Cat 365, Hauletrucks

Dozer D8T

Compactor 3625

Manpower:

Photos Location:

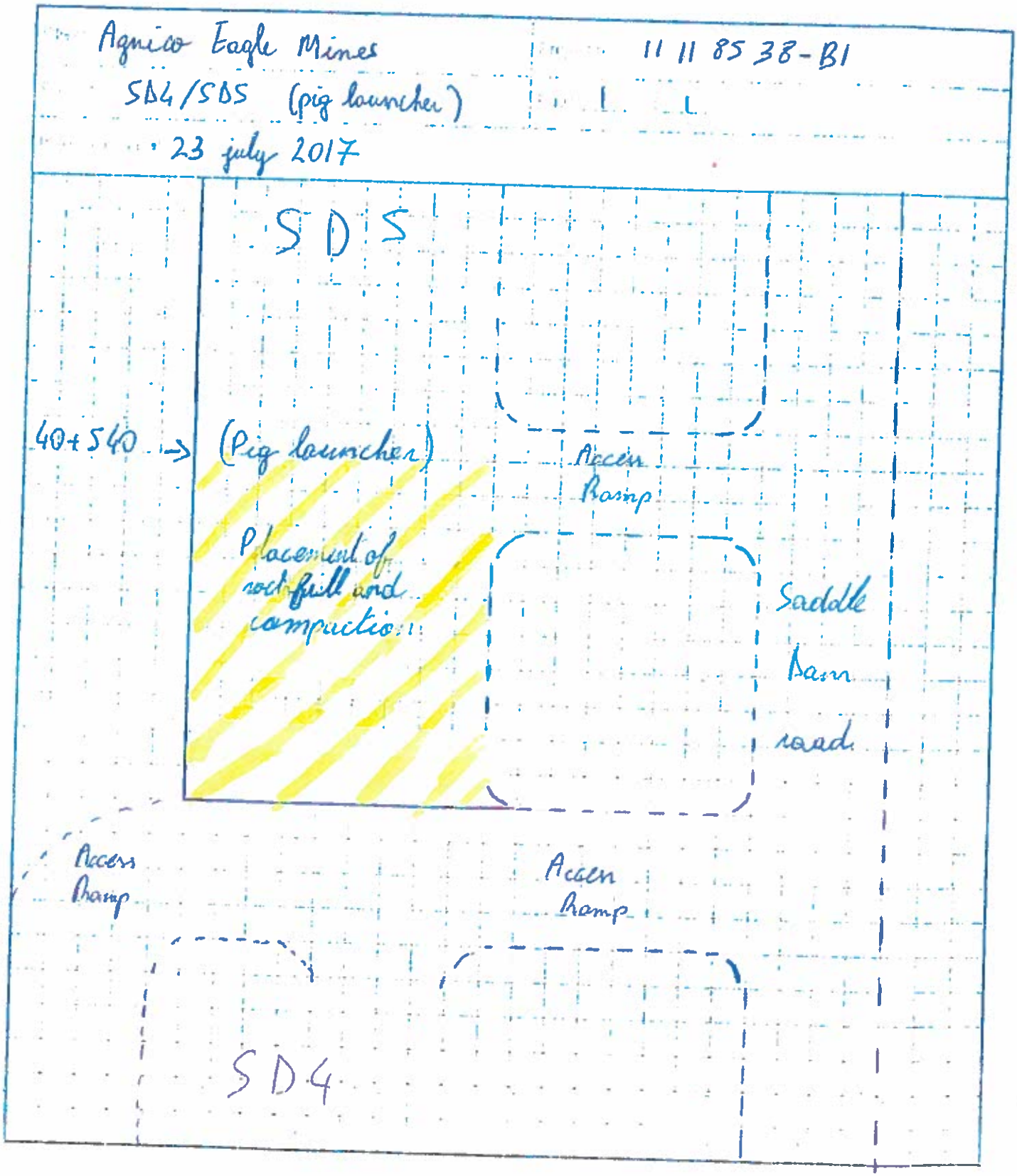
* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Sketch

Agnico Eagle Mines — 11 11 85 38-B1

SD4/SD5 (pig launcher)

23 july 2017



GHD

Plan/Sketch

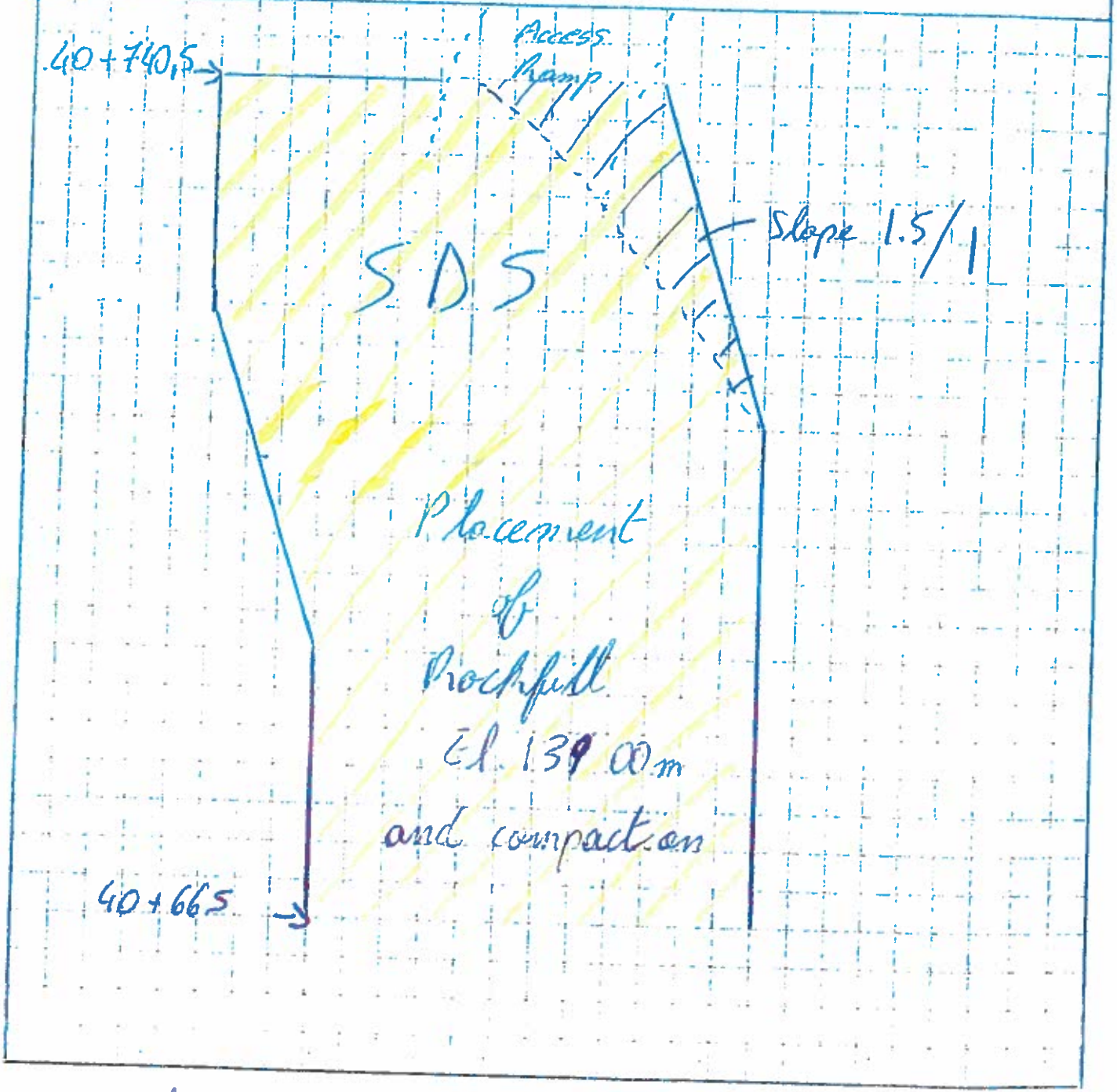
Client: Agnico Eagle Mine

Project No.: 11 11 85 38 - B1

Title: SDS

Rev. No.: 1

Date: 22 july 2017



Prepared by: Pierrick Trecarre

Verified by:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 23-Jul-17 **Inspector - Day/Night:** Guyaume Beauchamp

Weather : Sunny and cloudy

Project: Saddle dam 3 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities:

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: Removal of the soft soil and loose rocks from the SD-3 site in haul trucks 20+780 ending at 20+840

Loading of excavated material from SD-3 at 20+700 ending at 20+740

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 365C , haul trunk no.6 (19 loads):, no.4 (17 loads)

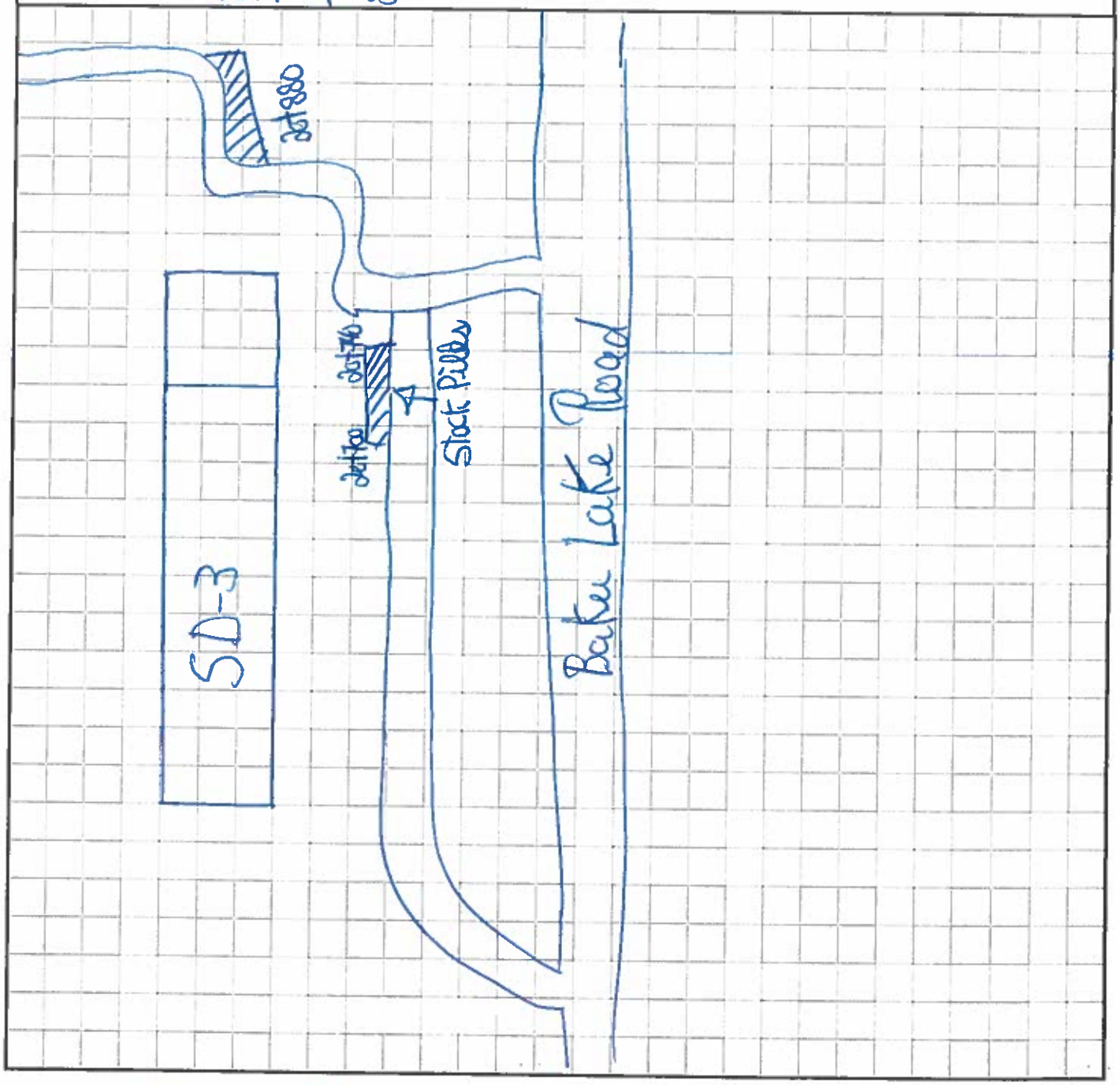
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

Client: Agnico Eagle	Projet no.: 11118538-B1
Projet: SD-3	Page 1 de 1
Date d'inspection: 2017-07-23	



Préparé par: Jacqueline Beauchamp Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 24 Juillet 2017 **Inspector - Day/Night:** Sébastien Blackburn, Day shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Compaction, bedrock cleaning and rockfill placement

General Activities: see work in progress

Soft Sediment Excavation	☐	Key Excavation	☐	Coarse Filter	☐	Drilling/Blasting	☐
Foundation Preparation	☐	LLDPE/Geotextile	☐	Till	☐		
Water Control	☐	Fine Filter	☐	Rockfill	☐		

Description: - Rockfill placement on SD-5. (see sketch join to the report)

- Compaction and rockfill riping on SD-4. (see sketch join to the report)

- Bedrock cleaning and disposing of excaved material on SD-3. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 365C,345D, D-8 dozer, 4 - Haule trucks

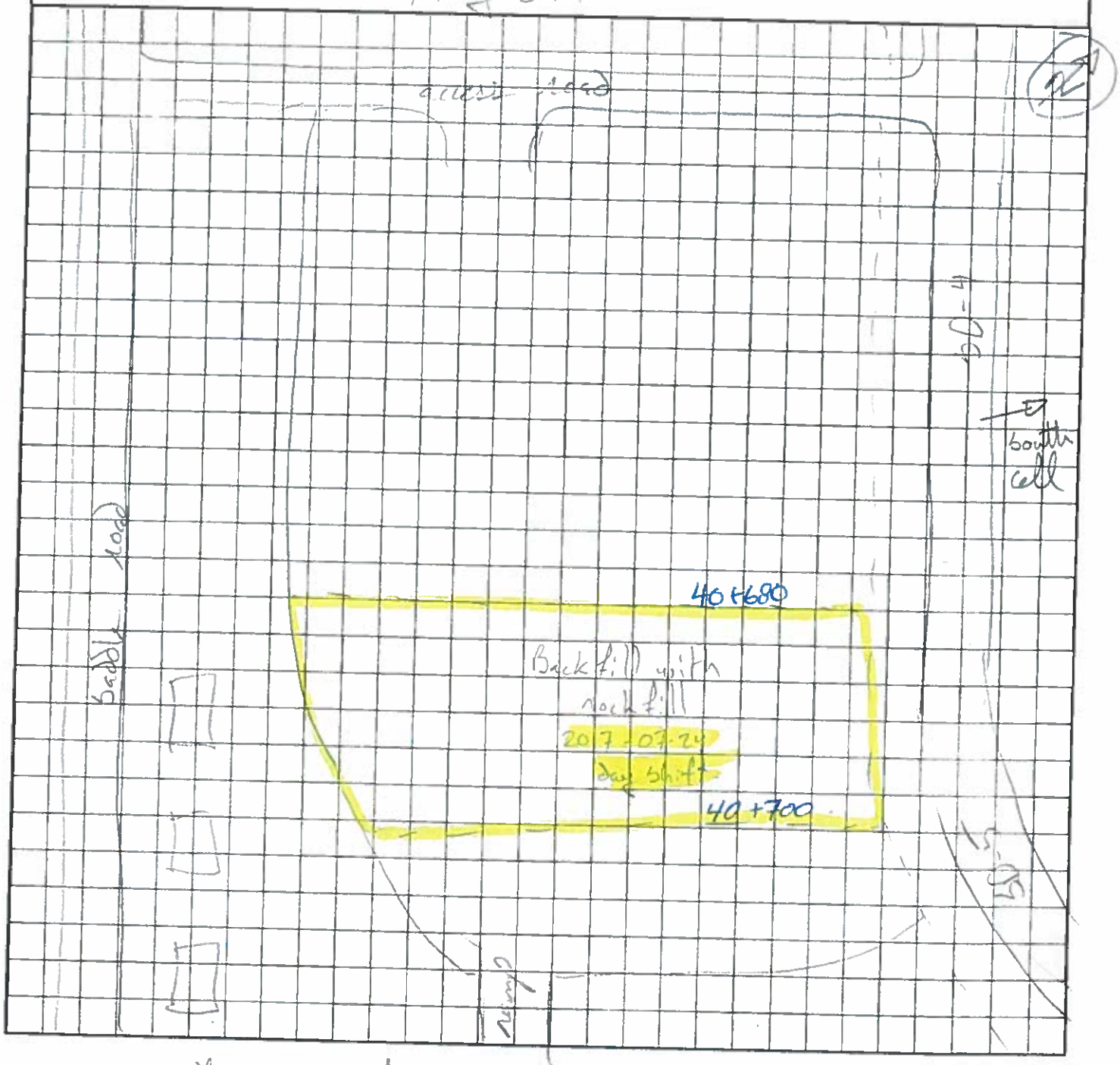
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

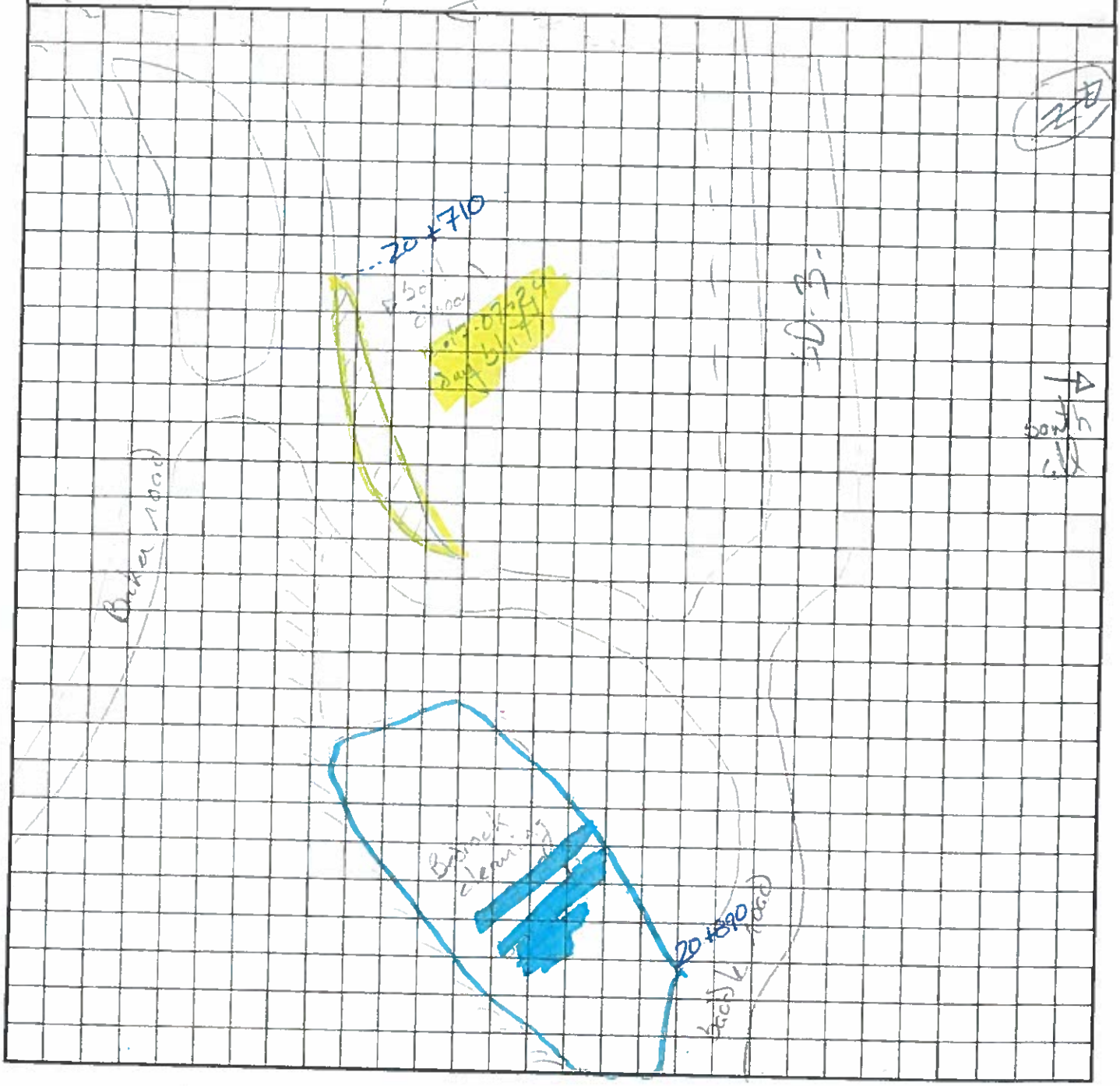
Client: A.E.M	Project no.: 111175538-B1
Project: Saddle dam 3-4-5	Page 1 of 3
Inspection date: 2017-07-24 / Day shift	



Prepared by: Sebastien Lafrenière Verified by: _____

Plan/Sketch

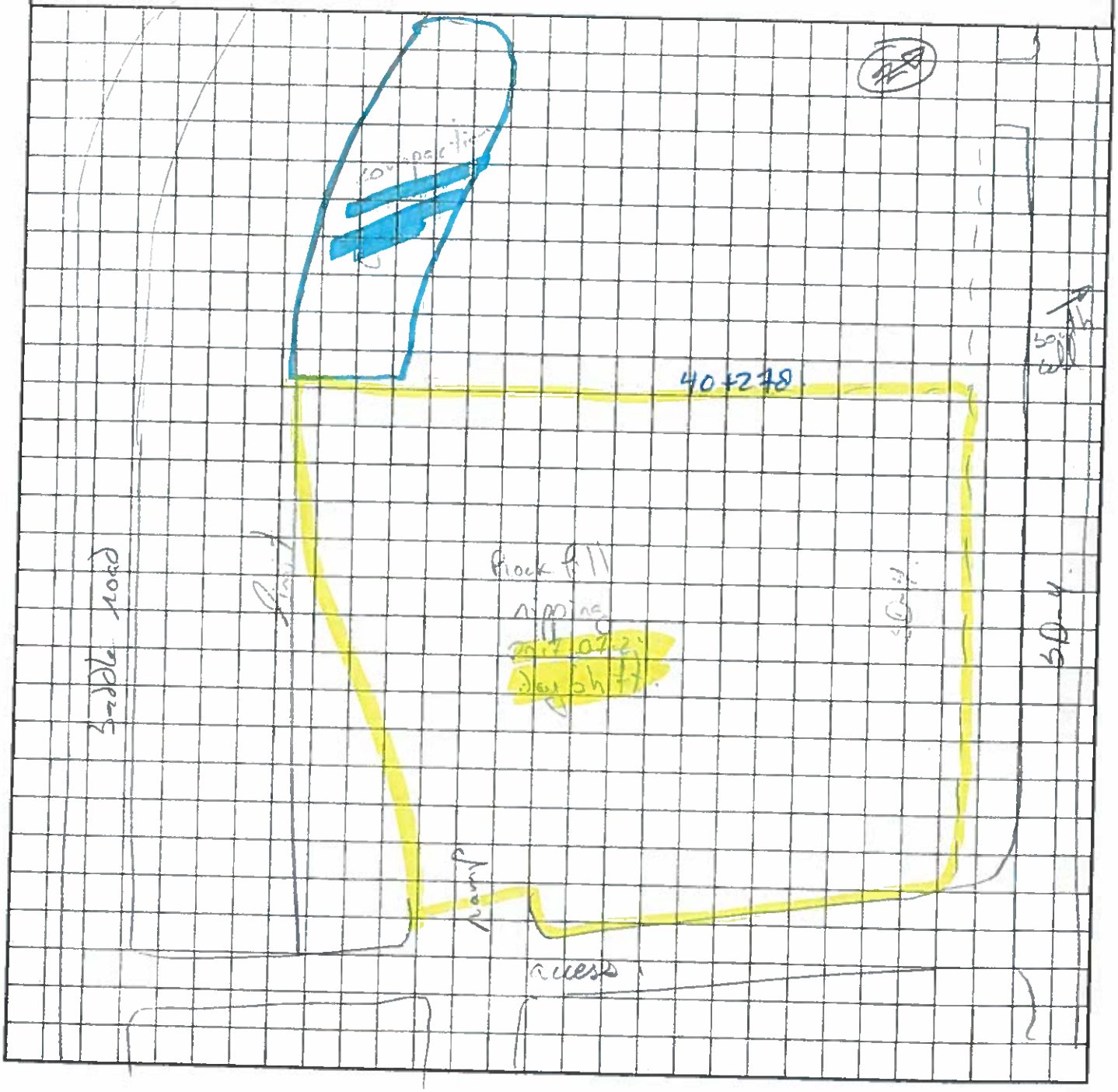
Client: A.E.M.	Project no.: 8538-
Project: Saddle dam 3, 4 and 5	Page ____ of 3
Inspection date: 2017-07-24 / Day Shift	



Prepared by: Silvia Espinosa Verified by: _____

Plan/Sketch

Client: A.E.M.	Project no.: 11117538-B1
Project: Saddle dam 3-4-5	Page 3 of 3
Inspection date: 2017-07-24.	



Prepared by: Sebastien Gauthier Verified by:

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 24 Juillet 2017 **Inspector - Day/Night:** Hugues Potvin, night shift

Weather : Cloudy + rain

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Bedrock cleaning and rockfill placement

General Activities: see work in progress

Soft Sediment Excavation	☐	Key Excavation	☐	Coarse Filter	☐	Drilling/Blasting	☐
Foundation Preparation	☐	LLDPE/Geotextile	☐	Till	☐		
Water Control	☐	Fine Filter	☐	Rockfill	☐		

Description: - Rockfill placement on SD-5. (see sketch join to the report). 3 trucks were placed at the begening of the shift and the others between 4:45 and 6:00 because there are to much fine in the dynamited rock loaded during the night (until 4:45j.

- Bedrock cleaning on SD-3. (see sketch join to the report)

- An access rod was made on SD-3 (see sketch join to the report).E33

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 365 and 345D, D-8T dozer, Haul trucks

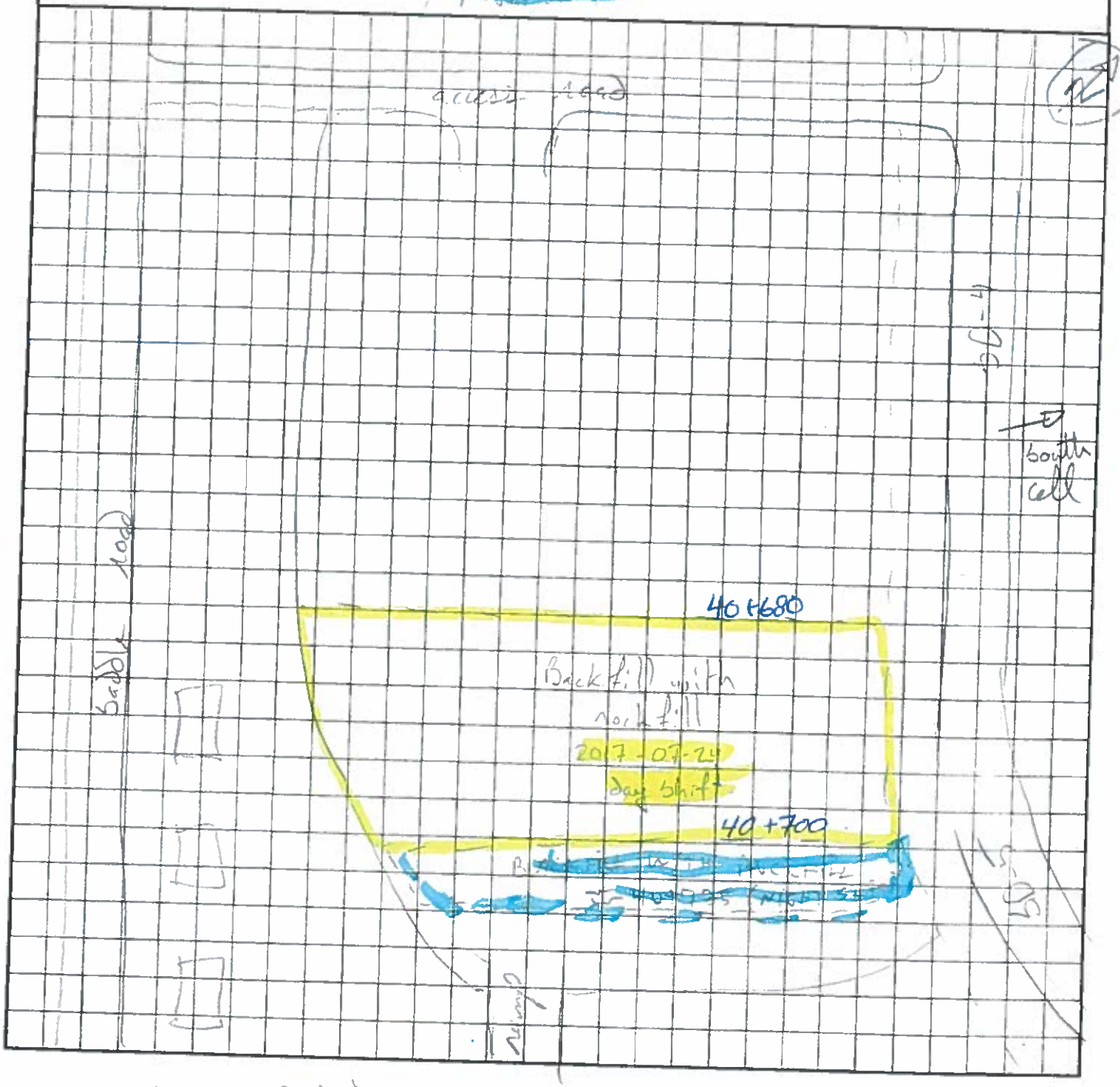
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

Client: A.E.M	Project no.: 11117538-B1
Project: Saddle dam 3-4-5	Page 1 of 2
Inspection date: 2017-07-24	

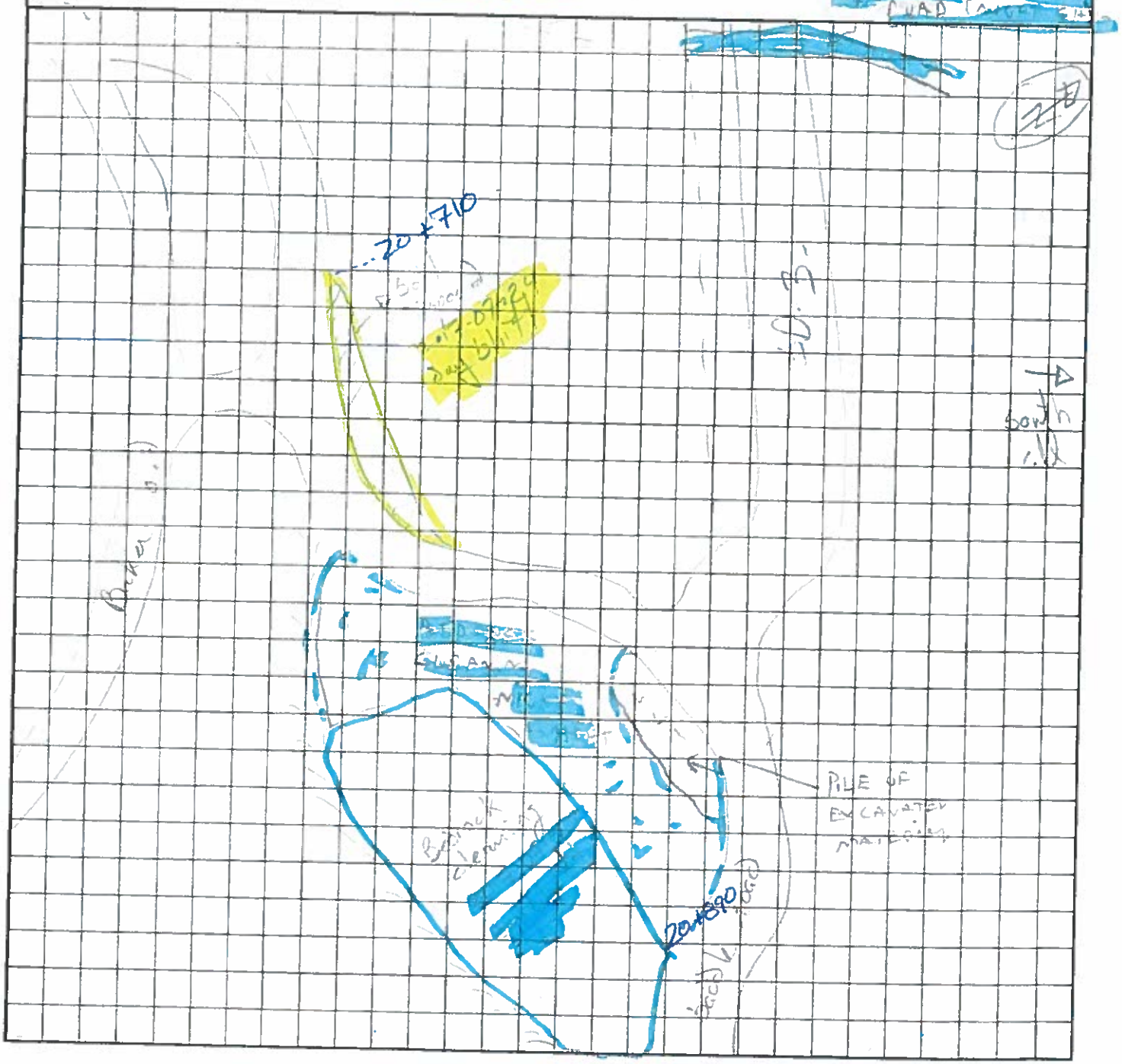


Prepared by: Hugues Potvin

Verified by:

Plan/Sketch

Client: + E I I.	Project no :
Project: Lake dam 3 1 - 3	Page of _____
Inspection date: 2023-07-24	



Prepared by: Hanna P. [illegible] Verified by: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 25 Juillet 2017 **Inspector - Day/Night:** Sébastien Blackburn, Day shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Bedrock cleaning and rockfill placement

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: - Rockfill placement on SD-5. (see sketch join to the report)

- Bedrock cleaning and disposing of excaved material on SD-3. (see sketch join to the report)

Delays: The Cat 345D broke from 8h00 to 13h00

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 365C,345D, D-8 dozer, 4 - Haule trucks

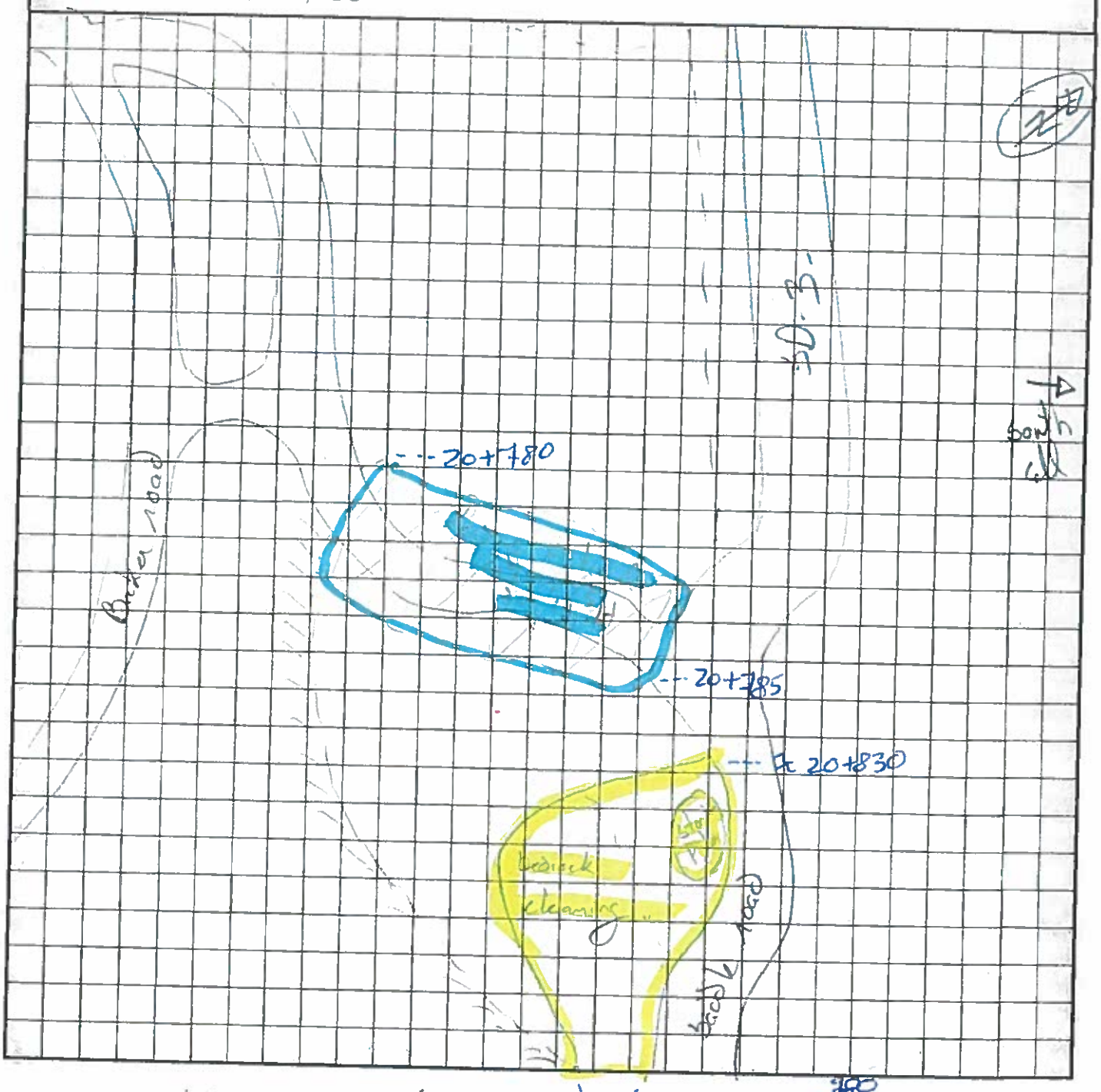
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

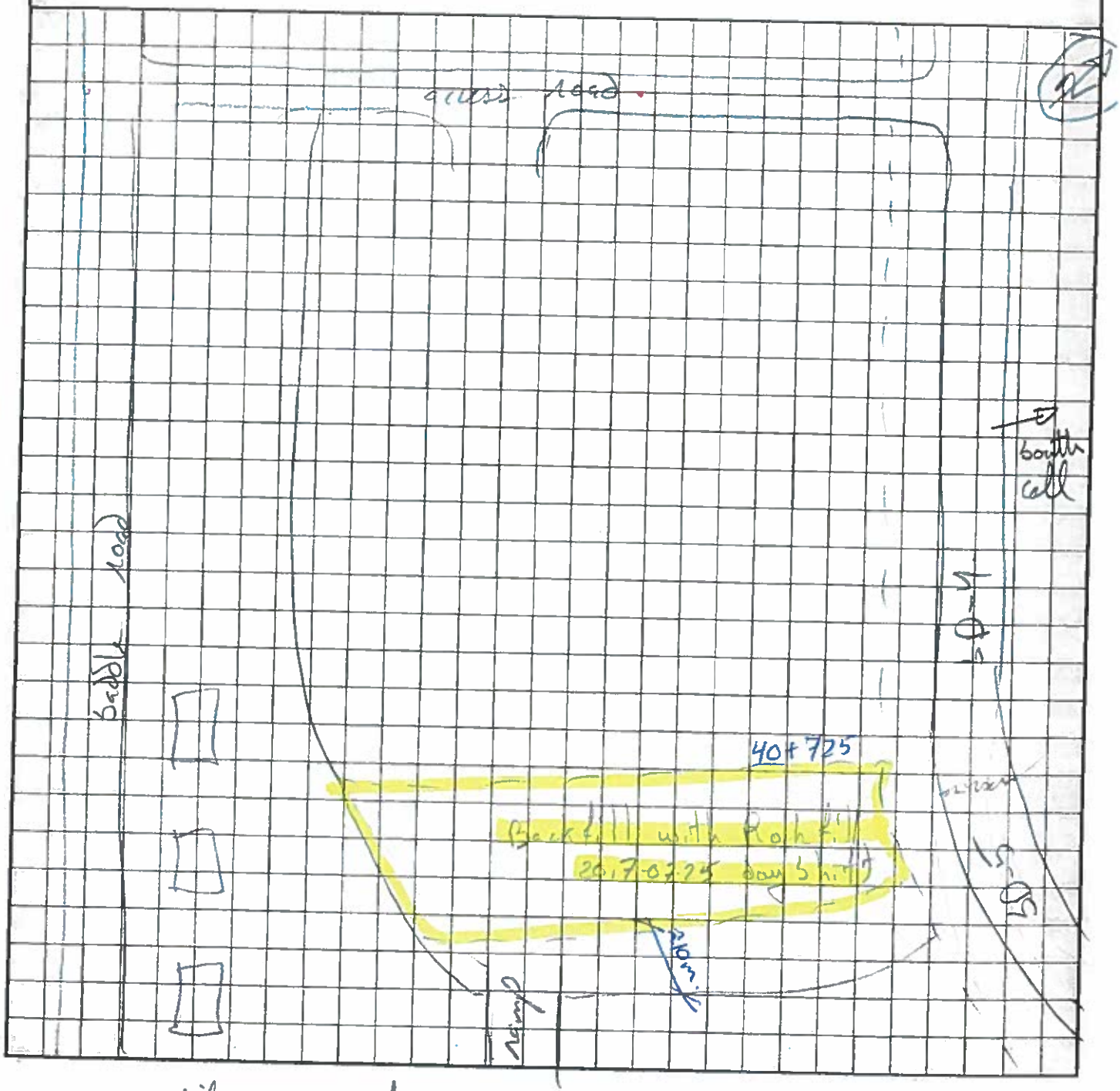
Client: A.E.M.	Project no.: 8538-B1
Project: Sodic dam 3, 4 and 5	Page 1 of 2
Inspection date: 2017-07-25	



Prepared by: Sebastian Bezuidenhout Verified by: _____

Plan/Sketch

Client: A.E.M.	Project no.: 11117538-B1
Project: Saddle dam 3-4-5	Page 2 of 2
Inspection date: 2017-07-25	



Prepared by: _____ Verified by: _____

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBA

Date: 25-Jul-17 **Inspector - Day/Night:** Hugues Potvin, night shift

Weather : Cloudy

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Cleaning and rockfill placement

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: - Rockfill placement on SD-5 and SD4. (see sketch #1 and 2 join to the report). The width of the layer is 2 meters max.

- Cleaning on SD-3. (see sketch join to the report). The cleaning was completed until rock or frozen till .

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, D-8T dozer, Haul trucks

Manpower:

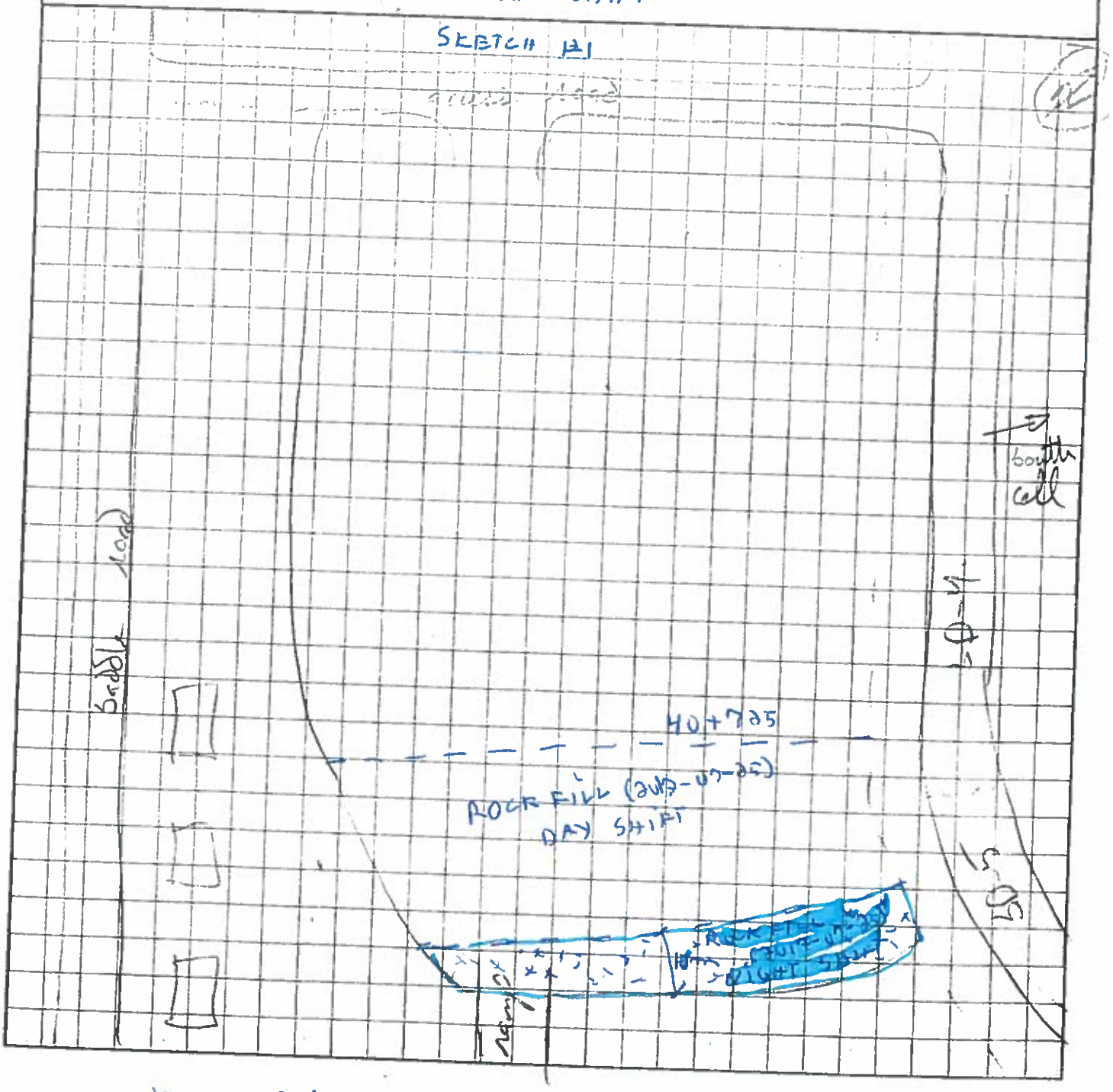
Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

Client: A.E.M.	Project no.: 111753 38-B1
Project: Cable 2 - 2.4-5	Page 1 of 3
Inspection date: 2-4-07-25 NIGHT SHIFT	

SKETCH #1



Prepared by: Hugues Potvin Verified by:

Plan/Sketch

Client: A.E.M.

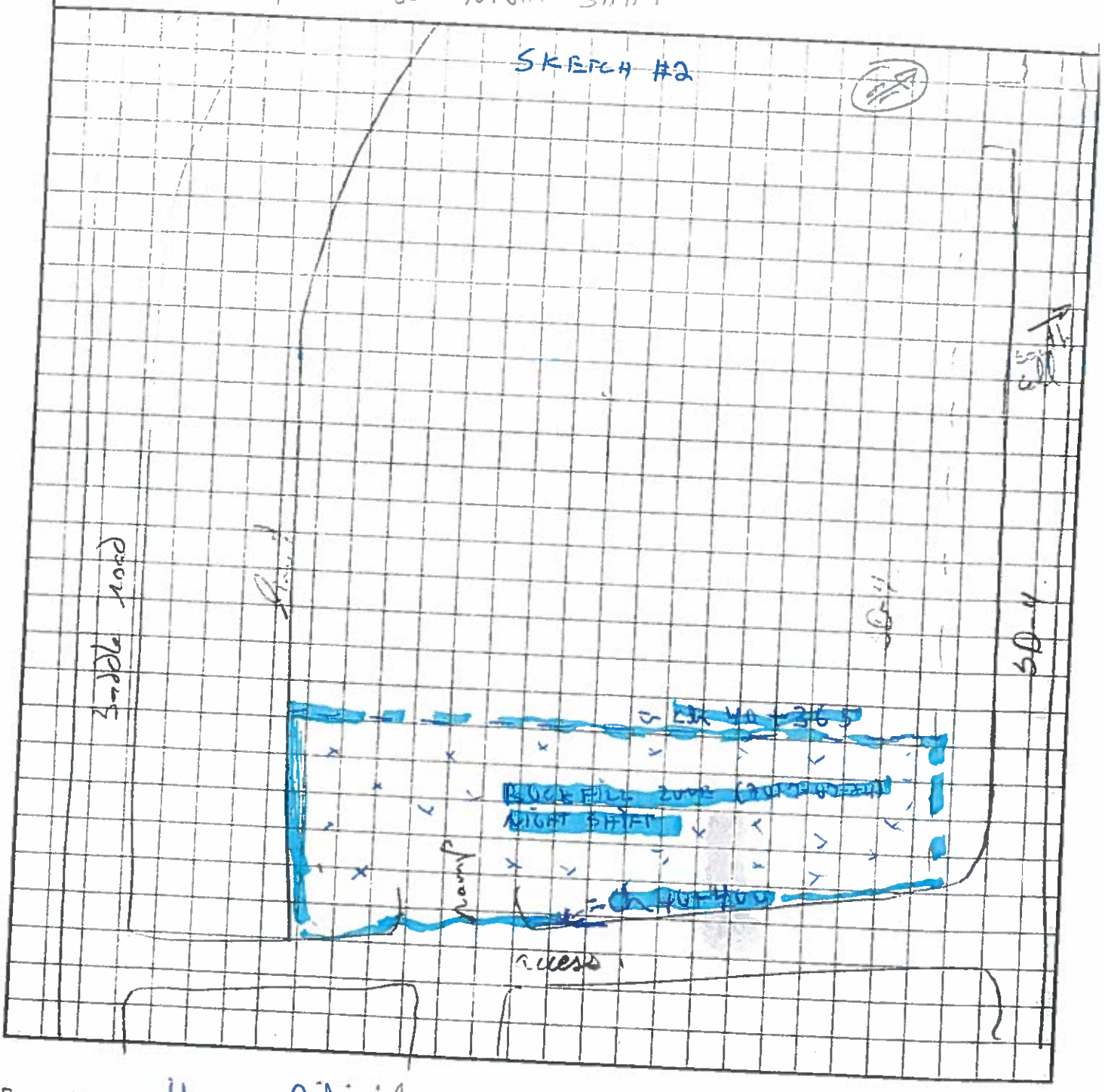
Project: Saddle dam 3-4-5

Project no.: 11117538-131

Page 2 of 3

Inspection date: 2017-07-25 NIGHT SHIFT

SKETCH #2

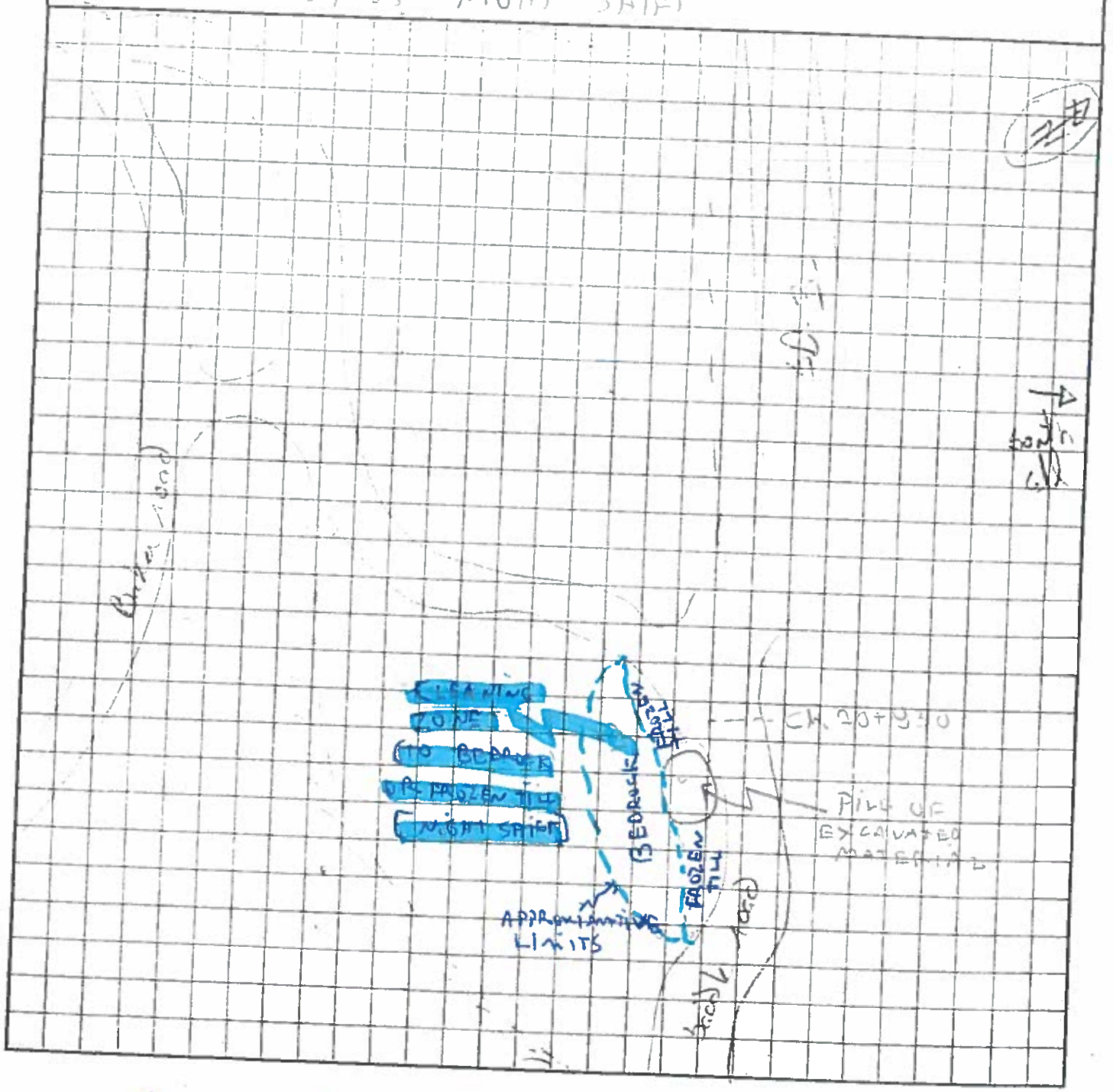


Prepared by: Harpreet Arbin

Verified by:

Plan/Sketch

Client: A.E.H.	Project no.: 111535-01
Project: Eddie Dam 34-35	Page 3 of 3
Inspection date: 26-07-25 NIGHT SHIFT	



Prepared by: Hugues Poitras

Verified by: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 26 Juillet 2017 **Inspector - Day/Night:** Sébastien Blackburn, Day shift

Weather : Cloudy

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Bedrock cleaning, rockfill placement

General Activities: see work in progress and loading material, compaction

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: - Rockfill placement on SD-4. (see sketch join to the report) #2/4

- Bedrock cleaning on SD-3. (see sketch join to the report) #4/4

- Loading excavated material from SD-3 and SD-3 near SD-2. (see sketch join to the report) #1/4

- Smooth the slopes of SD-5 . (see sketch join to the report) #3/4

- Rockfill compaction on SD-5 and SD-4. (see sketch join to the report) #3/4 and #2/4

- Scraping the rockfill surface with the grader on SD-5. (see sketch join to the report) #3/4

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 365C,345D, D-8 dozer, 4 - Haule trucks, compacteur, grader

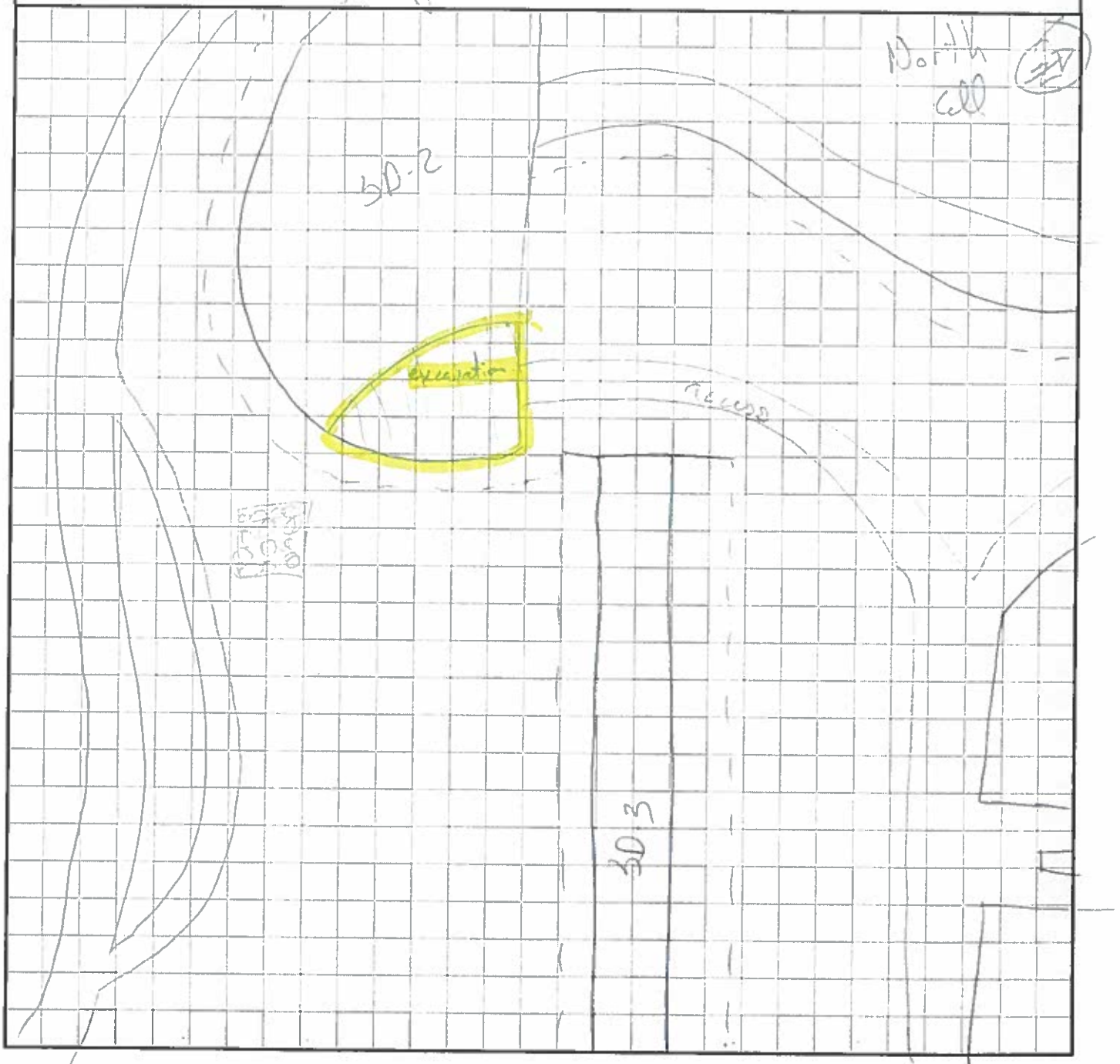
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 1 de 4
Date d'inspection: 2017-07-26 / Day shift	

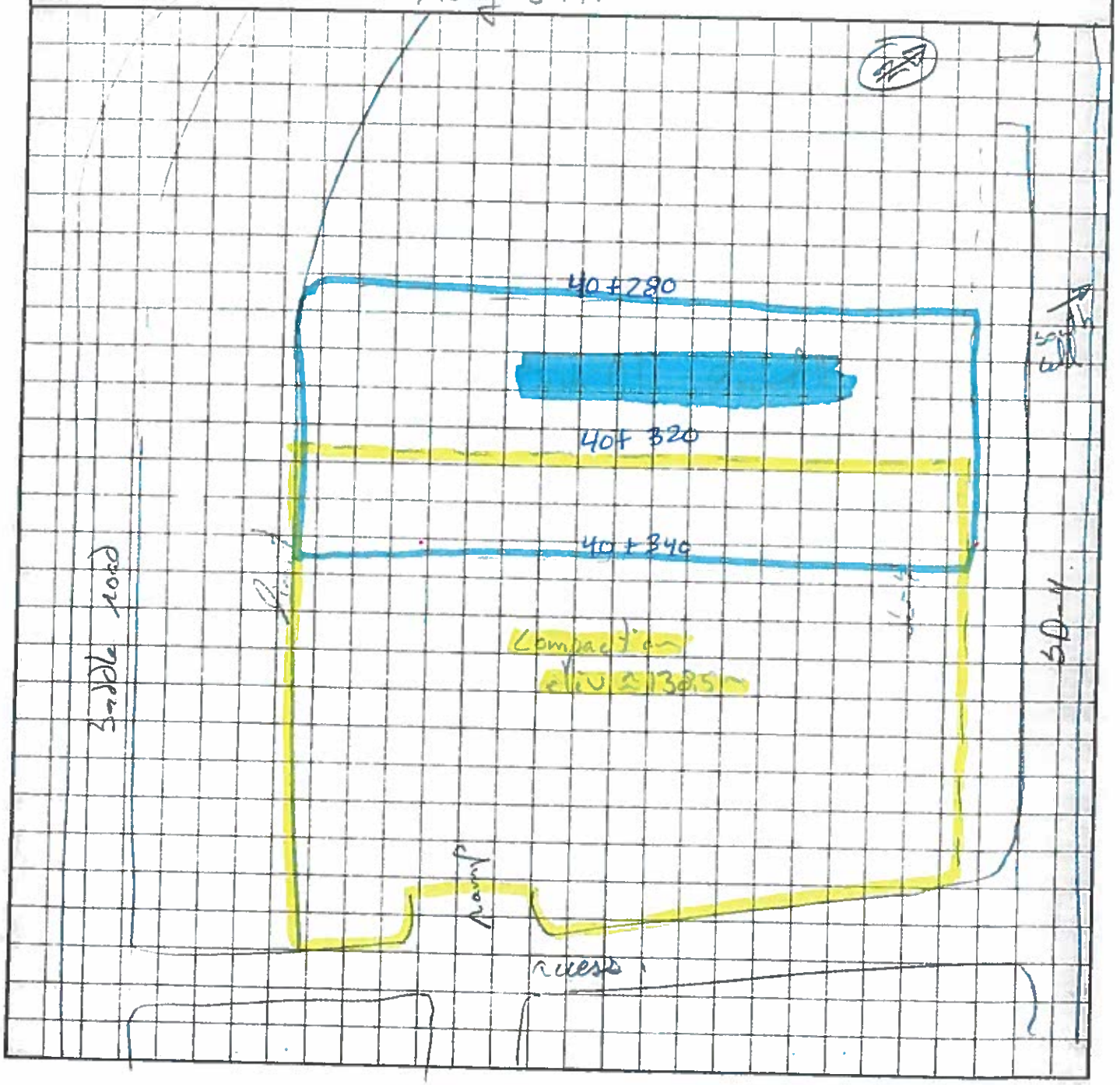


Préparé par: S.B

Vérifié par:

Plan/Sketch

Client: A.E.M.	Project no.: 11117538-B1
Project: Saddle dam 3-4-5	Page 2 of 4
Inspection date: 2017-07-26 / Day shift	

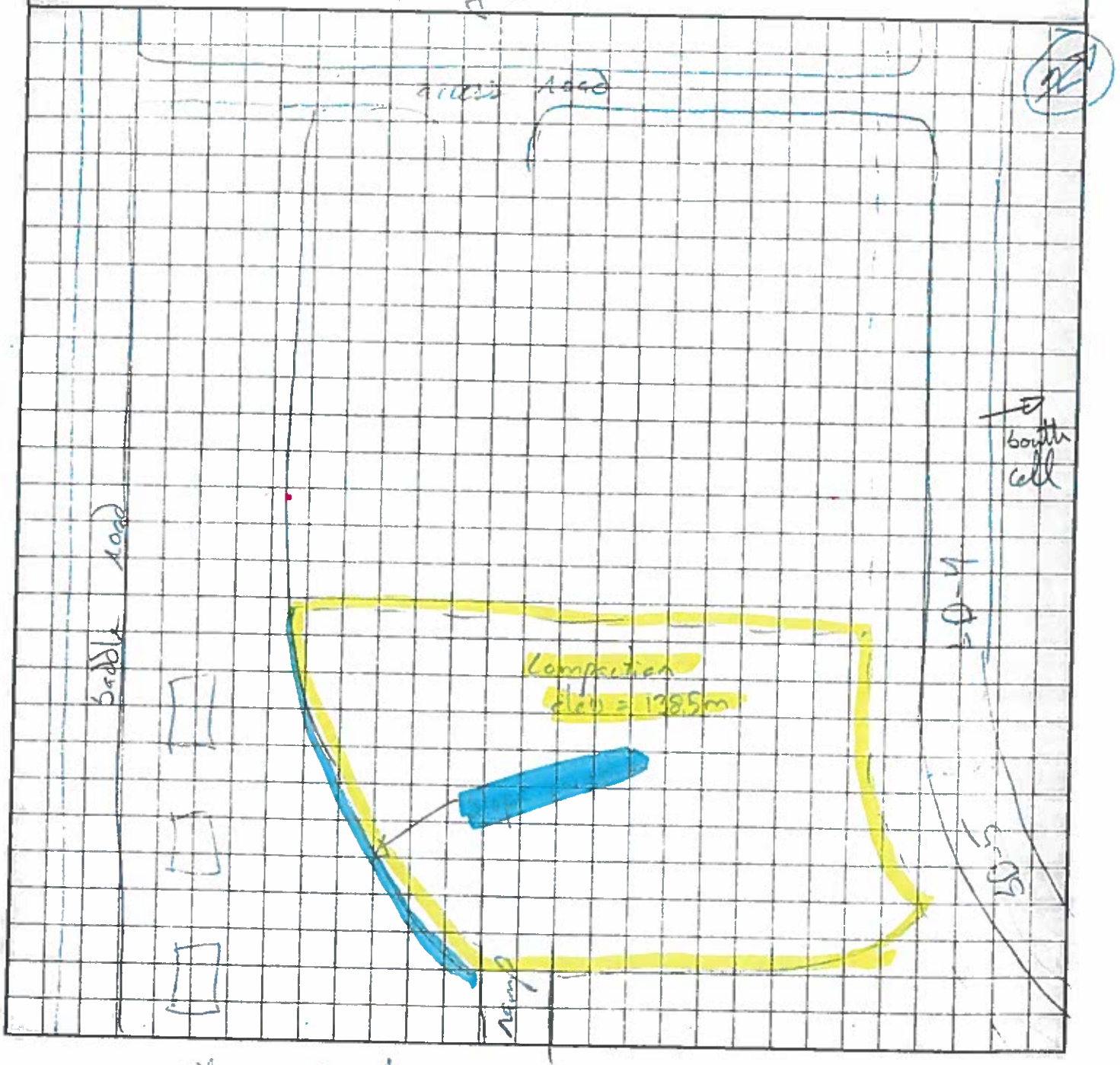


Prepared by: Gloria Gfoehler

Verified by: _____

Plan/Sketch

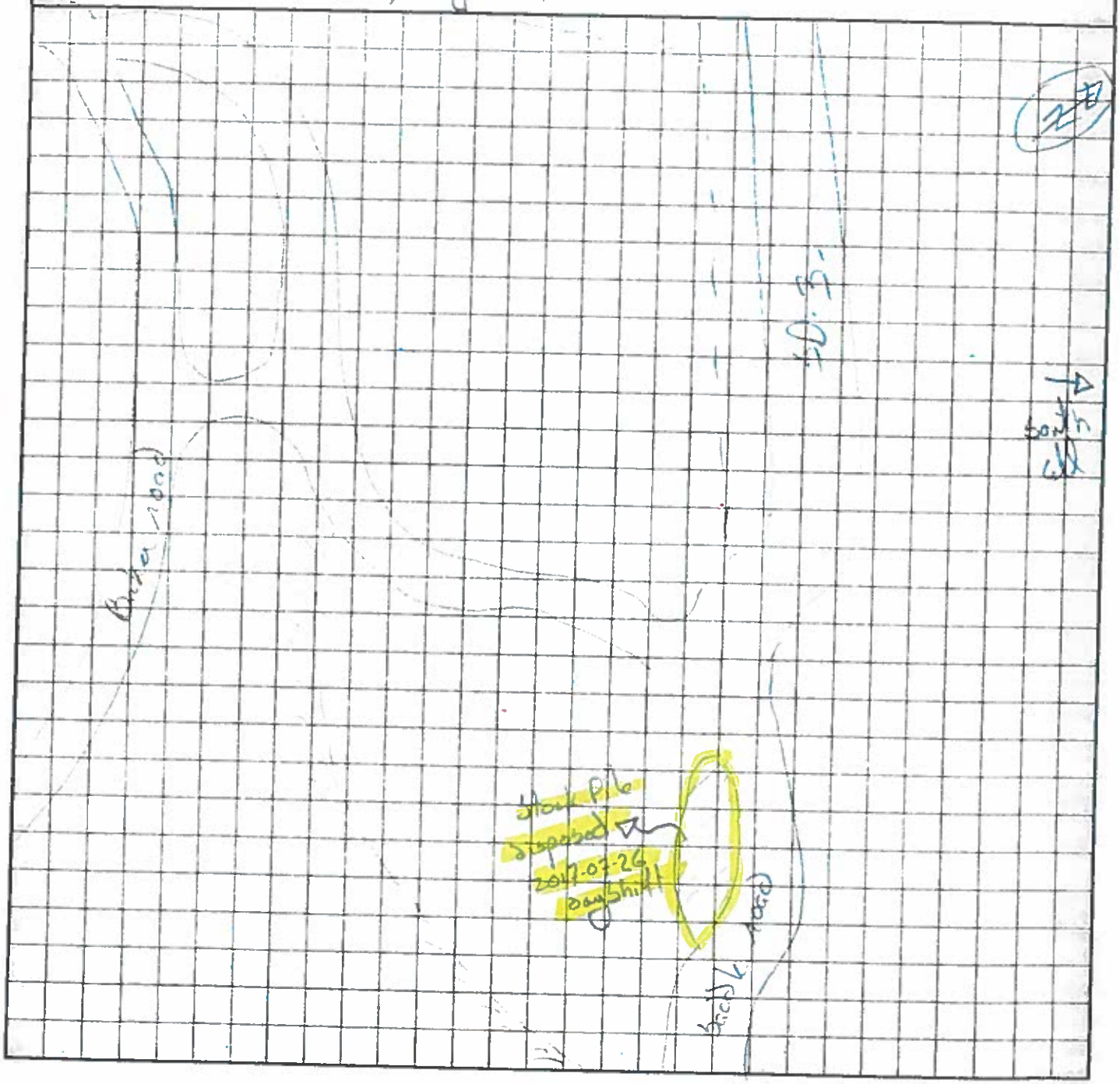
Client: A.E.M.	Project no.: 11117538-B1
Project: Saddle Dam 3-4-5	Page 3 of 4
Inspection date: 2017-07-26 / Day shift	



Prepared by: _____ Verified by: _____

Plan/Sketch

Client: A.E.M.	Project no.: 11118538-01
Project: Saddle dam 3-1 and 5	Page 4 of 4
Inspection date: 2017-07-26 / Day shift	



Prepared by: Silvia Pafundi

Verified by:

C:\Users\hpotvin\Desktop\Meadowbank 2017\Daily inspection report_update 2017\Samples to remove\2017-07-26\DCC Daily Inspection Report 2017.07.26 night Shift - old\Daily Report

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 26 Juillet 2017 **Inspector - Day/Night:** Hugues Potvin, Night shift

Weather : Cloudy

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Bedrock cleaning and rockfill placement

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: - Rockfill placement on SD-4 (width less than 1 meter) and on SD-5 (maximum width of 2 meters). (see sketch #1 and 2))

- Bedrock cleaning on SD-3. (see sketch #3)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, D-8T dozer and Haul trucks

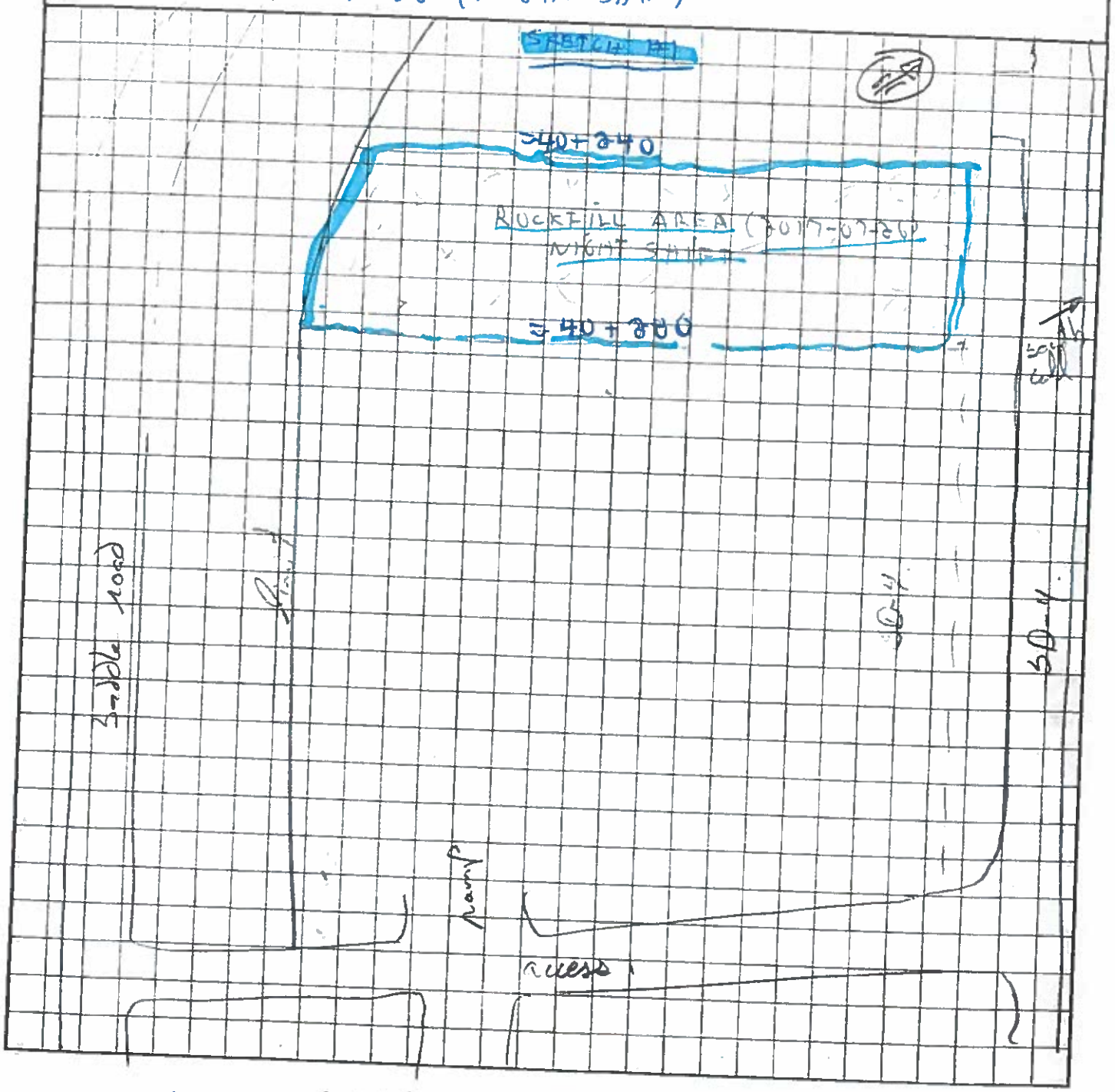
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

Client: A.E.M.	Project no.: 11117538-B1
Project: Saddle dam 3-4-5	Page 1 of 3
Inspection date: 2017-07-26 (NIGHT SHIFT)	

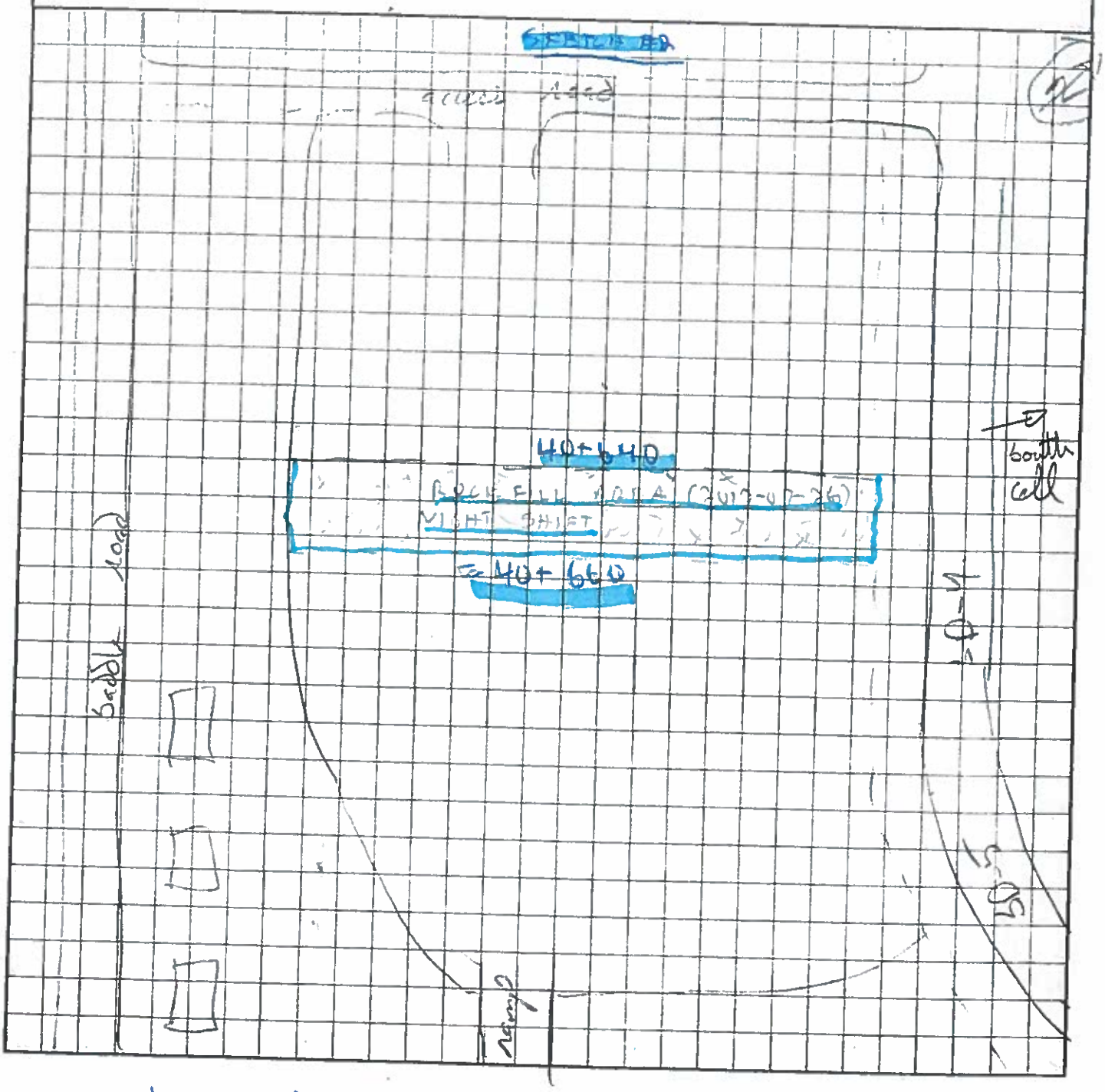


Prepared by: Hugues Poliquin

Verified by: _____

Plan/Sketch

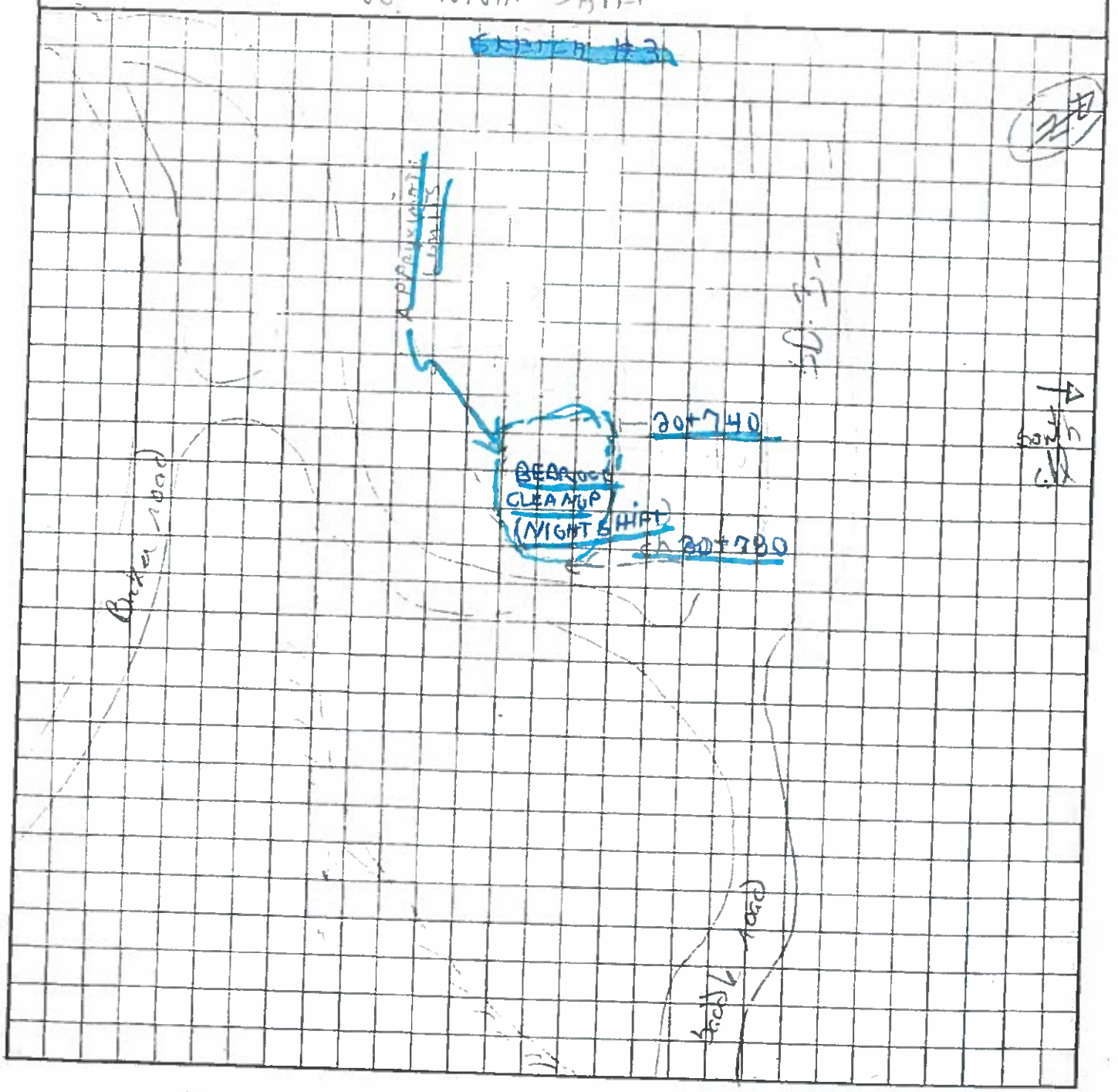
Client: A.E.M.	Project no.: 111175538-B1
Project: Saddle Dam 3-4-5	Page 2 of 3
Inspection date: 2017.	



Prepared by: Harrison Barton Verified by:

Plan/Sketch

Client: A.E.M.	Project no.: 11118538-01
Project: Duke Dam 3 + 4 and 5	Page 3 of 3
Inspection date: 2017-07-26 NIGHT SHIFT	



Prepared by: Hugues Poliquin Verified by:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 27 Juillet 2017 **Inspector - Day/Night:** Sébastien Blackburn, Day shift

Weather : Cloudy

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Bedrock cleaning, rockfill placement

General Activities: see work in progress and loading material, compaction

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: - Rockfill placement on SD-5. (see sketch join to the report)

- Bedrock cleaning on SD-3. (see sketch join to the report)

- Loading excavated material from SD-3 and SD-3 near SD-2. (see sketch join to the report)

- Foundation approuval SD3-22 . (see sketch join to the report)

- Rockfill compaction on SD-4. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 365C,345D, D-8 dozer, 4 - Haule trucks, compacteur, grader

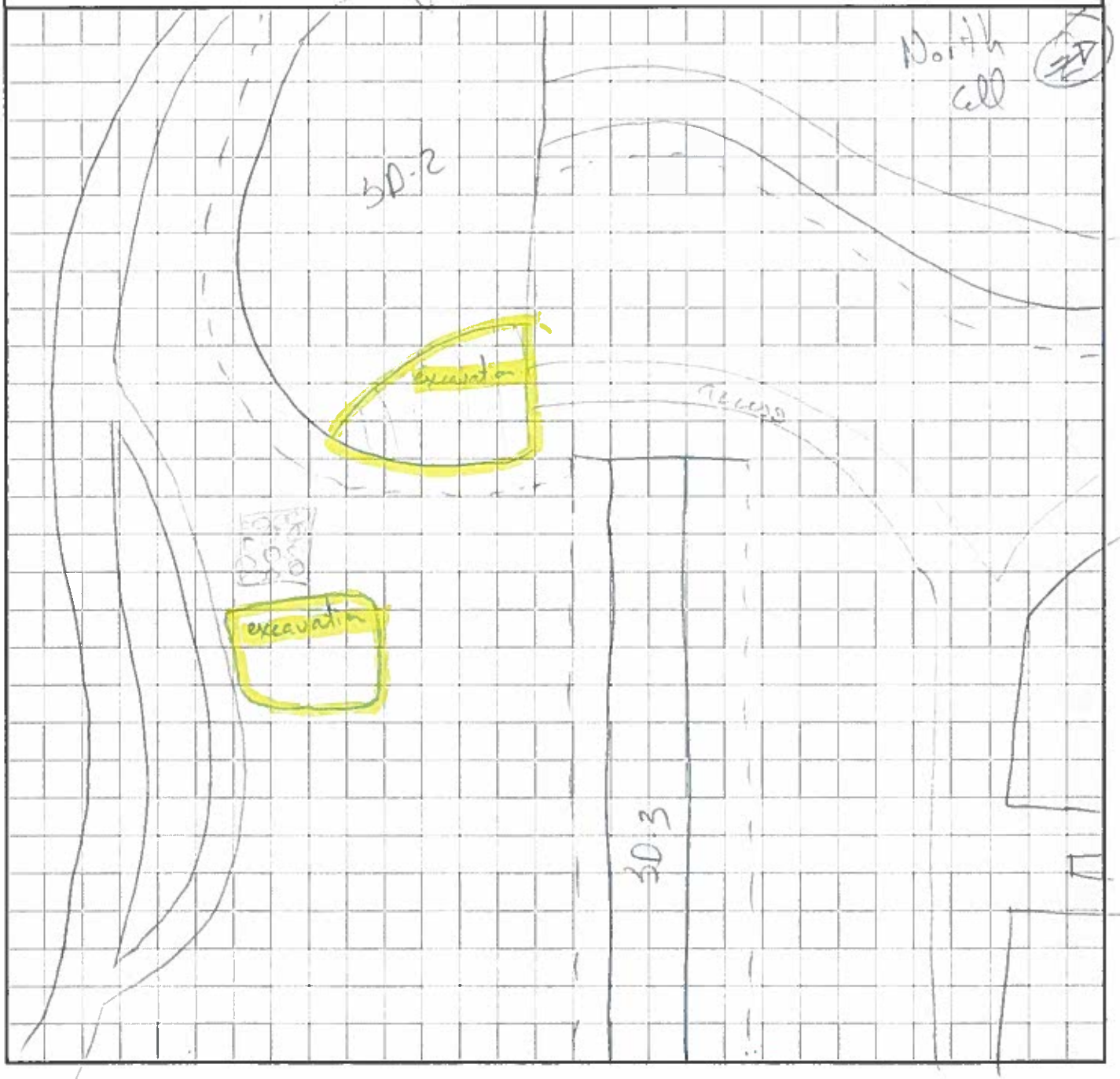
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

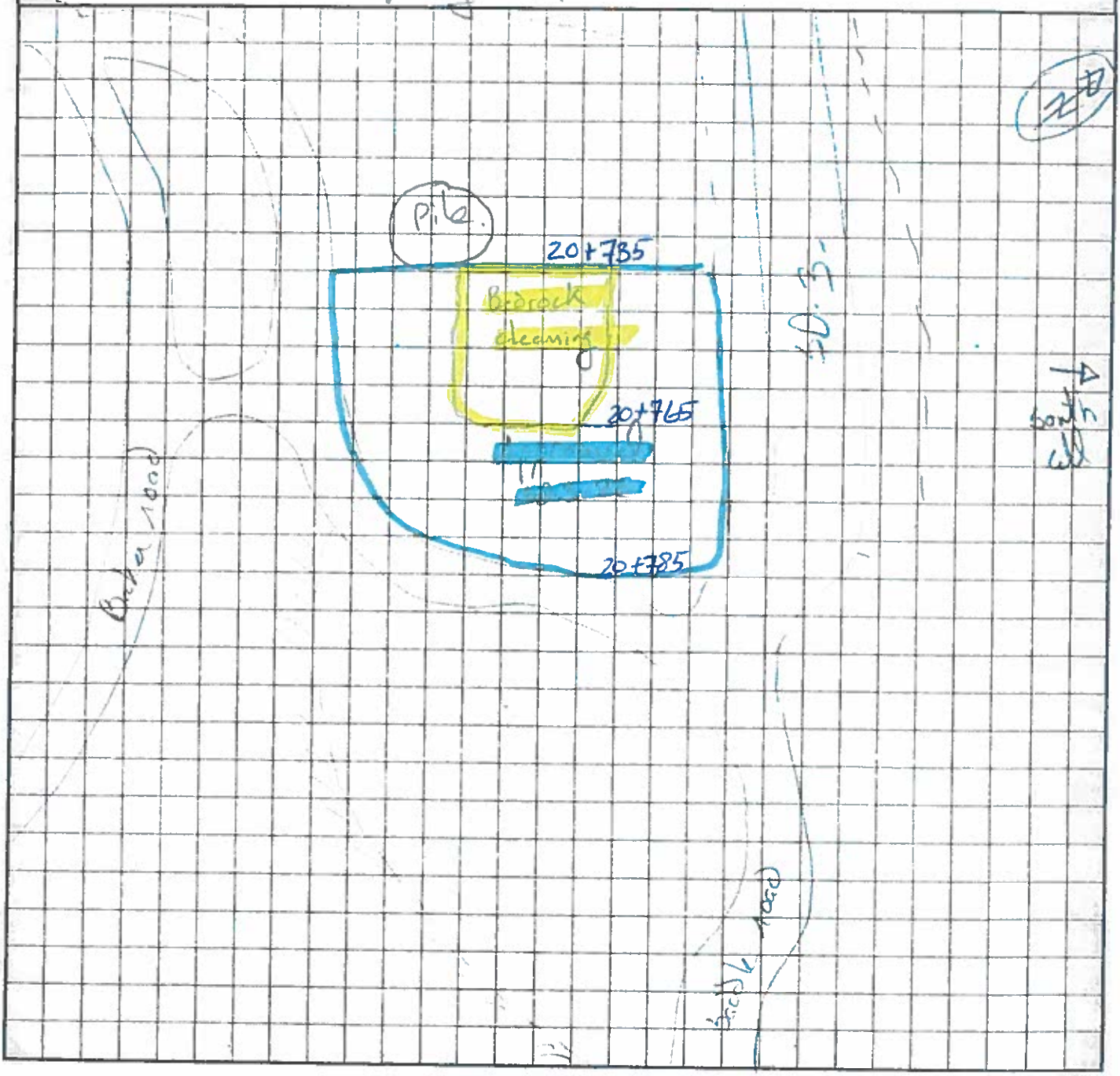
Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 1 de 4
Date d'inspection: 2017-07-27 / Day shift	



Préparé par: S.B Vérifié par: _____

Plan/Sketch

Client: A.E.M.	Project no.: 15538-B1
Project: Sudbe dam 3.4 - 3.5	Page 2 of 4
Inspection date: 2017-07-27 / Day shift.	

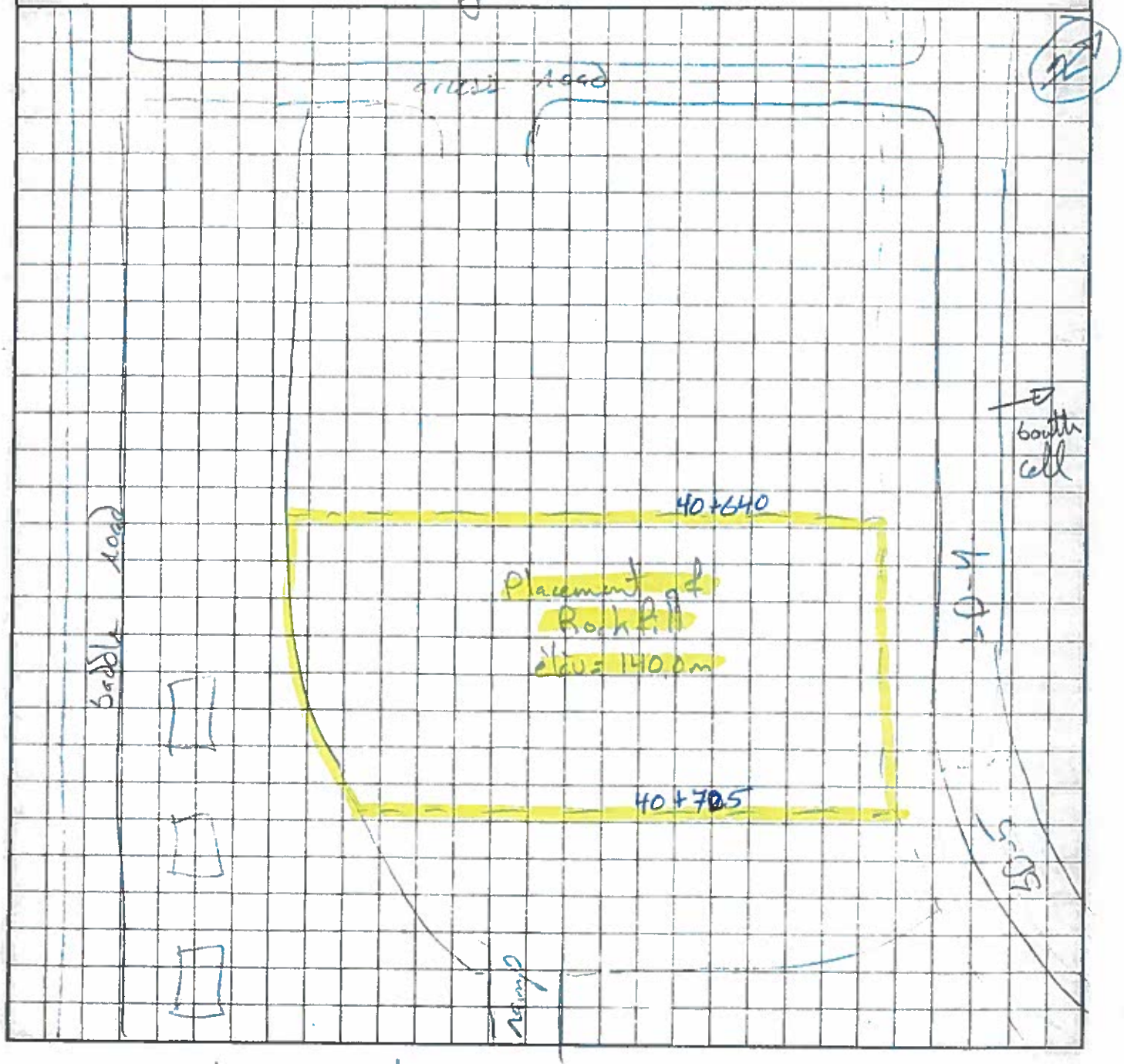


Prepared by: Silantie Zahnke

Verified by:

Plan/Sketch

Client: A.E.M	Project no.: 11117538-E1
Project: Saddle Dam 3, 4, 5	Page 3 of 4
Inspection date: 2017-07-27 / Day shift	

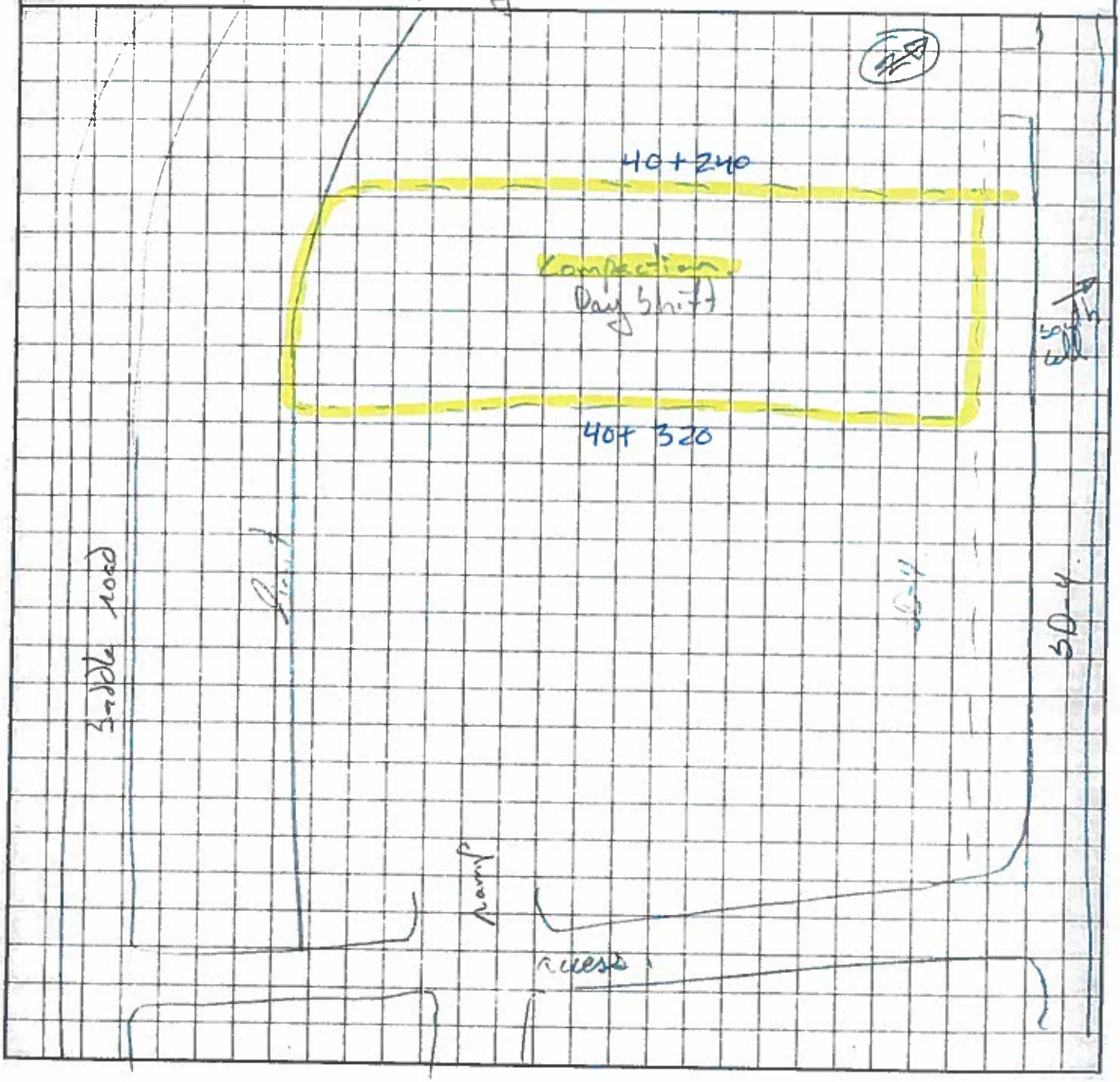


Prepared by: Sebastien Tardif

Verified by: _____

Plan/Sketch

Client: A.E.M.	Project no.: 11117538-(5)
Project: Saddle dam 3-4-5	Page 4 of 4
Inspection date: 2017-07-27 / Day shift	



Prepared by: Sébastien Bélanger Verified by:

C:\Users\...\Daily reports\2017\Daily report juillet 2017\Saddle dams 3,4 and 5\2017-07-27\QC Daily Inspection Report 2017-07-27 Night Shift.docx\Daily Report

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 27 Juillet 2017 **Inspector - Day/Night:** Hugues Potvin, Night Shift

Weather : Cloudy and sun

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Bedrock cleaning, rockfill placement

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: - Rockfill placement on SD-5. (see sketch join to the report)

- Scraping the rockfill surface with the grader on SD-4. (see sketch join to the report)

- Rockfill placement on SD-4. (see sketch join to the report)

- Bedrock cleaning on SD-3. (see sketch join to the report)

Delays: Cat 345 was stoped about 6 hours to fix a plate on the bucket.

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, D-8 dozer, Haule trucks, grader

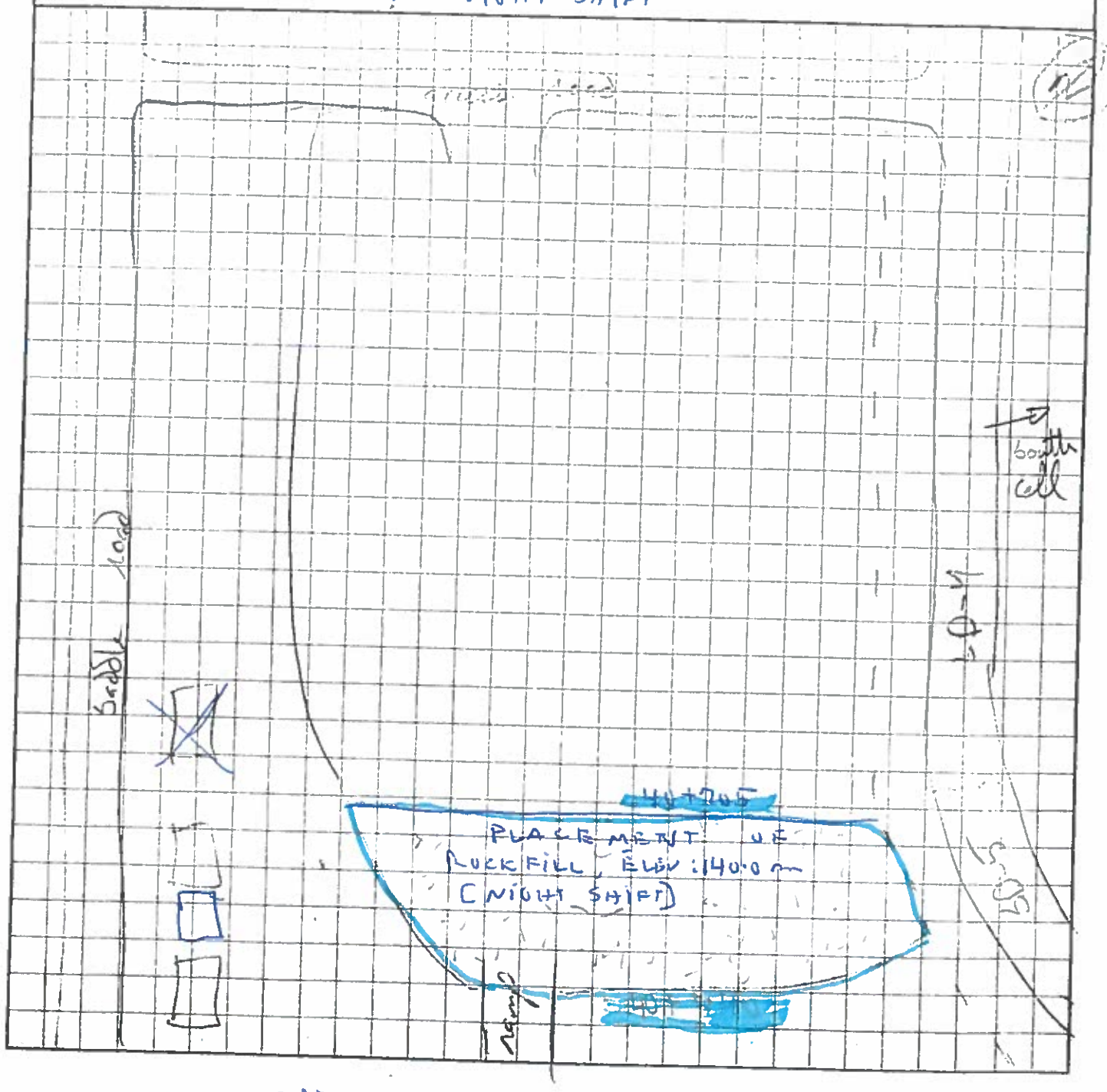
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

Client: A.E.H	Project no.: 11118538-E1
Project: Saddle dam 3-4-5	Page 1 of 4
Inspection date: 2017-07-27 NIGHT SHIFT	

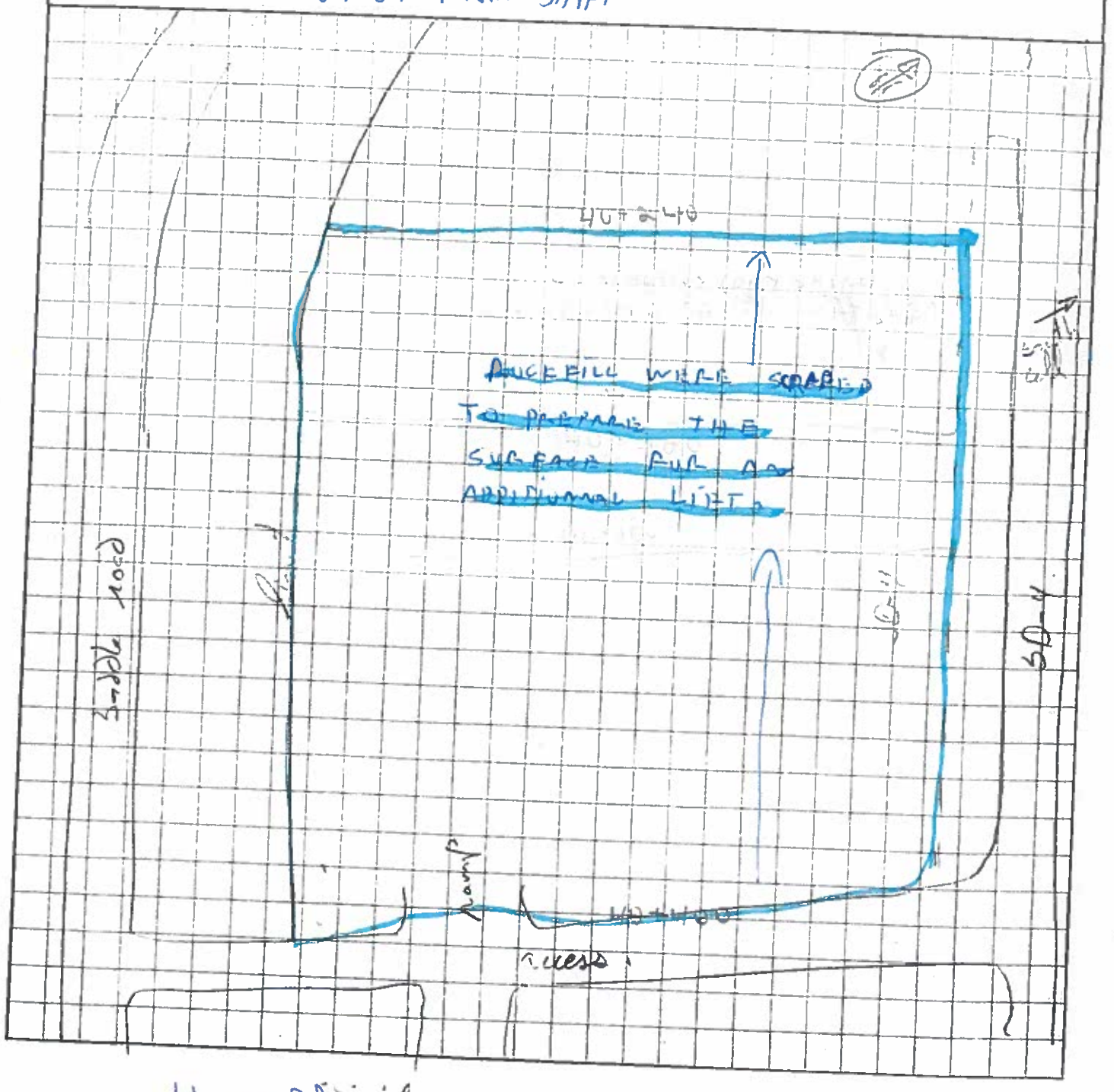


Prepared by: Hugues Potvin

Verified by:

Plan/Sketch

Client: A.E.M.	Project no.: 11185538-151
Project: Saddle dam 3-4-5	Page 2 of 4
Inspection date: 2017-07-27 NIGHT SHIFT	



Prepared by: Hugues Potvin

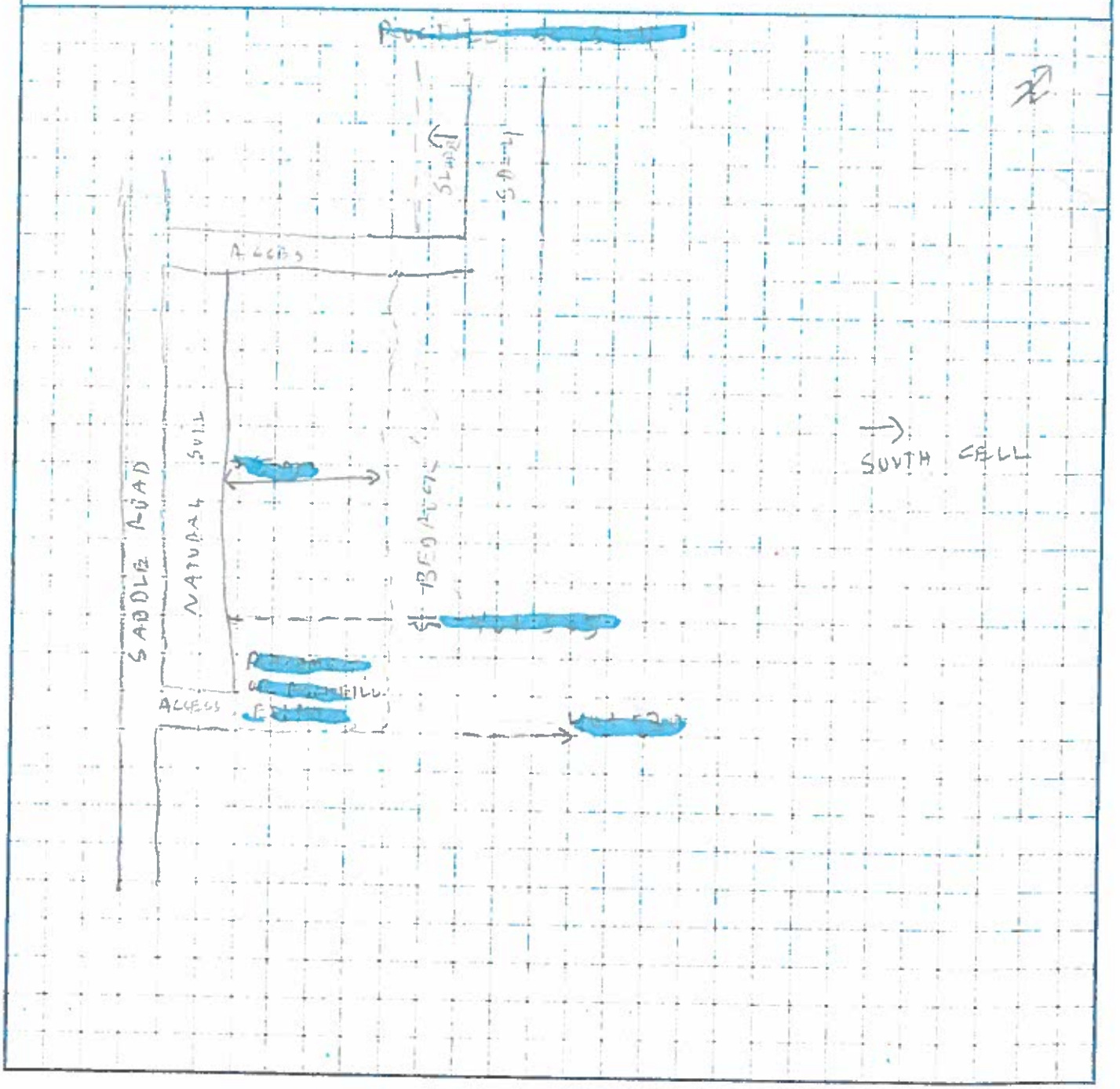
Verified by:

Plan/Sketch

Client: A.E.M. Project no: 11118538

Project: SADDLE DAMS 3, 4 AND 5 Page: 3 of 4

Inspection date: 2017-07-07 NIGHT SHIFT

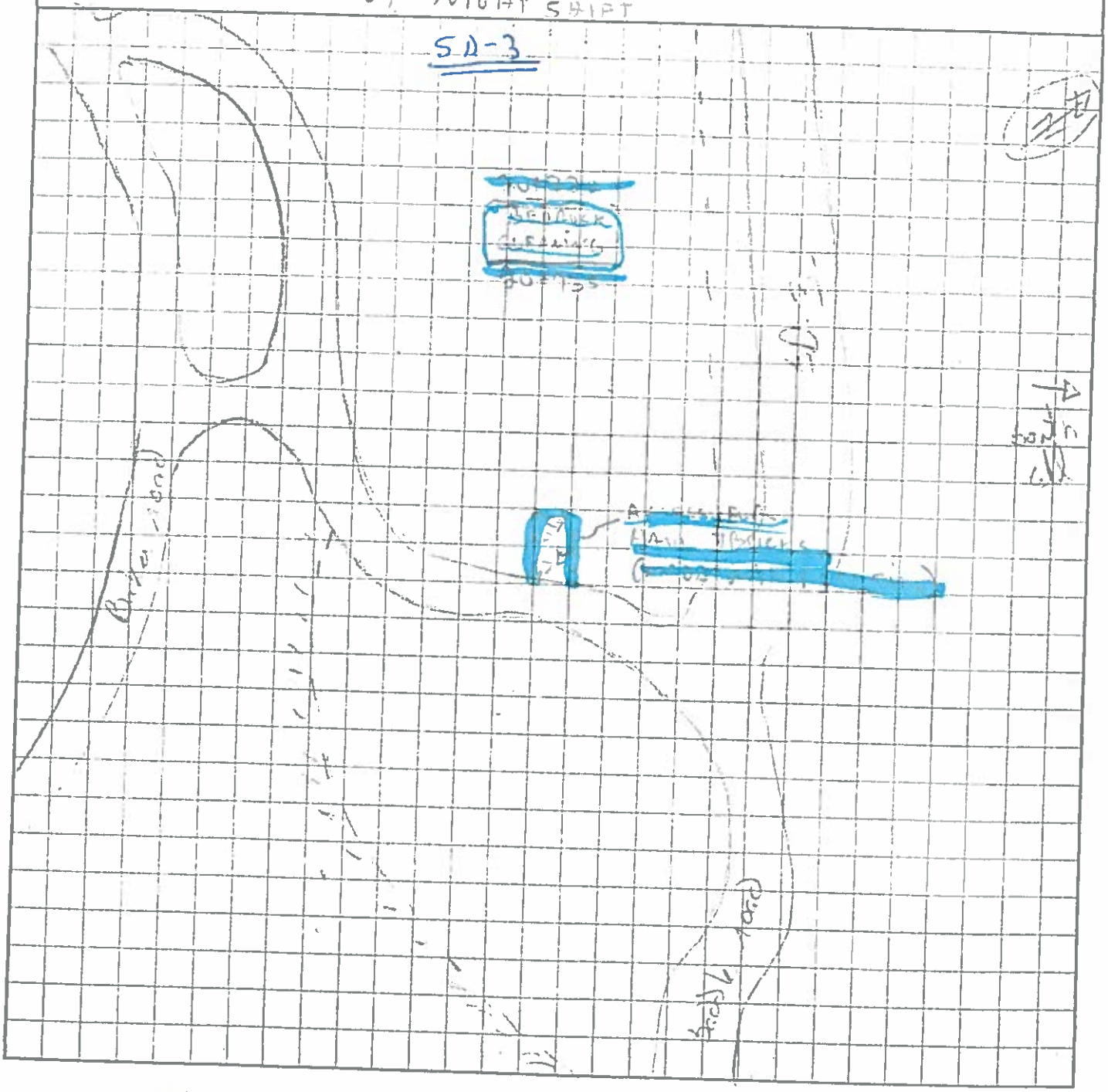


Prepared by: Harrison Porter Verified by:

Plan/Sketch

Client: A.E.H.	Project no.: 11115535-01
Project: Saddle Dam 3, 4 and 5	Page 4 of 4
Inspection date: 2025-07-27 NIGHT SHIFT	

SD-3



Prepared by: Hunter Baker

Verified by:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 28 Juillet 2017 **Inspector - Day/Night:** Sébastien Blackburn, Day shift

Weather : Cloudy

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Bedrock cleaning, rockfill placement and loading material, compaction

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: - Rockfill placement on SD-4. (see sketch join to the report)

- Bedrock cleaning on SD-3. (see sketch join to the report)

- Loading excavated material from SD-3. (see sketch join to the report)

- Foundation approuval SD3-23 . (see sketch join to the report)

- Rockfill compaction on SD-4. (see sketch join to the report)

- Compaction on SD-5. (see sketch join to the reportj

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 365C,345D, D-8 dozer, 4 - Haule trucks, compacteur

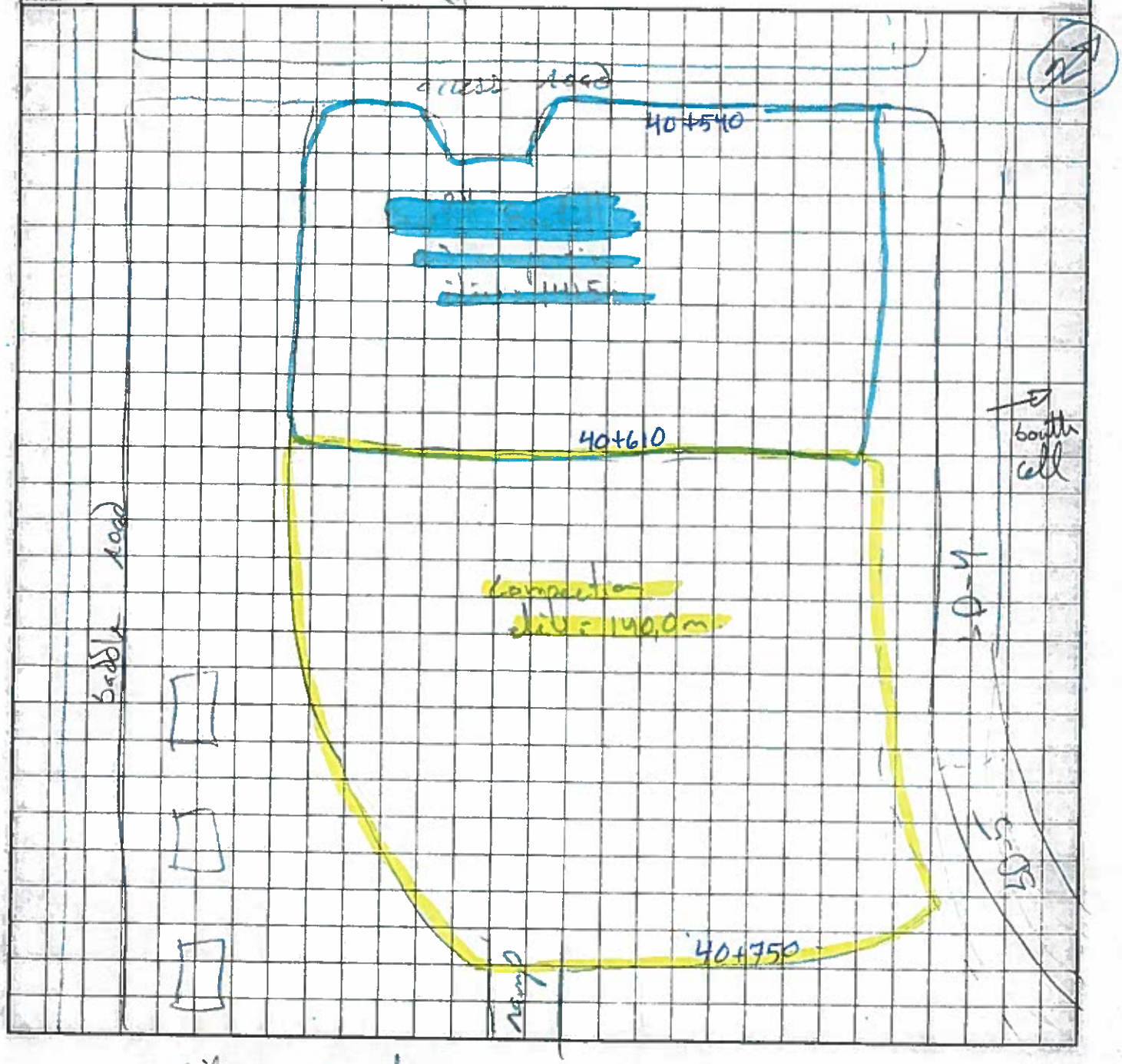
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

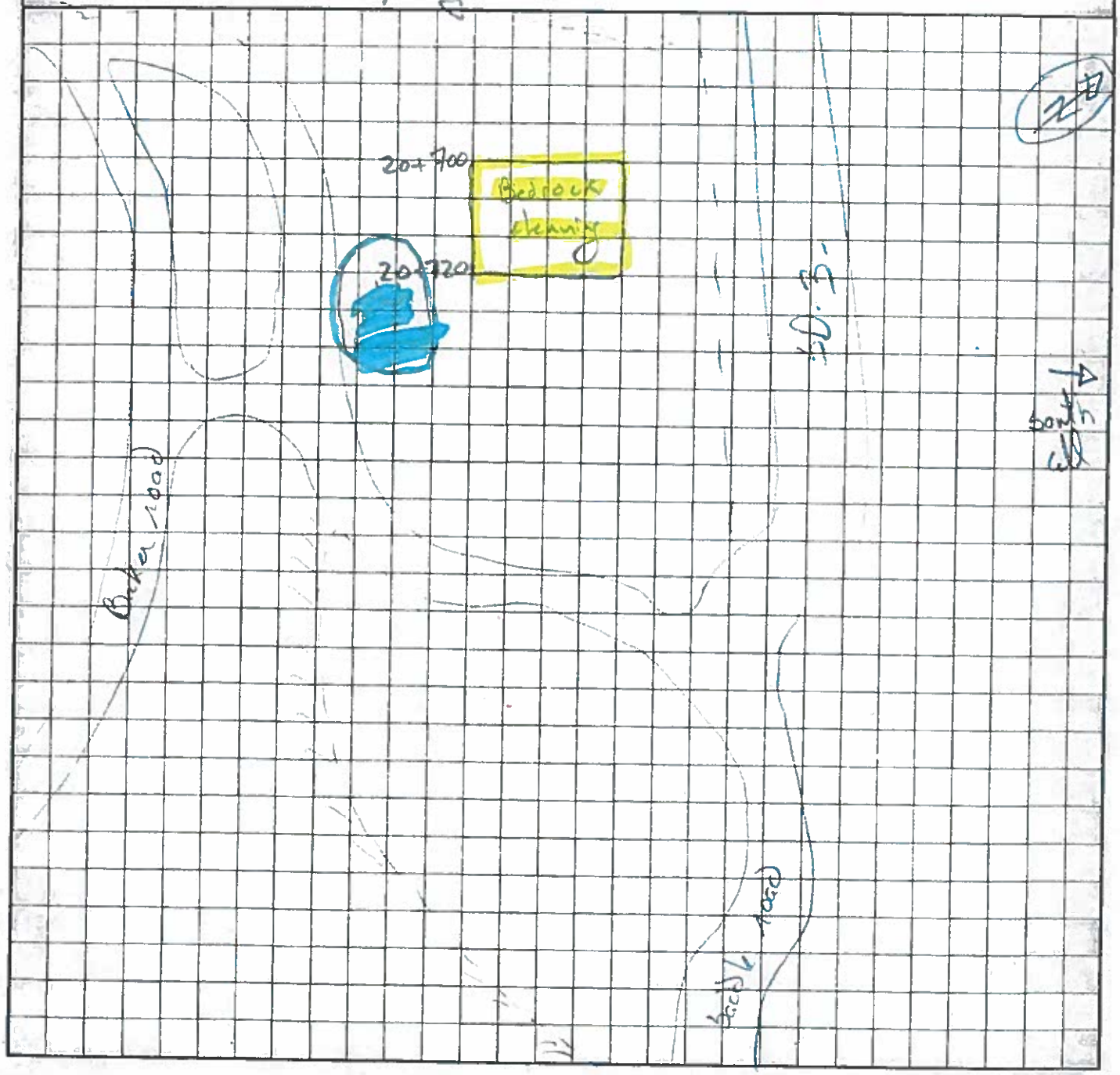
Client: A.E.M.	Project no.: 11117538-B1
Project: Saddle Arm 3 4-5	Page 1 of 4
Inspection date: 2017-07-28 / Day Shift	



Prepared by: _____ Verified by: _____

Plan/Sketch

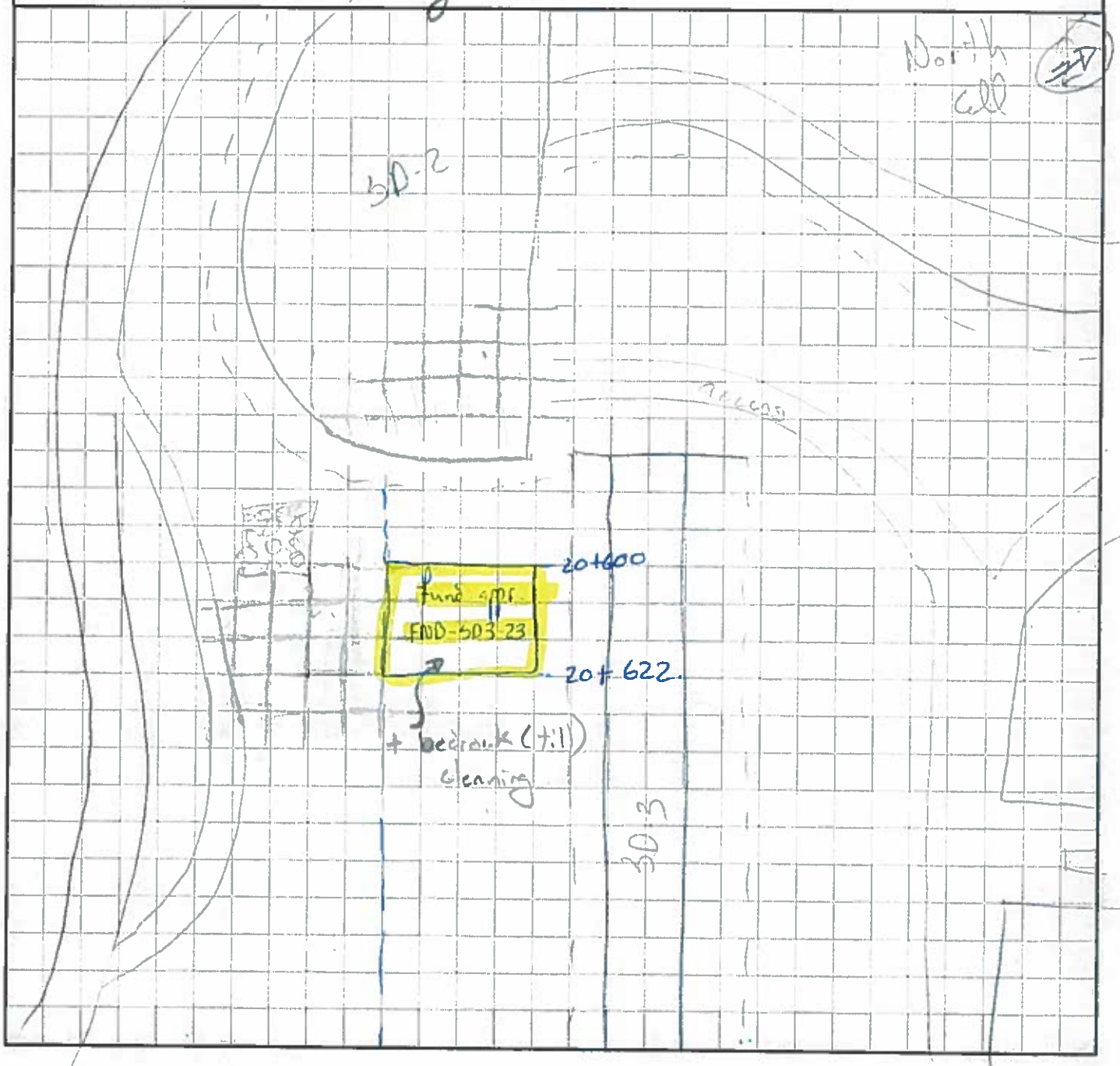
Client: A.E.M.	Project no.: 11118538-B1
Project: Saddle dam 3, 4 and 5	Page 2 of 4
Inspection date: 2017-07-28 / day shift.	



Prepared by: Liliana Bonilla Verified by:

Plan/Croquis

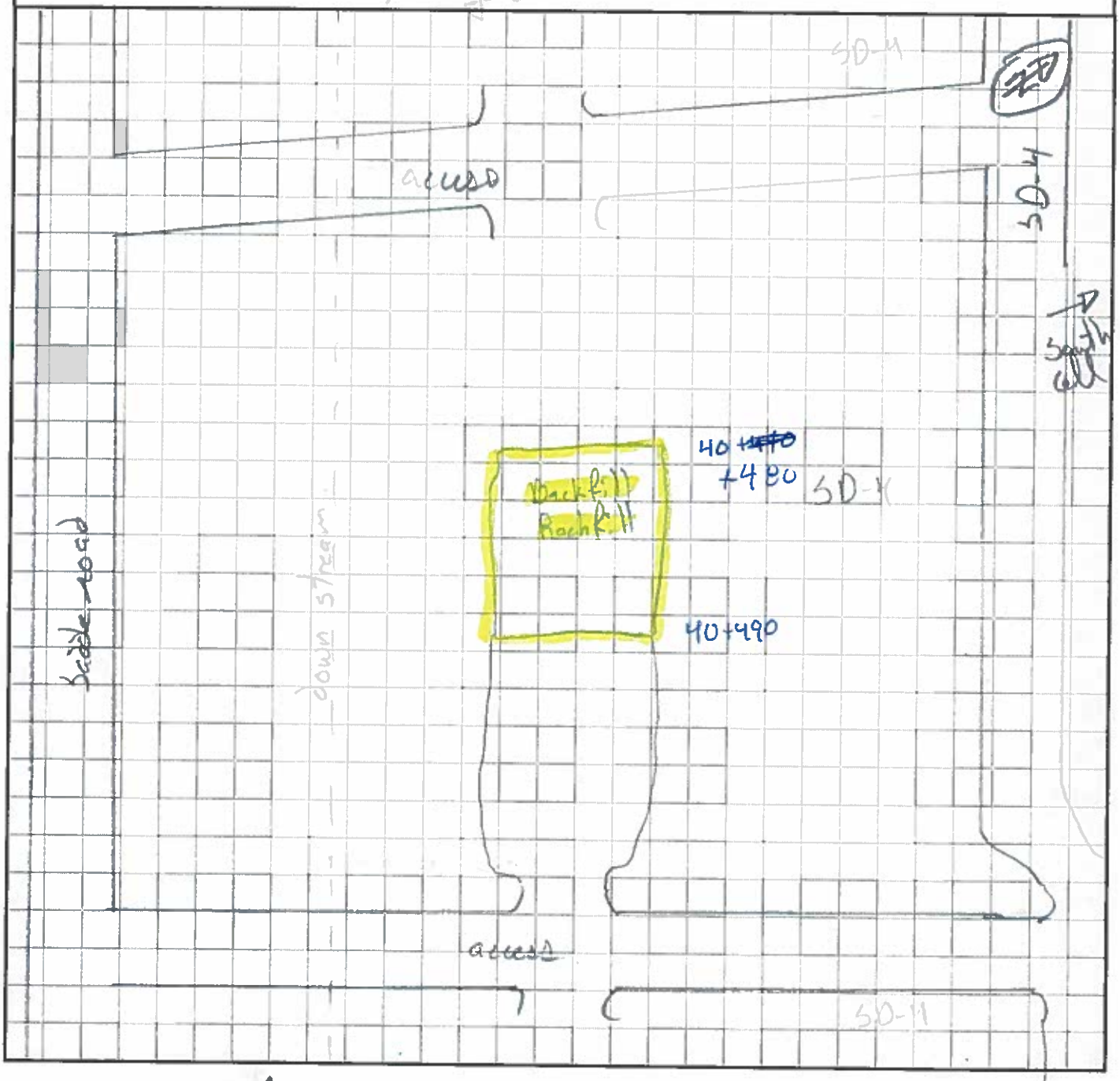
Client: M.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 3 de 4
Date d'inspection: 2017-07-28 / Day shift	



Préparé par: _____ Vérifié par: _____

Plan/Croquis

Client: A.E.M	Projet no.: 11117538-B1
Projet: Saddle dam - 3-4-5	Page 4 de 4
Date d'inspection: 2017-07-20 / day shift	



Préparé par: _____ Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 28-Jul-17 Inspector - Day/Night: Hugues Potvin, Night Shift

Weather : Cloudy

Project: Saddle dams 3,4 and 5 Contractor: Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Bedrock cleaning, rockfill placement

General Activities: see work in progress

Soft Sediment Excavation	☐	Key Excavation	☐	Coarse Filter	☐	Drilling/Blasting	☐
Foundation Preparation	☐	LLDPE/Geotextile	☐	Till	☐		
Water Control	☐	Fine Filter	☐	Rockfill	☐		

Description: Bedrock cleaning on SD-3. (see sketch join to the report). Presense of water at some places.

- No rockfill before 4:35 because the dynamited rock contains to much fines .

- Placement of rockfill on SD-4. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Dozer D8T, and Haul trucks

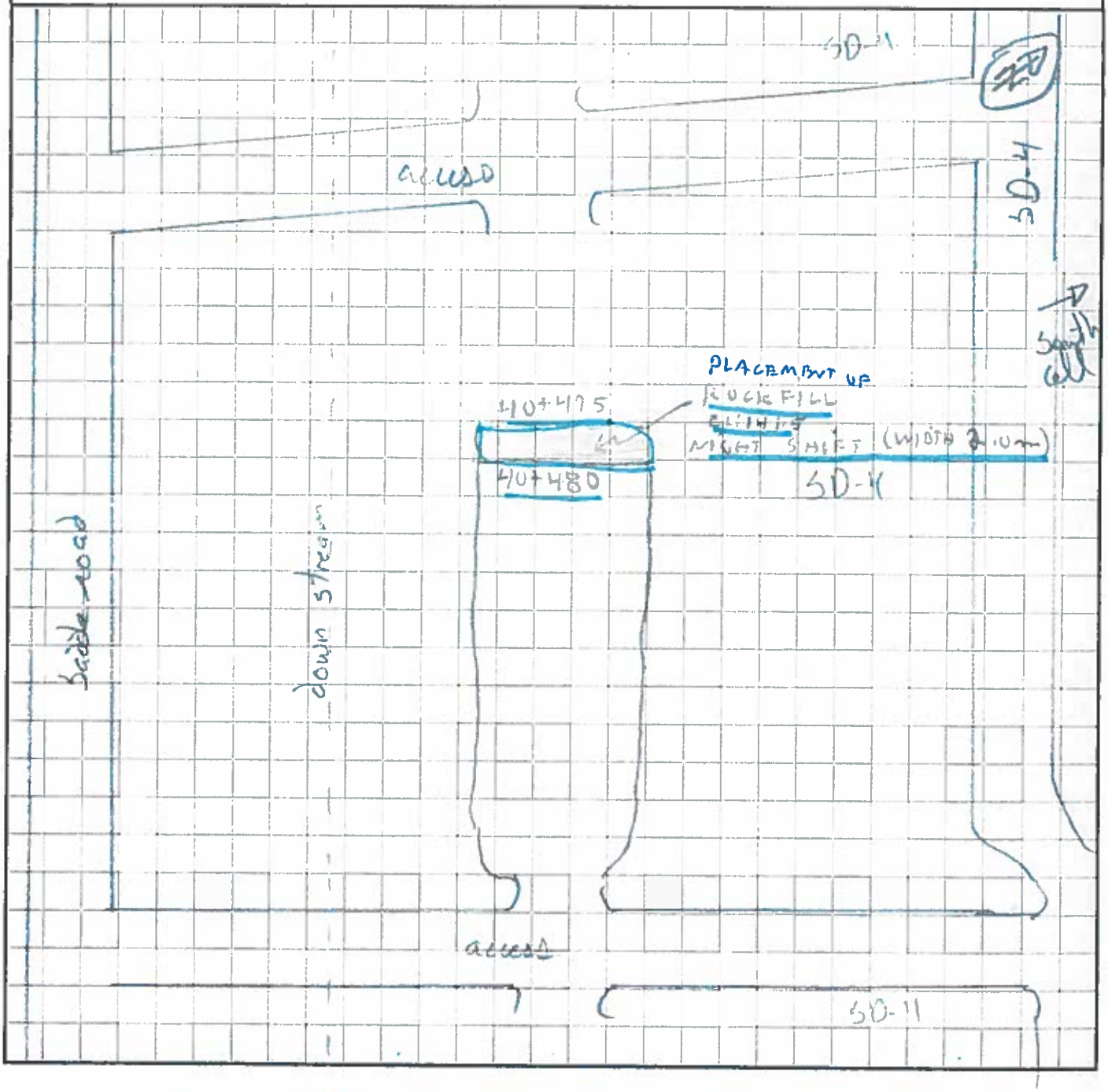
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

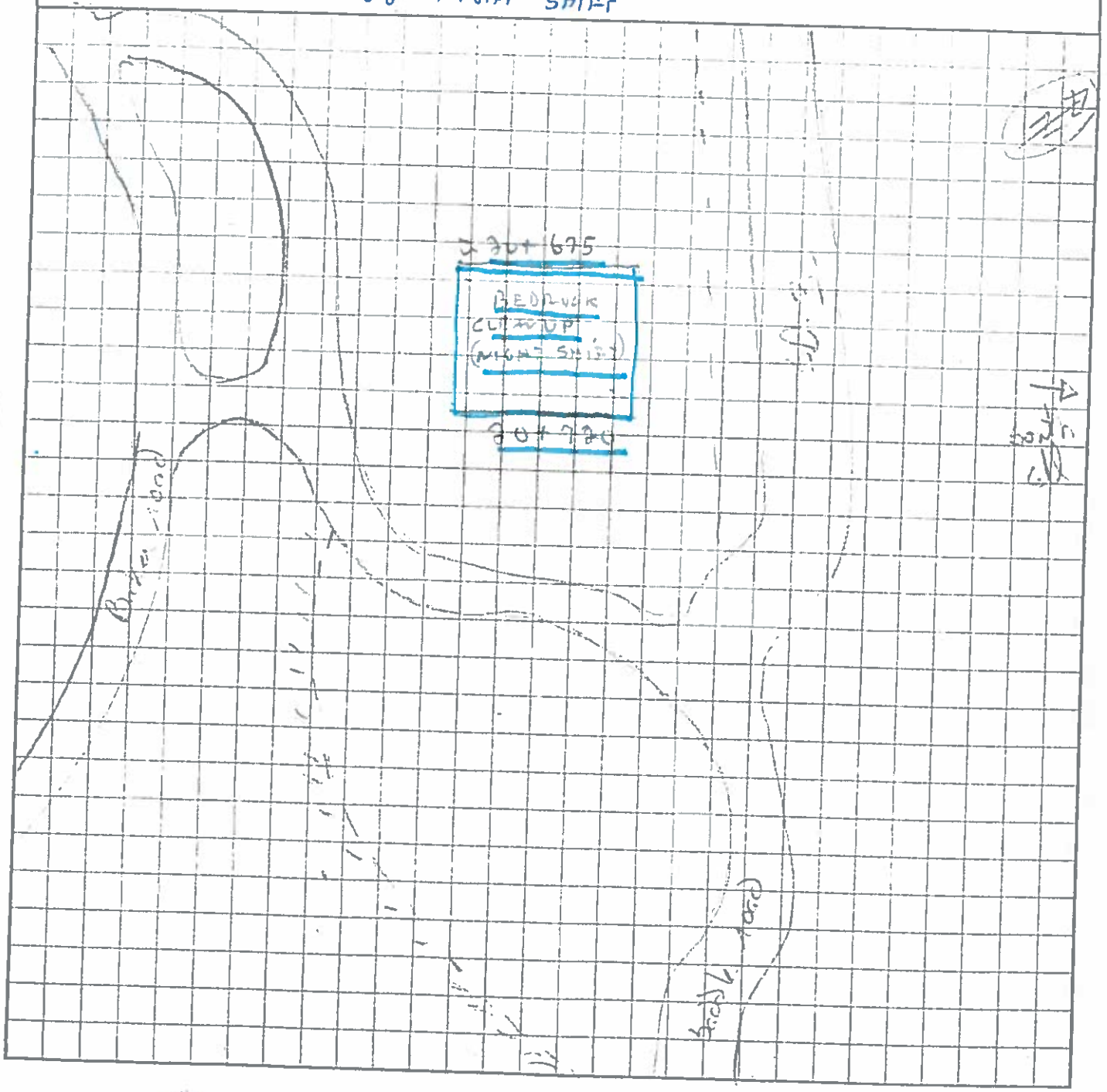
Client: A.E.M	Projet no.: 11117538-B1
Projet: Saddle dam - 3-4-5	Page 2 de 2
Date d'inspection: 2017-07-20 NIGHT SHIFT	



Préparé par: Hugues Robin Vérifié par: _____

Plan/Sketch

Client: A.E.M.	Project no.: 1111853[illegible]-01
Project: Saddle dam 3, 4 and 5	Page 1 of 2
Inspection date: 2017-07-28 NIGHT SHIFT	



Prepared by: Hugues Potvin

Verified by: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 29 Juillet 2017 **Inspector - Day/Night:** Sébastien Blackburn, Day shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work In Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Bedrock cleaning, rockfill placement

General Activities: see work in progress and loading material, compaction

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: - Rockfill placement on SD-5. (see sketch join to the report)

- Bedrock cleaning on SD-3. (see sketch join to the report)

- Loading excavated material from SD-3. (see sketch join to the report)

- Foundation approuval FND-SD3-24 . (see sketch join to the report)

- Rockfill compaction on SD-5. (see sketch join to the report)

- Ripping on SD-5

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 365C,345D, D-8 dozer, 4 - Haule trucks, compacteur

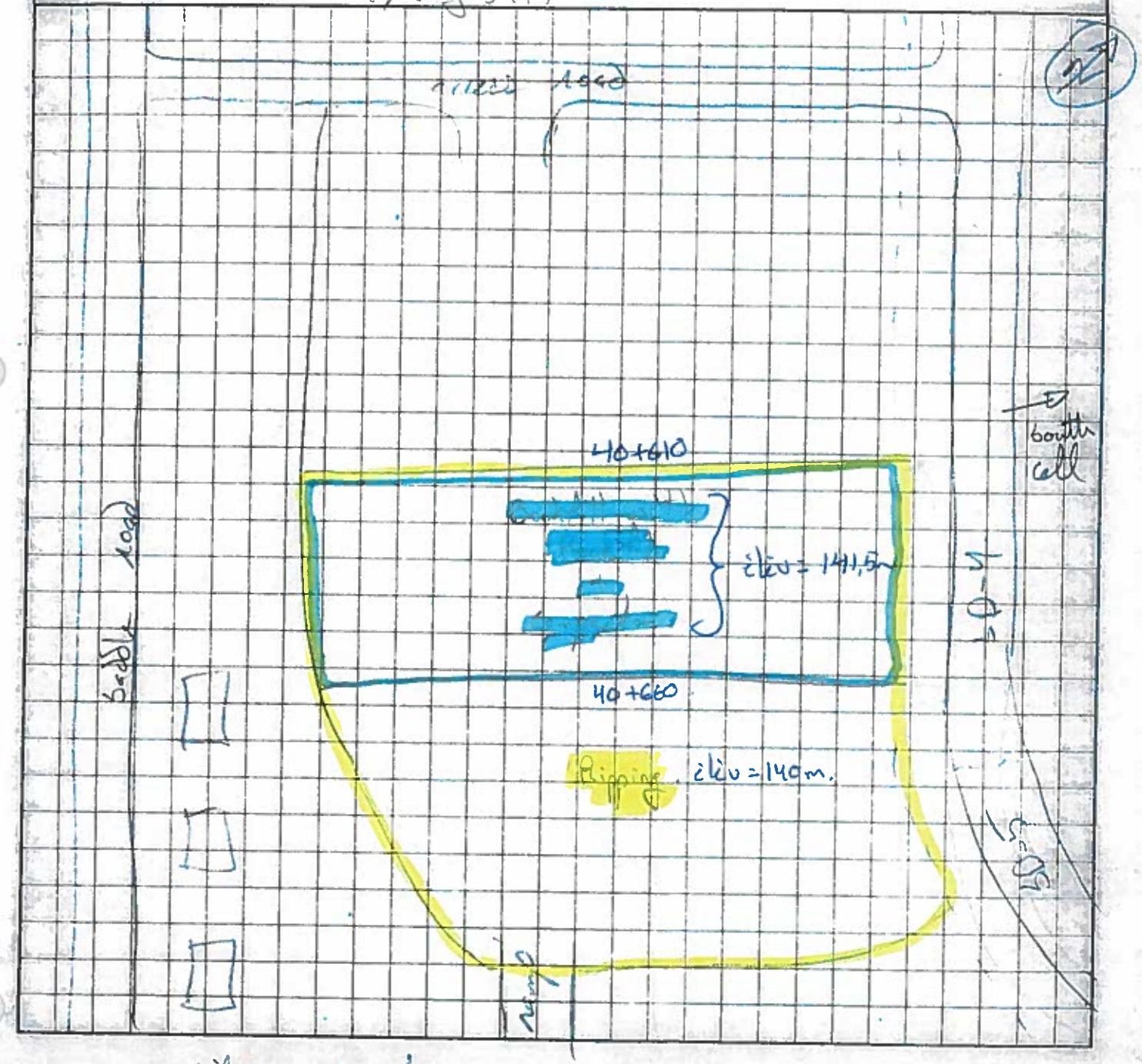
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

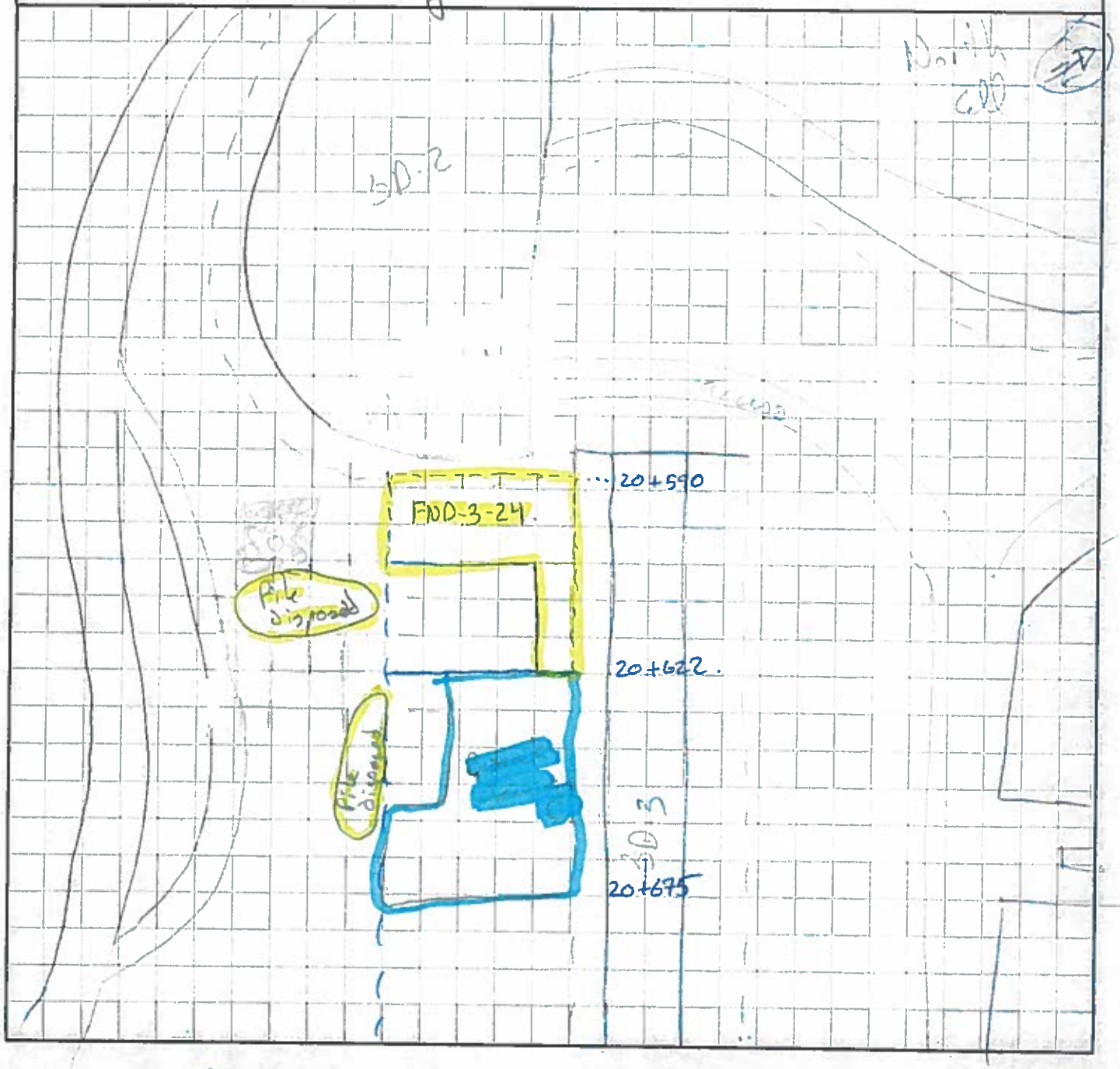
Client: A.E.M	Project no.: 11117538-E1
Project: Saddle Dam 3-4-5	Page 1 of 2.
Inspection date: 2017-07-29 / Day shift	



Prepared by: _____ Verified by: _____

Plan/Croquis

Client: A.E.M.	Projet no.: 11115538-B
Projet: Bridge dam 3-4-5	Page 2 de 2
Date d'inspection: 2017-07-29 / day shift	



Préparé par: SB

Vérifié par: _____

C:\Users\hpotvin.agnicoeagle\Desktop\Meadowbank 2017\Daily inspection report\Last 29-7-3\rename as name and to 2017.07.29\CC-Daily Inspection Report 2017.07.29 night shift.xls\Daily Report

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 29-Jul-17 **Inspector - Day/Night:** Hugues Potvin, Night Shift

Weather : Sunny, Sky clear

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Bedrock cleaning, rockfill placement

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: Placement of rockfill on SD-5. (see sketch join to the report)

- Loading of excavated material on SD-3. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 365, Dozer D8T, and Haul trucks

Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

Client: A.E.M.

Project no.: 1111753-B1

Project: Saddle dam 3-4-5

Page 1 of 2

Inspection date: 2017-07-29 NIGHT SHIFT

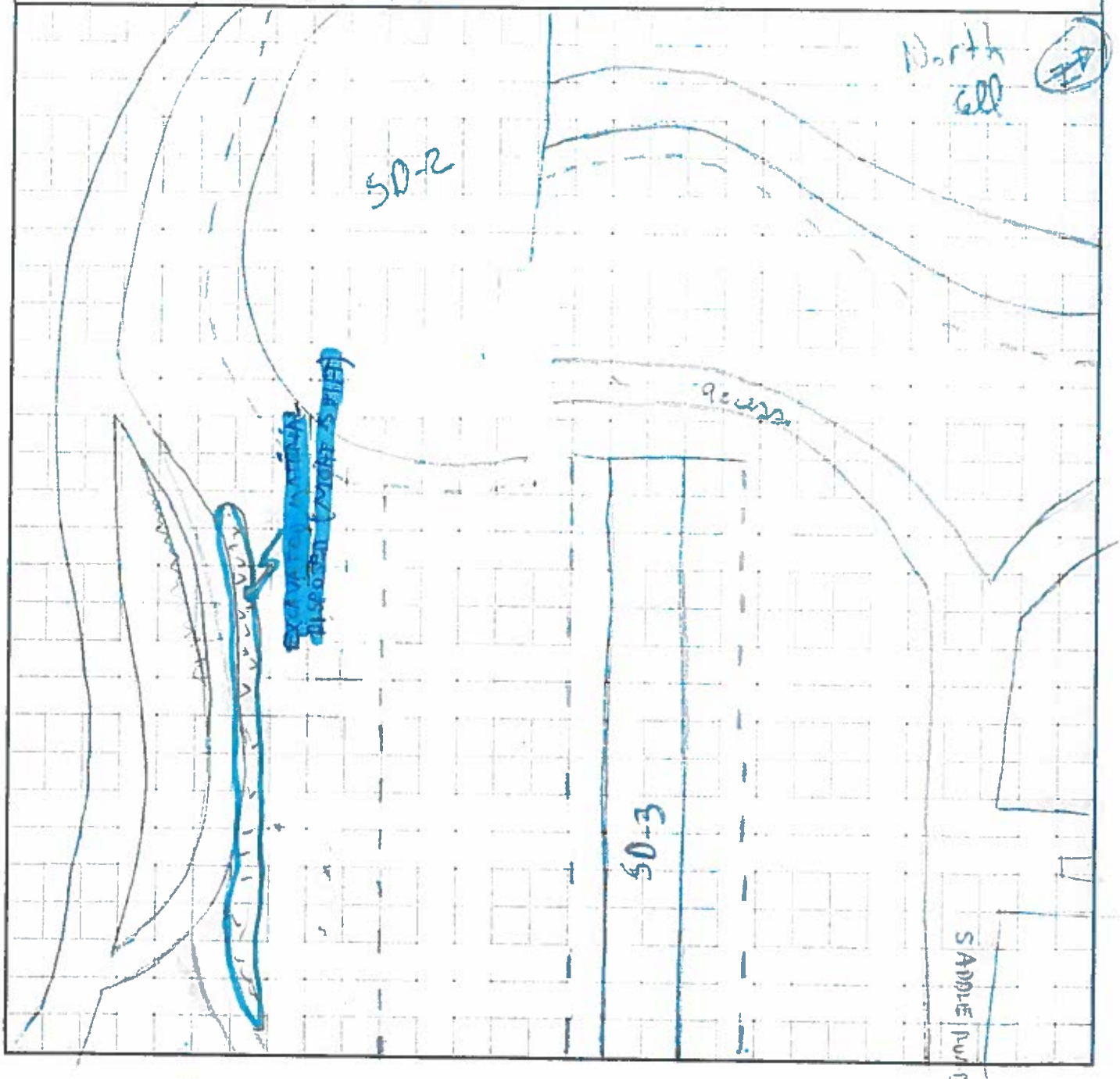


Prepared by: Hunter Potter

Verified by:

Plan/Croquis

Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 2 de 2
Date d'inspection: 2017-07-29 night shift	



Préparé par: Hugues Potvin

Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 30 Juillet 2017 **Inspector - Day/Night:** Sébastien Blackburn, Day shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work In Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Bedrock cleaning, rockfill placement

General Activities: see work in progress and loading material, compaction

Soft Sediment Excavation	•	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: - Rockfill placement and compaction on SD-5. (see sketch join to the report)

- Bedrock cleaning, placement of rockfill and compaction on SD-3. (see sketch join to the report)

- Loading excavated material from SD-3. (see sketch join to the report)

- Foundation approuval FND-SD3-25 . (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 365C,345D, D-8 dozer, 4 - Haule trucks, packer

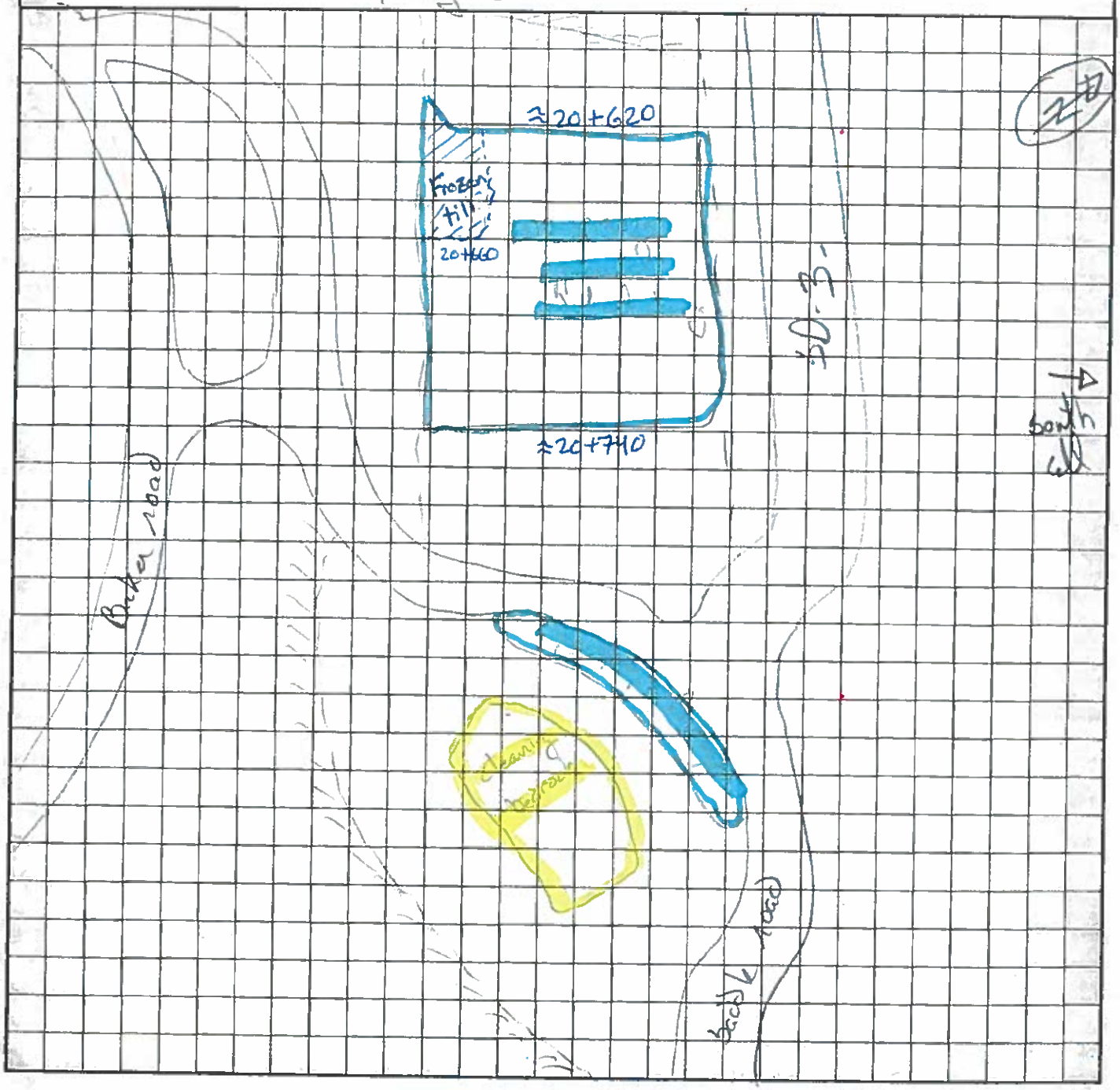
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

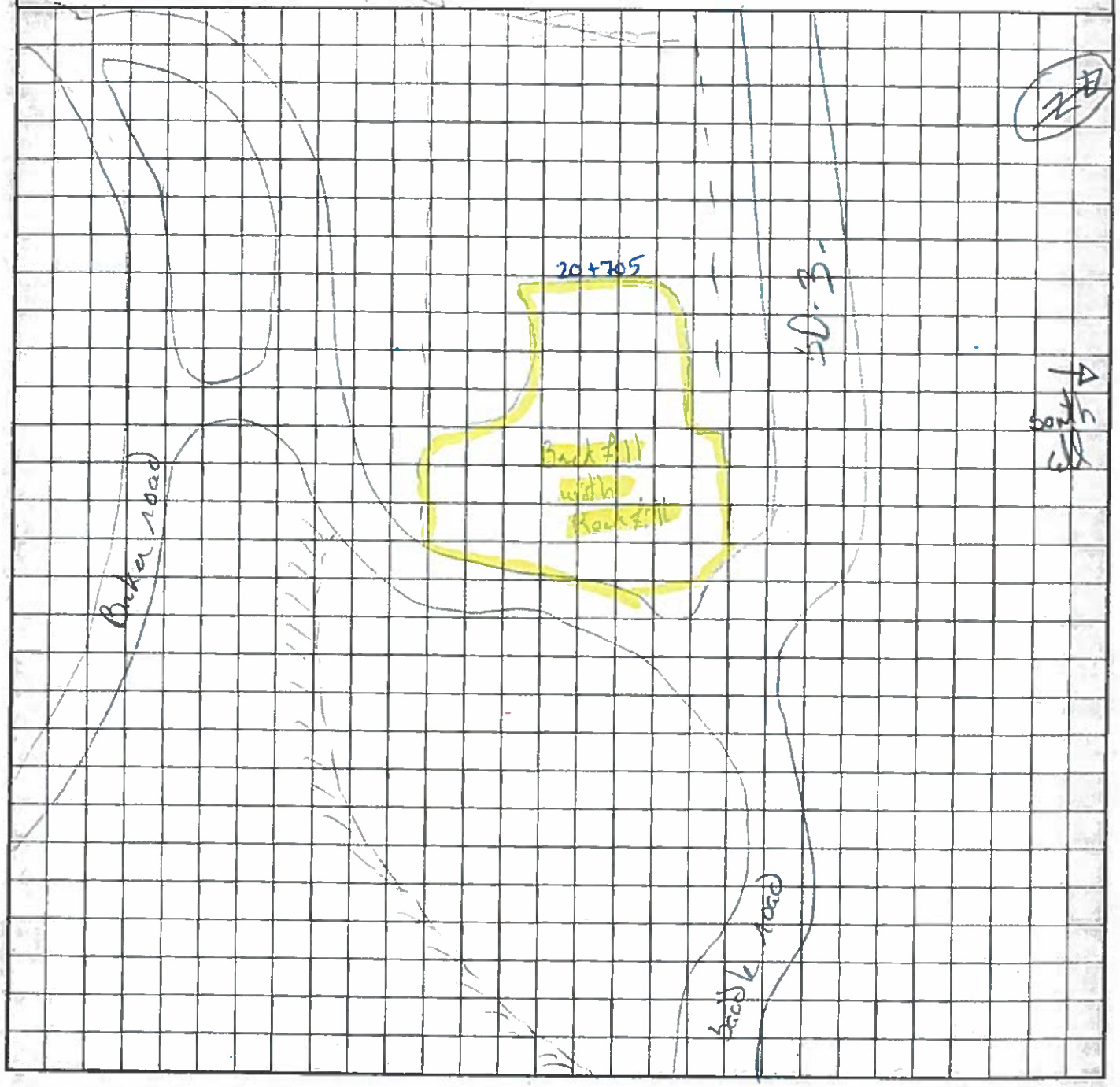
Client: A.E.M.	Project no.: 8538-B1
Project: Saddle dam 3, 4 and 5	Page 1 of 4
Inspection date: 2017-07-30 / Day shift.	



Prepared by: Sebastien Bérubé Verified by:

Plan/Sketch

Client: A.E.M.	Project no.: 1118538-B1
Project: Saddle dam 3, 4 and 5	Page 2 of 4
Inspection date: 2017-07-30 / day shift	



Prepared by: Sébastien Gaudreault Verified by: _____

Plan/Croquis

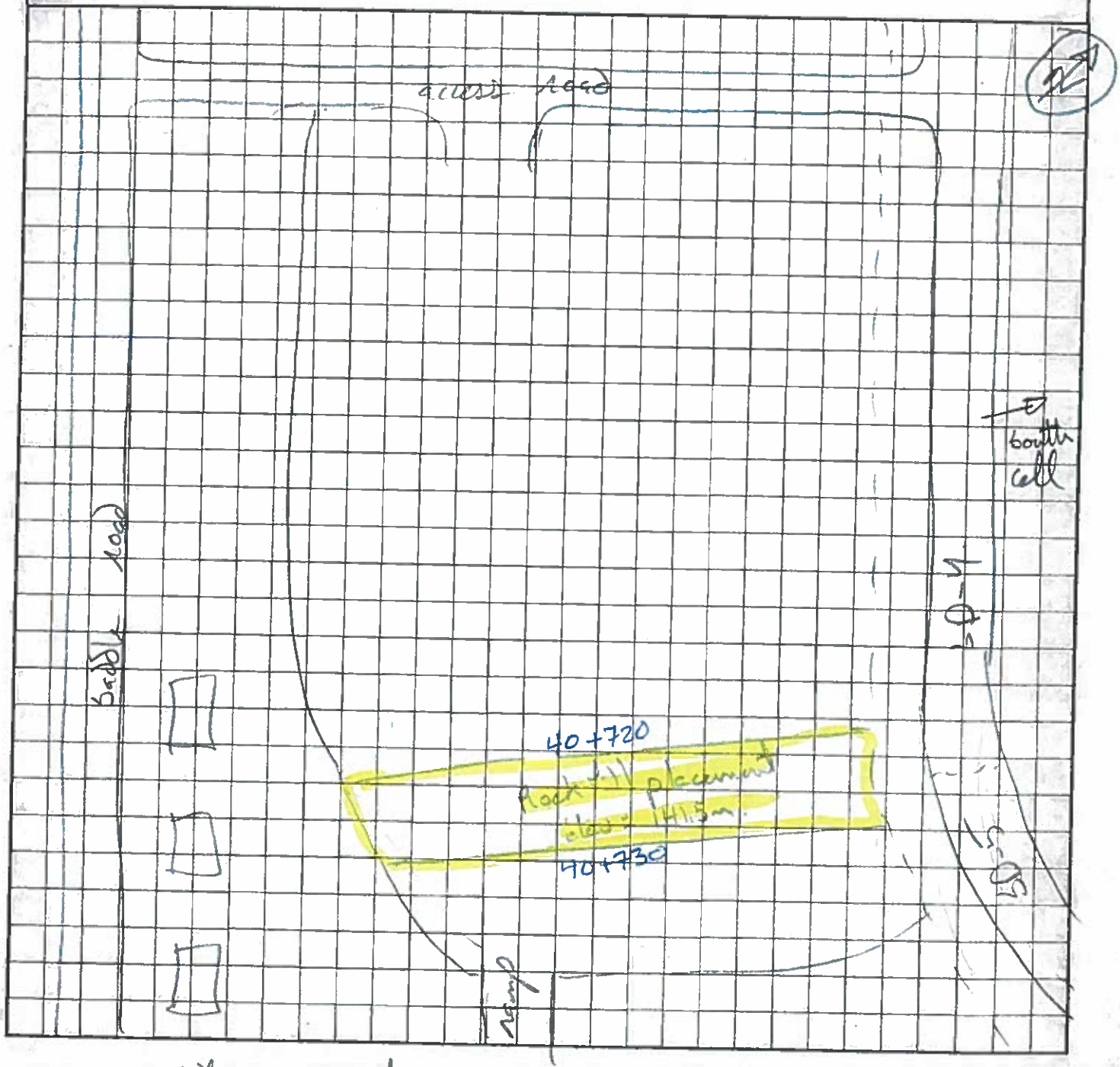
Client: M.F.M.	Projet no.: 11125320-01
Projet: Beattie dam 3-4-5	Page 3 de 4
Date d'inspection: 2017-07-30 / dam	



Préparé par: JB. Vérifié par: _____

Plan/Sketch

Client: A.E.M.	Project no.: 11117538-B1
Project: Saddle dam 3-4-5	Page 4 of 4
Inspection date: 2017-	



Prepared by: _____ Verified by: _____

C:\Users\hdelo.hugues\Desktop\Meadowbank 2017\Daily inspection report\July 2017\Template as formatted to 2017-08-01\QC Daily Inspection Report 2017-07-30 Night Shift\Daily Report

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 30 Jul-17 **Inspector - Day/Night:** Hugues Potvin, Night Shift

Weather : Cloudy + little rain

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Placement of rockfill

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: Placement of rockfill on SD-3, SD-5 et SD-4. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Dozer D8T, and Haul trucks

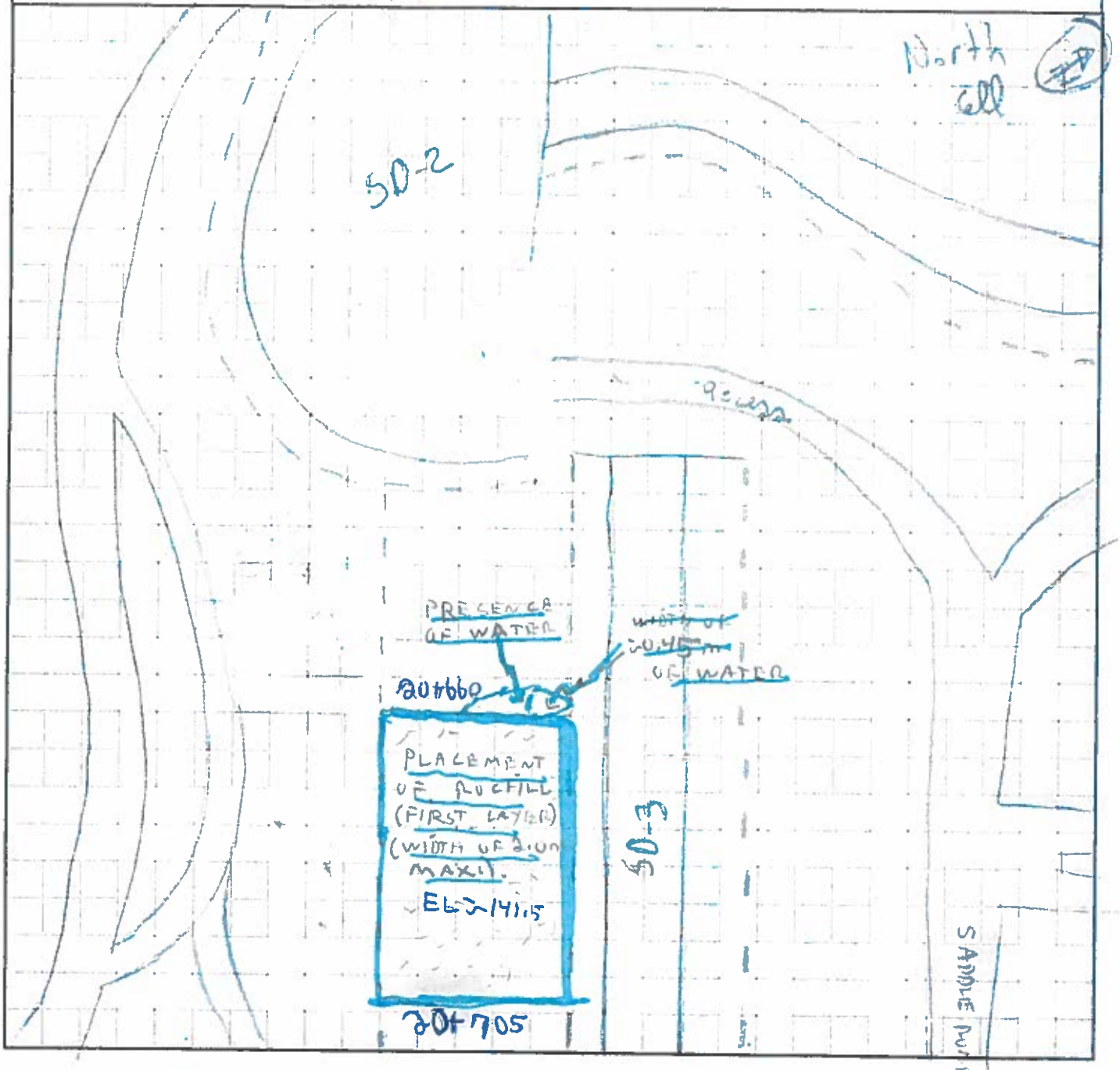
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

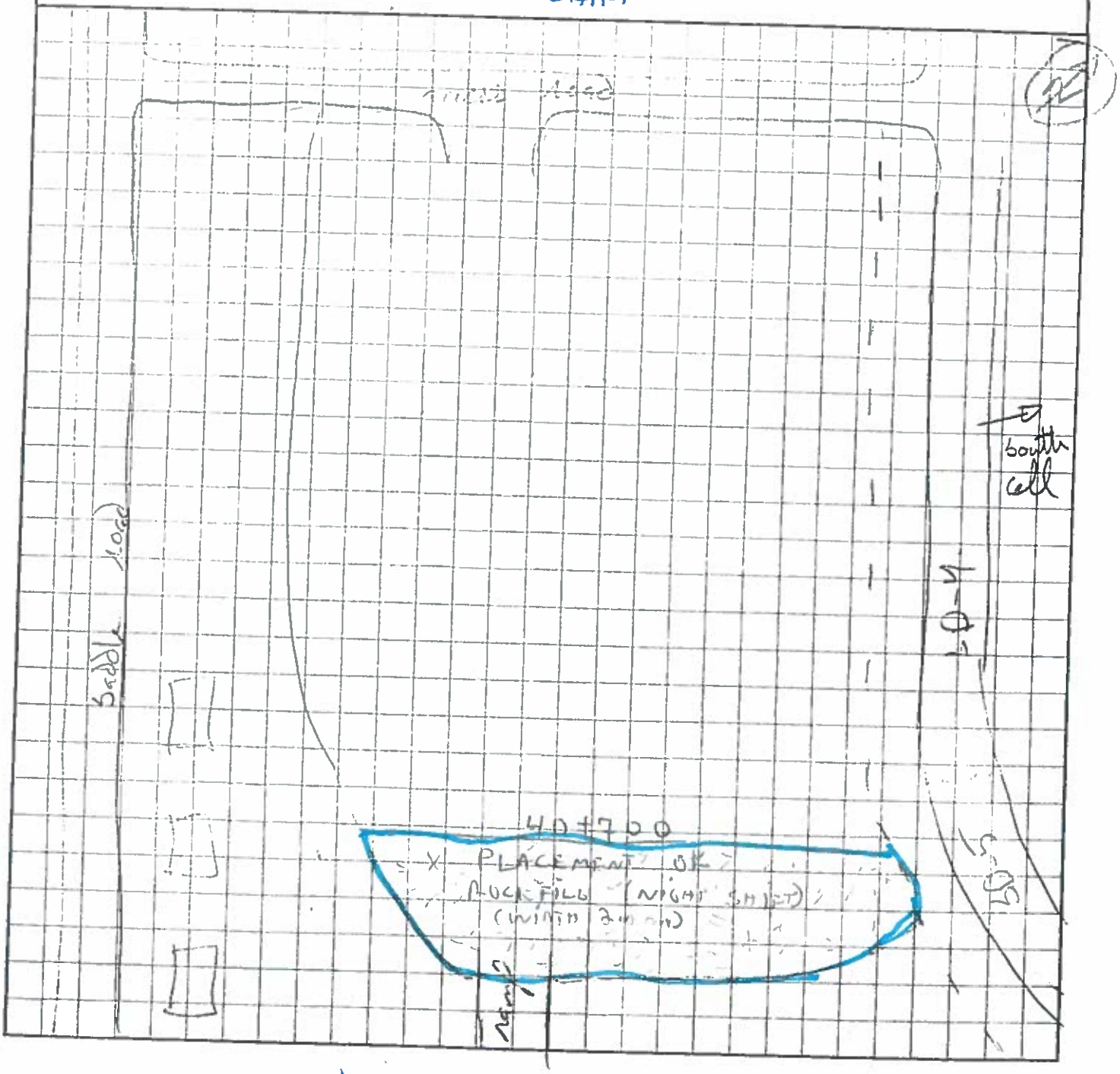
Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddl. dam 3-4-5	Page 1 de 3
Date d'inspection: 2017-07-30 NIGHT Shift	



Préparé par: Hugues Potvin Vérifié par: _____

Plan/Sketch

Client: A.E.M	Project no.: 1111853B-B1
Project: Saddle dam 3-4-5	Page 2 of 3
Inspection date: 2017-07-30 NIGHT SHIFT	

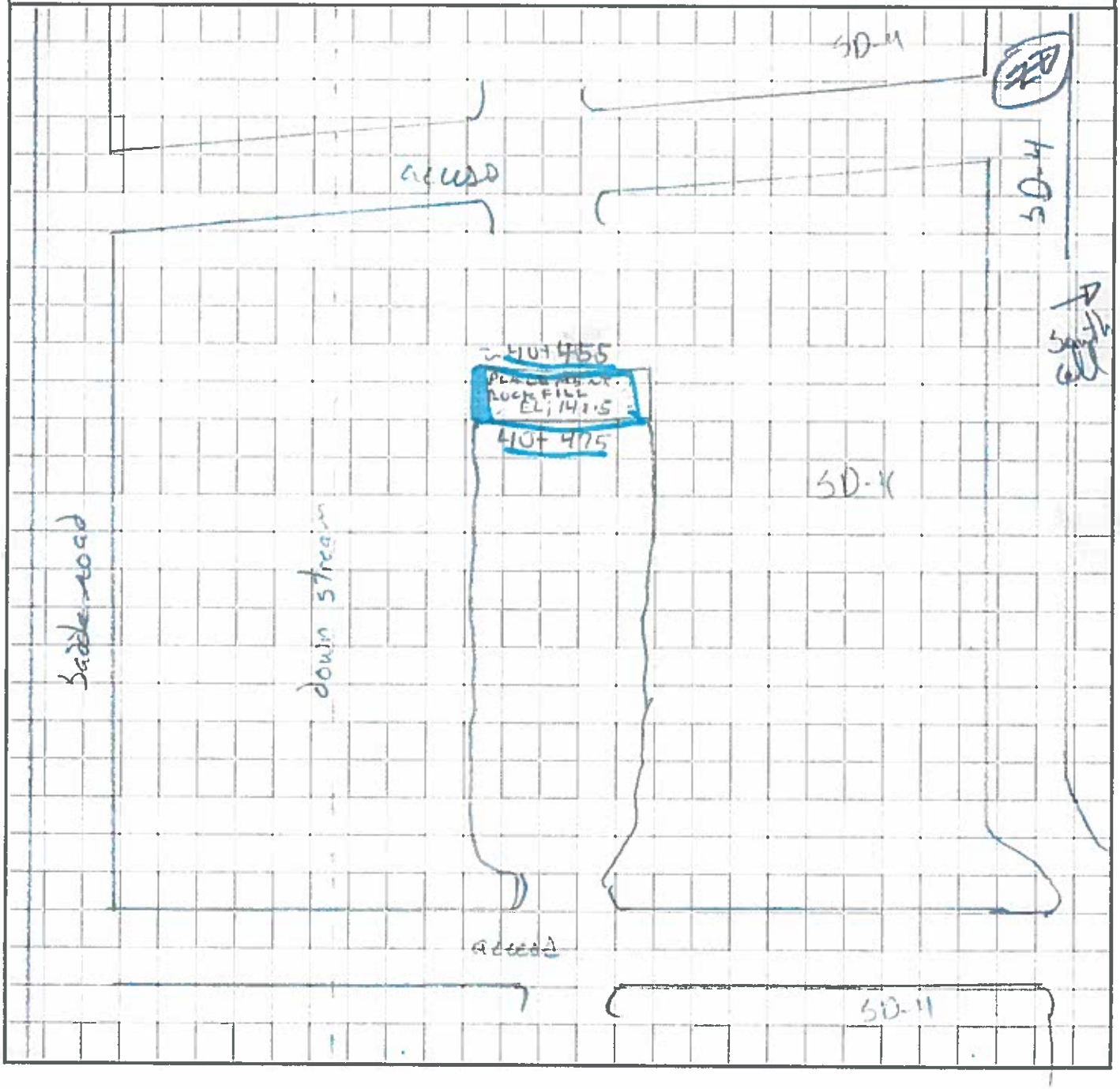


Prepared by: Hugues Potvin

Verified by:

Plan/Croquis

Client: A.E.M	Projet no.: 11117538-B1
Projet: Saddle dam - 3-4-5	Page 3 de 3
Date d'inspection: 2017-07-30 (NIGHT SHIFT)	



Préparé par: Hugues Potvin Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 31 Juillet 2017 **Inspector - Day/Night:** Sébastien Blackburn, Day shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Bedrock cleaning, rockfill placement

General Activities: see work in progress compaction, ripping

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: - Rockfill placement and compaction on SD-4. (see sketch join to the report)

- Bedrock cleaning, ripping, placement of rockfill and compaction on SD-3. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, D-8 dozer, Haule trucks, packer 10 tonnes

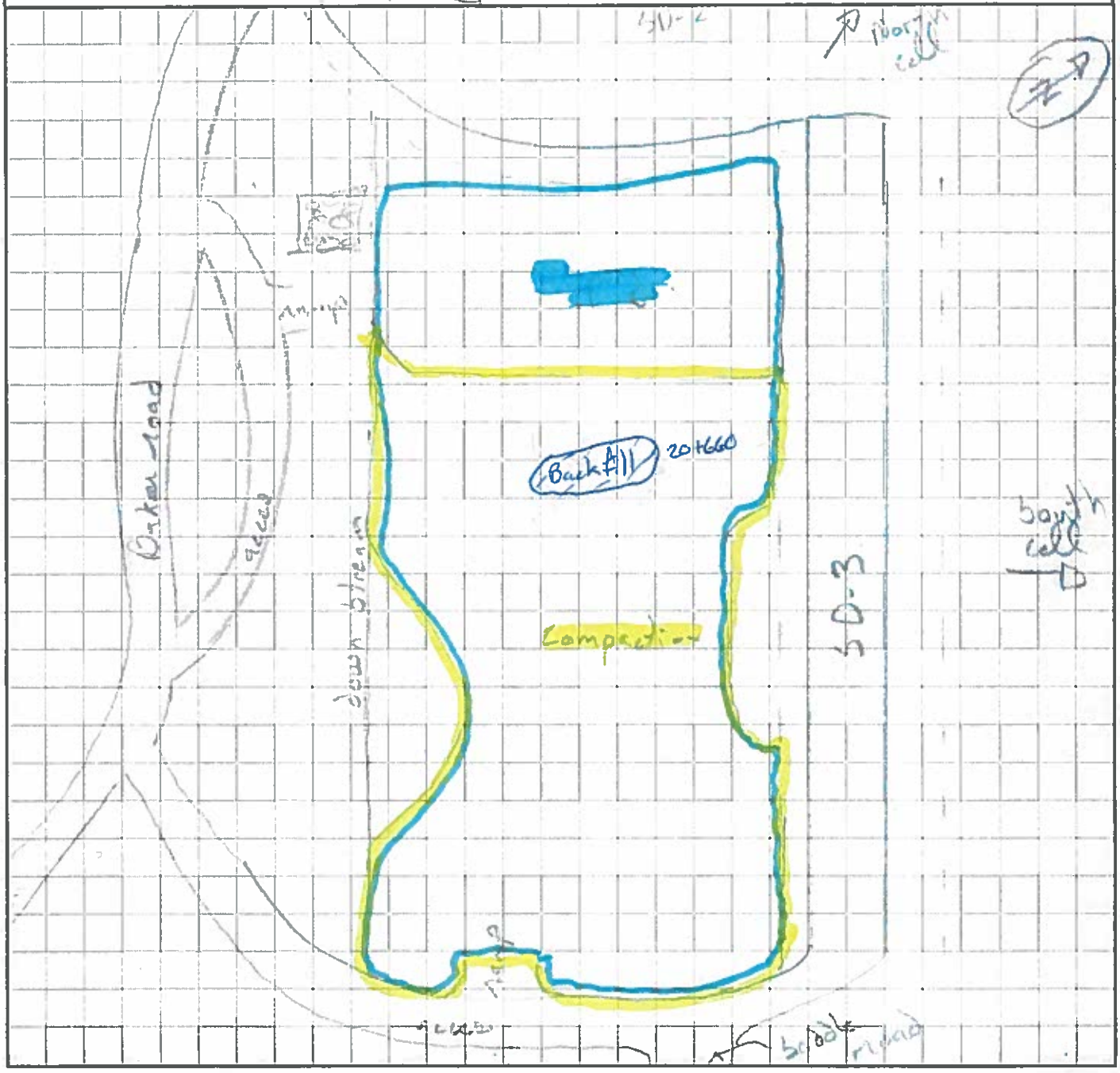
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

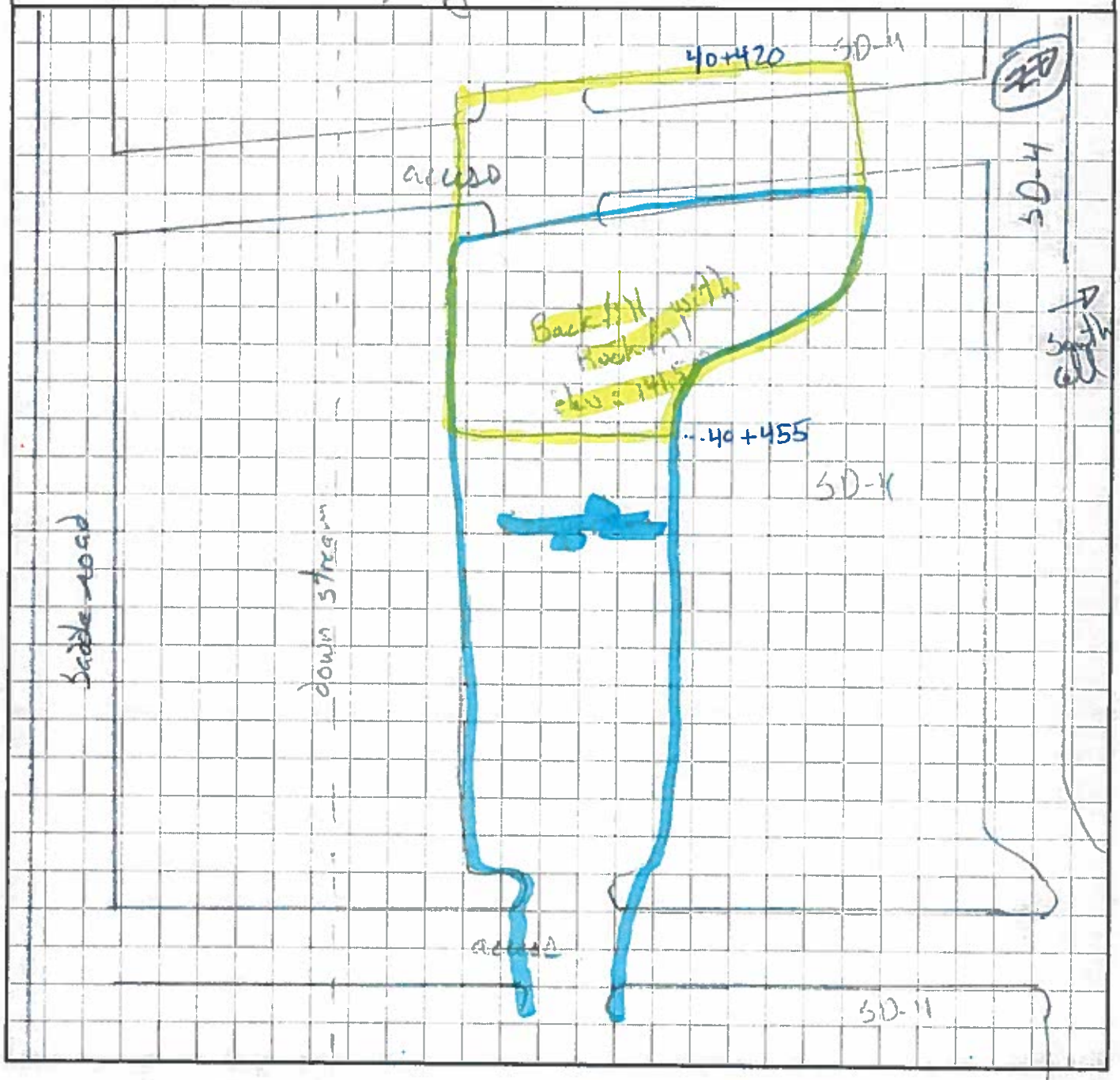
Client: AEM.	Projet no.: 11118538-B
Projet: Saddle dam 3-4-5	Page 1 de 4
Date d'inspection: 2017-07-31 / Day shift	



Préparé par: BB Vérifié par: _____

Plan/Croquis

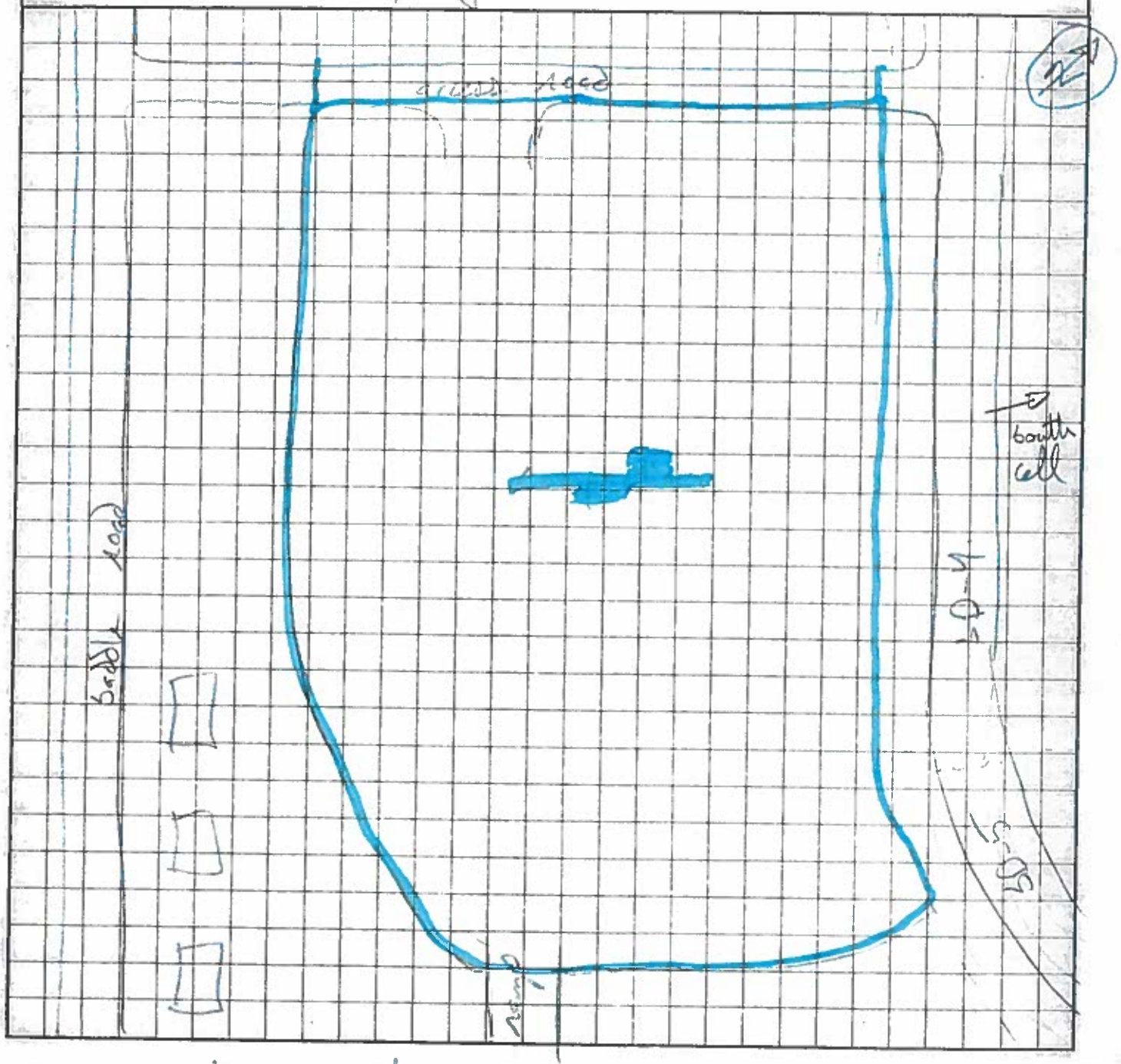
Client: A.E.M	Projet no.: 11117538-B1
Projet: Saddle dam - 3-4-5	Page 2 de 4
Date d'inspection: 2017-07-31 / day shift	



Préparé par: JP Vérifié par:

Plan/Sketch

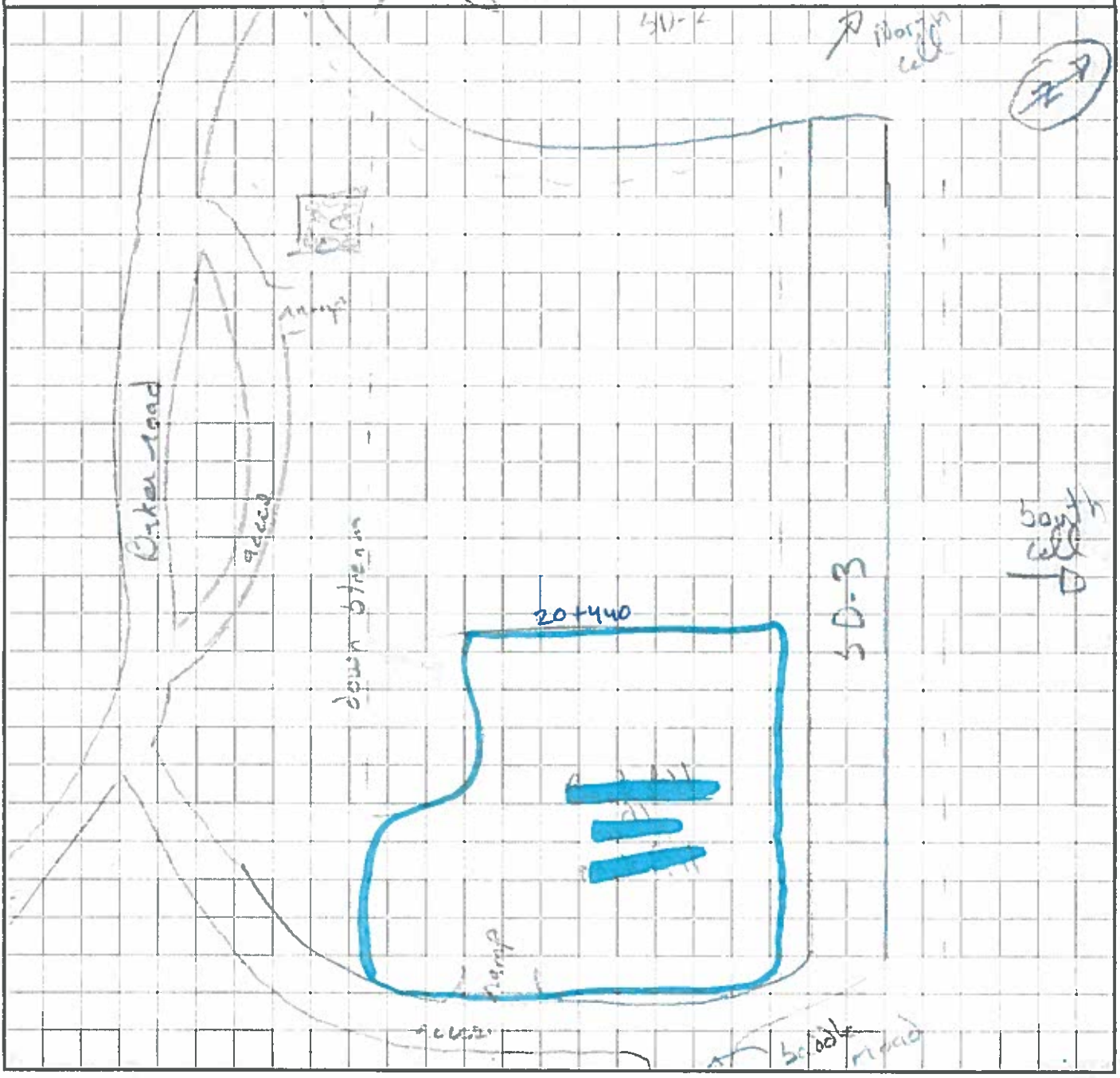
Client: A.E.M.	Project no.: 11117538-B1
Project: Saddle dam 3-4-5	Page 3 of 4
Inspection date: 2017-07-31 / day shift	



Prepared by: _____ Verified by: _____

Plan/Croquis

Client: AEM.	Projet no.: 1113538-B1
Projet: Saddle dam 3-4-5	Page 4 de 4
Date d'inspection: 2017-07-31 / Day Shift	



Préparé par: _____ Vérifié par: _____

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 31-Jul-17 **Inspector - Day/Night:** Hugues Potvin, Night Shift

Weather : Cloudy + Sun

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Placement of rockfill

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: Placement of rockfill on SD-3. (see sketch join to the report)

- Presence of wet material at ch. 20+600, downstream. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Dozer D8T, and Haul trucks

Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

Client: AEM	Projet no.: 1118538-B
Projet: Saddle dam 3-4-5	Page 1 de 1
Date d'inspection: 2017-07-31 NIGHT SHIFT	



Préparé par: Hugues Potvin Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 1-Aug-17 **Inspector - Day/Night:** Sébastien Blackburn, Day shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work In Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Bedrock cleaning, rockfill placement

General Activities: see work in progress compaction.

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

- Bedrock cleaning, placement of rockfill (Elevation= 137.0m) and compaction on SD-3. (see sketch join to the report)

Delays: The Cat 345D was broken between 9h00 to 11h30. We ran out of muck between 10h00 to 17h00, than the dozer had to wait during that time.

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, D-8 dozer, Haule trucks, packer 10 tonnes

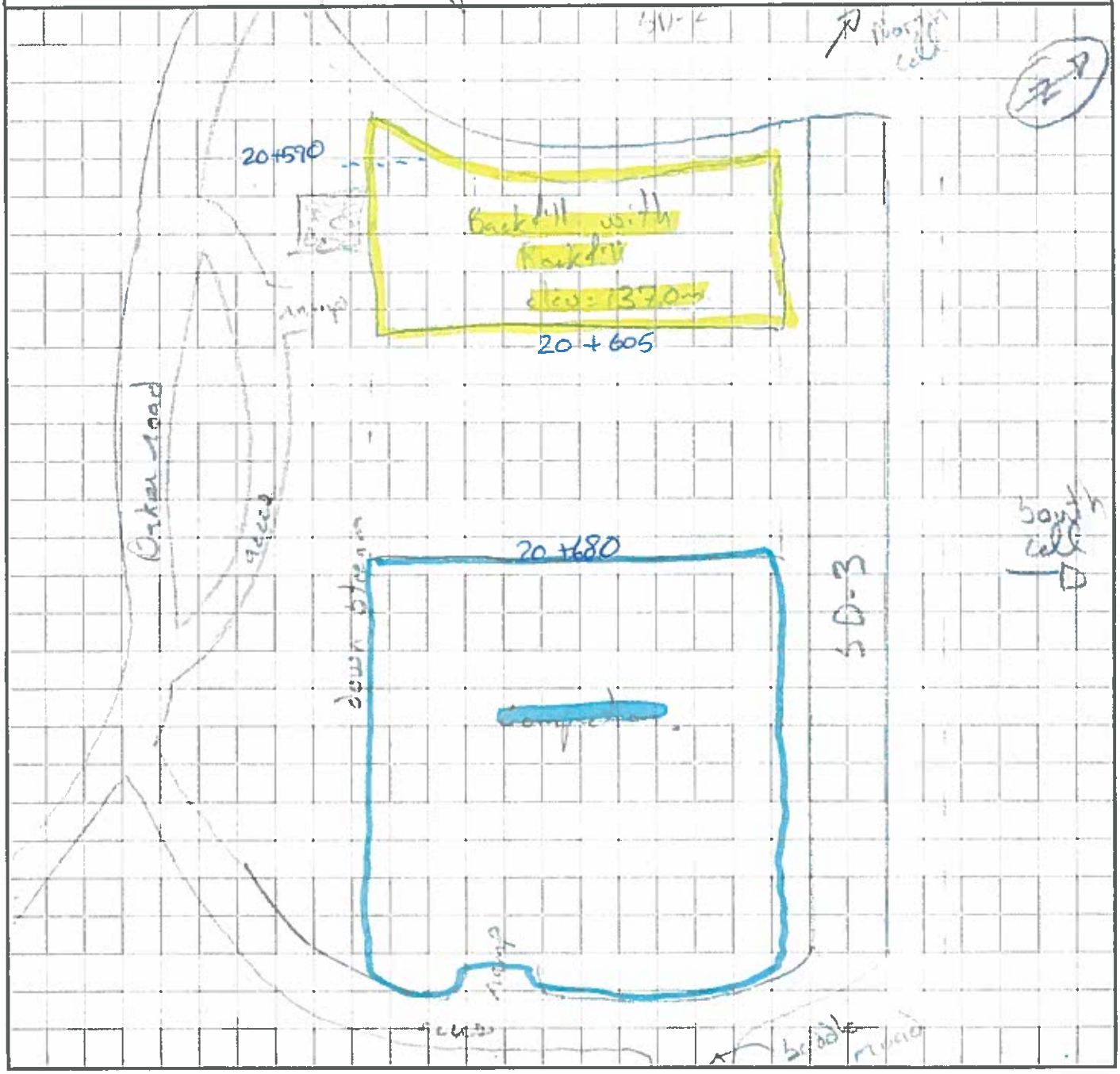
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

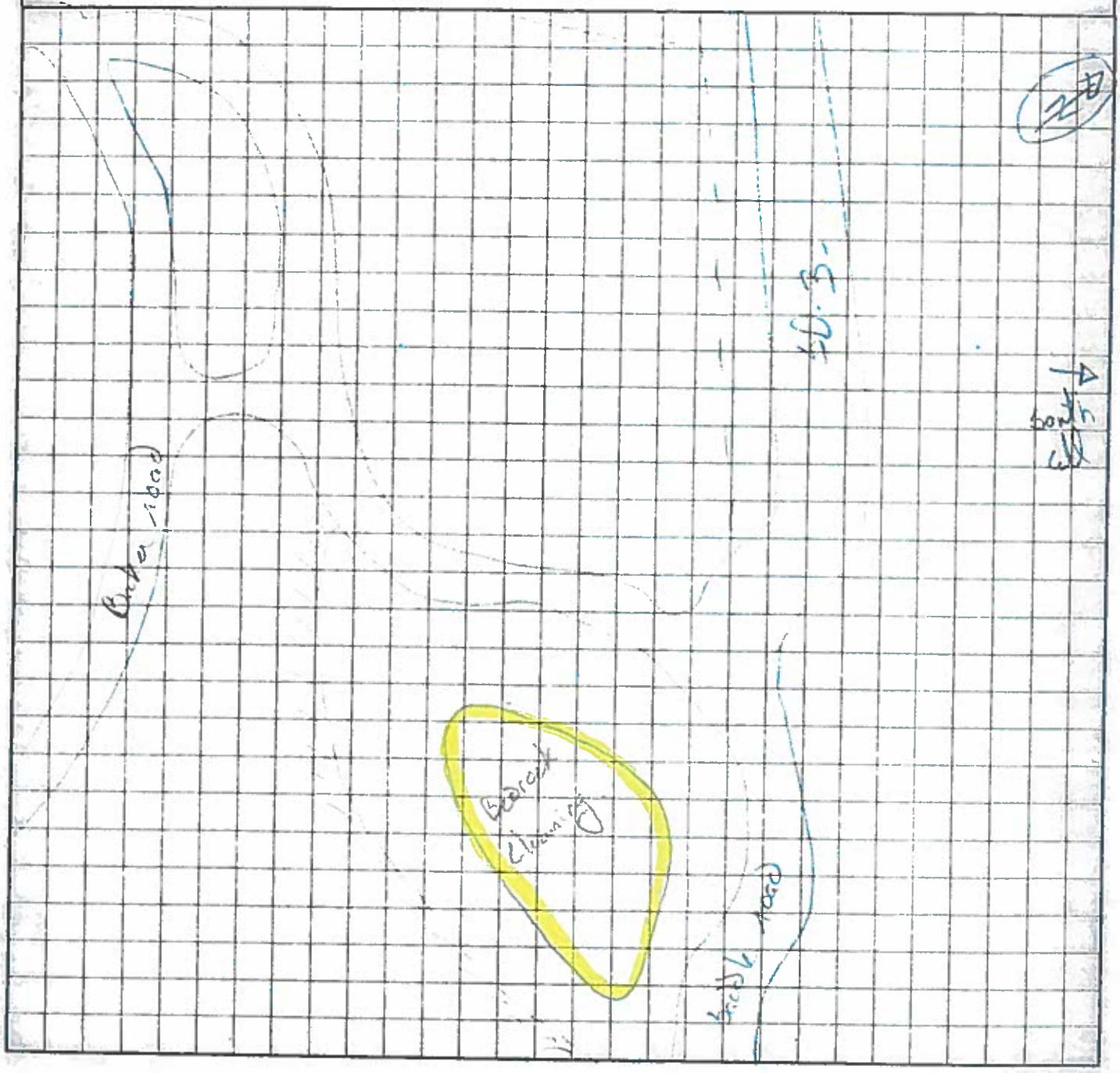
Client: AEM.	Projet no.: 111 8538-0
Projet: Saddle dam 3-4-5	Page 1 de 2
Date d'inspection: 2017-08-01 / day shift	



Préparé par: SB. Vérifié par: _____

Plan/Sketch

Client: A.E.M.	Project no.: 11853-01
Project: Saddle dam 3.4 - 05	Page 2 of 2
Inspection date: 2017-08-01	



Prepared by: _____ Verified by: _____

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 1-Aug-17 **Inspector - Day/Night:** Hugues Potvin, Night Shift

Weather : Sunny, clear sky

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Rockfill placement

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

- Placement of rockfill (Elevation= 137.0m) on SD-3 between ch. 20+580 and 20+570 approximately.
- Placement of rockfill (Elevation= 141.5 m) on SD-4. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: D-8T dozer, Haul trucks

Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Croquis

Client: A.E.M	Projet no.: 1111 8538-B1
Projet: SADDLE DAM 3-4-5	Page 1 de 1
Date d'inspection: 2017-08-01 NIGHT SHIFT	



Préparé par: Hugues Poirier Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 2-Aug-17 **Inspector - Day/Night:** Sébastien Blackburn, Day shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Bedrock cleaning, rockfill placement, ripping

General Activities: see work in progress compaction

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

- **Bedrock cleaning, ripping and compaction on SD-3. (see sketch join to the report)**
- **Fundation approuval on SD-3, FND-3-26.**
- **Placement of rockfill and ripping on SD-4. (see sketch join to the report)**
- **Ripping on SD-5. (see sketch join to the report)**
- **Get the berms away to make some place for sloping on SD-5. (see sketch join to the report)**

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, D-8 dozer, Haule trucks, Packer 10 tonnes, Grader

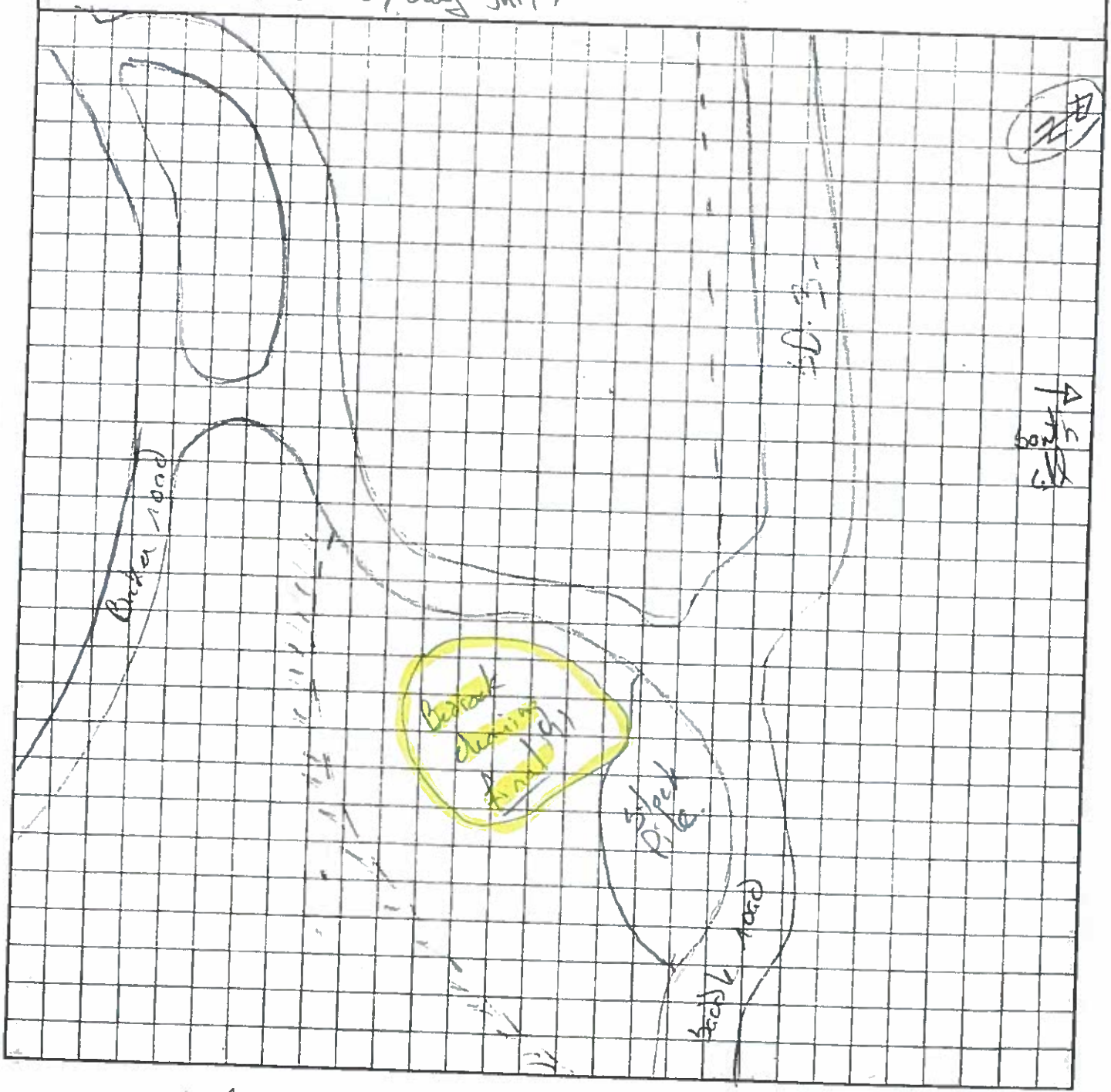
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

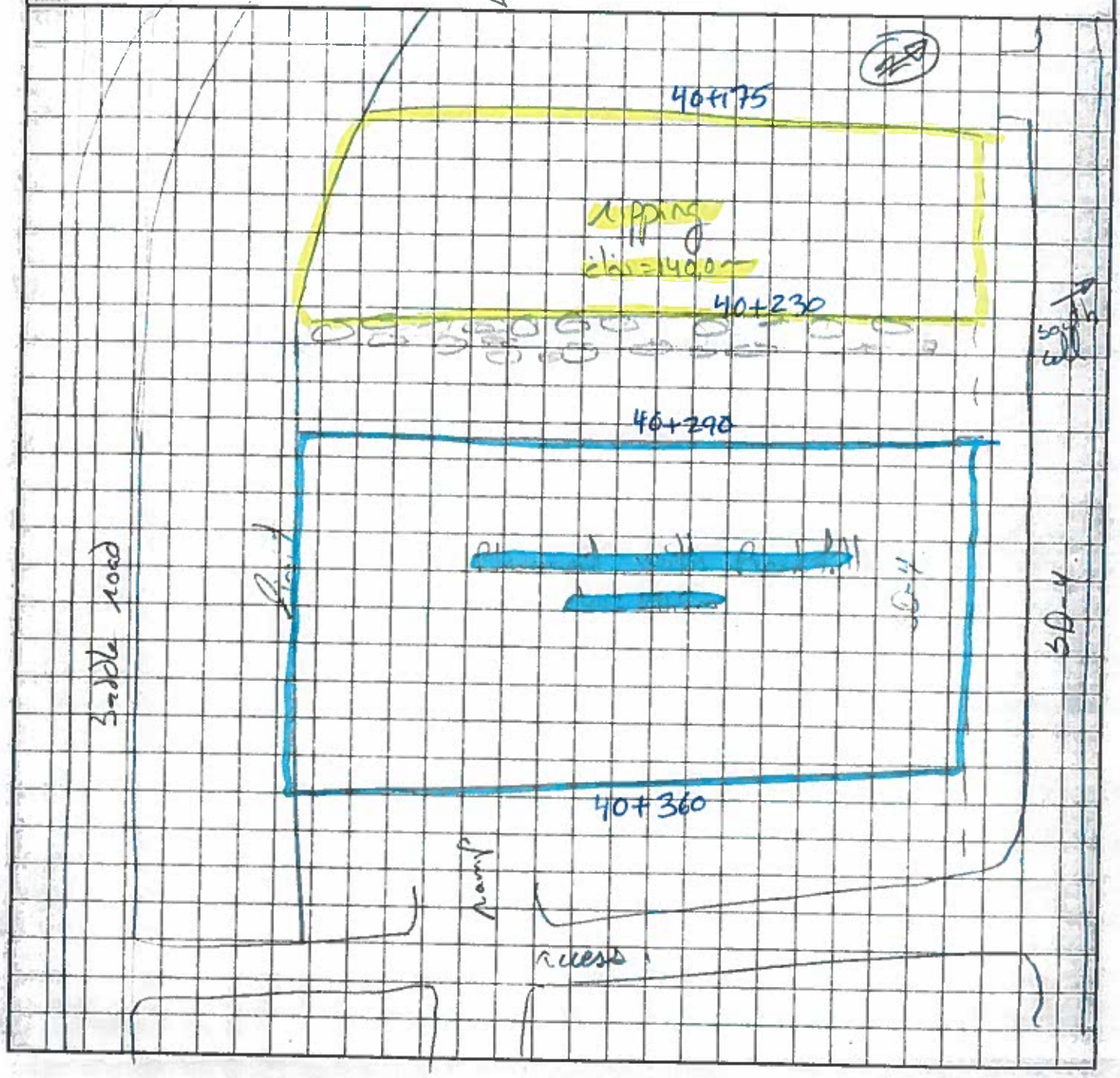
Client: A.E.M.	Project no.: 18535-01
Project: Saddle Dam 3, 4 and 5	Page 1 of 4
Inspection date: 2007-08-02 / day shift	



Prepared by: SB. Verified by:

Plan/Sketch

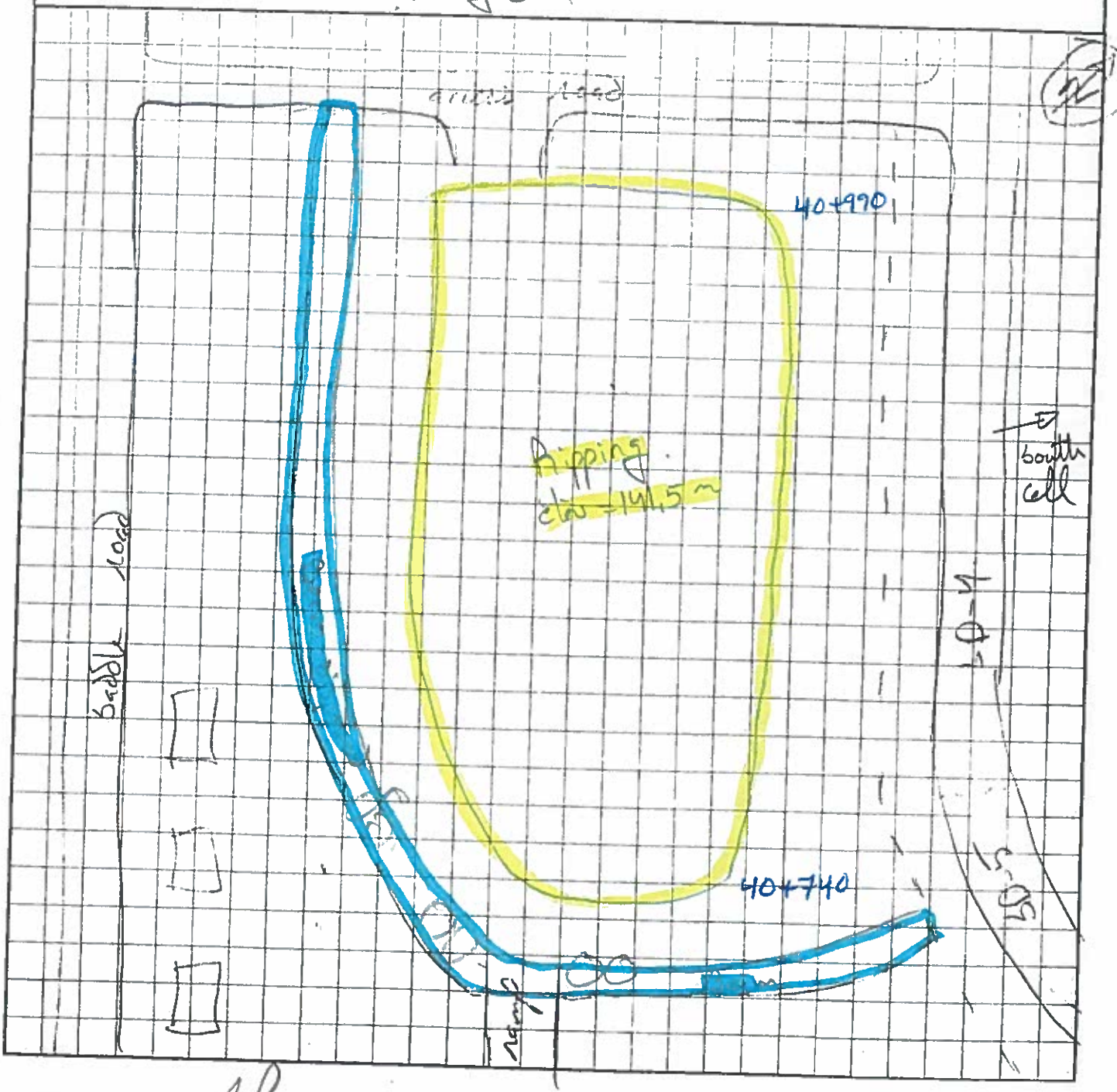
Client: A.E.M.	Project no.: 11117538-B1
Project: Saddle dam 3-4-5	Page 2 of 4
Inspection date: 2017-08-02 / Day shift	



Prepared by: Valentin Bachmann Verified by:

Plan/Sketch

Client: A.E.M	Project no.: 11175358-B1
Project: Saddle dam 3-4-5	Page 3 of 4
Inspection date: 2017-08-02 / day shift	

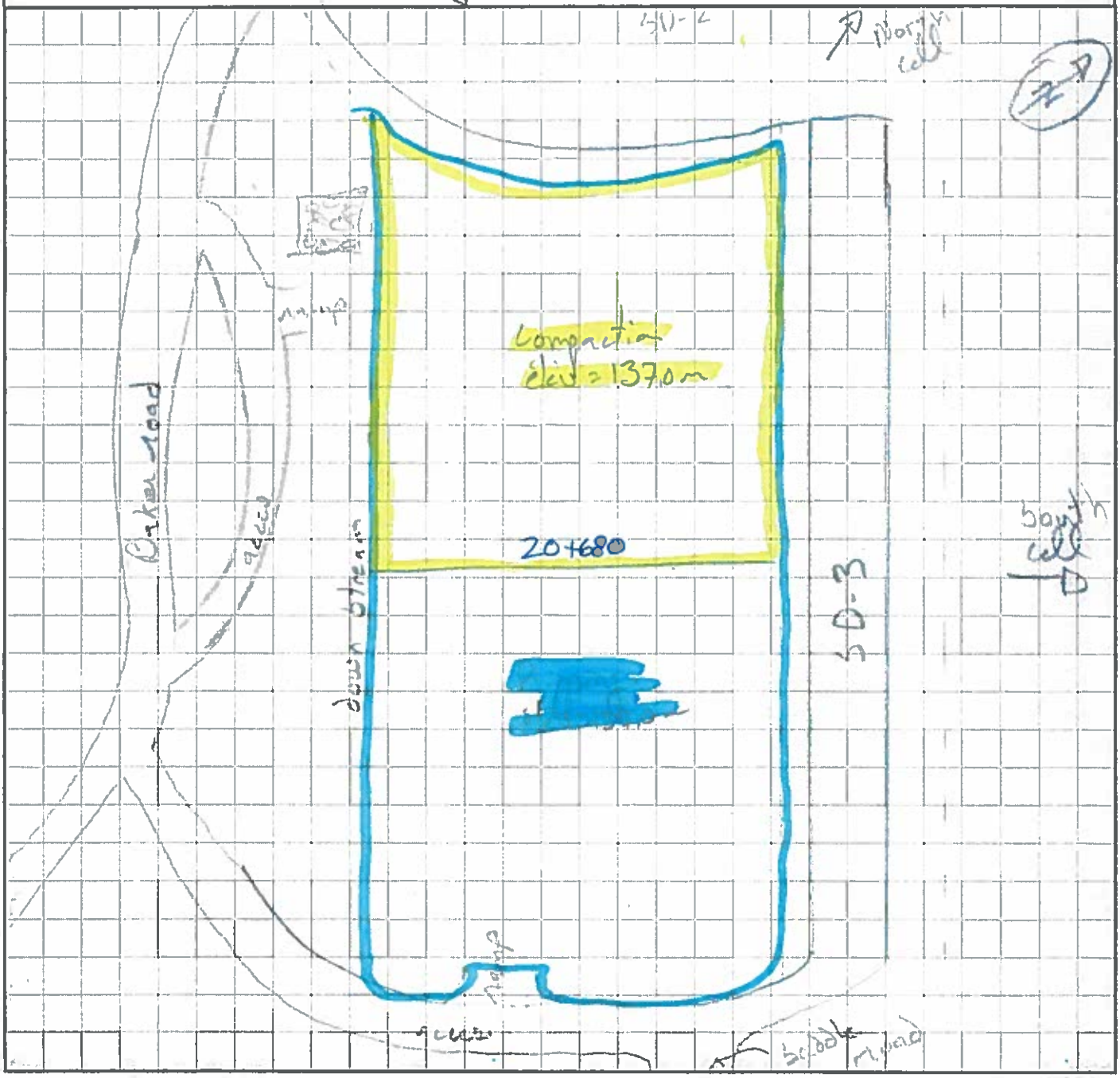


Prepared by: S/B

Verified by:

Plan/Croquis

Client: A E M.	Projet no.: 1111 8538-B
Projet: Saddle dam 3-4-5	Page 4 de 4
Date d'inspection: 2017-08-02 / day shift	



Préparé par: _____ Vérifié par: _____

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 2-Aug-17 **Inspector - Day/Night:** Hugues Potvin, Night Shift

Weather : Sunny, clear sky

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Rockfill placement

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

- Placement of rockfill (Elevation= 139.0m) on SD-3. (see sketch join to the report)
- Profiling the slope of SD-4, begining at 5:00 (position not noted).

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345, D-8T dozer, Haul trucks

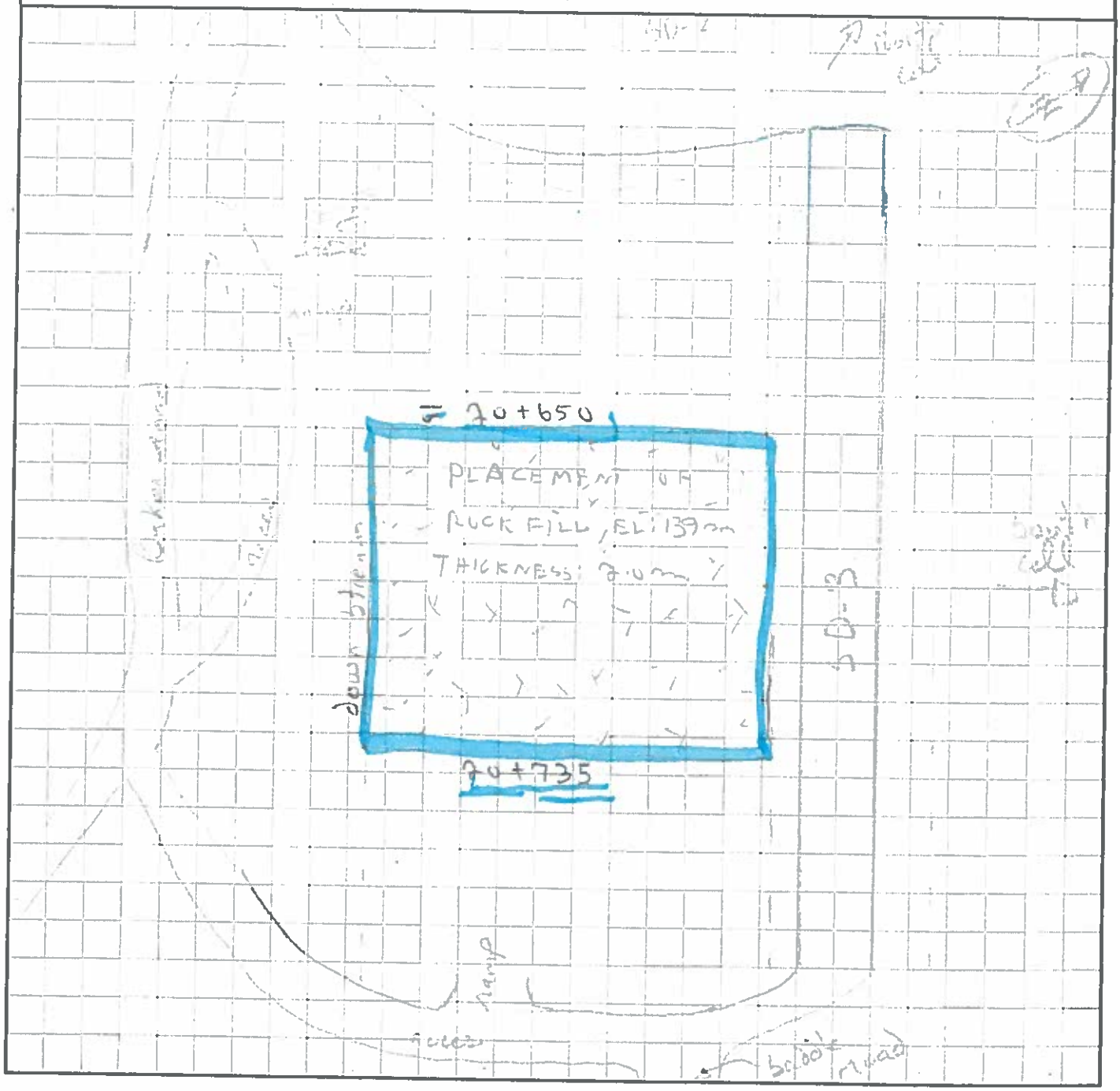
Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Croquis

Client: AEM	Projet no.: 11118538-B
Projet: Baddeck 3-4-5	Page 1 de 1
Date d'inspection: 2017-08-02 NIGHT SHIFT	



Préparé par: Hugues Potvin Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 3-Aug-17 **Inspector - Day/Night:** Sébastien Blackburn, Day shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Rockfill placement, ripping, sloping

General Activities: see work in progress compaction.

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

- **Placement of rockfill and compaction on SD-3. (see sketch join to the report)**
- **Slopping on SD-5** + Compaction.
- **Compaction on SD-4. (see sketch join to the report)**
- **Get the berms away to make some place for sloping and compaction on SD-5 and SD-4. (see sketch join to the report)**

Delays: We ran out of rockfill starting at 6h00 to 10h00. Than, the dozer had to wait for it.

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Komat'Su PC 450LC (2 hours), D8 dozer, Haule trucks, Packer 10 tonnes

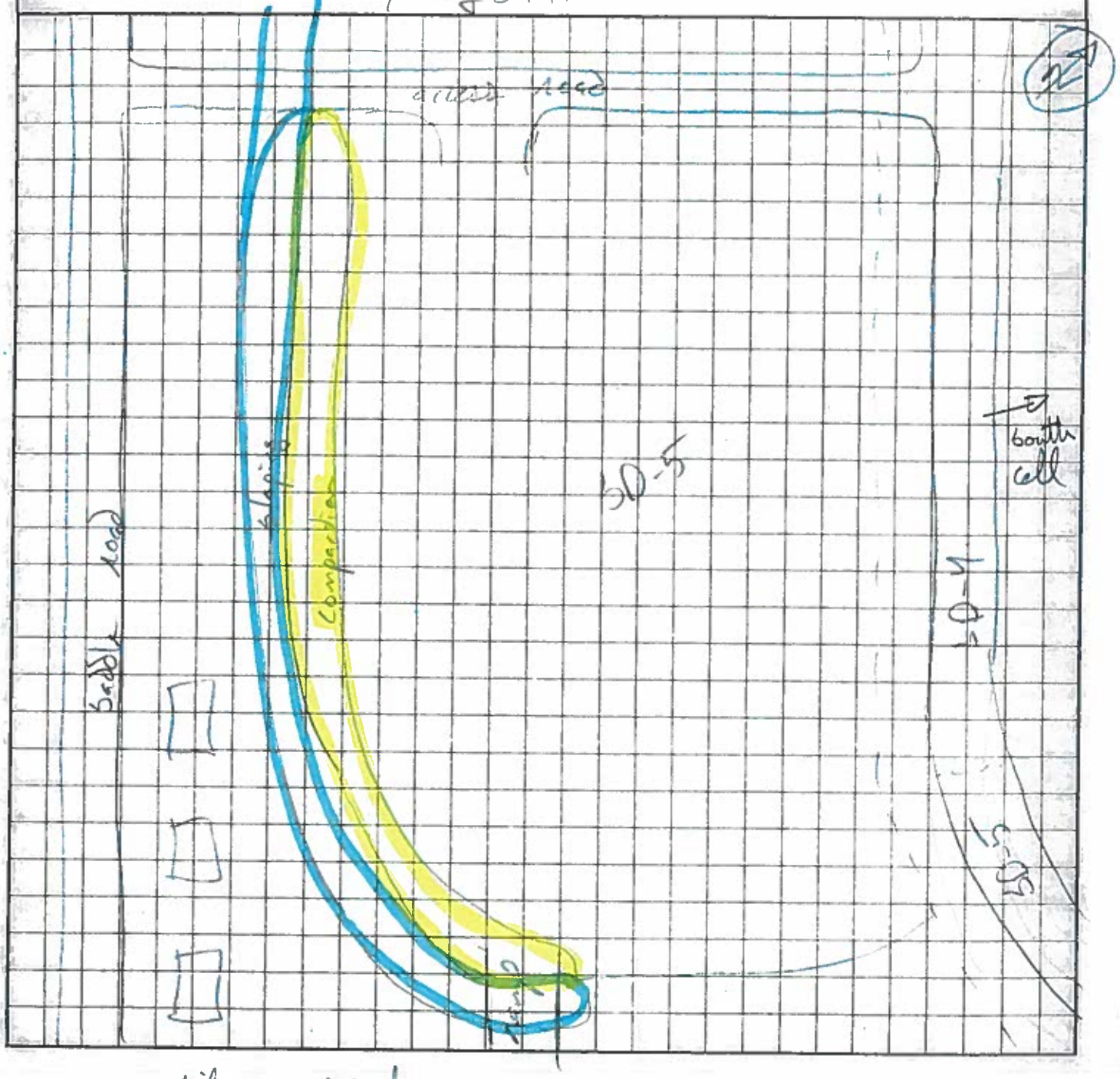
Manpower:

Photos Location:

* **Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

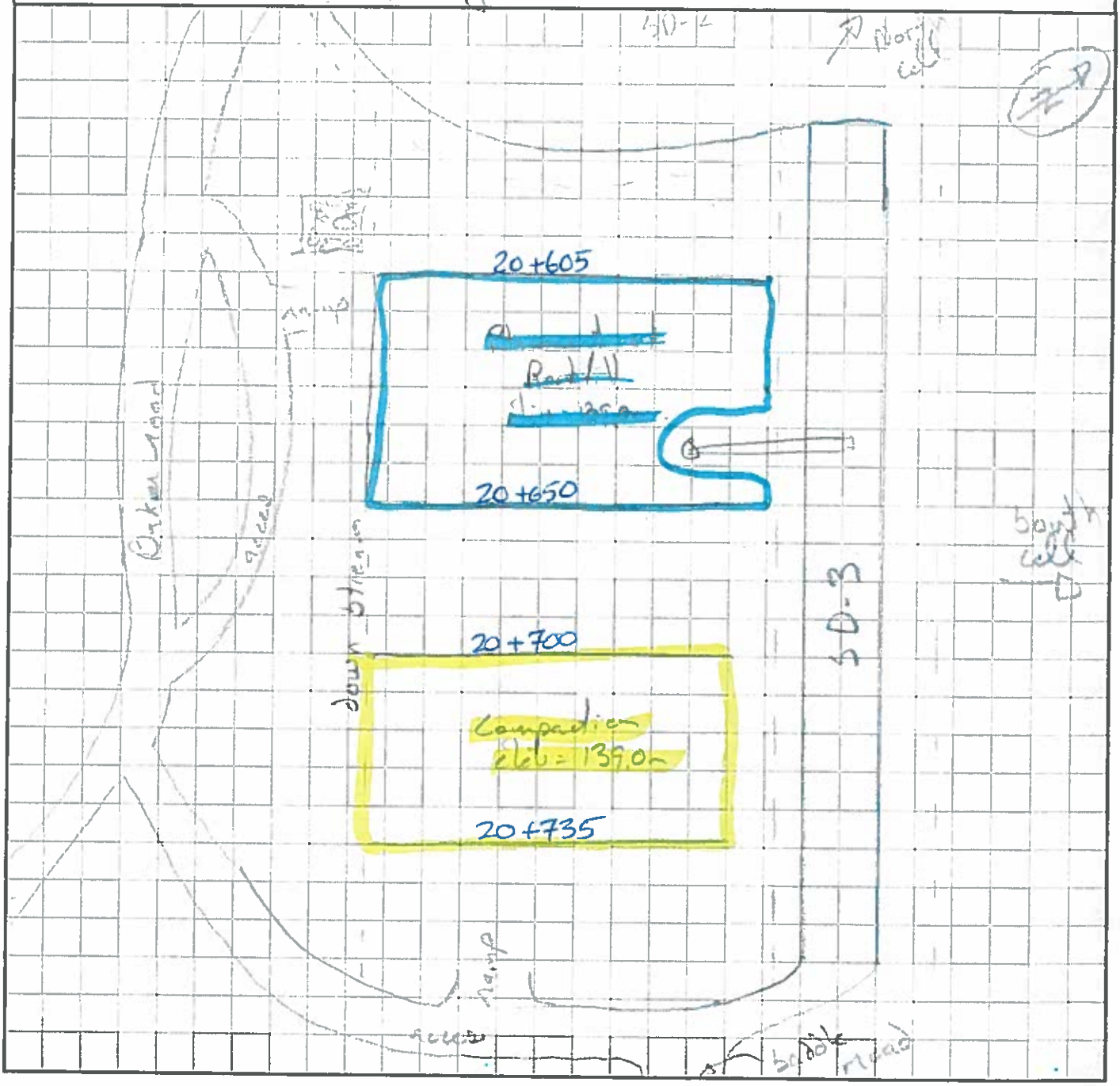
Client: A.E.M.	Project no.: 11117538-B1
Project: Saddle dam 3-4-5	Page 1 of 3
Inspection date: 2017-08-03 / day shift.	



Prepared by: _____ Verified by: _____

Plan/Croquis

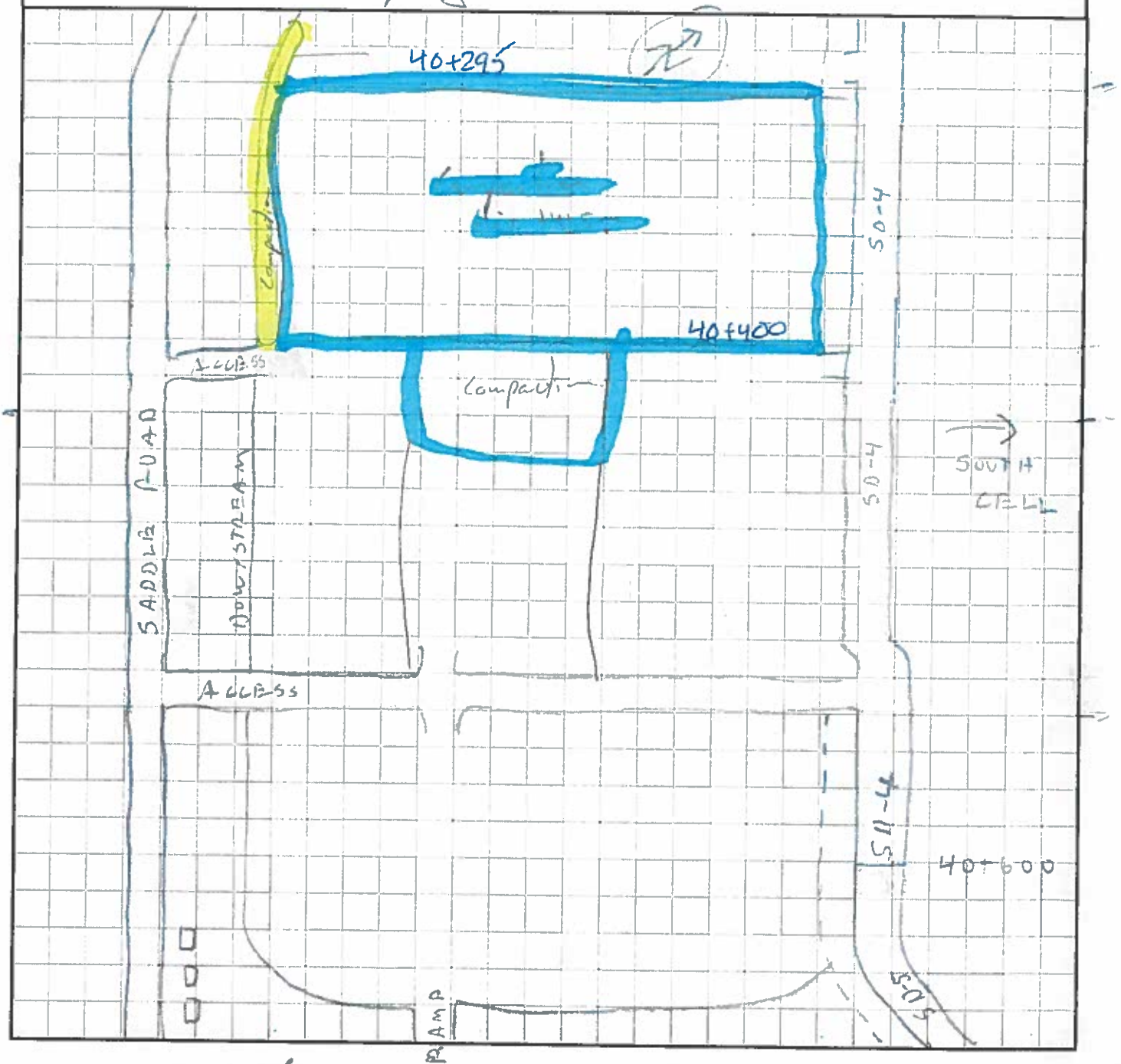
Client: A E M.	Projet no.: 1118538-B
Projet: Saddle dam 3-4-5	Page 2 de 3
Date d'inspection: 2017-08-03 / day shift	



Préparé par: _____ Vérifié par: _____

Plan/Croquis

Client: A.E.M	Projet no.: 11118538-B1
Projet: SADDLE DAM 3-4-5	Page 3 de 3
Date d'inspection: 2017-08-03 / day shift	



Préparé par: _____ Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 3-Aug-17 **Inspector - Day/Night:** Hugues Potvin, Night Shift

Weather : Sunny, clear sky

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Rockfill placement

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

- Placement of rockfill (Elevation= 139.0m) on SD-3. (see sketch join to the report)
- Placement of rockfill (Elevation unknown, maximum thickness of 2 meters) on SD-3. (see sketch join to the report)
- Placement of rockfill 0n SD-4. (see sketch join to the report)
- Profiling the slope on SD-4 between 40+520 and 40+420.

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345, D-8T dozer, Haul trucks

Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Croquis

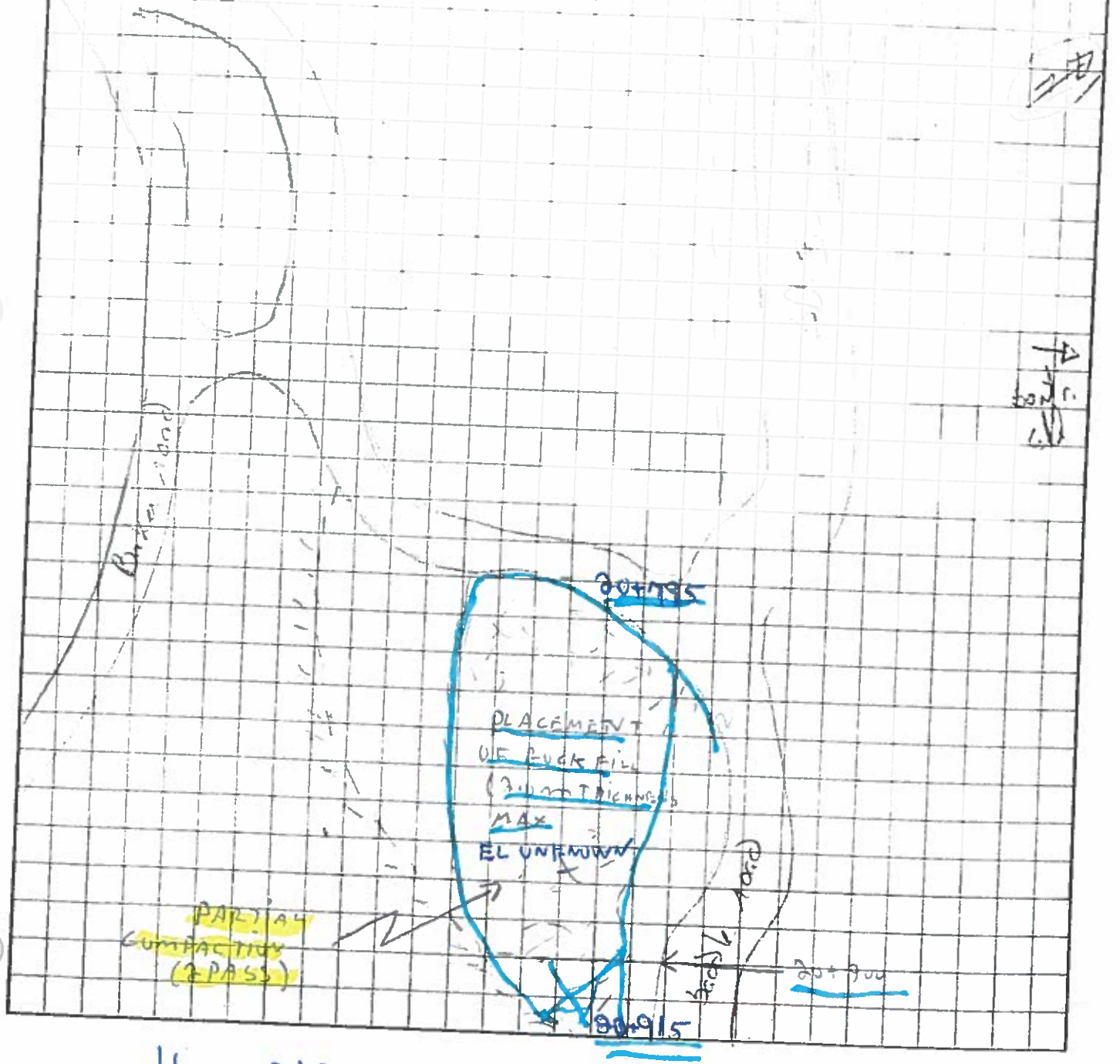
Client: AEM.	Projet no.: 1118538-B
Projet: Saddle dam 3-4-5	Page 1 de 3
Date d'inspection: 2017-08-03 NIGHT SHIFT	



Préparé par: Harper Potvin Vérifié par: _____

Plan/Sketch

Client: AEM	Project no.: 11118538-01
Project: Saddle dam 3 4 and 5	Page 2 of 3
Inspection date: 2017-08-03 NIGHT SHIFT	

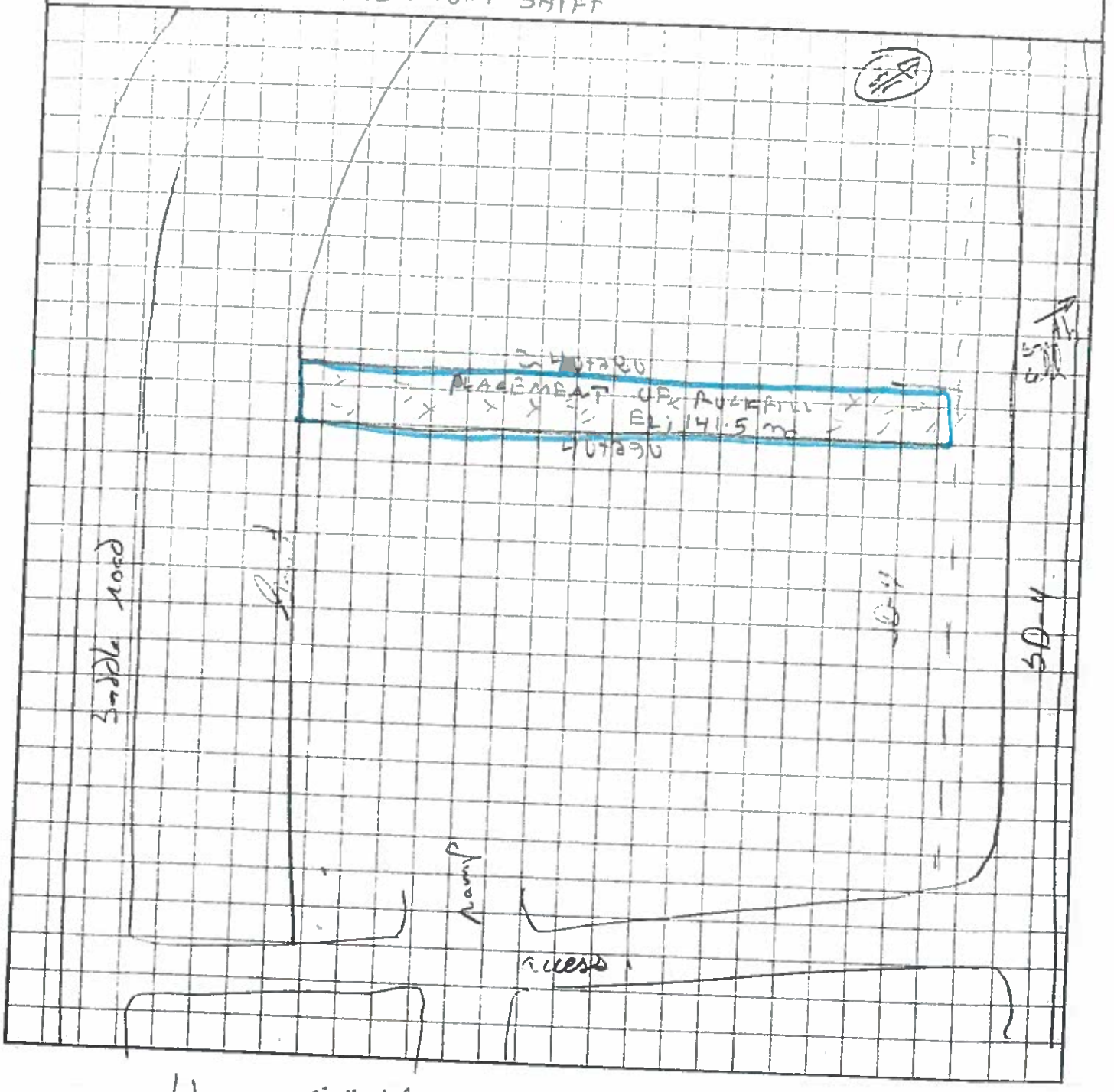


Prepared by: Hunyue Potin

Verified by:

Plan/Sketch

Client: A.E.M.	Project no.: 11117538-101
Project: Saddle dam 3-4-5	Page 3 of 3
Inspection date: 2017-07-03 NIGHT SHIFT	



Prepared by: Hugues Potvin

Verified by:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 4-Aug-17 **Inspector - Day/Night:** Sébastien Blackburn, Day shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Rockfill placement, ripping, sloping

General Activities: see work in progress compaction.

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

- **Placement of rockfill and sloping on SD-4. (see sketch join to the report)**
- **Riping and Sloping on SD-3. (see sketch join to the report)**
- **Riping and Compaction in the south part of SD-3. (see sketch join to the report)**
- **Cleaning the bedrock of the access between saddle road and bake road on SD-3. (see sketch join to the report)**
- **We took samples of the Coarse filter (sample #368), the fine filter (sample #373), the sieved till stockpile #1 the one most at the south (sample #429), the sieved till stockpile #2 the one most at the north (sample #430),**
- **They start moving the two sieved till stockpiles to unfreeze the heart of it.**

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Komat'Su PC 450LC \ loader (50% \ 50%), D8 dozer, Haule trucks, Packer 10 tonnes

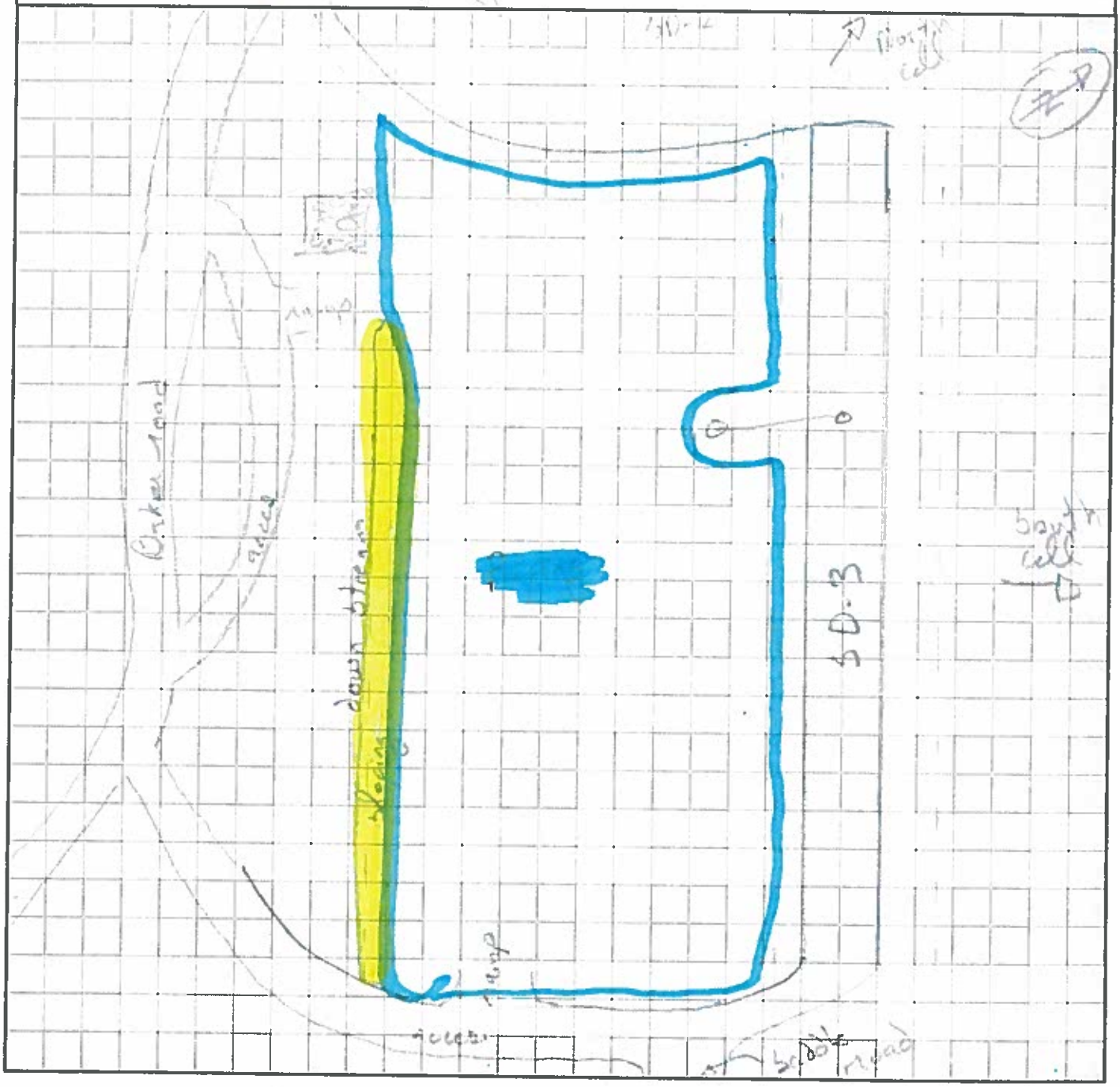
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

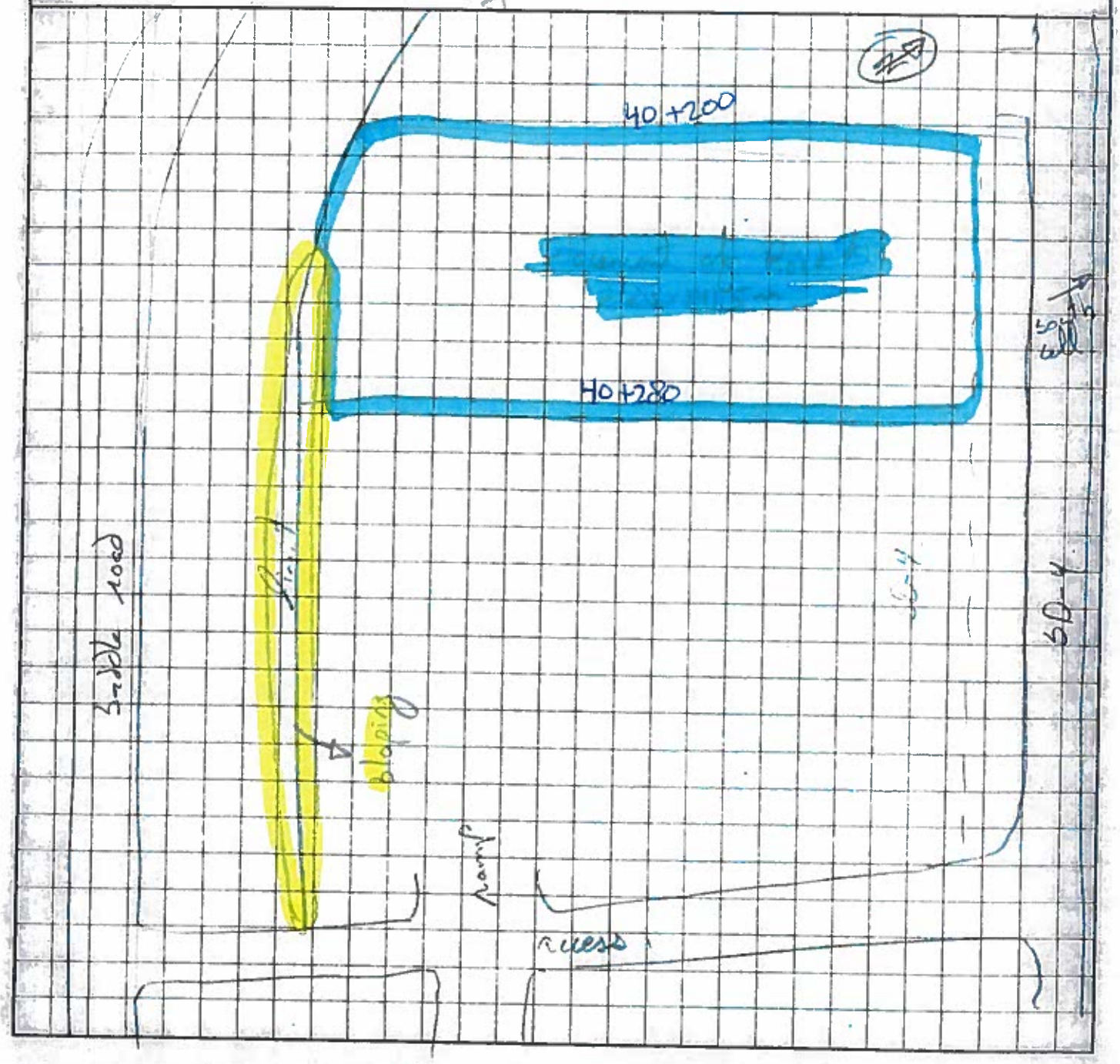
Client: AEM.	Projet no.: 1118538-E
Projet: Saddle dam 3-4-5	Page 1 de 5
Date d'inspection: 2017-08-04 / day shift	



Préparé par: L.B. Vérifié par: _____

Plan/Sketch

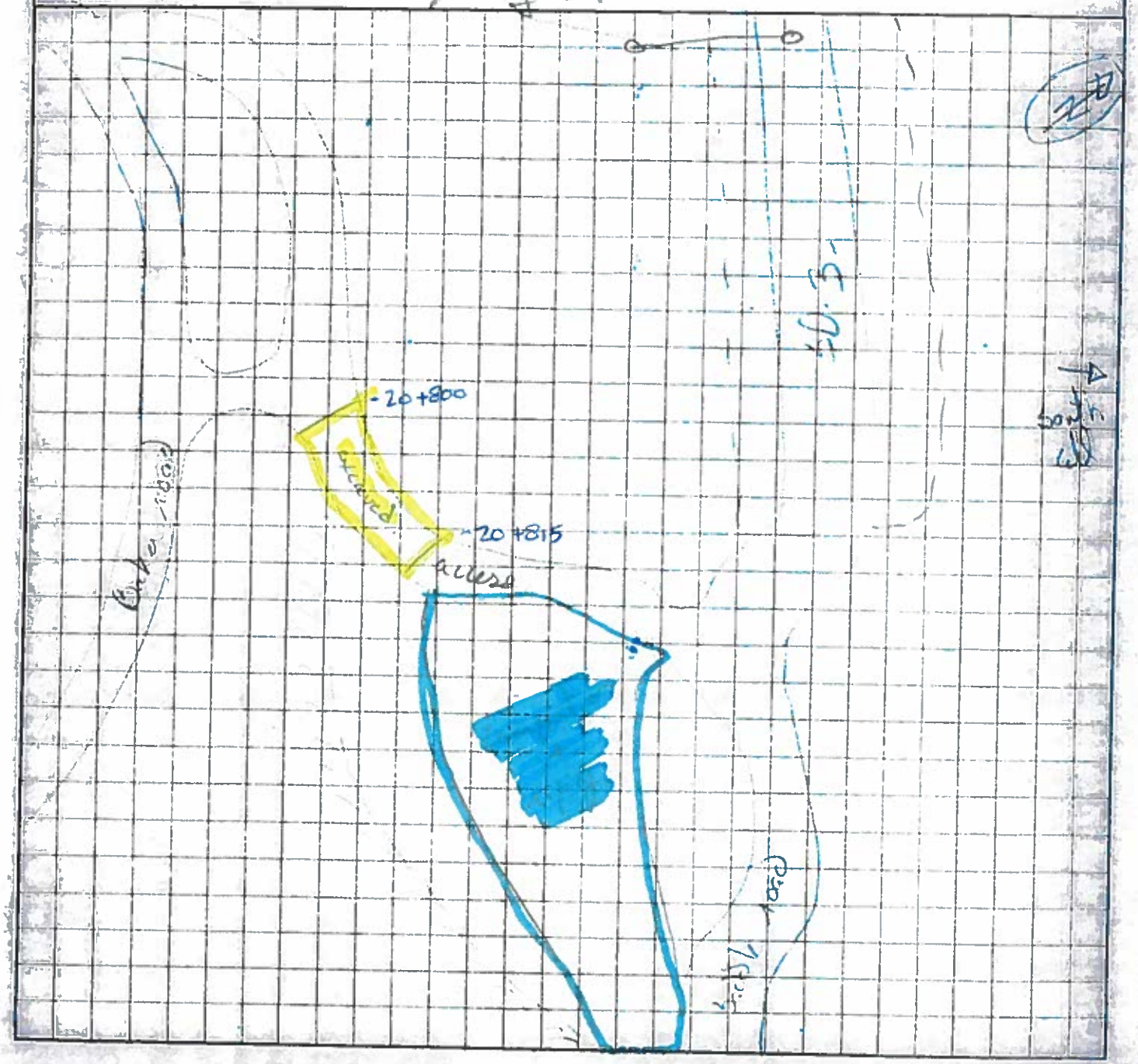
Client: A.E.M.	Project no.: 11117538-151
Project: Saddle dam 3-4-5	Page 2 of 5
Inspection date: 2017-08-04 / day shift	



Prepared by: Valentin Zgoda Verified by:

Plan/Sketch

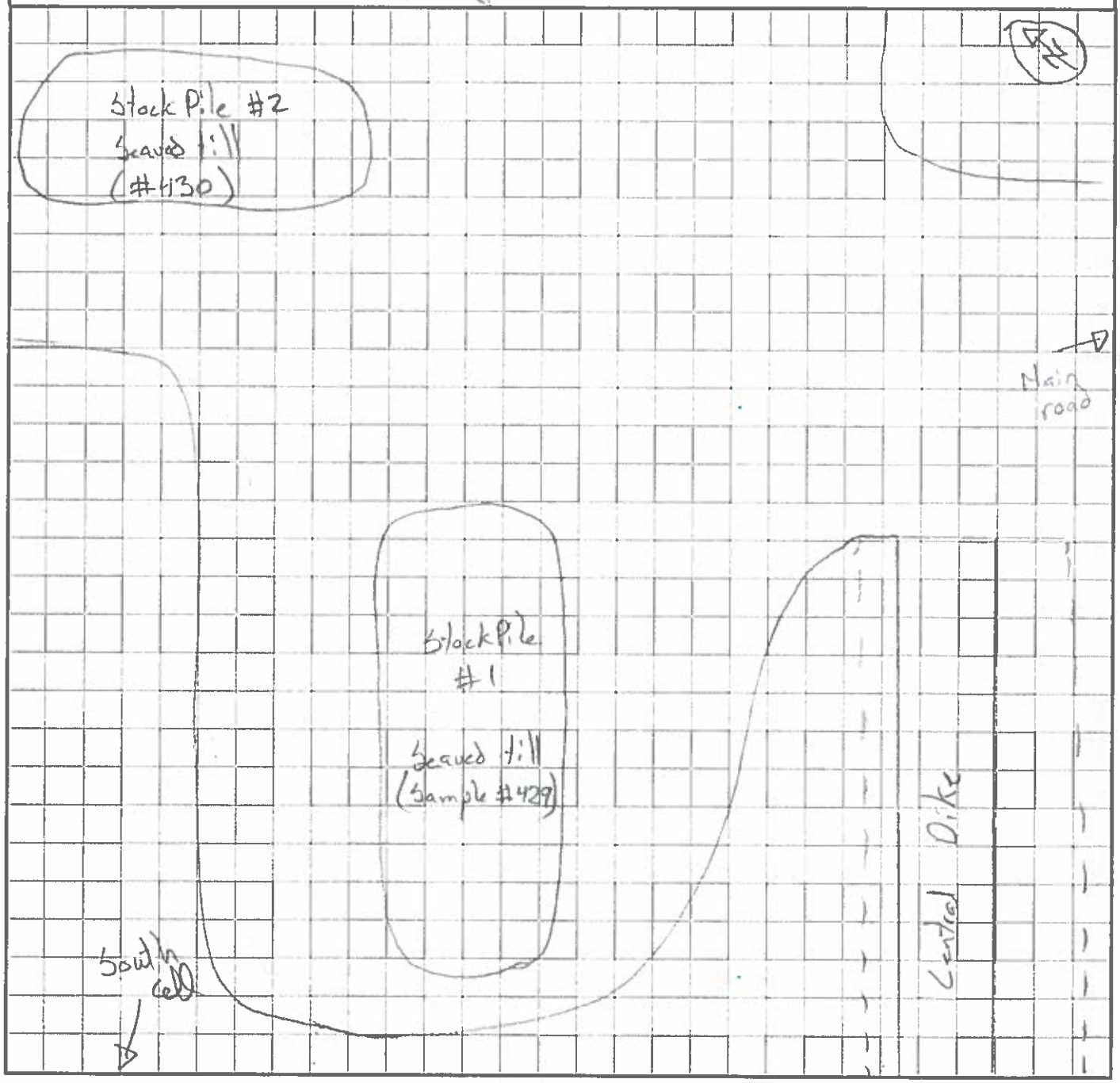
Client: A.E.M.	Project no.: 11118538-B1
Project: Saddle dam 3-4 and 5	Page 3 of 5
Inspection date: 2017-08-04 / day shift	



Prepared by: [signature] Verified by:

Plan/Croquis

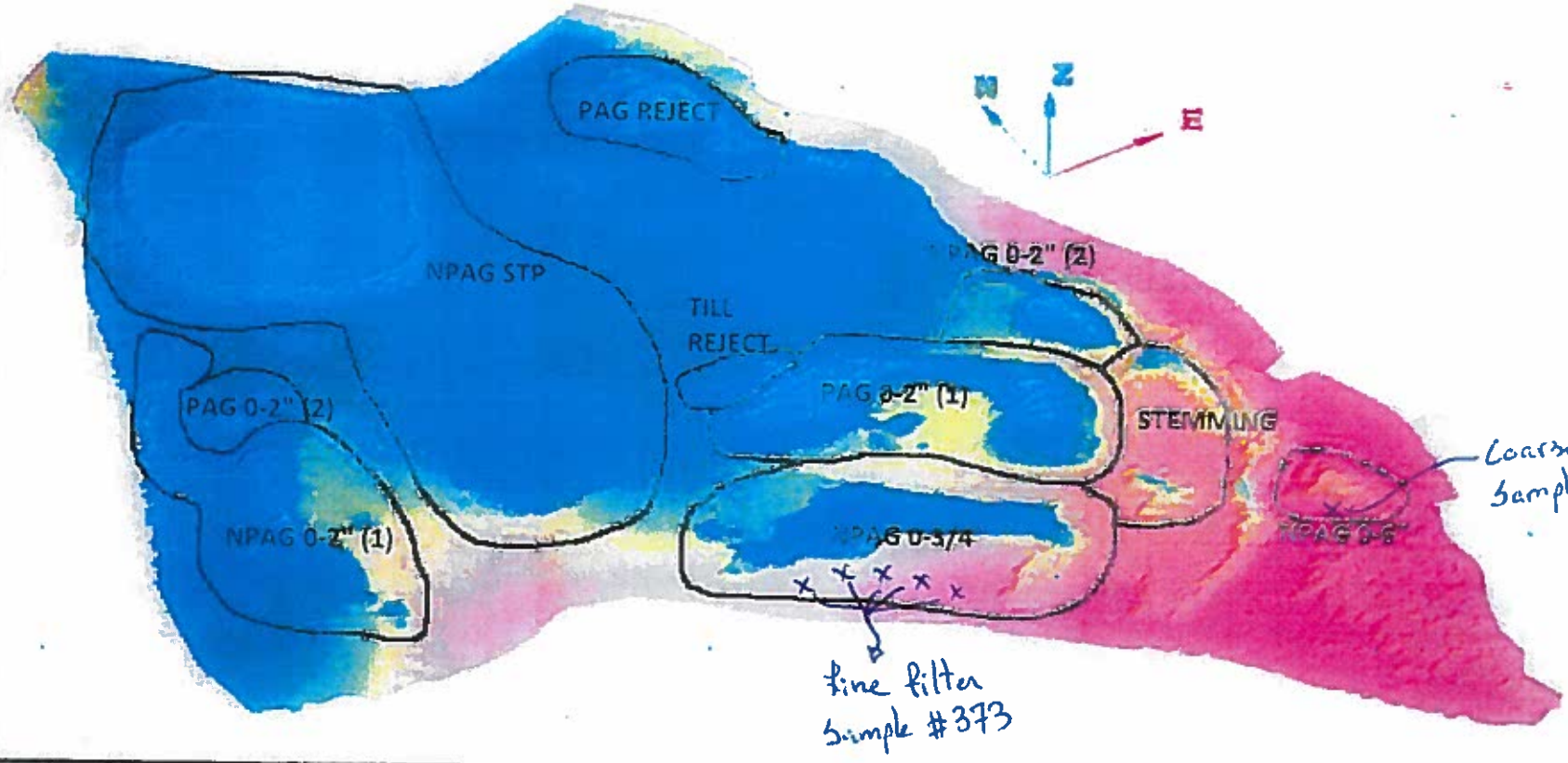
Client: A.E.M.	Projet no.: 1118538-B1
Projet: Saddle dam #3-4-5	Page 4 de 5
Date d'inspection: 2017-08-05 / day shift	



Préparé par: LB Vérifié par: _____

4 full rolls
2x11 tours — 217 tours

28 tours
28+23+22



STOCKPILE	VOLUME (m³)	STOCKPILE	VOLUME (m3)
NPAG 0-2" (1)	1 571	STEMMING	2 319
NPAG 0-2" (2)	3 515	NPAG 0-6"	4 180
NPAG 0 3/4"	16 578	PAG 0-2" (1)	17 877
TILL REJECT	504	PAG 0-2" (2)	119
PAG REJECT	8 040	NPAG STP	74 840

AGNICO EAGLE
MEADOWBANK

AGNICO EAGLE – MEADOWBANK DIVISION
SANA CRUSHER PAD ... M JULY 2017
DRAWN BY: Guillaume P...

C:\Users\mbeckett\Desktop\Meadowbank 2017\Daily inspection report\Aug 2017\Soumare au terminant le 5 aout\QC Daily Inspection Report 2017 08 04 Night Shift .xls]Daily Report

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 4-Aug-17 **Inspector - Day/Night:** Hugues Potvin, Night Shift

Weather : Cloudy

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Rockfill placement, ripping, sloping

General Activities: see work in progress compaction.

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

- Placement of rockfill on SD-3. (see sketch join to the report). Rockfill was placed on non ripped surface between 40+770 and 40+790.
- Beginning of gradations on fine filter and coarse filter.
- The excavator Cat 345D work on pile of till and filter at Sana crusher site.
- The Komat'Su PC 450LC move pile of excavated material at the end of the shift. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Komat'Su PC 450L , D8 dozer, Haule trucks

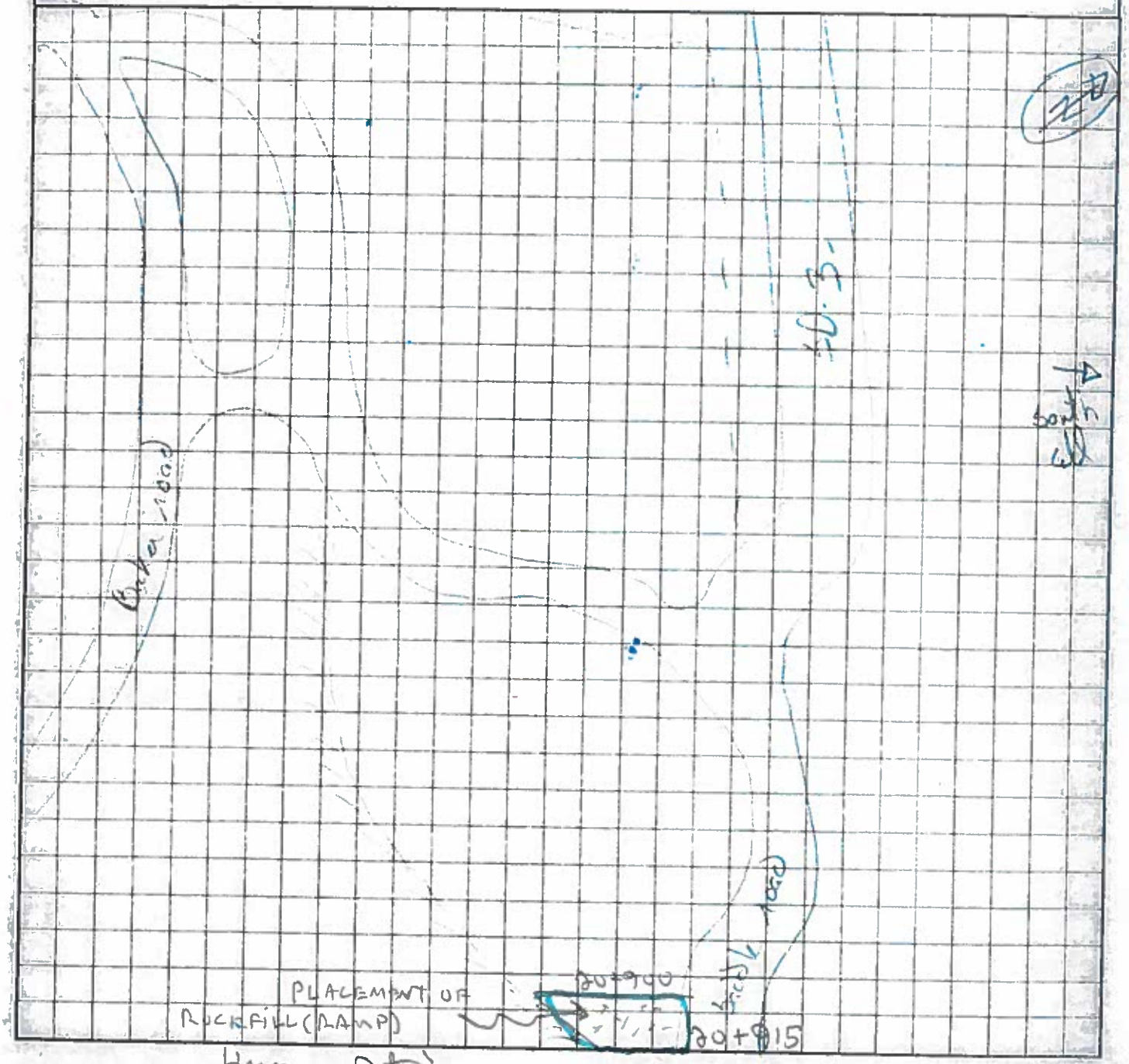
Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Sketch

Client: A.E.M.	Project no.: 1111853E-01
Project: Saddle dam 3.4 - 05	Page 1 of 2
Inspection date: 2017-08-04 NIGHT SHIFT	



Prepared by: Hugues Potvin

Verified by:

Plan/Croquis

Client: A E M.	Projet no.: 1118538-B1
Projet: Saddle dam 3-4-5	Page 2 de 2
Date d'inspection: 2017-08-04 NIGHT SHIFT	



Préparé par: Hugues Potvin Vérifié par:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 5-Aug-17 **Inspector - Day/Night:** Sébastien Blackburn, Day shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Rockfill placement, ripping, laboratory compaction.

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

- Placement of rockfill and loading the excavated material on SD-3. (see sketch join to the report)

- Compaction on SD-4. (see sketch join to the report)

- They are still moving the two sieved till stockpiles to unfreeze the heart of it.

- I advanced the essales on the samples of the Coarse filter (sample #368), the fine filter (sample #373), the sieved till stockpile #1 the one most at the south (sample #429) and the sieved till stockpile #2 the one most at the north (sample #430),

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Komat'Su PC 450LC \ loader (50% \ 50%), D8 dozer, Haule trucks, Packer 10 tonnes

Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

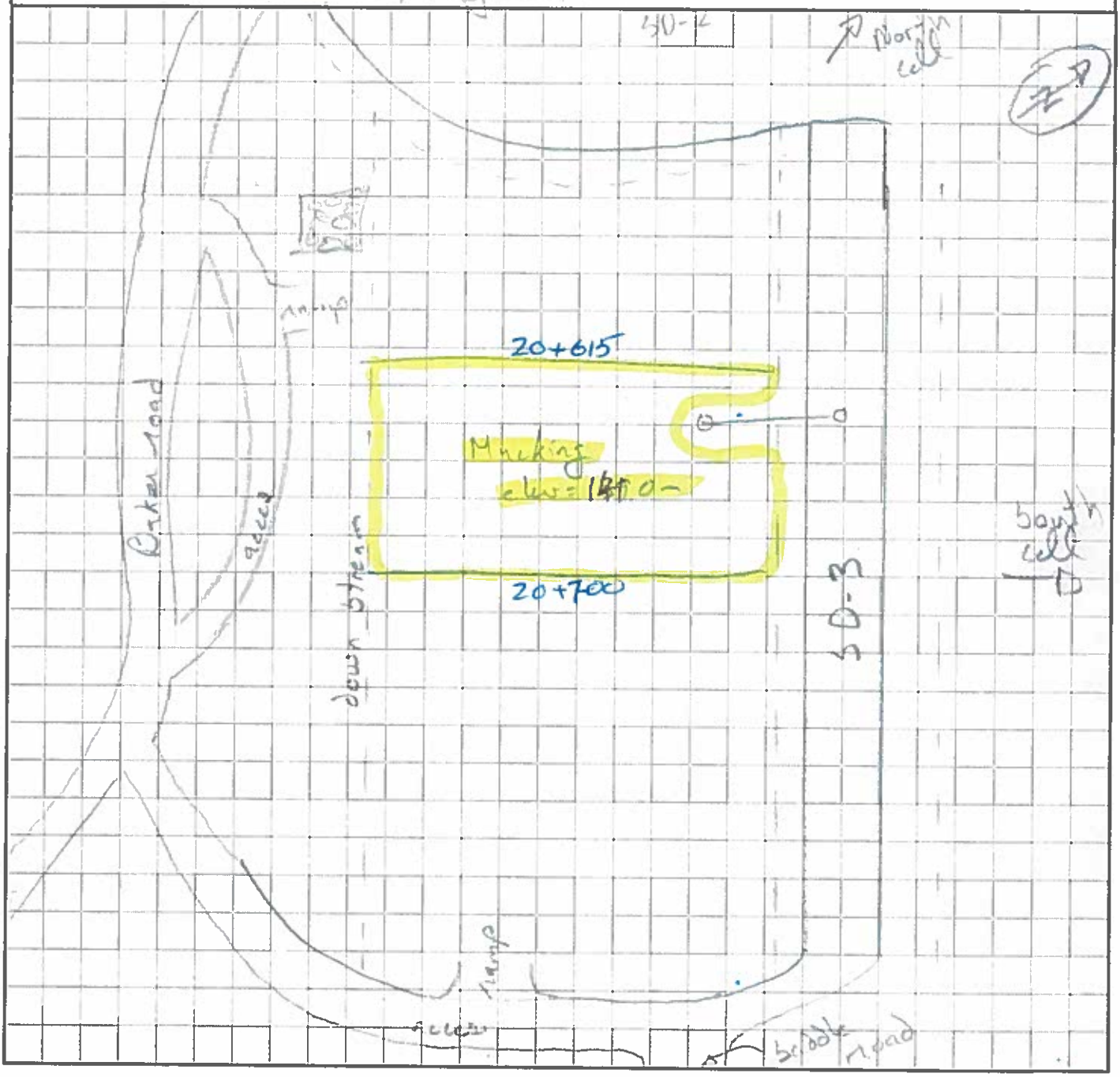
Client: A.E.M	Projet no.: 1111 8538-B1
Projet: SADDLE DAM 3-4-5	Page 1 de 3
Date d'inspection: 2017-08-05 / day shift	



Préparé par: SJ Vérifié par:

Plan/Croquis

Client: AEM.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 2 de 3
Date d'inspection: 2017-08-05 / day Shift	



Préparé par: SB Vérifié par: _____

Plan/Sketch

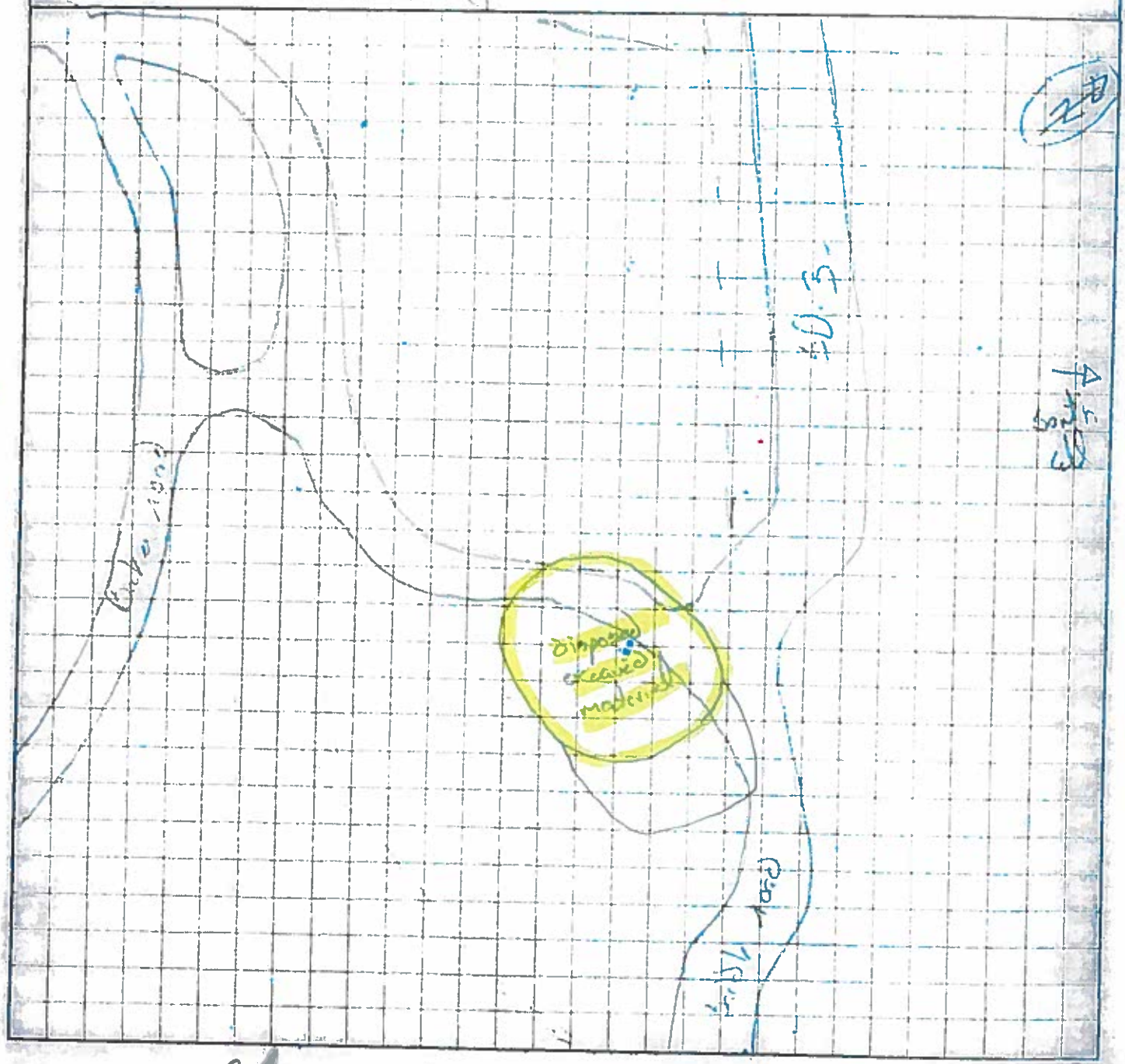
Client: A.E.M.

Project no.: 11118538-B1

Project: Saddle dam 3, 4 and 5

Page 3 of 3

Inspection date: 2017-08-05 1 day shift



Prepared by:

Verified by:

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 5-Aug-17 **Inspector - Day/Night:** Hugues Potvin, Night Shift

Weather : Cloudy + rain (electric storm)

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Rockfill placement,

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

- **Placement of rockfill on SD-3. (see sketch join to the report)**
- **End of gradations on coarse filter and Till.**
- **Disposing of excavated material on SD-3 (see sketch join to the report)**
- **Excavation on material to be disposed was made during the day shift on Central Dyke. (see sketch join to the report)**

Placement of rockfill on SD-4. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Komat'Su PC 450L , D8 dozer, Haule trucks

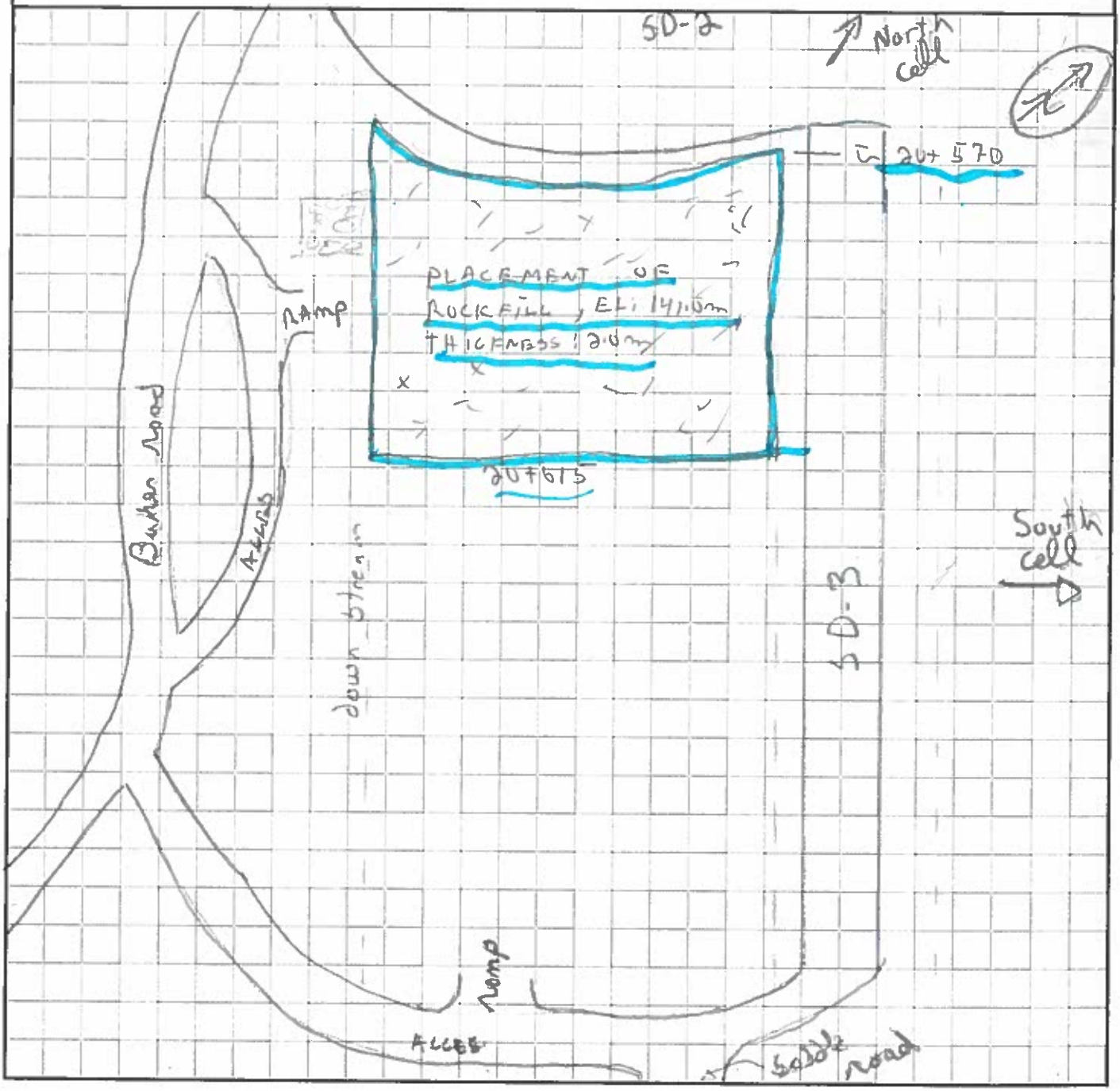
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

Client: AEM.	Projet no.: 1118538-B
Projet: Saddle dam 3-4-5	Page 1 de 4
Date d'inspection: 2017-08-05 NIGHT SHIFT	



Préparé par: Hugues Potvin Vérifié par: _____

Plan/Sketch

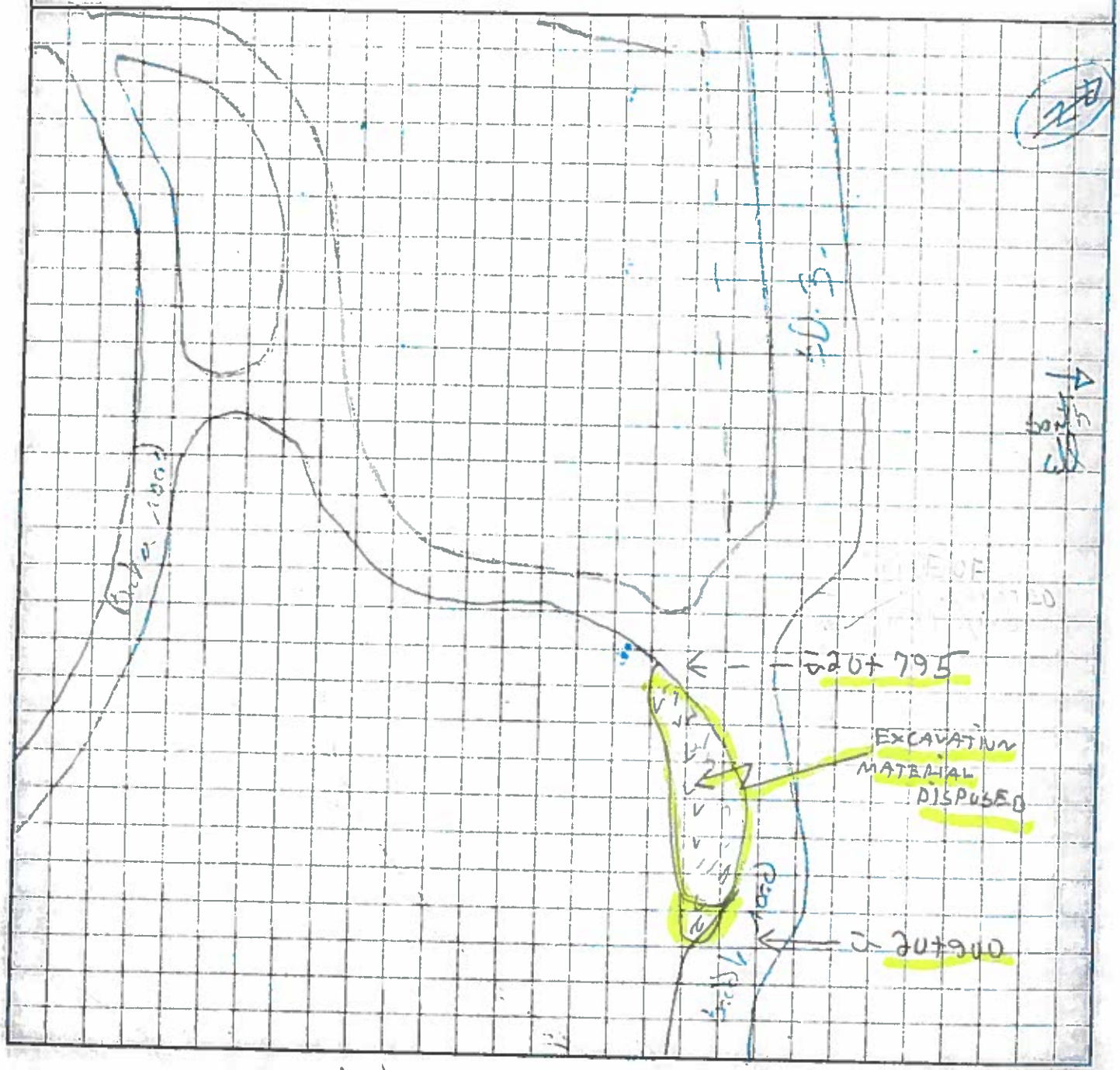
Client: A.E.M.

Project no.: 11118538-B1

Project: Saddle dam 3, 4 and 5

Page 2 of 4

Inspection date: 2017-08-05 NIGHT SHIFT

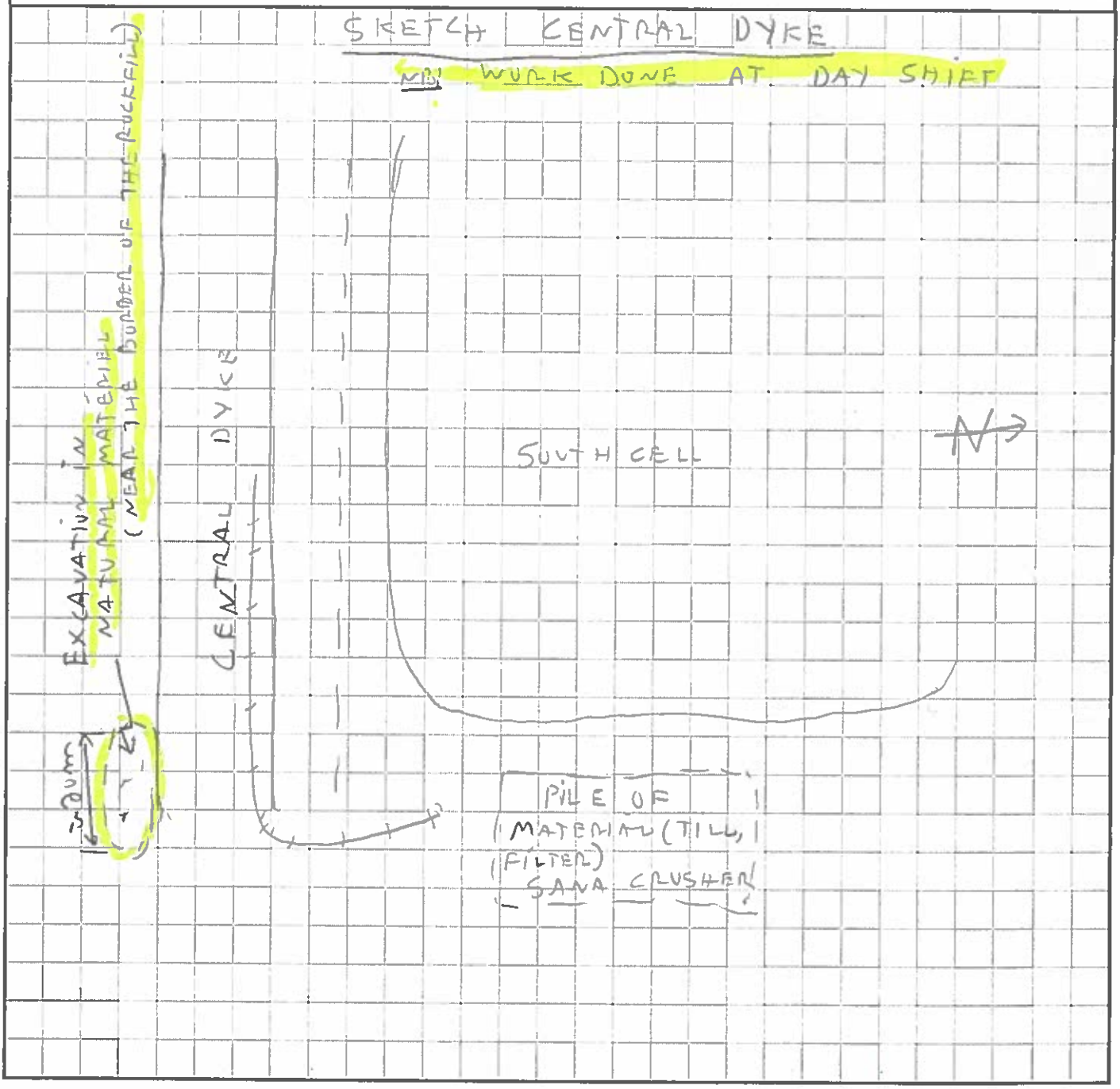


Prepared by: Hinguer Potrin

Verified by:

Plan/Croquis

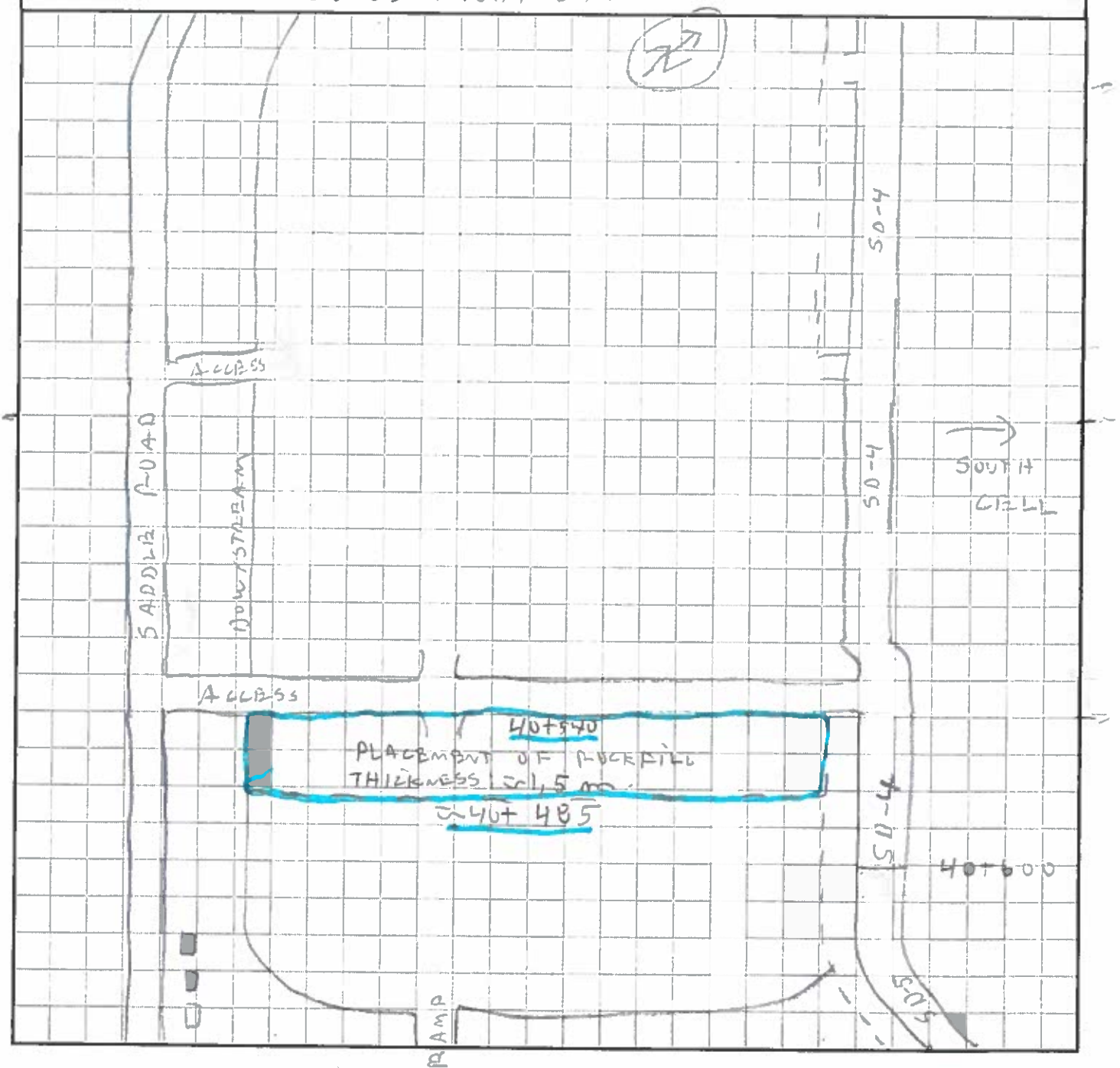
Client: A.E.M.	Projet no.: 11185538-B1
Projet: SADDLE DAM 3, 4 AND 5	Page 3 de 4
Date d'inspection: 2017-08-05 NIGHT SHIFT	



Préparé par: Hanyuan Peterson Vérifié par: _____

Plan/Croquis

Client: A.E.M	Projet no.: 11118538-B1
Projet: SADDLE DAM 3-4-5	Page 4 de 4
Date d'inspection: 2017-08-05 NIGHT SHIFT	



Préparé par: Hamza Rahim Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 6-Aug-17 **Inspector - Day/Night:** Sébastien Blackburn, Day shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Rockfill placement, compaction, disposing excavated material.

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

- **Compaction and loading the excavated material on SD-3. (see sketch join to the report)**
- **Placement of rockfill on SD-4 and SD-5. (see sketch join to the report)**
- **Excavation at the north of central dike. (see sketch join to the report)**

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Komat'Su PC 450LC \ loader (50% \ 50%), D8 dozer, Haule trucks, Packer 10 tonnes

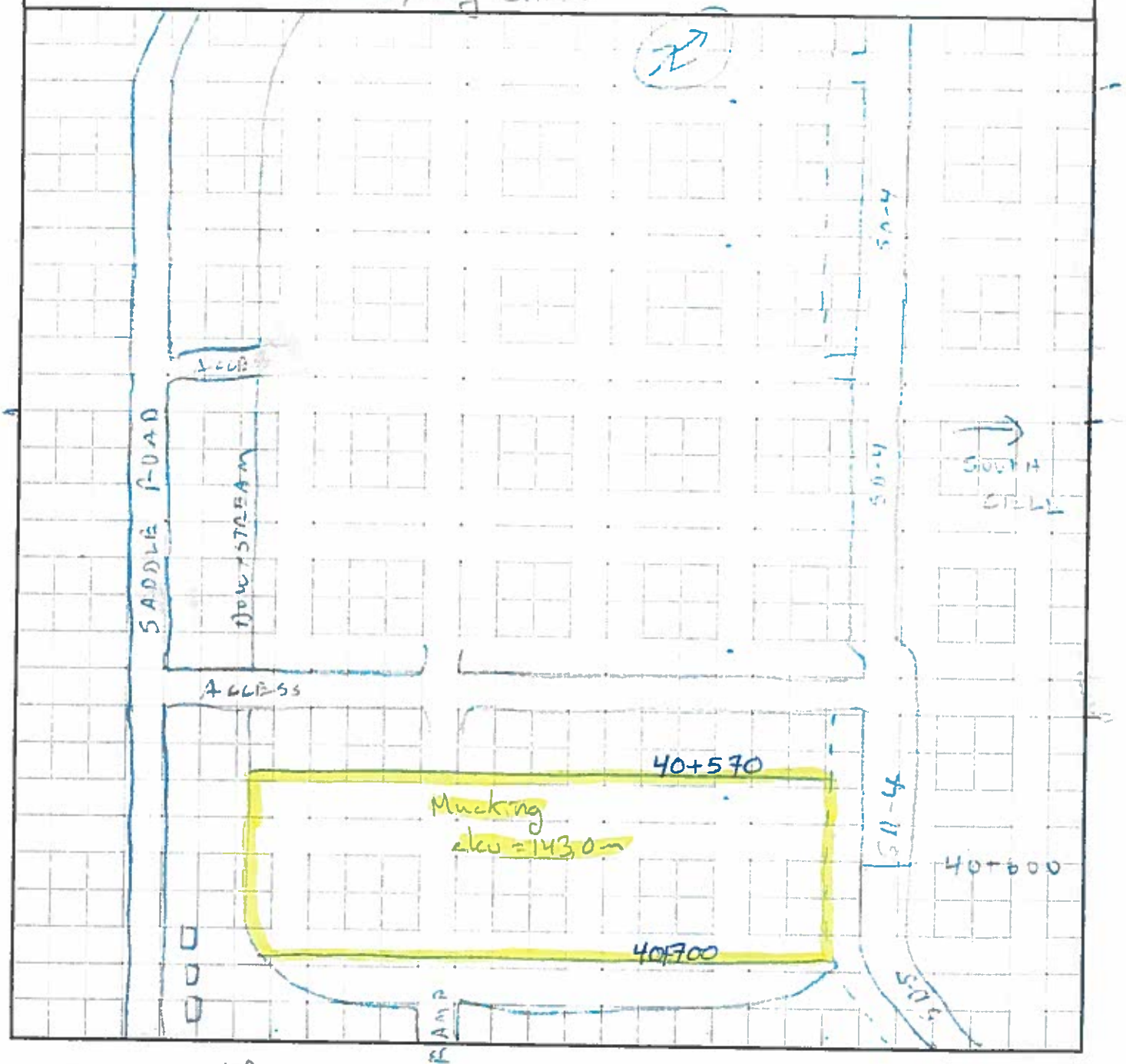
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Plan/Croquis

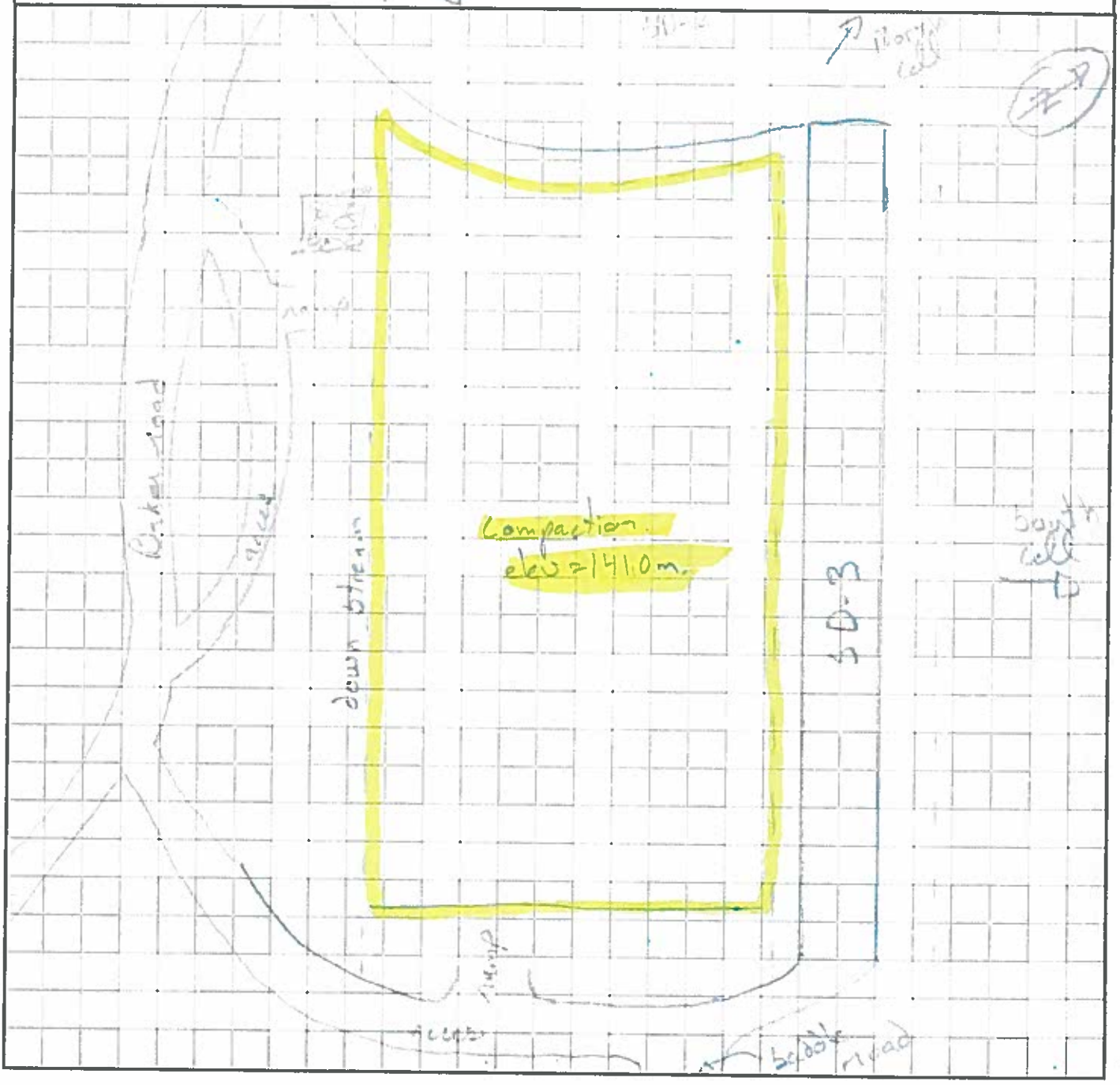
Client: A.E.M	Projet no.: 1111 8539-B1
Projet: SADDLE DAM 3-4-5	Page 1 de _____
Date d'inspection: 2017-08-06 / day Sh.7	



Préparé par: SB Vérifié par: _____

Plan/Croquis

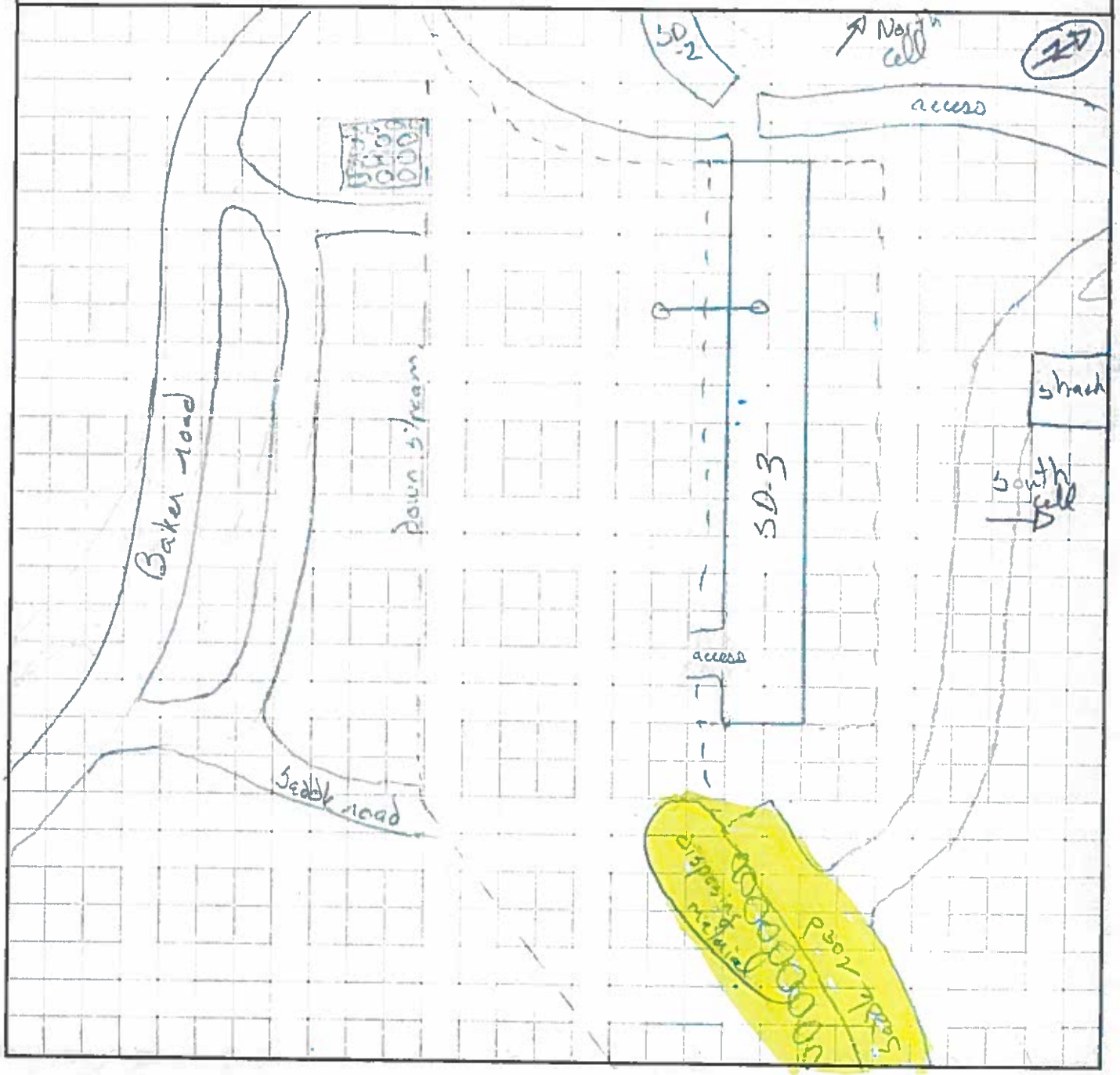
Client: AEM	Projet no.: 11118538-2
Projet: Saddle dam 3-4-5	Page 2 de _____
Date d'inspection: 2017-08-06 / 2nd Shift	



Préparé par: _____ Vérifié par: _____

Plan/Croquis

Client: A.E.M.	Projet no.: 1111-8538-B1
Projet: Saddle dam 3-4-5	Page 3 de _____
Date d'inspection: 2017-	



Préparé par: S.B. Vérifié par: _____

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 6-Aug-17 **Inspector - Day/Night:** Hugues Potvin, Night Shift

Weather : Rain

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Rockfill Placement, Work on a access road

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

- Placement of rockfill on SD-4 and SD-5. (see sketch join to the report)
- Partial relocation of the access road to the construction office with the excavator (material was taken in place) (half of night).
- Excavation at Central dyke (half of night) (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Komat'Su PC 450L , D8 dozer, Haul trucks

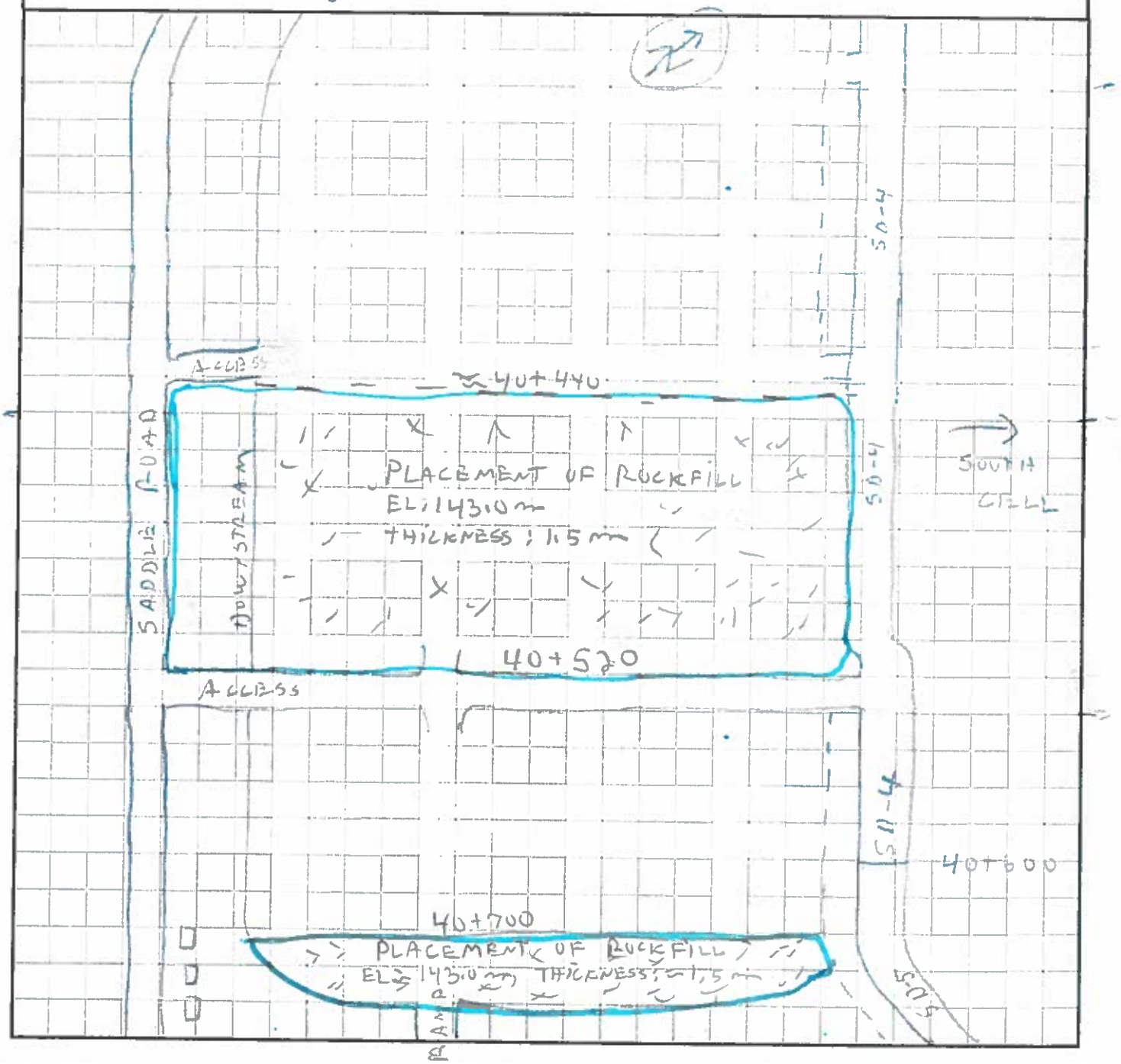
Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Croquis

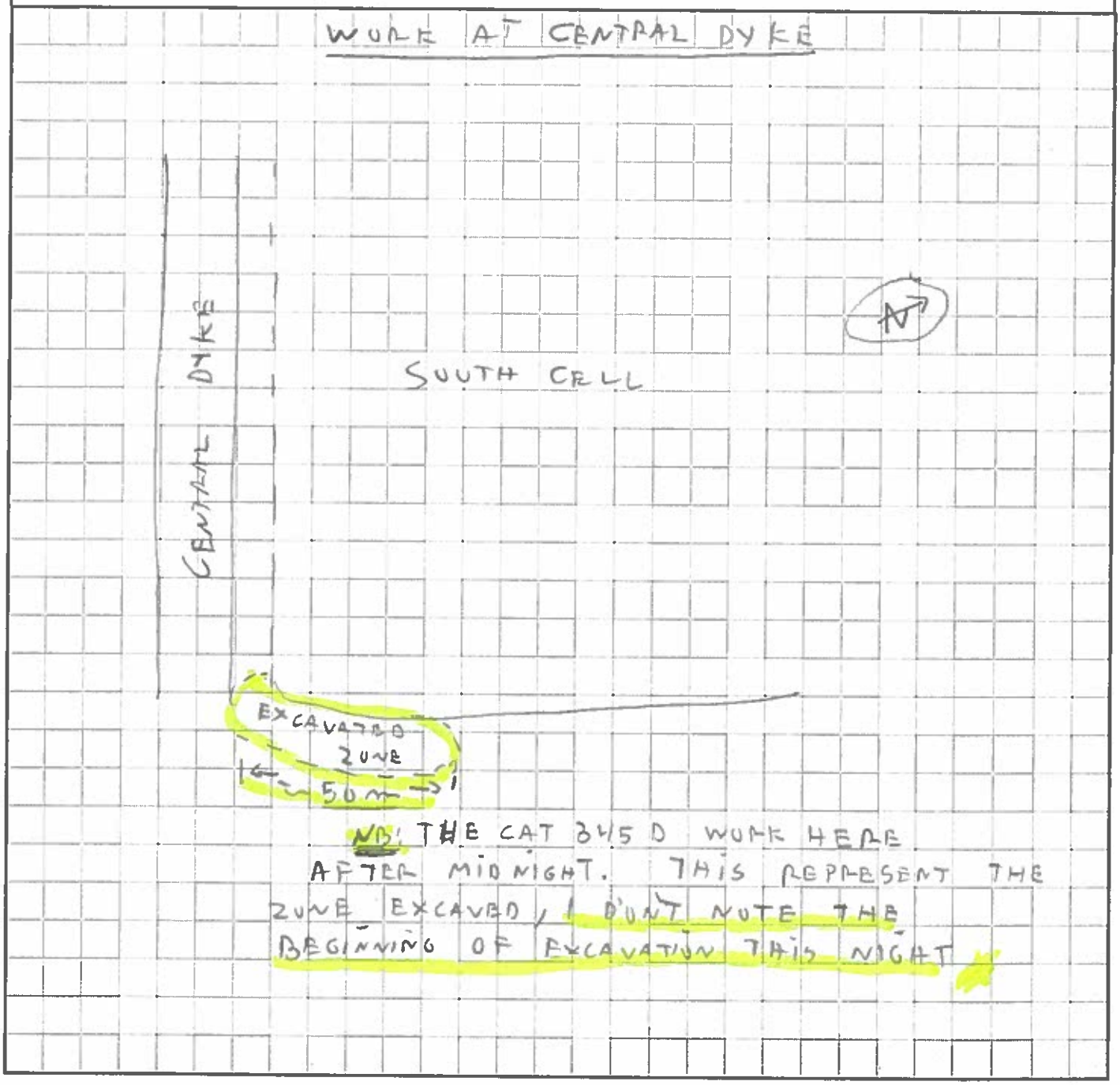
Client: A.E.M	Projet no.: 1111 8538-B1
Projet: SADDLE DAM 3-4-5	Page 1 de 2
Date d'inspection: 2017-08-06 NIGHT SHIFT	



Préparé par: Hugues Potvin Vérifié par: _____

Plan/Croquis

Client: A.E.M	Projet no.: 11118538-B1
Projet: Sossle dom 3-4-5	Page 2 de 2
Date d'inspection: 2017-08-06 NIGHT	



Préparé par: Hamyes Bolin Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 7-Aug-17 **Inspector - Day/Night:** Sébastien Blackburn \ Cédrick Fillon Tremblay, Day shift

Weather : Cloudy

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Rockfill placement, compaction, disposing excavated material and sloping.

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

- **Excavation on SD-3. (see sketch join to the report)**
- **Placement of rockfill and sloping on SD-4. (see sketch join to the report)**
- **Compaction on SD-5. (see sketch join to the report)**
- **-Excavation on SD-3 foundation. (see sketch join to the reportj**

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Komat'Su PC 450LC, D8 dozer, Haule trucks, Packer 10 tonnes

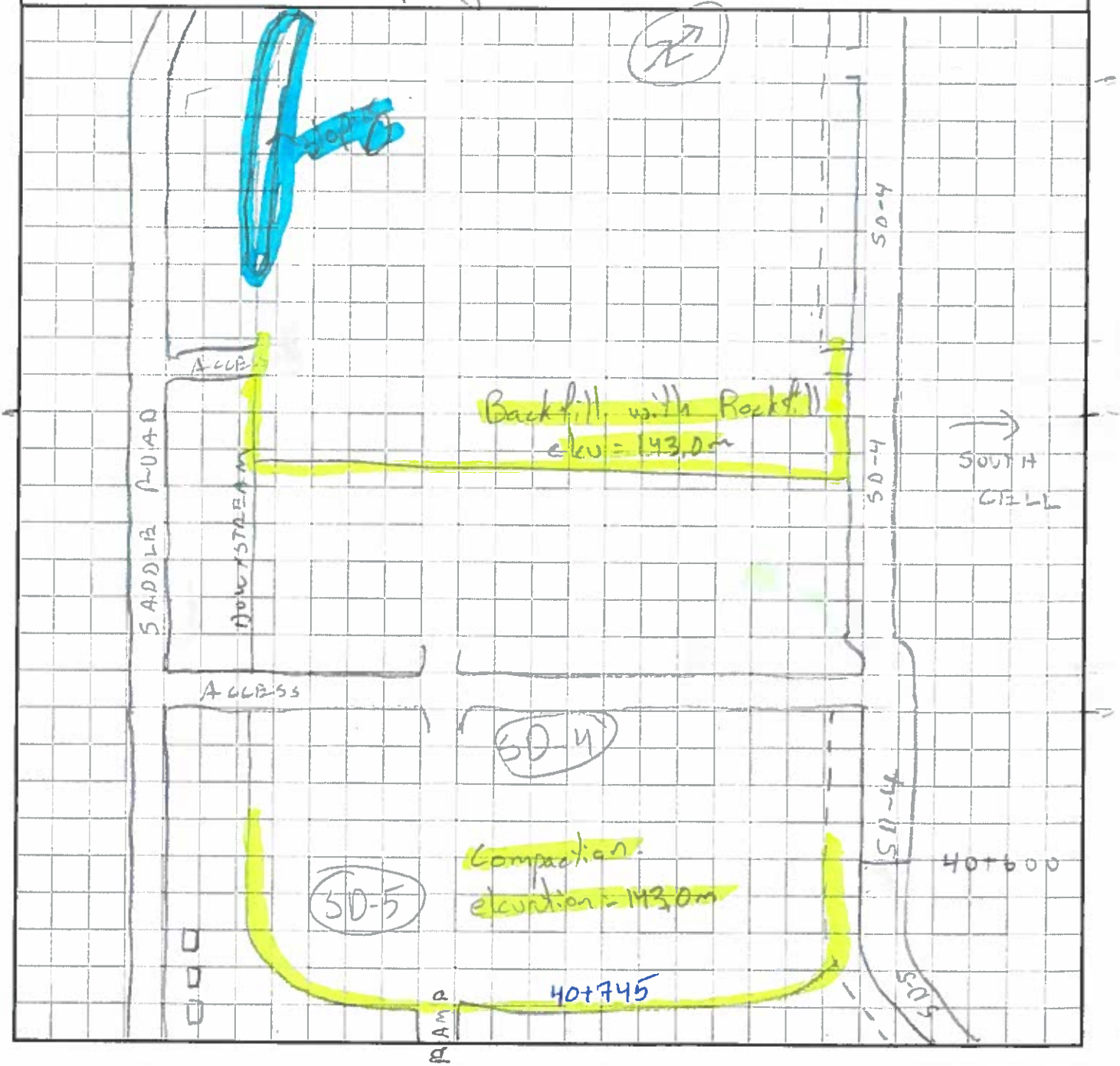
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

Client: A.E.M	Projet no.: 11118538-B1
Projet: SADDLE DAM 3-4-5	Page 1 de 3
Date d'inspection: 2017-08-07 / day shift	

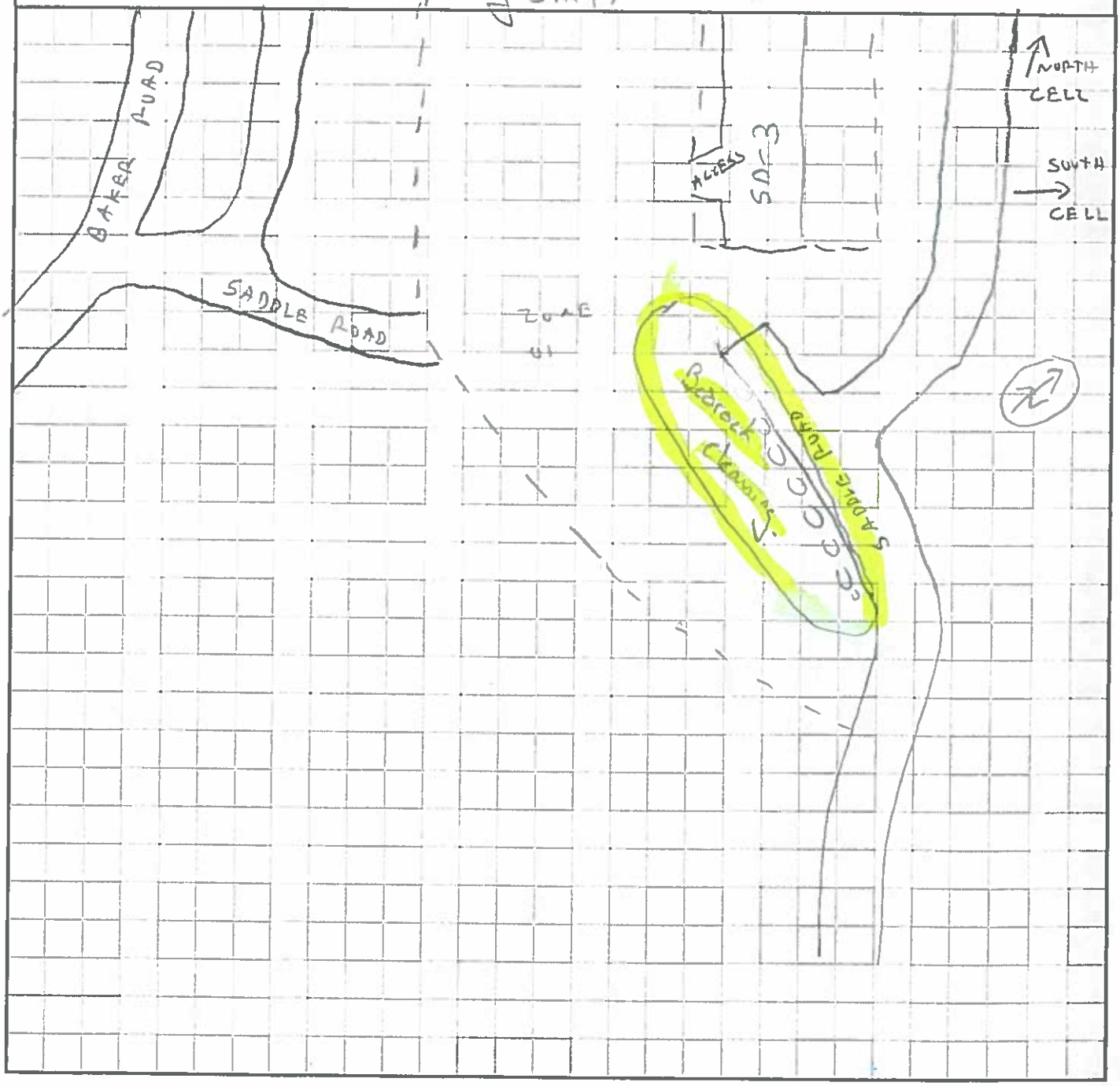


Préparé par: S.B. and

Vérifié par:

Plan/Croquis

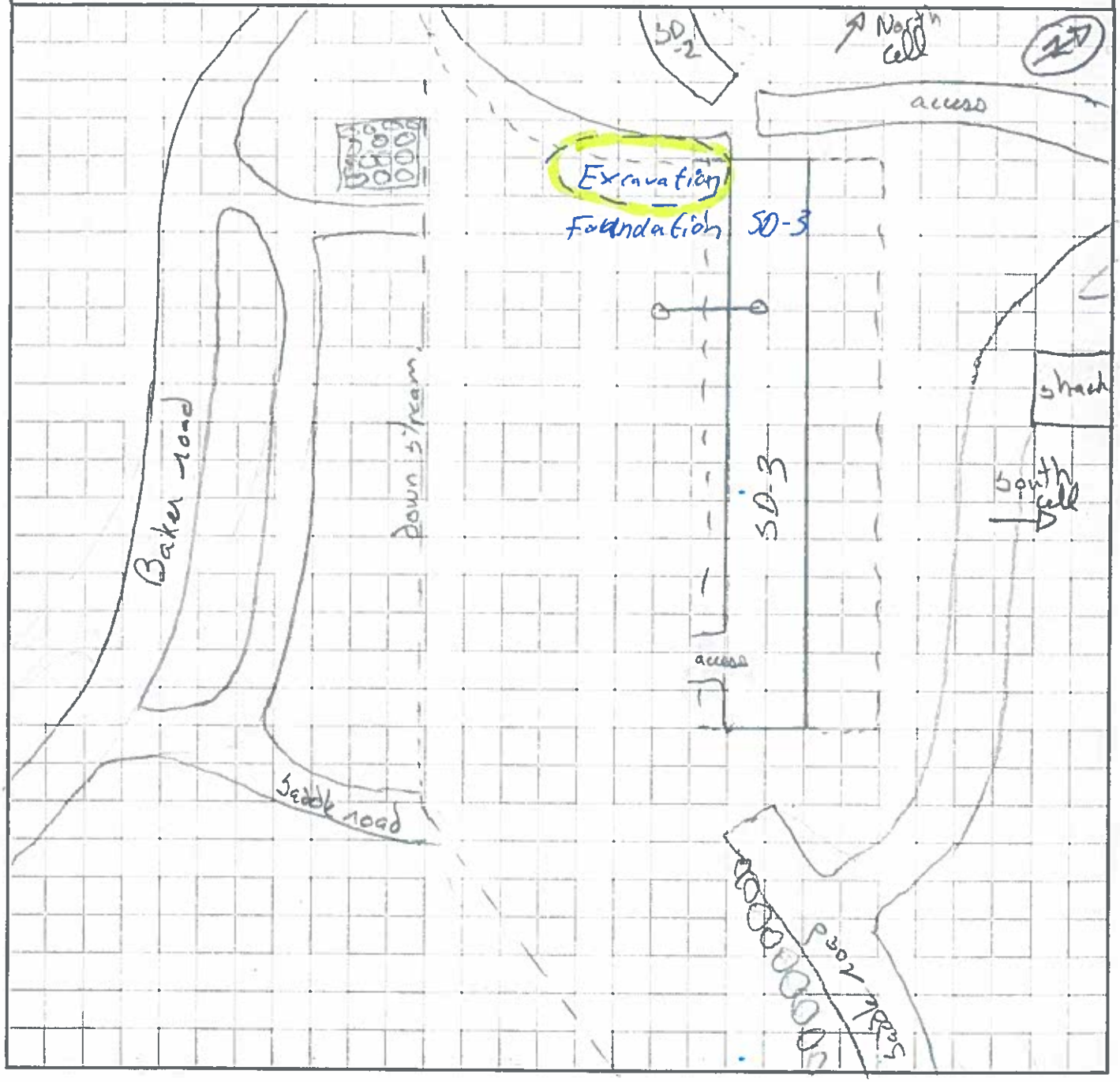
Client: A.E.M	Projet no.: 11118538-B1
Projet: SADDLE DAM 3-4-5	Page 2 de 3
Date d'inspection: 2017-08-07 / day shift	



Préparé par: SB and _____ Vérifié par: _____

Plan/Croquis

Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 3 de 3
Date d'inspection: 2017-	



Préparé par: Ludovic Fille-Tremblay Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 7-Aug-17 **Inspector - Day/Night:** Pierrick Trecasse, night shift

Weather : sunny

Project: Saddle dams 3 and 4 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description : QC activities.

Cleanup of bedrock to SD3 and loading of excavated till . (see skeich)

Placement of rockfill to SD4. El.143.00m (see sketch)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345, Hauletrucks

Dozer D8T

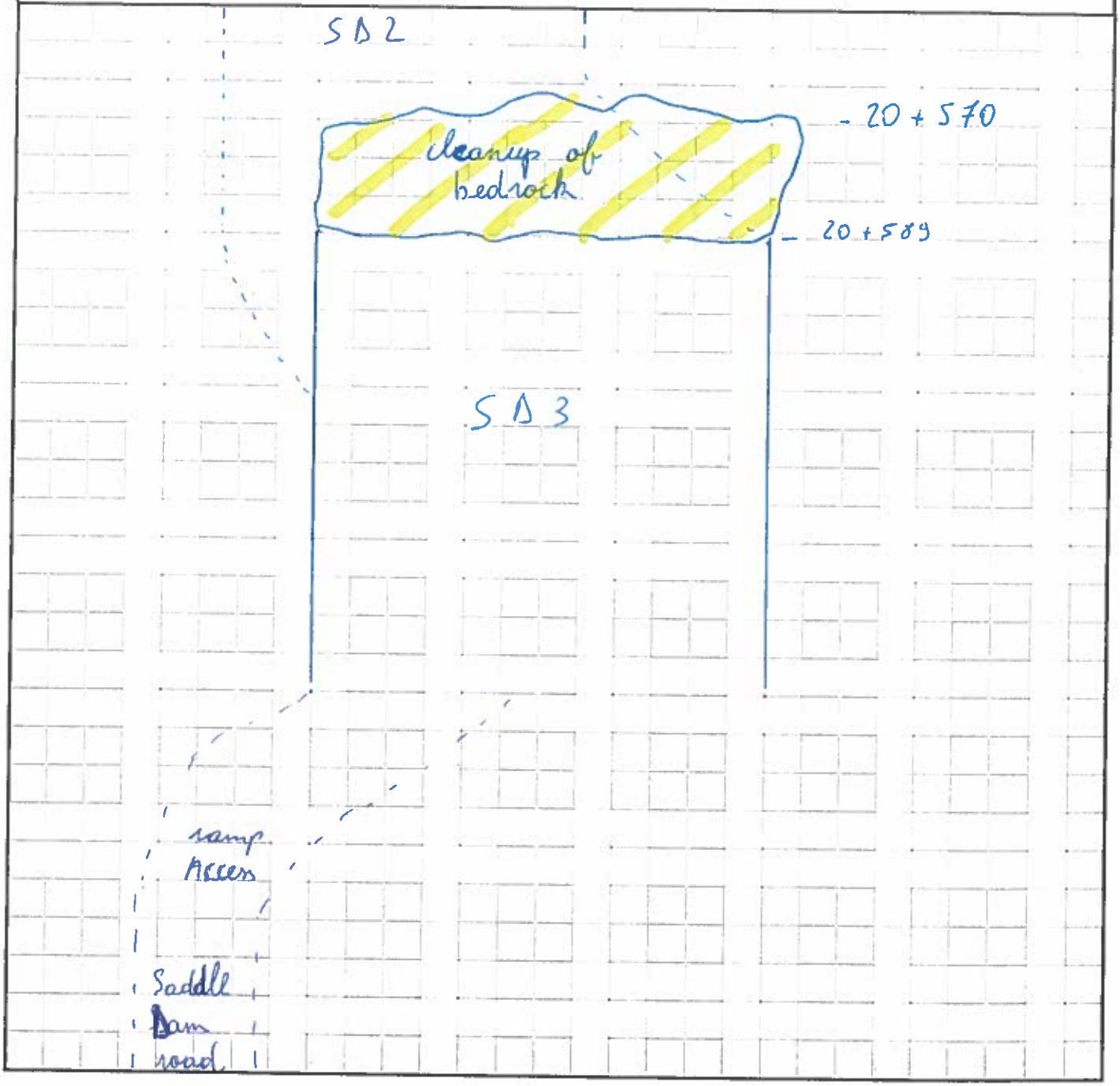
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

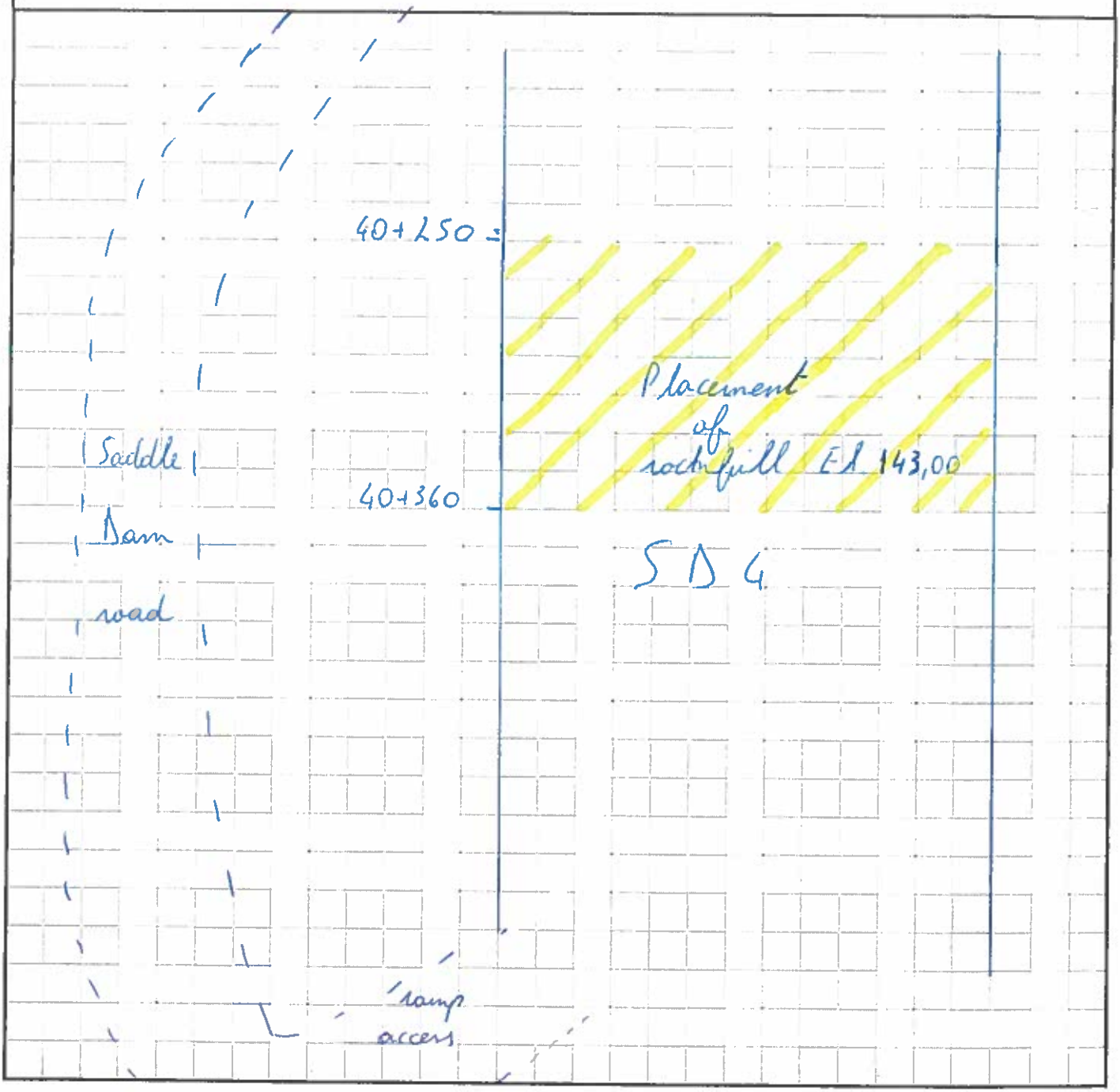
Client: AEM	Projet no.: 11 11 85 35
Projet: SD3/SD2	Page 1 de 1
Date d'inspection: 07-08-2017	



Préparé par: T. Pierich Vérifié par:

Plan/Croquis

Client: AEM	Projet no.: 11185 38 - B1
Projet: SD 4	Page 1 de 1
Date d'inspection: 07 - 08 - 2017	



Préparé par: Pierrich Trecasse Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 8-Aug-17 **Inspector - Day/Night:** Cédrick Fillon Tremblay, Day shift

Weather : Sunny and cloudy

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Rockfill placement, compaction, disposing excavated material.

General Activities: see work in progress

Soft Sediment Excavation	☑	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☑	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☑		

Description:

-Scarify,compaction bumper and make the slope on SD-3. (see sketch join to the report)

-Clean the last section of foundation on SD-3 at connection of SD-3 and SD-2. (see sketch join to the report)

-Start of scarify and compaction surface on SD-4. (see sketch join to the report)

-Finish the rock fill placement on SD-4. (see sketch join to the report)

-Start the next lift on SD-3. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Komat'Su PC 450LC \ loader (50% \ 50%), D8 dozer, Haule trucks, Packer 10 tonnes

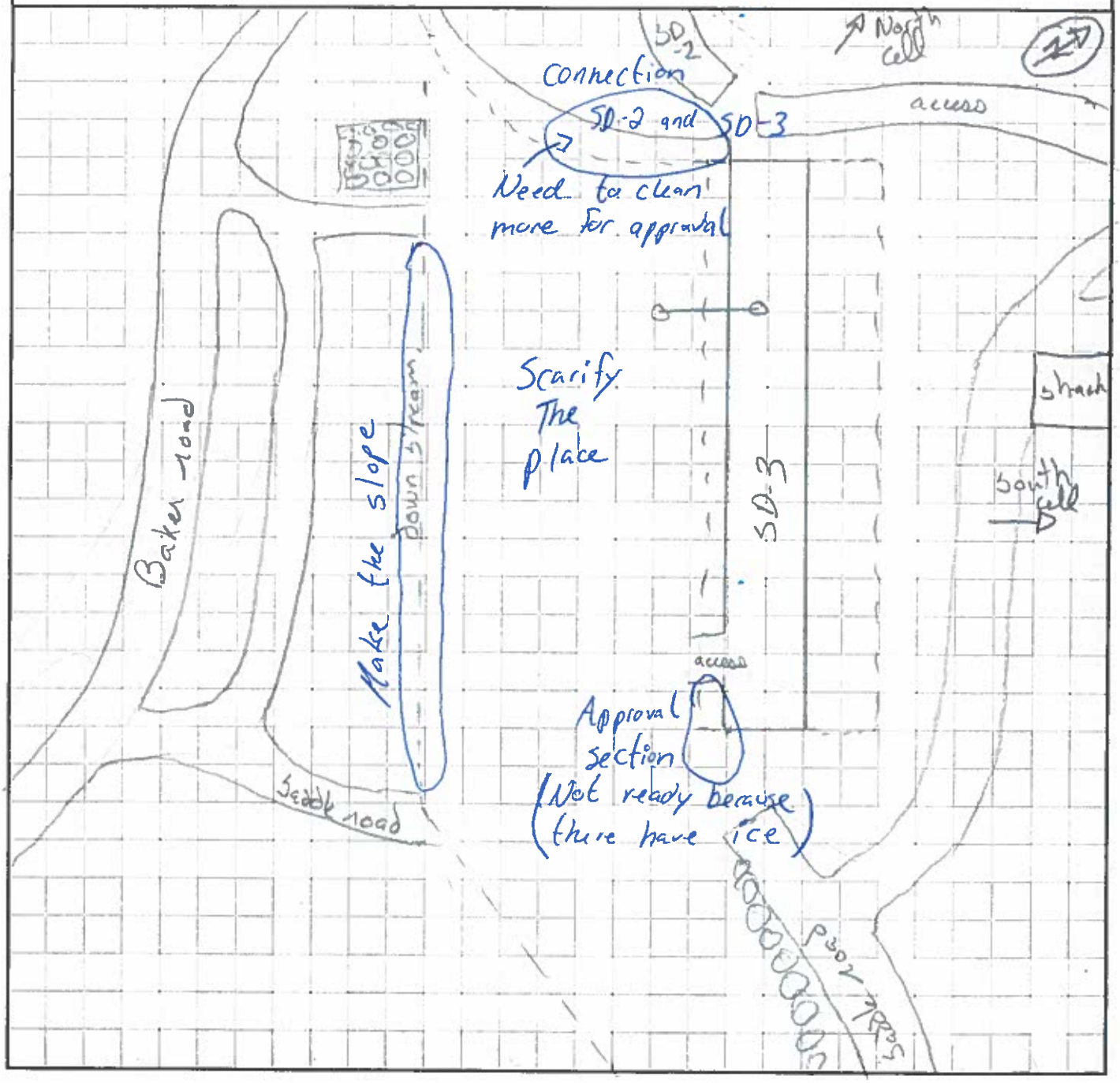
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Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

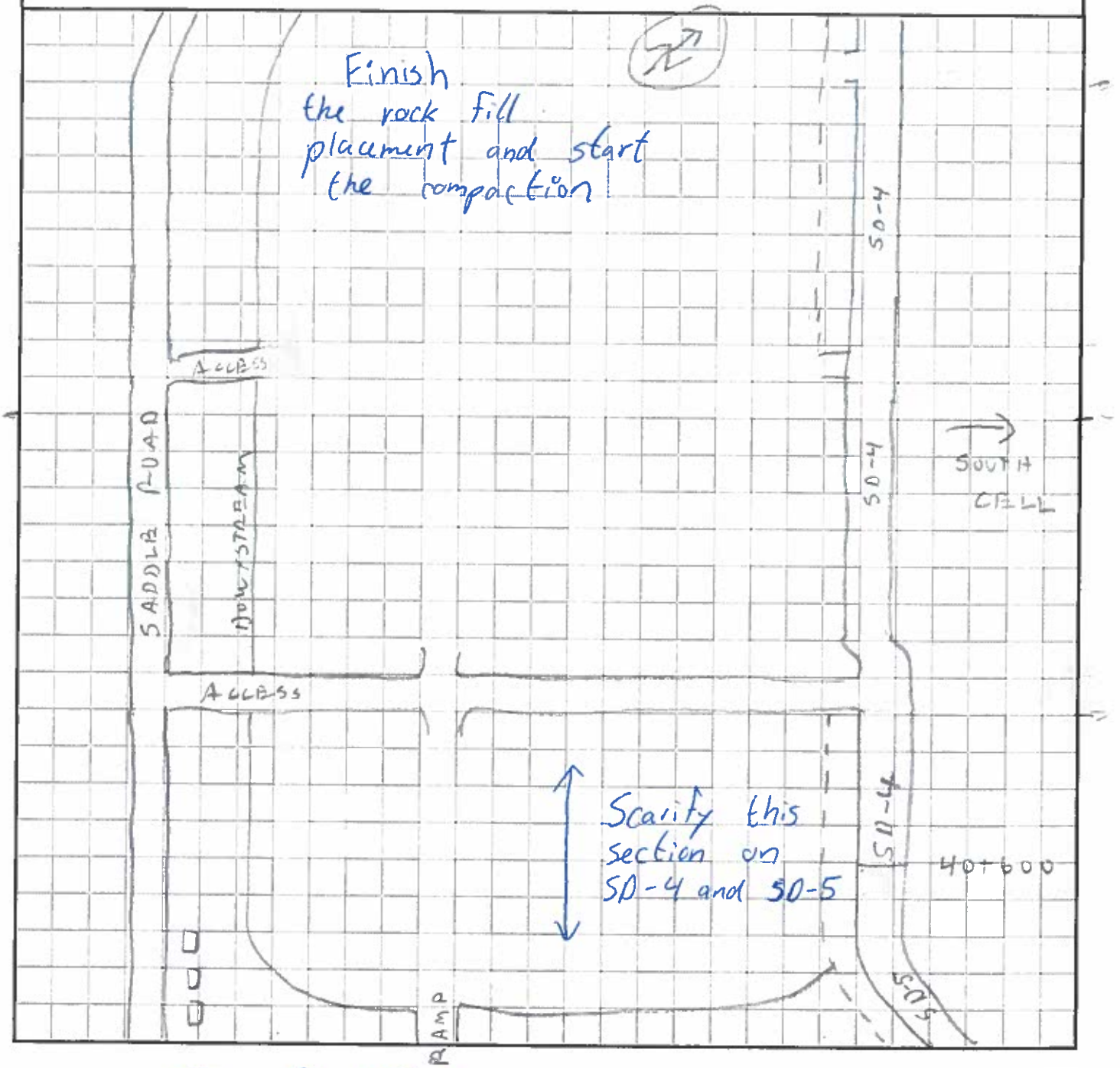
Client: A.E.M.	Projet no.: 1118538-B1
Projet: Saddle dam 3-4-5	Page 1 de 2
Date d'inspection: 2017-	



Préparé par: Ludwig Fils Fevrier Vérifié par: _____

Plan/Croquis

Client: A.E.M	Projet no.: 1111 8538-B1
Projet: SADDLE DAM 3-4-5	Page 2 de 2
Date d'inspection: 2017-	



Préparé par: Edwards Filler Lundberg Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 8-Aug-17 **Inspector - Day/Night:** Pierrick Trecasse, night shift

Weather : sunny

Project: Saddle dams 3 and 4 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description : QC activities.

Cleanup of bedrock to SD3 and loading of excavated till . (see sketch)

Placement of rockfill to SD3 El.143.00m (see sketch)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345, Hauletrucks

Dozer D8T

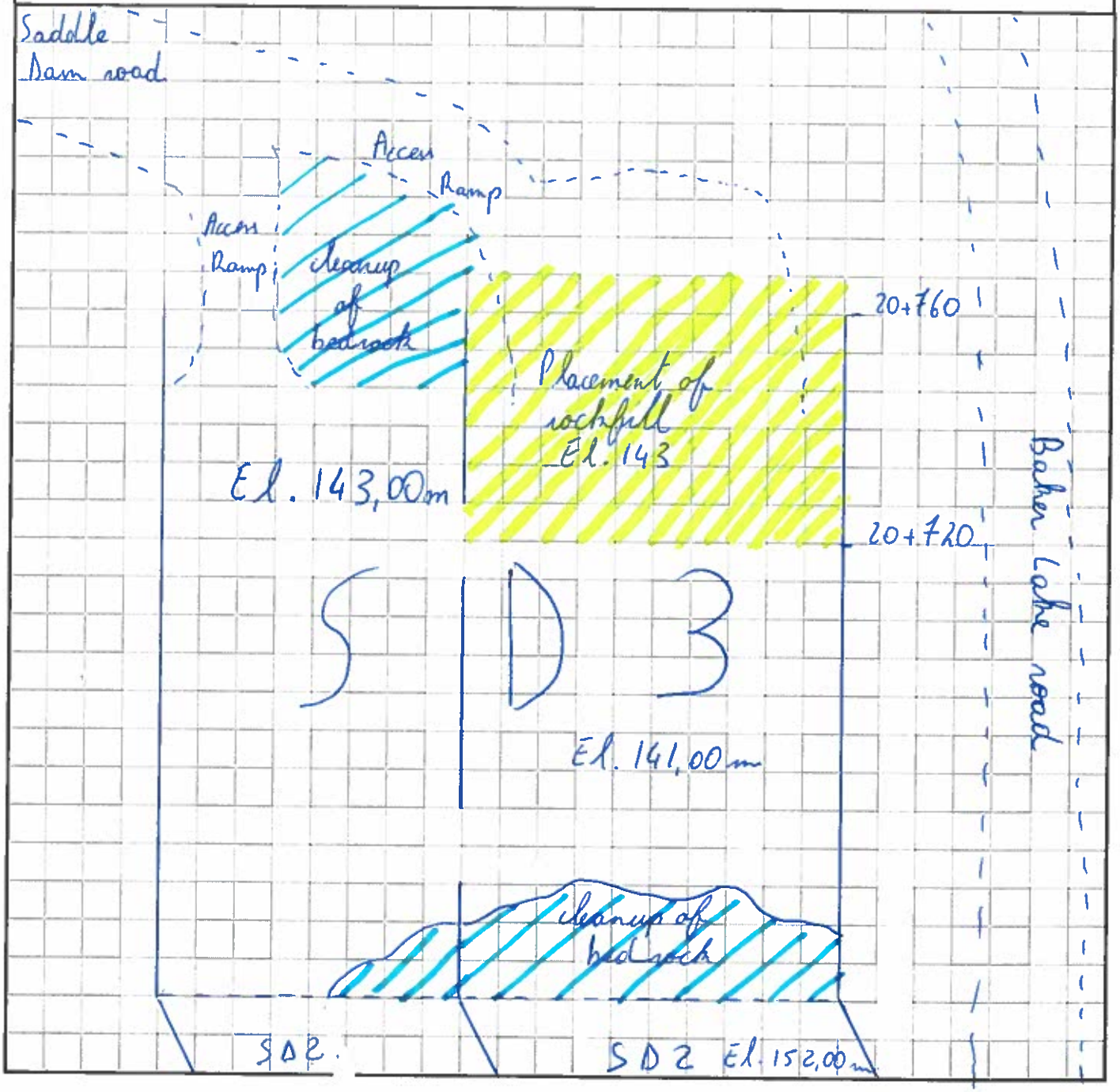
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Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

Client: AEM	Projet no.: 11118538
Projet: SD3	Page 1 de 1
Date d'inspection: 08-08-2017	



Préparé par: T. Pierrick

Vérifié par:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 9-Aug-17 **Inspector - Day/Night:** Cédrick Fillon Tremblay, Day shift

Weather : Sunny and cloudy

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Rockfill placement, compaction, disposing excavated material.

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

-Rock fill placement on SD-3. (see sketch join to the report)

-Clean the section on north and south of SD-3 for approval . (see sketch join to the report)

-Make the approval on north ans south section on SD-3. (see sketch join to the report)

-Compaction on SD-4. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Komat'Su PC 450LC \ loader (50% \ 50%), D8 dozer, Haule trucks, Packer 10 tonnes

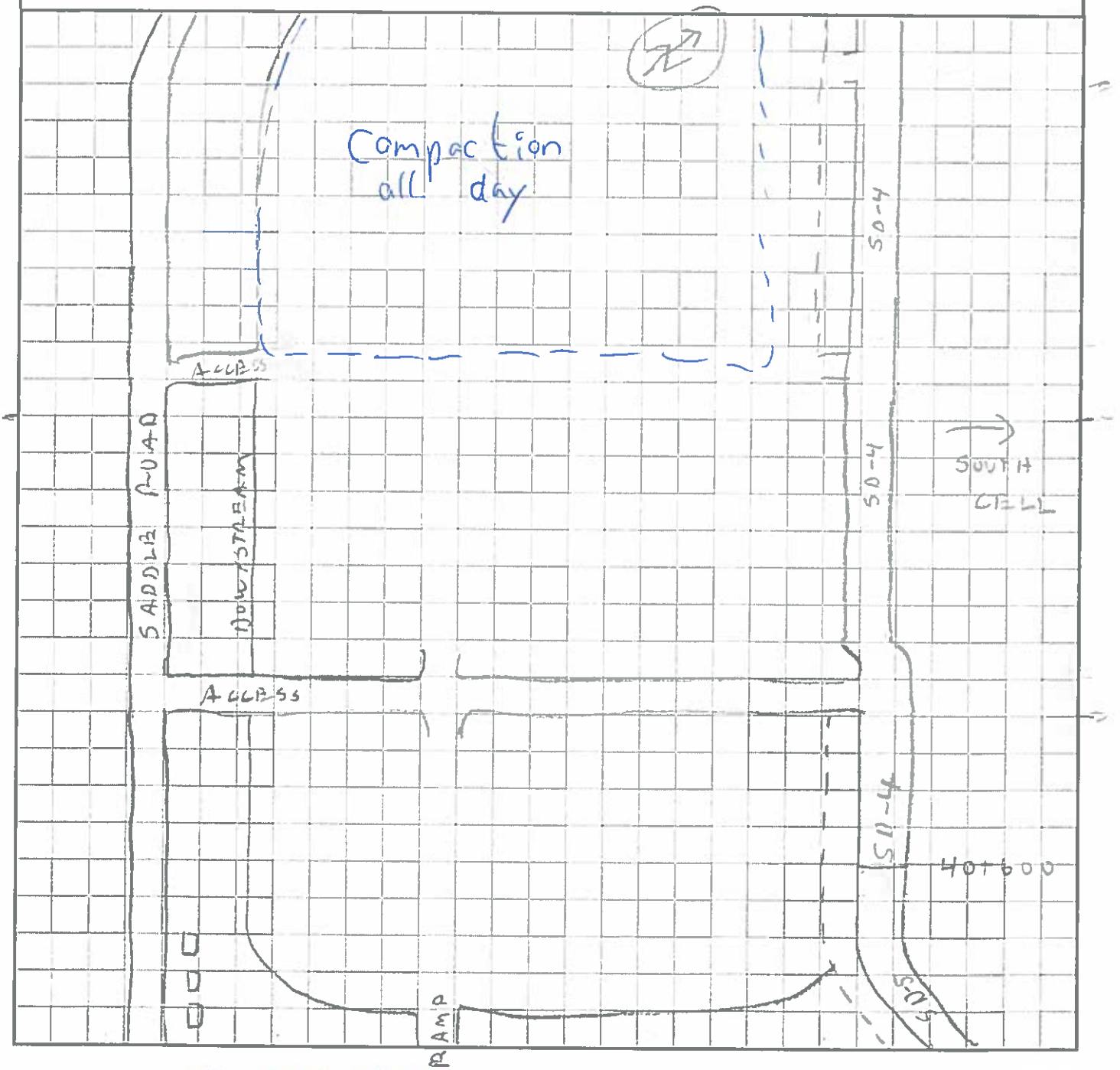
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Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

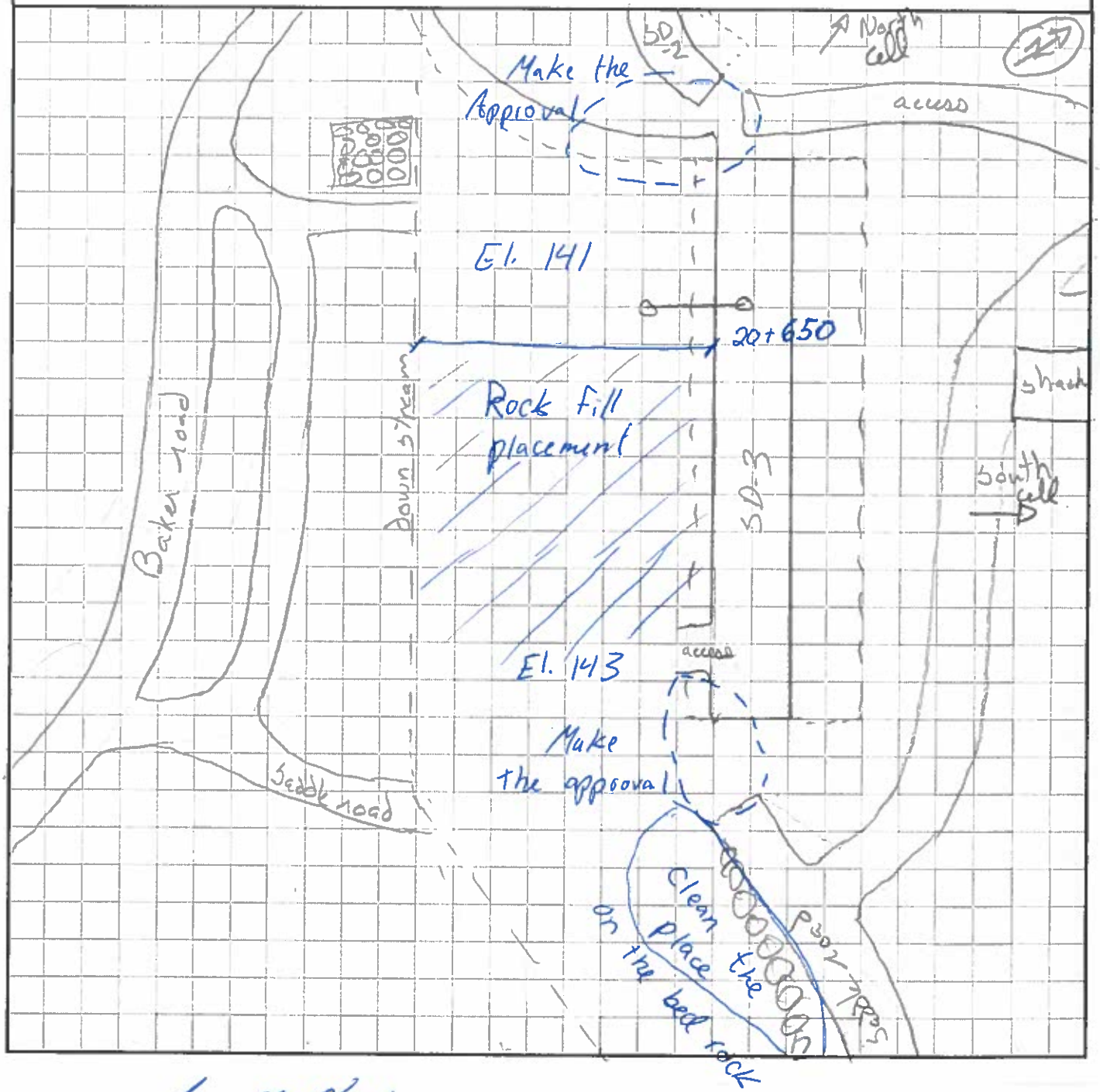
Client: A.E.M	Projet no.: 1111 8538-B1
Projet: SADDLE DAM 3-4-5	Page 1 de 1
Date d'inspection: 2017-	



Préparé par: Vérifié par:

Plan/Croquis

Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 2 de 2
Date d'inspection: 2017-	



Préparé par: _____ Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 9-Aug-17 **Inspector - Day/Night:** Pierrick Trecasse, night shift

Weather : sunny

Project: Saddle dams 3 and 4 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description : QC activities.

Cleanup of bedrock to SD3 and loading of excavated till . (see sketch)

Finish to placement of rockfill to SD3 El.143.00m (see sketch)

Before putting another lift , the loader has to scarify SD4.

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345, Hauletrucks

Dozer D8T

Loader

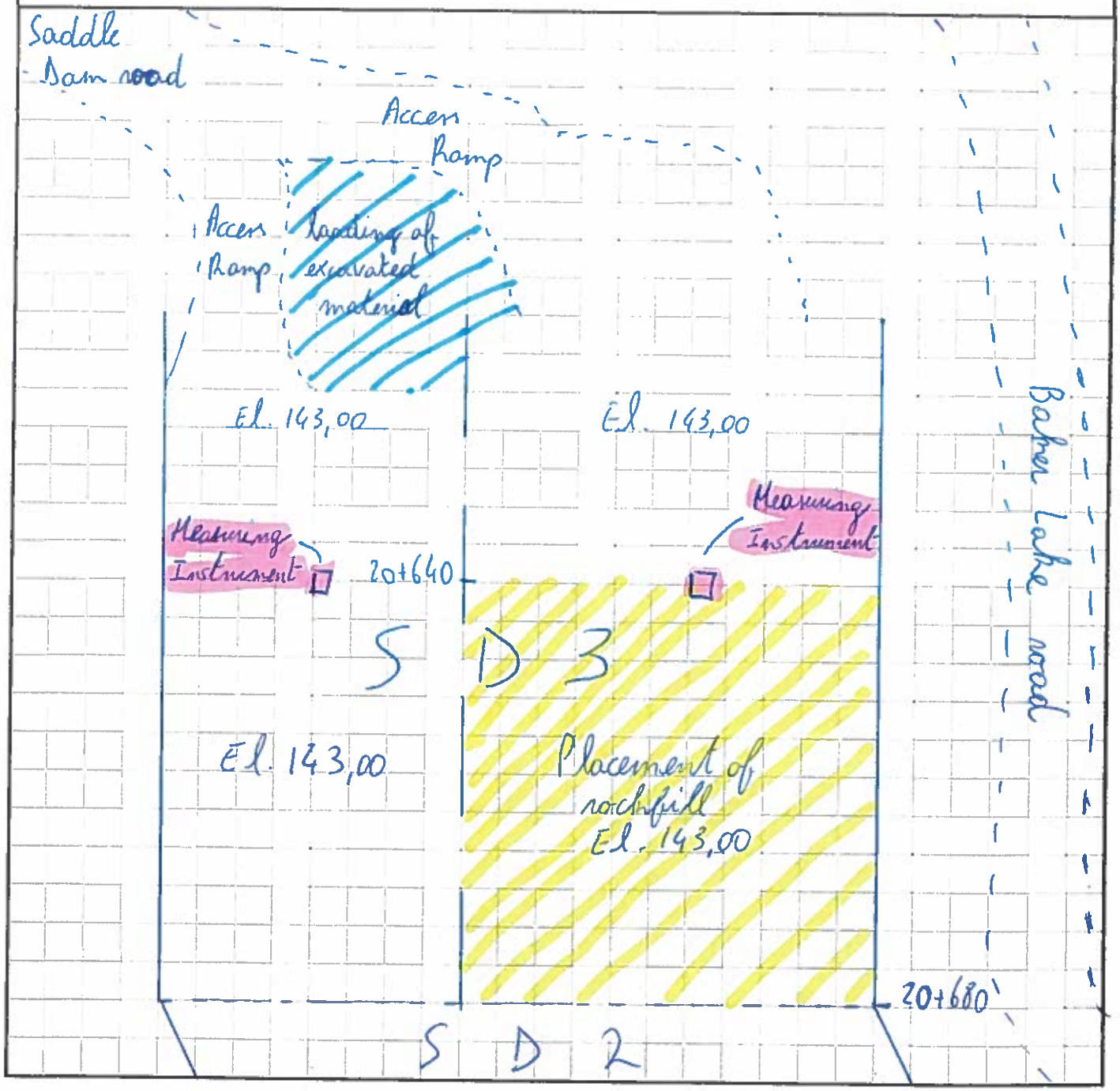
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

Client: AEM	Projet no.: 11 11 85 38
Projet: SD3	Page 1 de 1
Date d'inspection: 09-08-2017	



Préparé par: T. Pienich

Vérifié par:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 10-Aug-17 **Inspector - Day/Night:** Cédrick Fillon Tremblay, Day shift

Weather : cloudy and sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Rockfill placement, compaction, disposing excavated material.

General Activities: see work in progress

Soft Sediment Excavation		Key Excavation		Coarse Filter		Drilling/Blasting	
Foundation Preparation		LLDPE/Geotextile		Till			
Water Control		Fine Filter		Rockfill			

Description:

-compaction on lift SD-3 at 143 El. (see sketch join to the report)

-Clean the section in south of SD-3. (see sketch join to the report)

-Make the approval on south in SD-3 (#29). (see sketch join to the report)

-Start to make the lift on SD-4 at 145 El. (see sketch join to the report)

-Compaction of the bumper and make the slope on SD-4. (see sketch join to the report)

-Take simple of Till on north at Central Dike. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Komat'Su PC 450LC \ loader (50% \ 50%), D8 dozer, Haule trucks, Packer 10 tonnes

Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Croquis

Client: A.E.M	Projet no.: 1111 8538-B1
Projet: SADDLE DAM 3-4-5	Page 1 de 4
Date d'inspection: 2017-	



Préparé par: Ludovic Gilbert Fremy Vérifié par: _____

Plan/Croquis

Client: A.E.M	Projet no.: 1111 8538-B1
Projet: SADDLE DAM 3-4-5	Page 2 de 4
Date d'inspection: 2017-08-	



Préparé par: _____ Vérifié par: _____

Plan/Croquis

Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 3 de 4
Date d'inspection: 2017-	

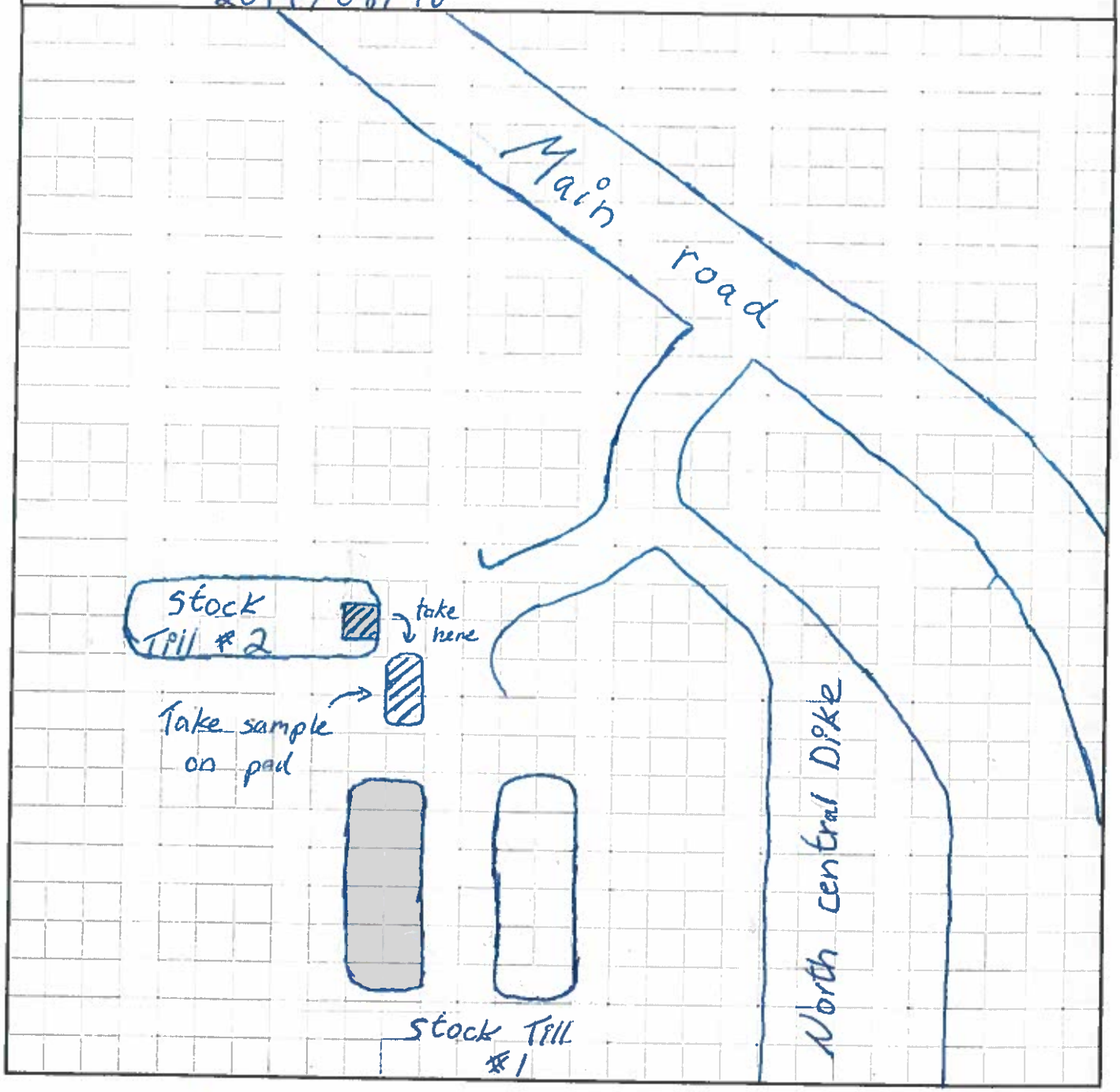


Préparé par: Ludwik Eike Tremblay

Vérifié par:

Plan/Croquis

Client: A.E.M	Projet no.: 11118538-B1
Projet: Saddle Dam 3-4-5	Page 1 de 4
Date d'inspection: 2017/08/10	



Préparé par: Vérifié par:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 10-Aug-17 **Inspector - Day/Night:** Pierrick Trecasse, night shift

Weather : sunny

Project: Saddle dams 3 and 4 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description : QC activities.

Cleanup of bedrock to SD3 and loading of excavated till . (see sketch)

Placement of rockfill to SD4. (see sketch)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345, Hauletrucks

Dozer D8T

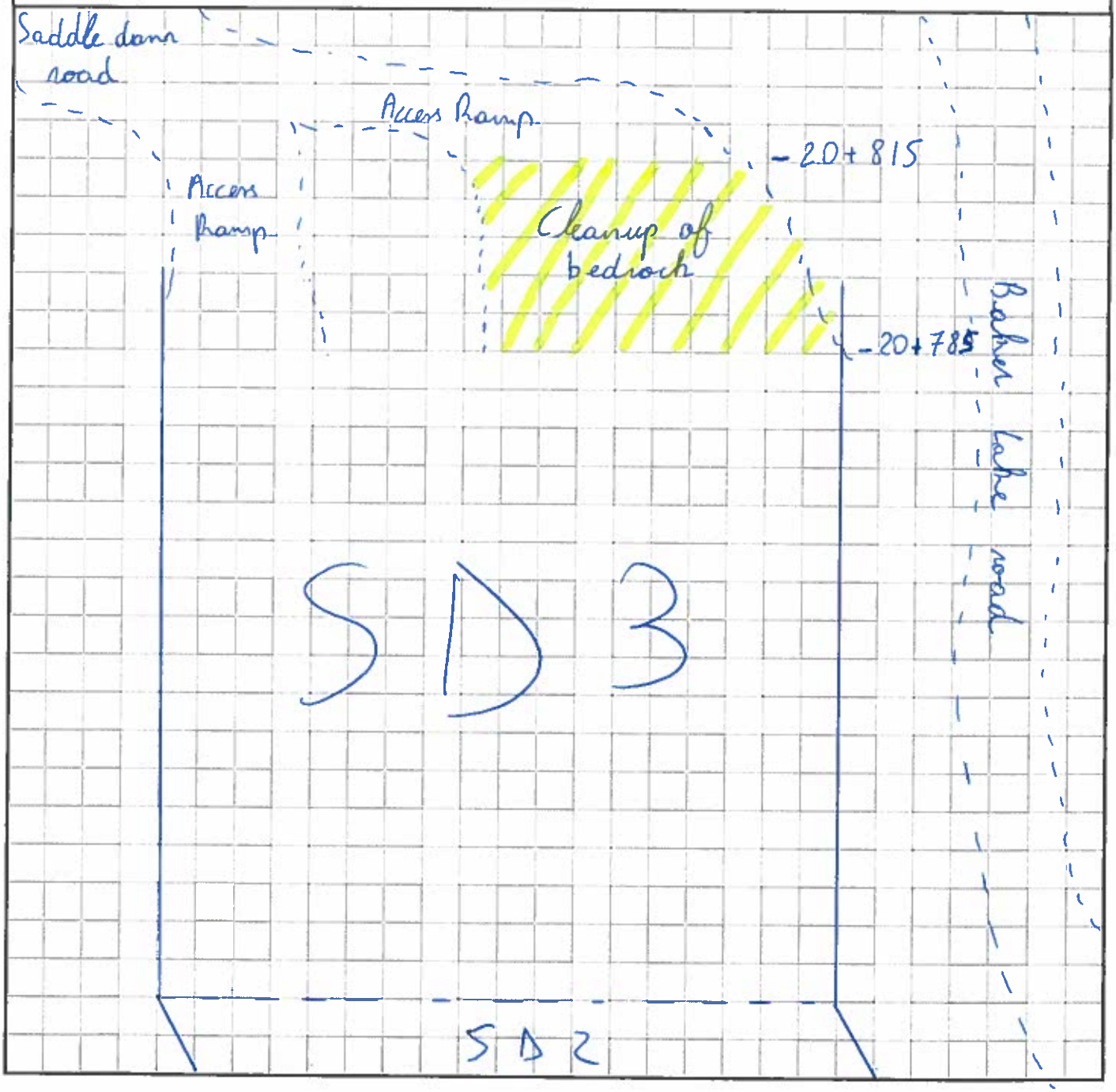
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Photos Location:

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Plan/Croquis

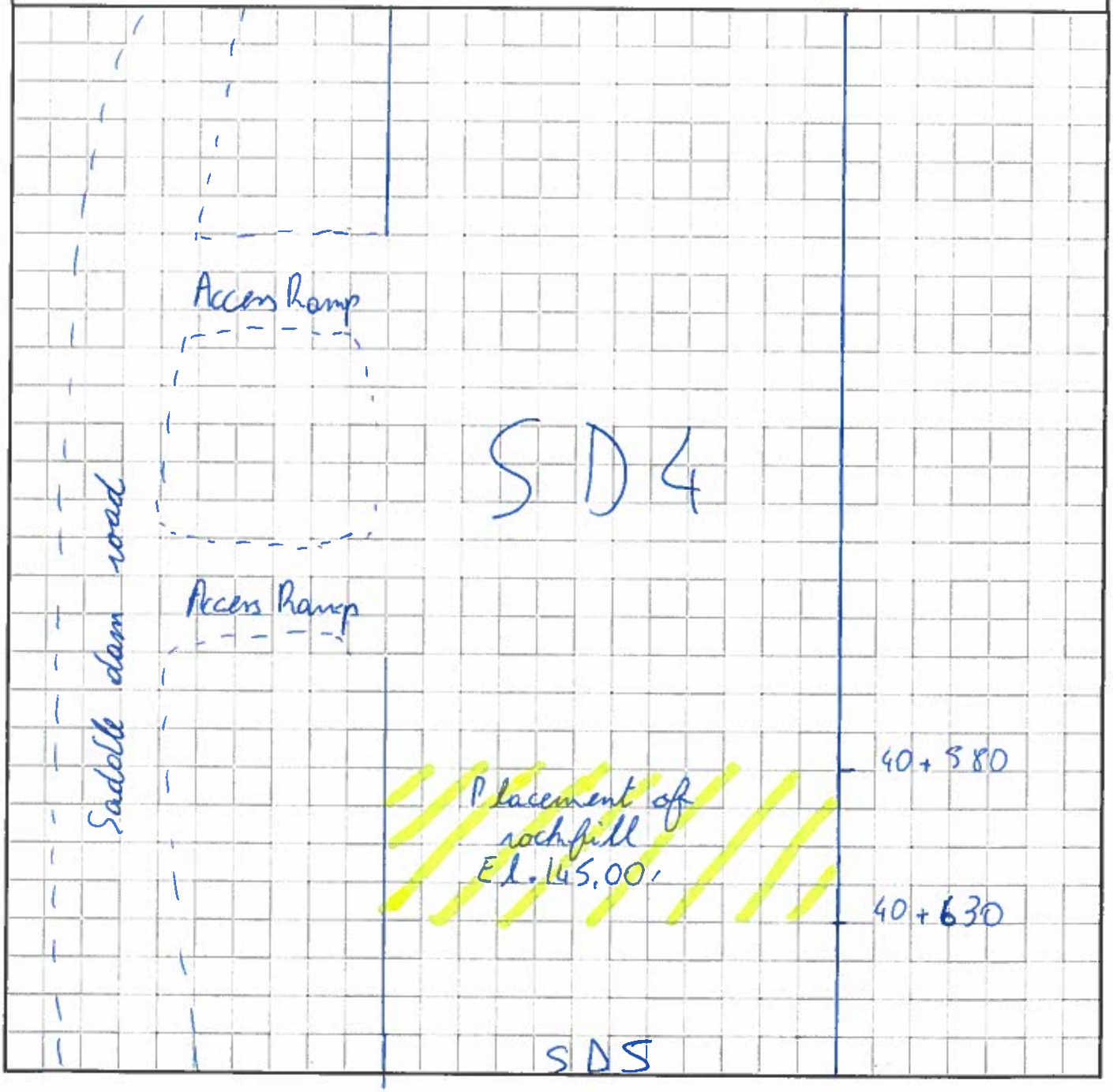
Client: AEM	Projet no.: 11 11 85 38 - B1
Projet: SD3	Page 1 de 1
Date d'inspection: 10 - 08 - 2017	



Préparé par: T. Pinnick Vérifié par: _____

Plan/Croquis

Client: AEM	Projet no.: 11 11 85 38 - B1
Projet: SD4	Page 1 de 1
Date d'inspection: 10 - 08 - 2017	



Préparé par: T. Pieruch Vérifié par: _____

E:\Meadowbank 2017\Daily inspection report\Août 2017\[QC-Daily Inspection Report 2017-08-11 Day Shift.xls]Daily Report

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 11-Aug-17 **Inspector - Day/Night:** Cédrick Fillon Tremblay, Day shift

Weather : cloudy

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Rockfill placement, compaction, disposing excavated material.

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

-Finish the lift SD-3 at 143 El. (see sketch join to the report)

-Make the approval in south of SD-3 (#30). (see sketch join to the report)

-Continue the lift on SD-4 at 145 El. (see sketch join to the report)

-Take simple of Till on north at Centrale Dike(#433). (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Komat'Su PC 450LC \ loader (50% \ 50%), D8 dozer, Haule trucks, Packer 10 tonnes

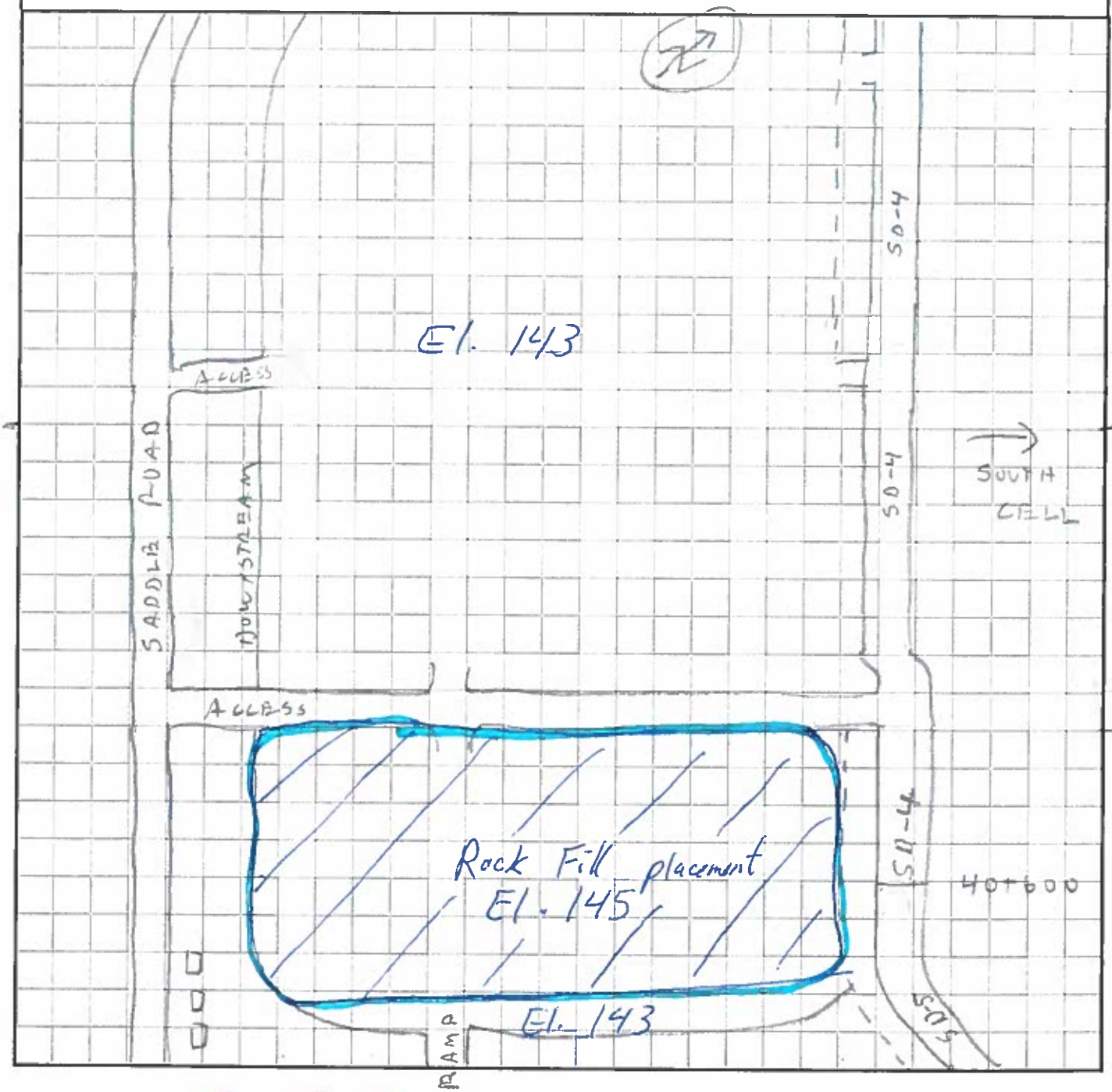
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Photos Location:

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Plan/Croquis

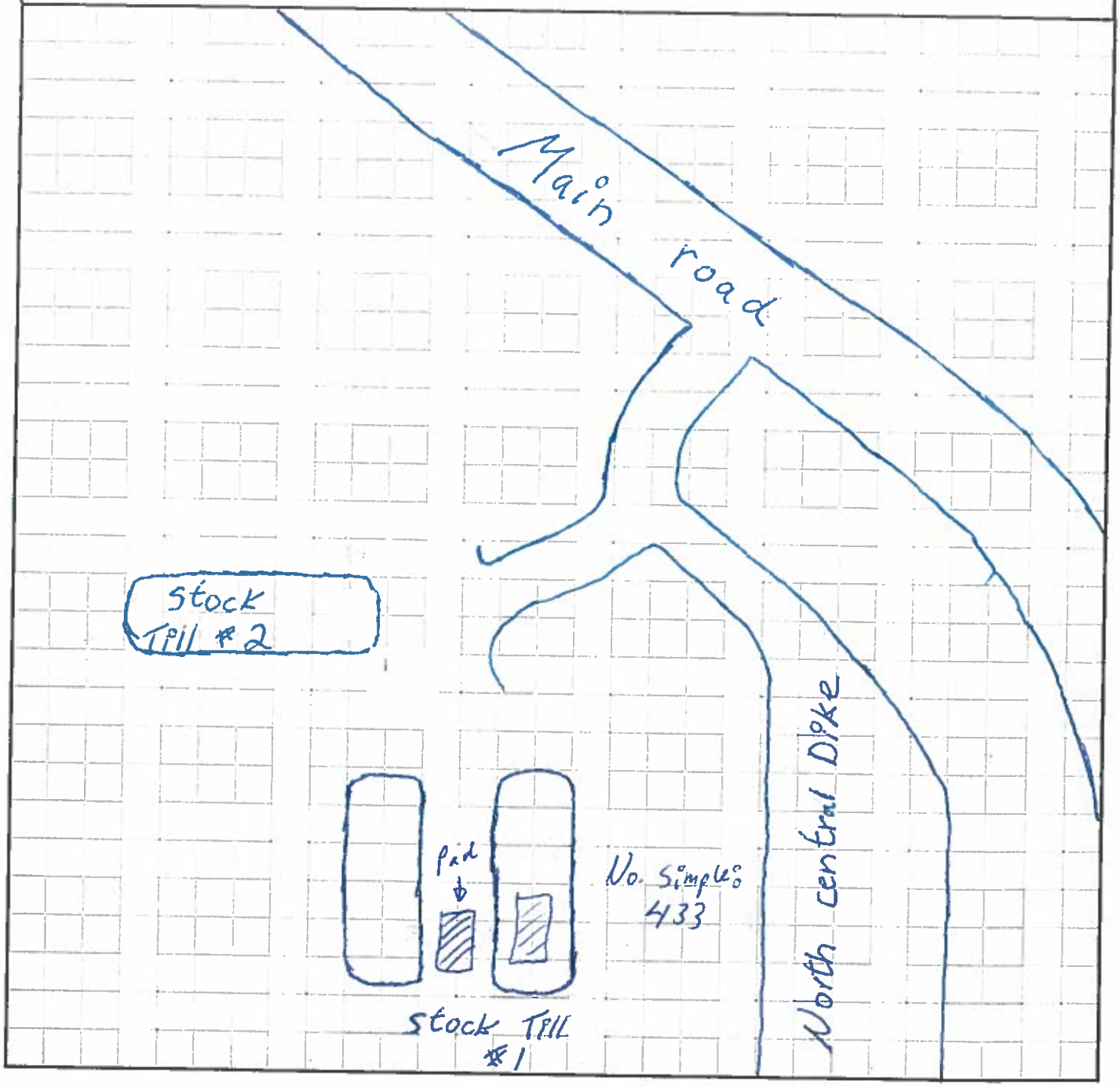
Client: A.E.M	Projet no.: 11118538-B1
Projet: SADDLE DAM 3-4-5	Page 1 de 3
Date d'inspection: 2017-08-03 NIGHT SHIFT	



Préparé par: Vérifié par:

Plan/Croquis

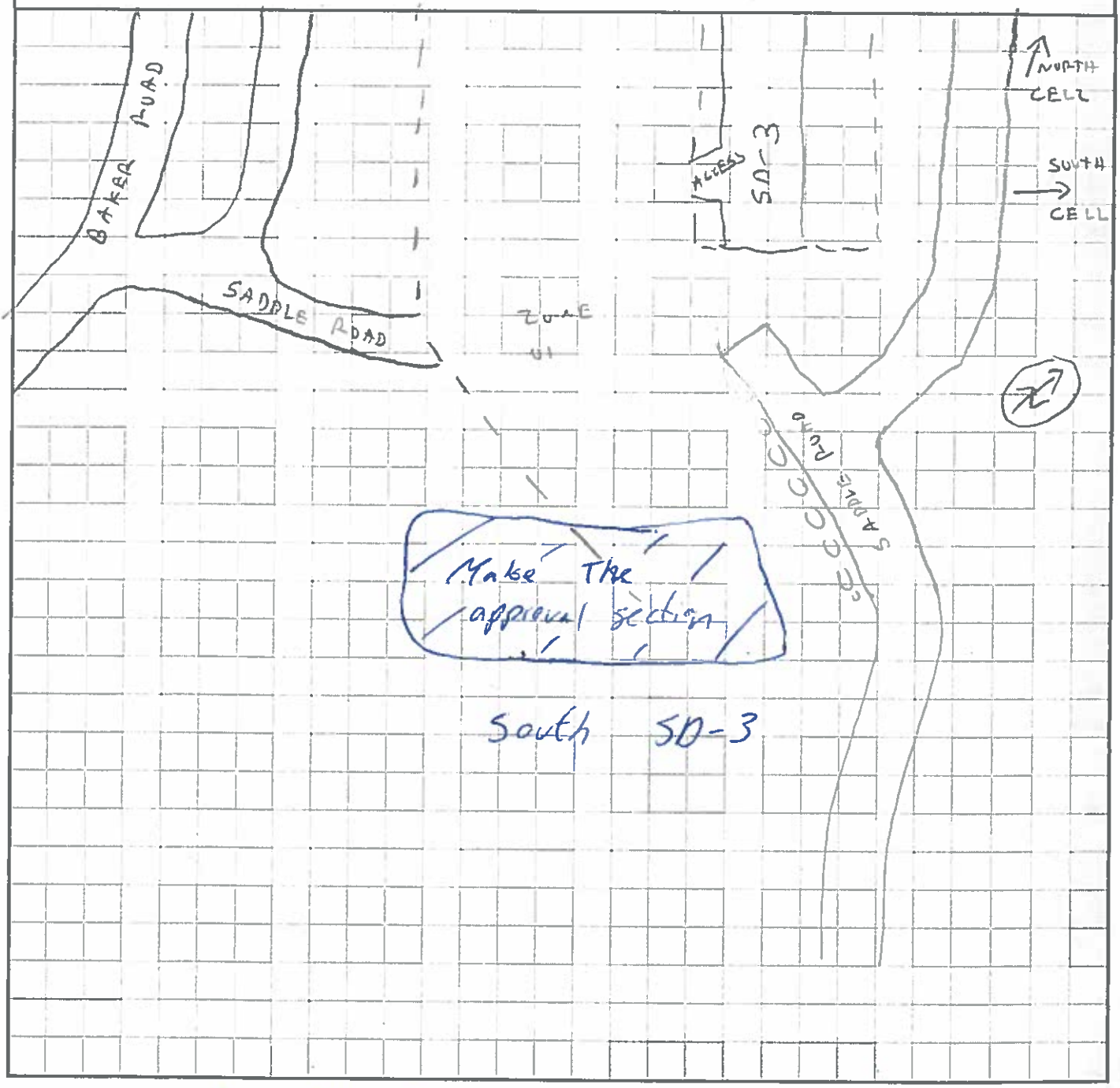
Client:	Projet no.:
Projet:	Page 2 de 3
Date d'inspection:	



Préparé par: Vérifié par:

Plan/Croquis

Client: A.E.M	Projet no.: 11118538-B1
Projet: SADDLE DAM 3-4-5	Page 3 de 3
Date d'inspection: 2017-08-	



Préparé par: Edwards Kelly Family Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 11-Aug-17 **Inspector - Day/Night:** Pierrick Trecasse, night shift

Weather : sunny

Project: Saddle dam 5 and C-D **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description : QC activities.

Cleanup of bedrock to C-D and loading of excavated till . (see sketch)

Placement of rockfill to SD4. (see sketch) El. 145,00

Placement of rockfill to SD5. (see sketch) El. 145,00

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345, Hauletrucks

Dozer D8T

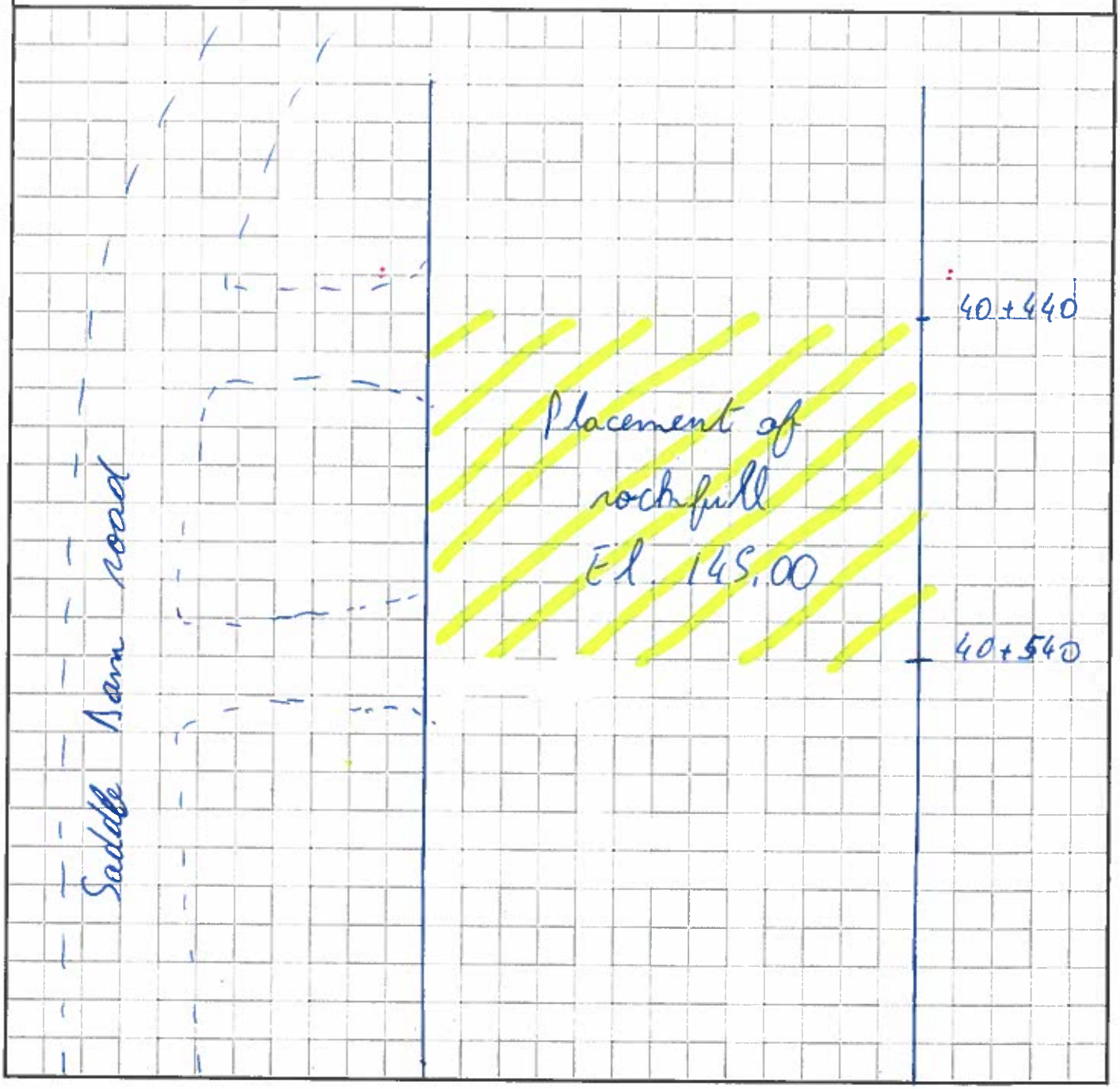
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

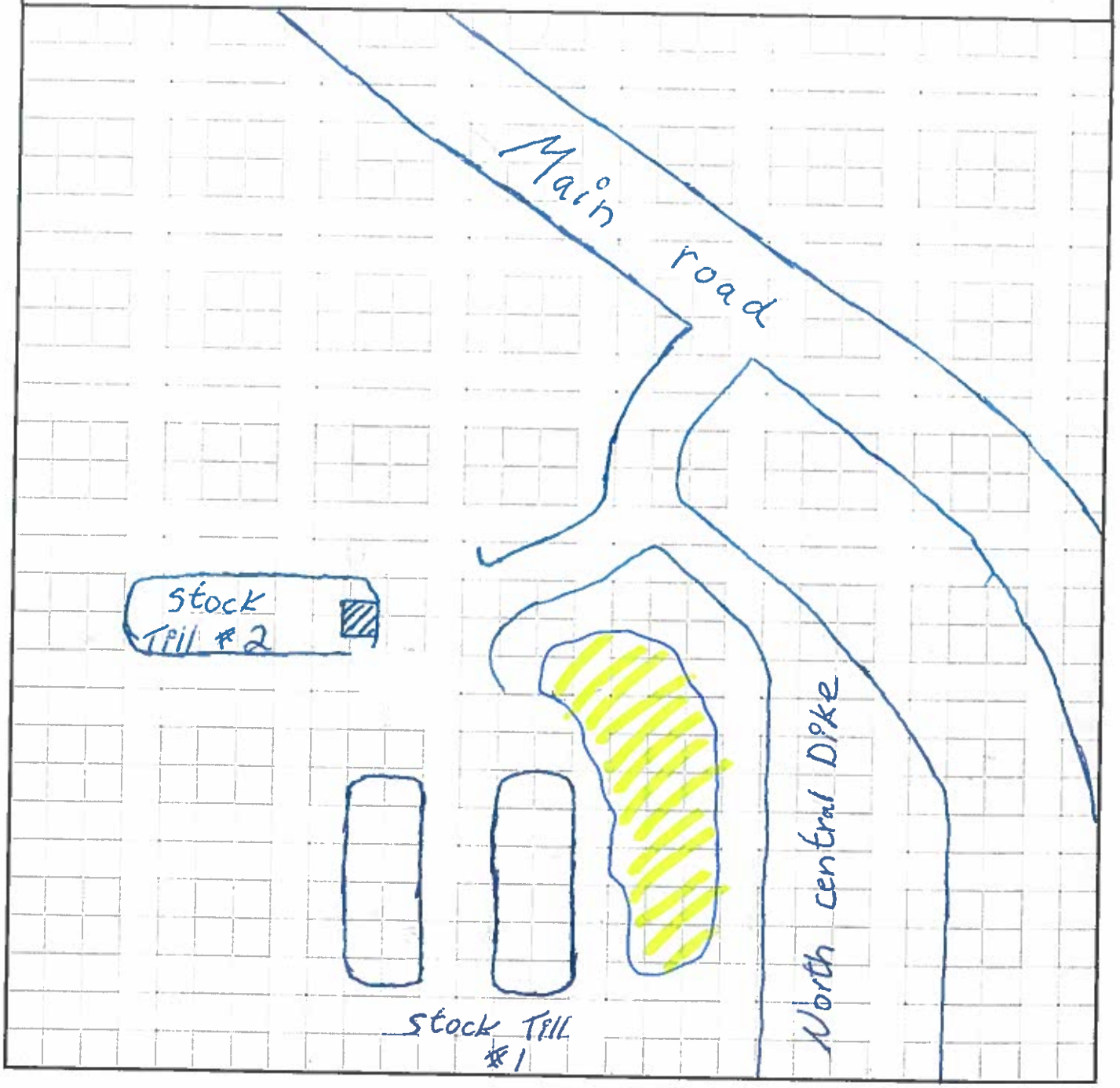
Client: AEM	Projet no.: 11 11 85 38 - B1
Projet: SDS	Page 1 de 1
Date d'inspection:	



Préparé par: T. Pierrich Vérifié par: _____

Plan/Croquis

Client: AEM	Projet no.: 11 11 85 38 - B1
Projet: C - D	Page 1 de 1
Date d'inspection: 11 - 08 - 2017	



Préparé par: T. Pieuch Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 12-Aug-17 **Inspector - Day/Night:** Cédrick Fillon Tremblay, Day shift

Weather : cloudy

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Rockfill placement, compaction, disposing excavated material.

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

-Scarify on SD-3 at 143 El. (see sketch join to the report)

-Excavation on north at Centrale Dike for the invern filter. (see sketch join to the report)

-Rick fill placemant on SD-4 at 145 El. (see sketch join to the report)

-Take simple of Till on material in Pit E (#433). (see sketch)oin to the report)

-Take simple of fine filter on material in Pit D (#433). (see sketch join to the report)

Start the invern filter on SD-4 and SD-5 for El. 145. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Komat'Su PC 450LC \ loader (50% \ 50%), D8 dozer, Haule trucks, Packer 10 tonnes

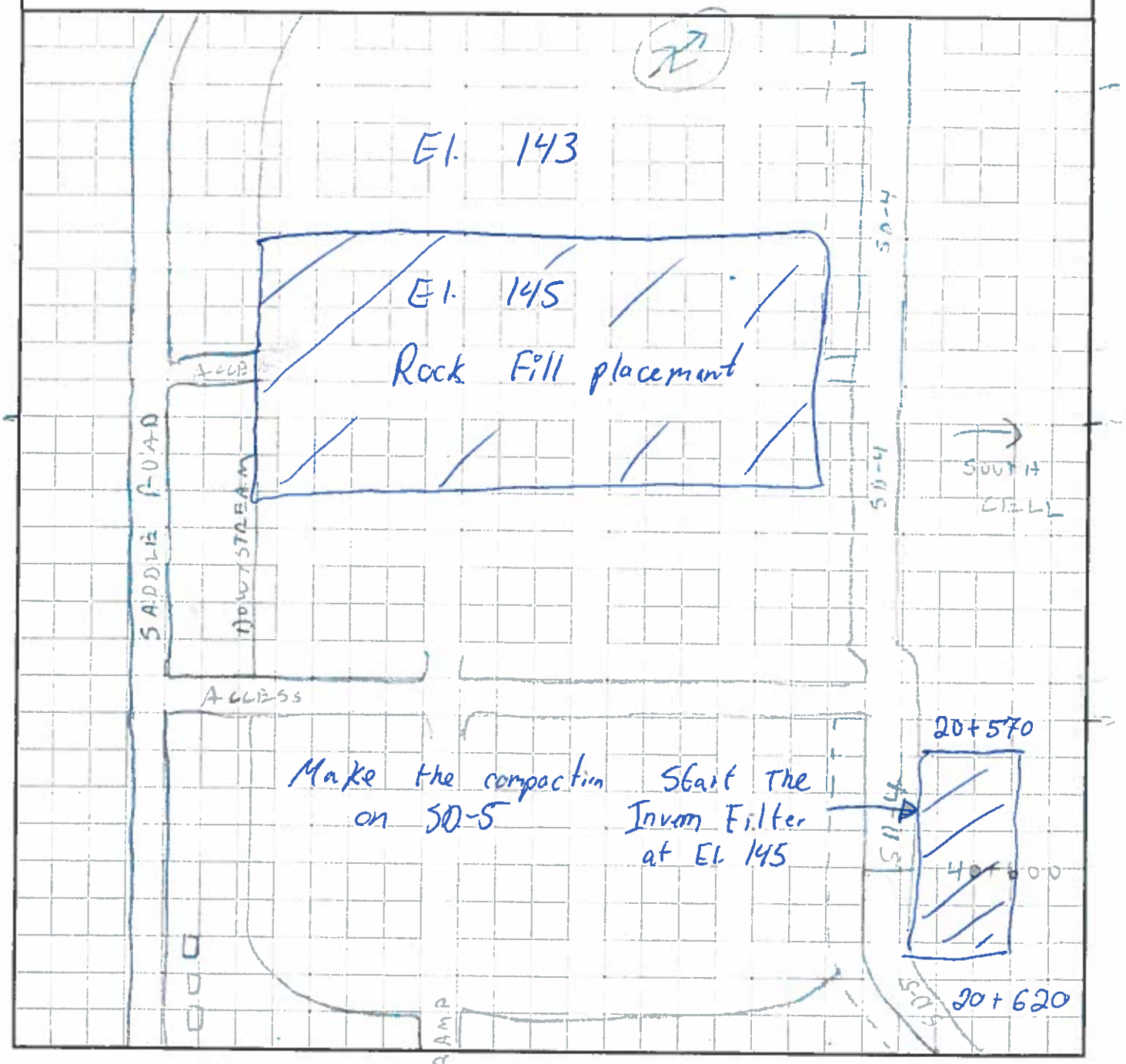
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

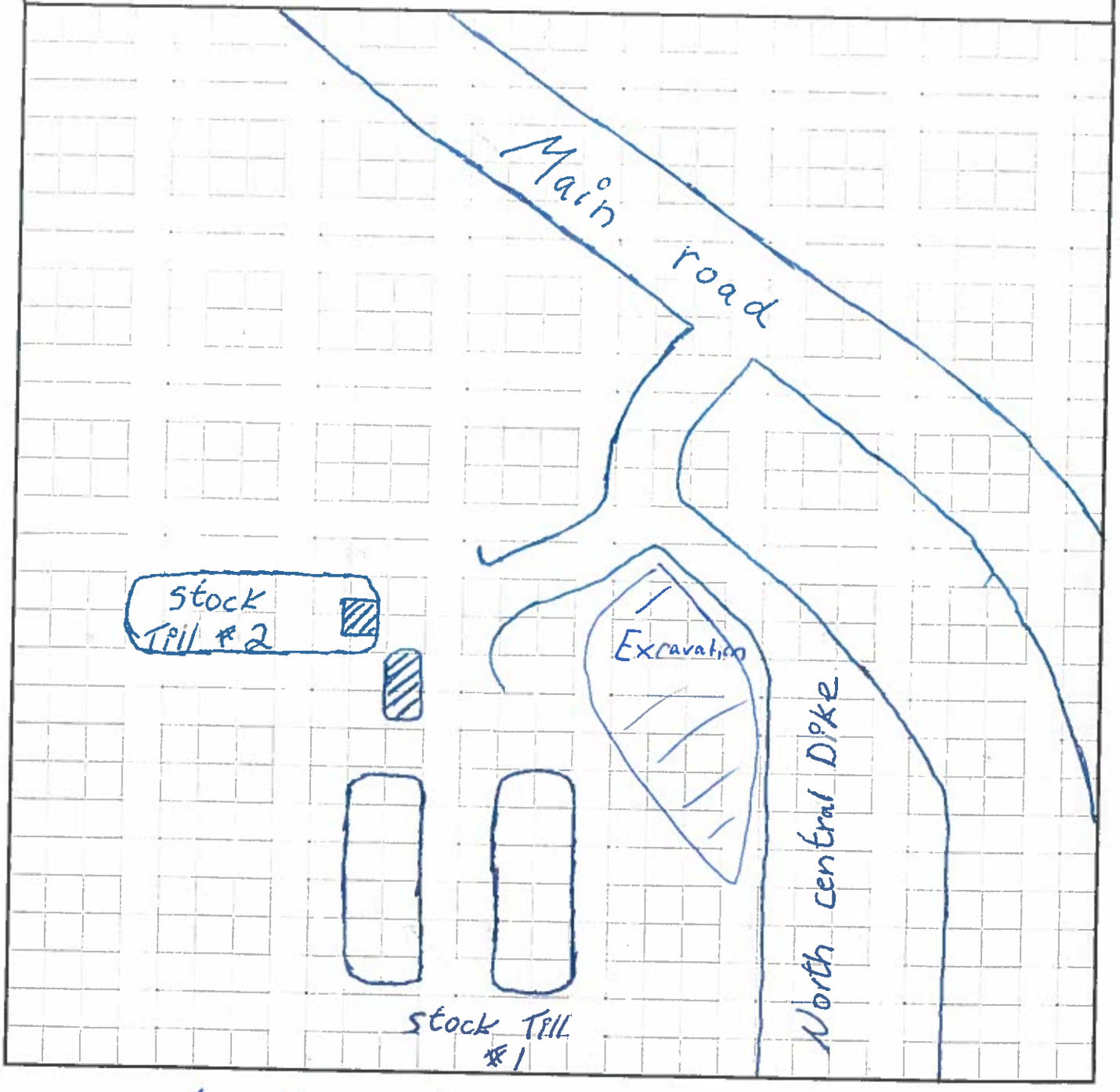
Client: A.E.M	Projet no.: 1111 8538-B1
Projet: SADDLE DAM 3-4-5	Page 1 de 4
Date d'inspection: 2017-	



Préparé par: Edwards Kitha Tumbay Vérifié par: _____

Plan/Croquis

Client:	Projet no.:
Projet:	Page 2 de 4
Date d'inspection:	



Préparé par: Ludwig Tills Gaultby Vérifié par: _____

Plan/Croquis

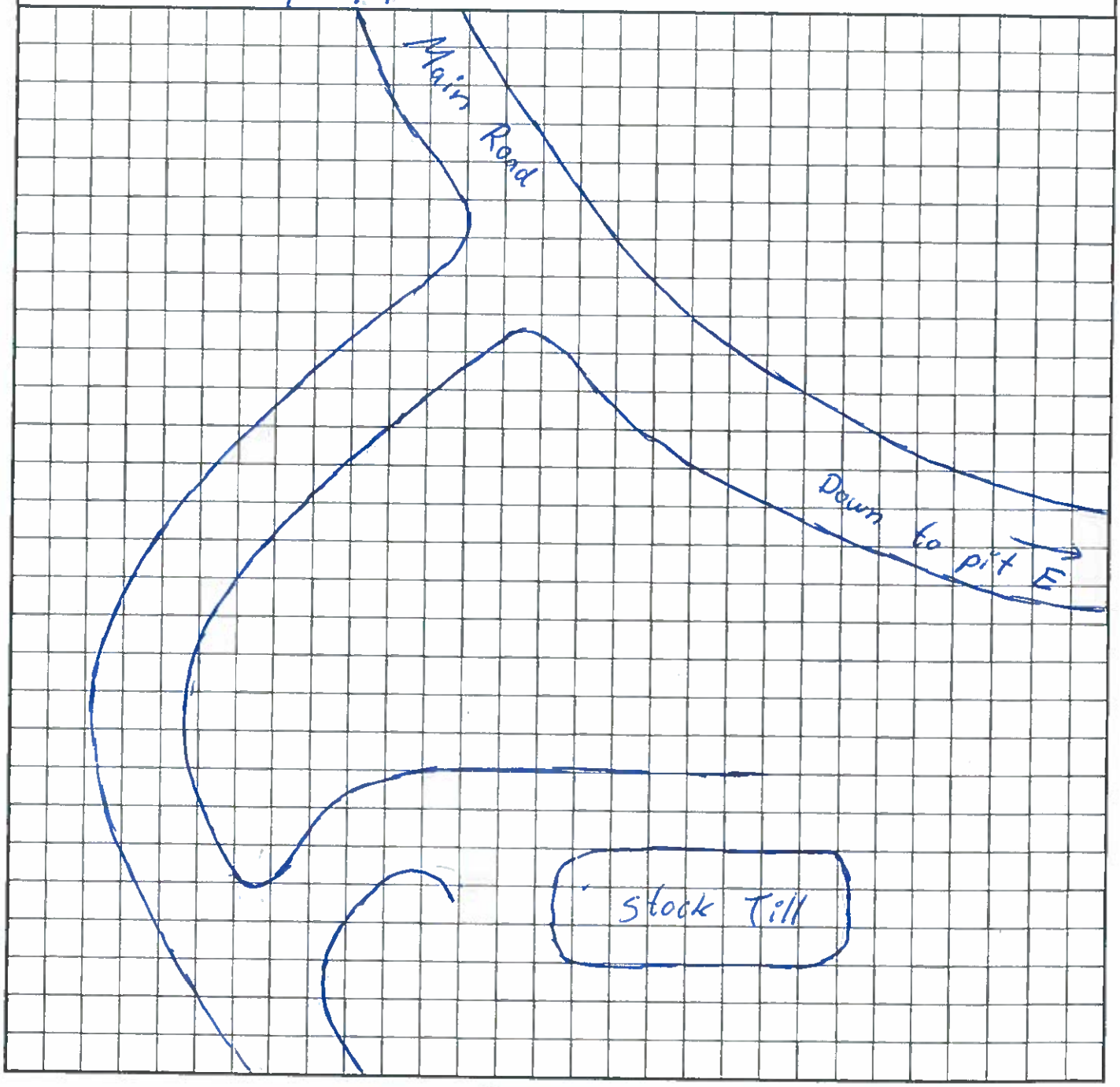
Client: A.E.M.	Projet no.: 11118538-131
Projet: Saddle dam 3-4-5	Page 3 de 4
Date d'inspection: 2017-	



Préparé par: Eduardo Gille Zuñiga Vérifié par:

Plan/Sketch

Client: A.E.M.	Project no.: 11118538-B1
Project: Saddle dam 3-4-5	Page 4 of 4
Inspection date: 2017/08/12	



Prepared by: [signature] Verified by: _____

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 12-Aug-17 **Inspector - Day/Night:** Pierrick Trecasse, night shift

Weather : sunny

Project: Saddle dam 4 and C-D **Contractor:** Fernand Gilbert

Work In Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description : QC activities.

Cleanup of bedrock to C-D and loading of excavated till . (see sketch)

Placement of rockfill to SD4. (see sketch)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345, Hauletrucks

Dozer D8T

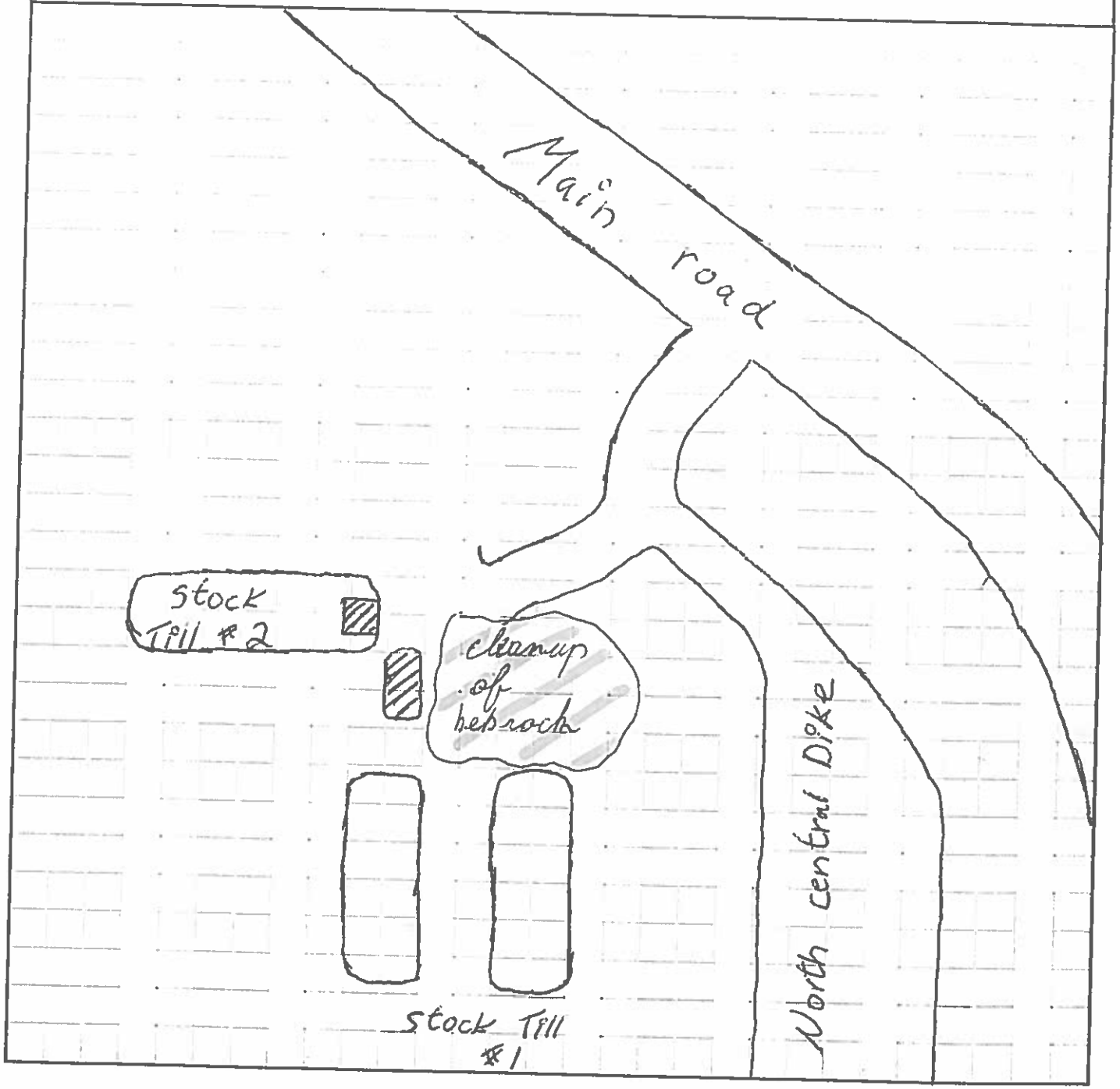
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

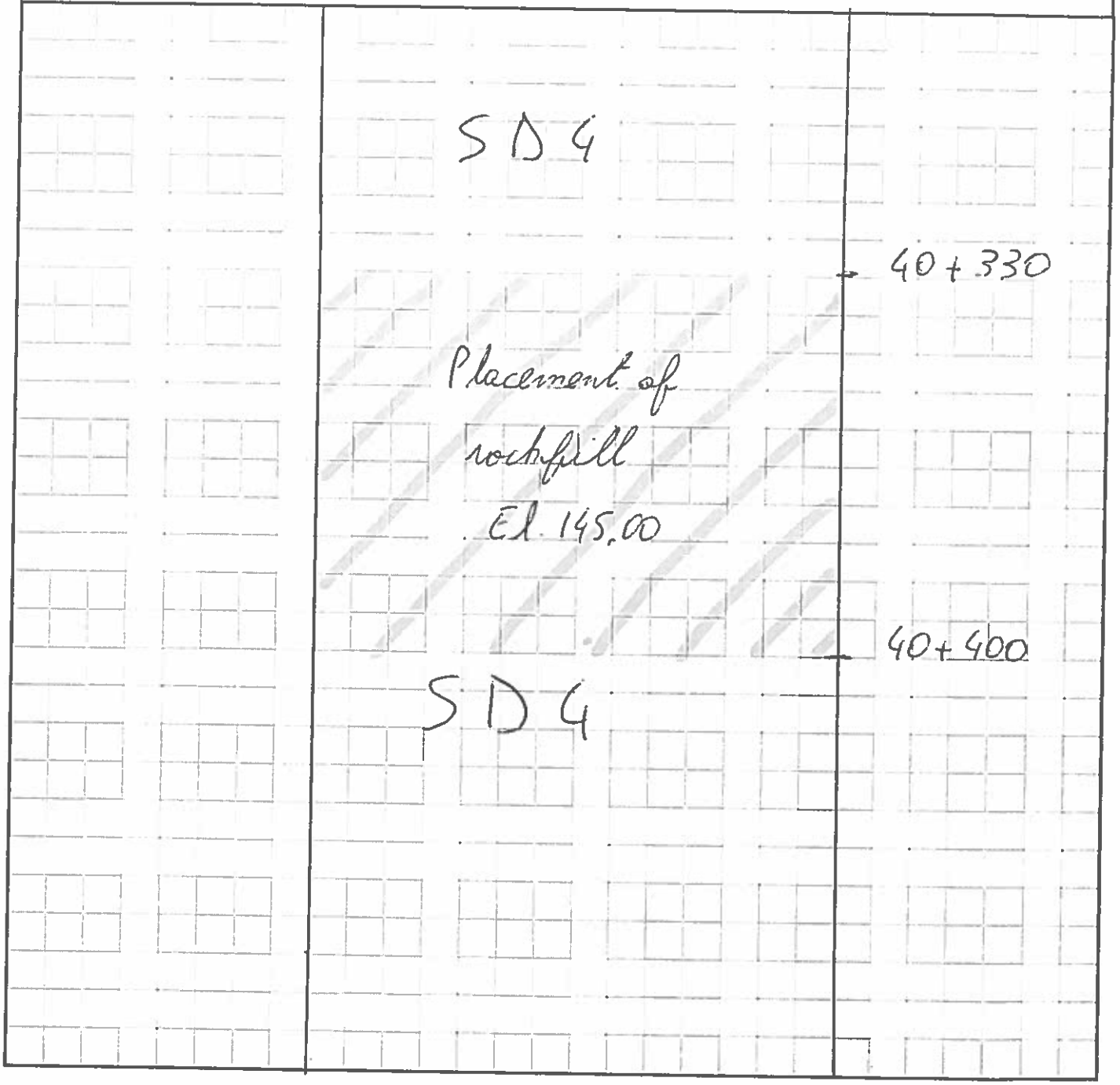
Client: AEM	Projet no.: 11 11 85 38
Projet: Central Bike	Page 1 de 1
Date d'inspection: 12-08-2017	



Préparé par: T. Pieniuch Vérifié par: _____

Plan/Croquis

Client: AEM	Projet no.: 11 11 85 38
Projet: SDG	Page 1 de 1
Date d'inspection: 12-08-2017	



Préparé par: T. Pâquin Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 13-Aug-17 **Inspector - Day/Night:** Cédrick Fillon Tremblay, Day shift

Weather : cloudy

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Rockfill placement, compaction, disposing excavated material.

General Activities: see work in progress

Soft Sediment Excavation		**Key Excavation**		**Coarse Filter**	*	**Drilling/Blasting**	
Foundation Preparation	*	**LLDPE/Geotextile**		**Till**			
Water Control		**Fine Filter**	*	**Rockfill**	*		

Description:

-Excavation on north at Centrale Dike for the invern filter. (see sketch join to the report)

-Approval #136 for the north of central dike. (see sketch join to the report)

-Rockfill placemant on SD-4 at 145 El. (see sketch join to the report)

-Take simple on coarse fine on place (#370). (see sketch join to the report)

-Start the inverse filter on SD-4 and SD-5 for El. 145. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Komat'Su PC 450LC \ loader (50% \ 50%), D8 dozer, Haule trucks, Packer 10 tonnes

Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Croquis

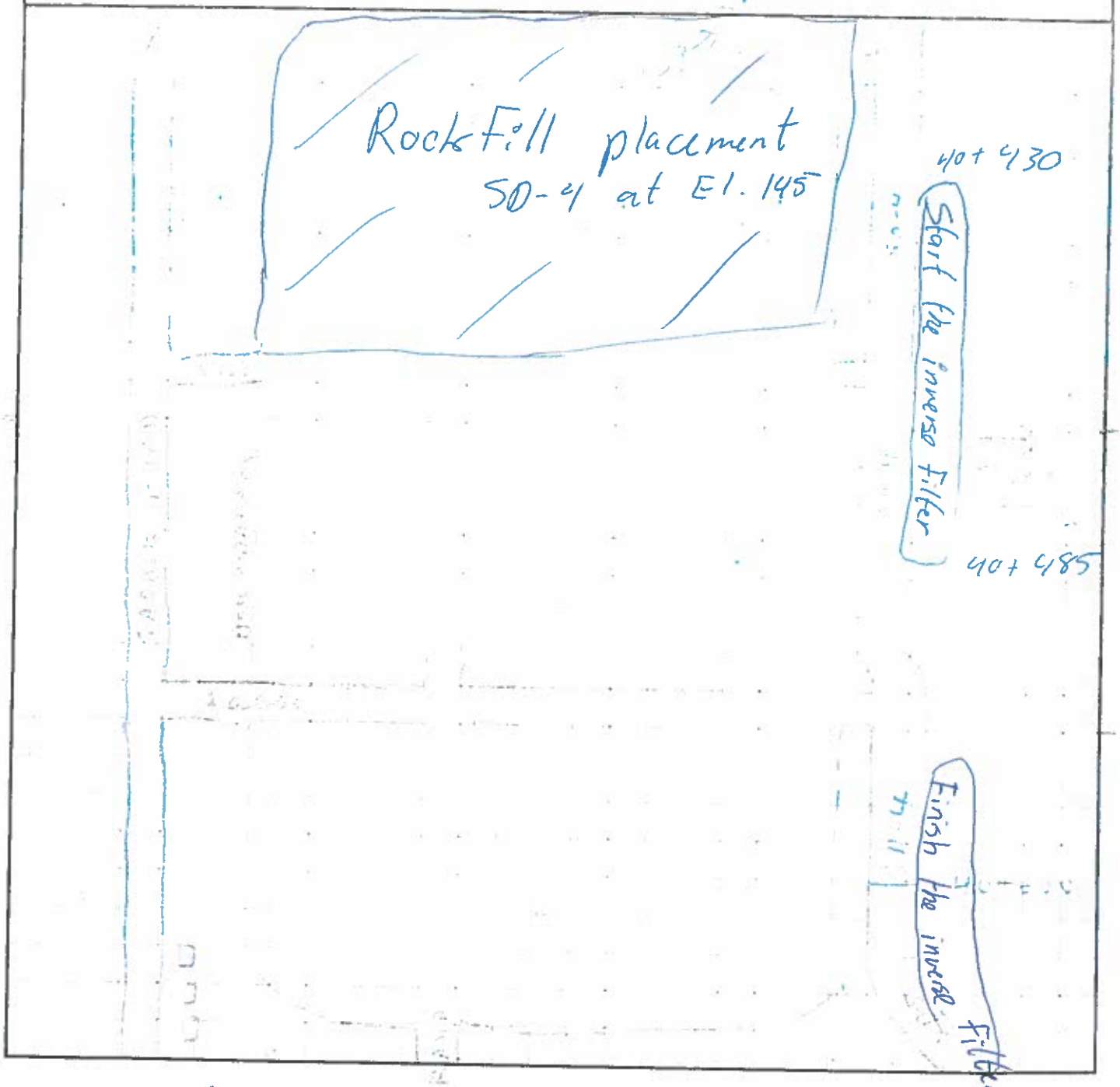
Client: A E M

Projet no.: 11118539-31

Projet: [illegible]

Page _____ de _____

Date d'inspection: [illegible]



Préparé par: Edrick Gille Kelly

Vérifié par: _____

Plan/Croquis

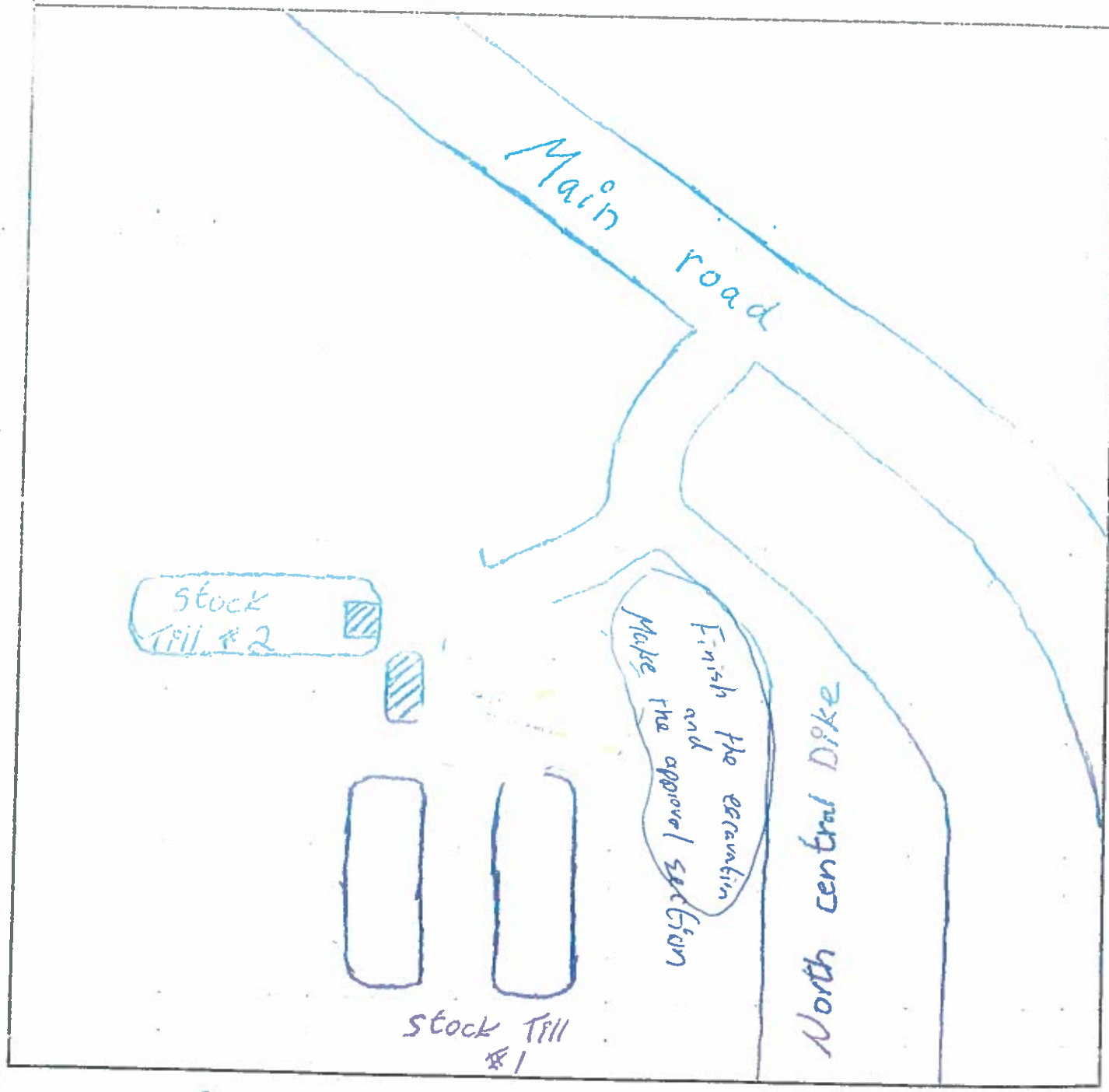
Client: AEM

Project No.: 11 11 85 38

Project: Central Bike

Page ... de ...

Date Prepared: ...



Préparé par: Adrian Tillo Trudel

Vérifié par: ...

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 13-Aug-17 **Inspector - Day/Night:** Pierrick Trecasse, night shift

Weather : sunny

Project: Saddle dam 4 and C-D **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☑		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☑		

Description : QC activities.

Placement of rockfill to SD4. (see sketch)

Sieved the till to pit E with "Cat. 345" (see sketch)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345, Hauletrucks

Dozer D8T

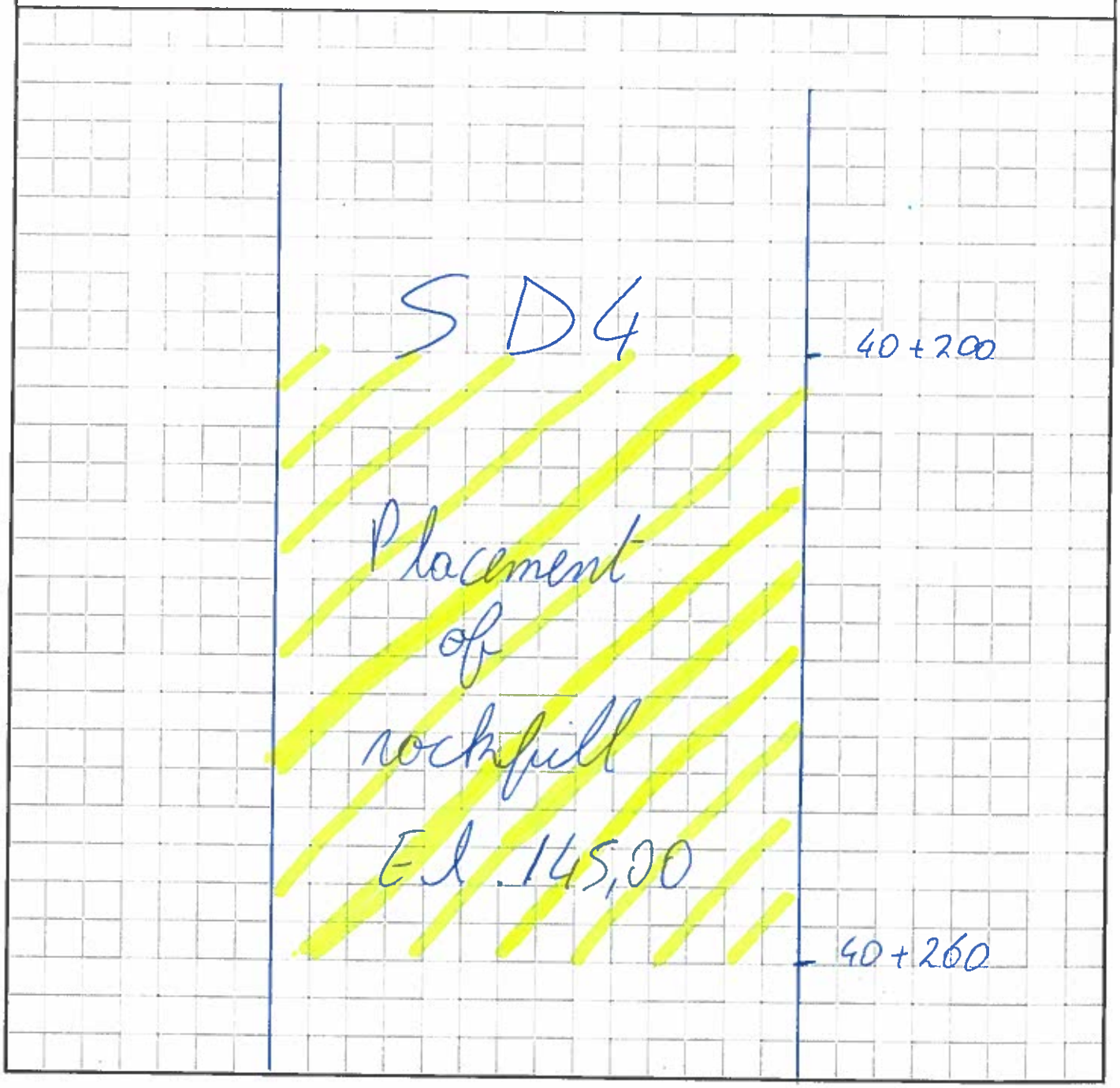
Manpower:

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*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

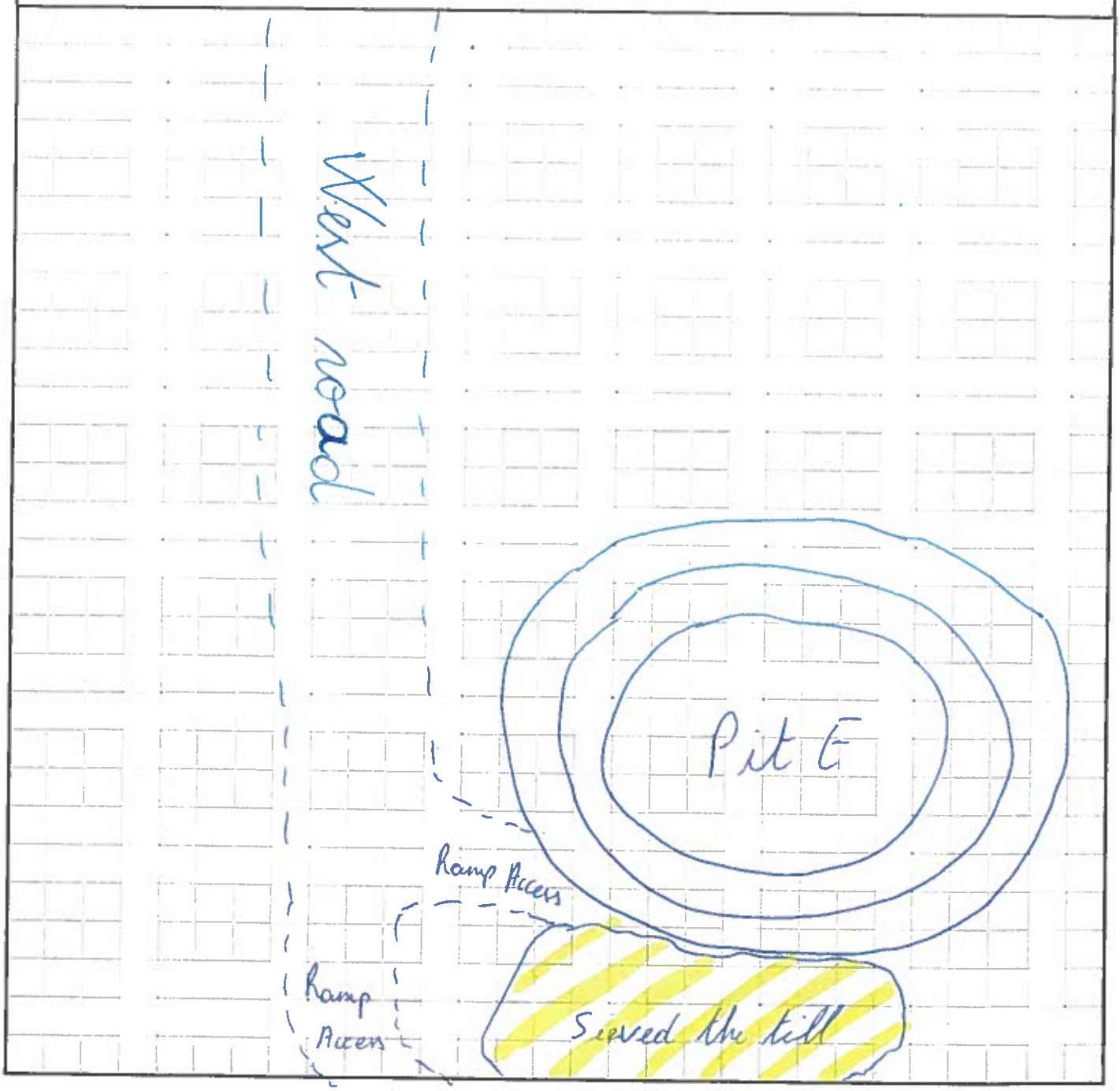
Client: AEM	Projet no.: 11118538-B1
Projet: SD4	Page 1 de 1
Date d'inspection: 13-08-2017	



Préparé par: T. Pierrich Vérifié par: _____

Plan/Croquis

Client: AEM	Projet no.: 11 11 85 38 - B1
Projet: Pit E	Page 1 de 1
Date d'inspection: 13 - 08 - 2017	



Préparé par: T. Pienich Vérifié par: _____

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 14-Aug-17 **Inspector - Day/Night:** Cédrick Fillon Tremblay, Day shift

Weather : sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work In Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Rockfill placement, compaction, disposing excavated material.

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

-Start the slope on SD-5 at El. 145. (see sketch join to the report)

-Approval #136 for the north of central dike. (see sketch join to the report)

-Rockfill placemant on SD-4 at 145 El. (see sketch join to the report)

-Continue the inverse filter on SD-4. (see sketch join to the report)

-Finish the slope on SD-3. (see sketch join to the report)

-Start the lift on SD-3 at El. 145. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Komat'Su PC 450LC \ loader (50% \ 50%), D8 dozer, Haule trucks, Packer 10 tonnes

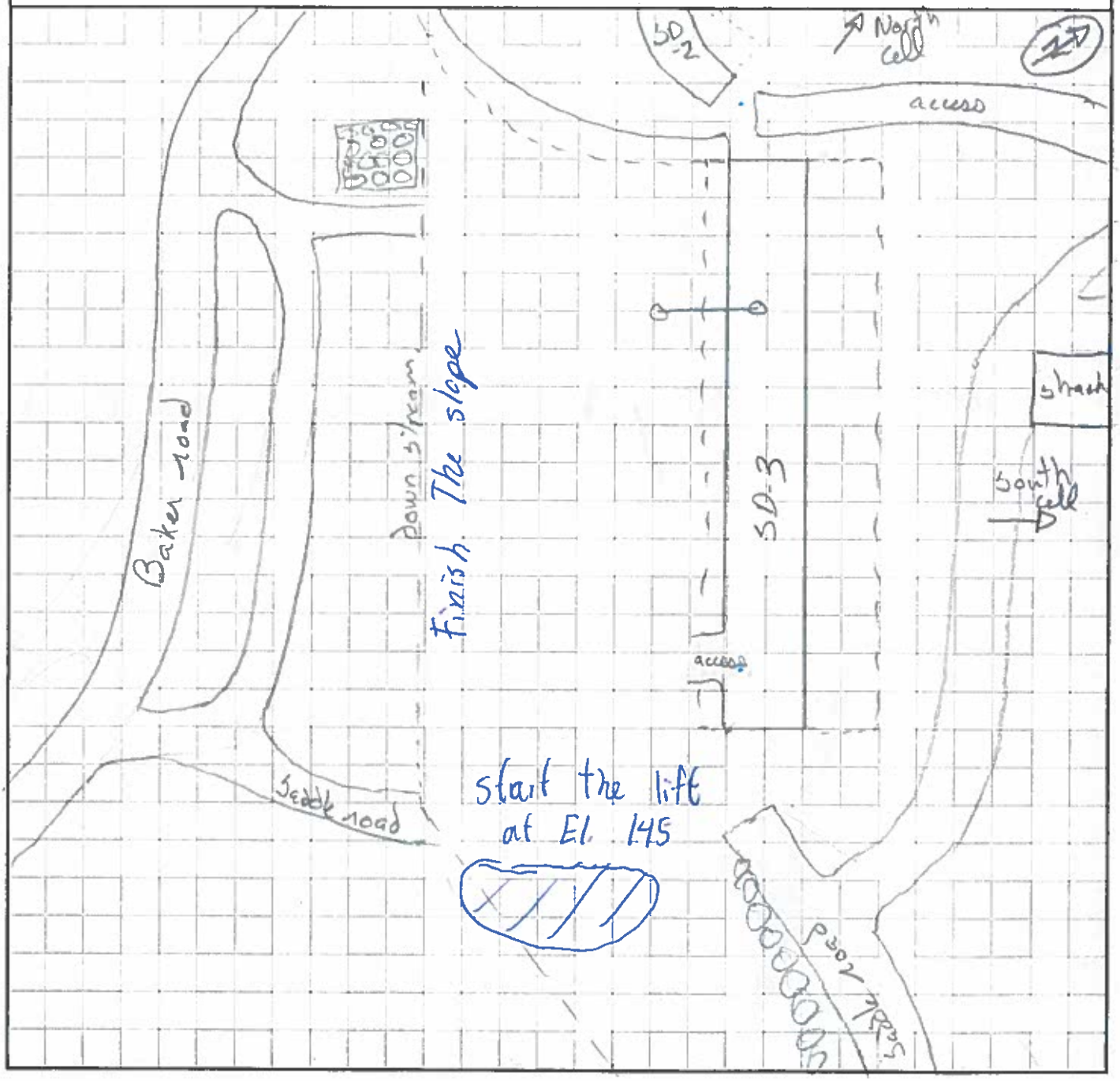
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

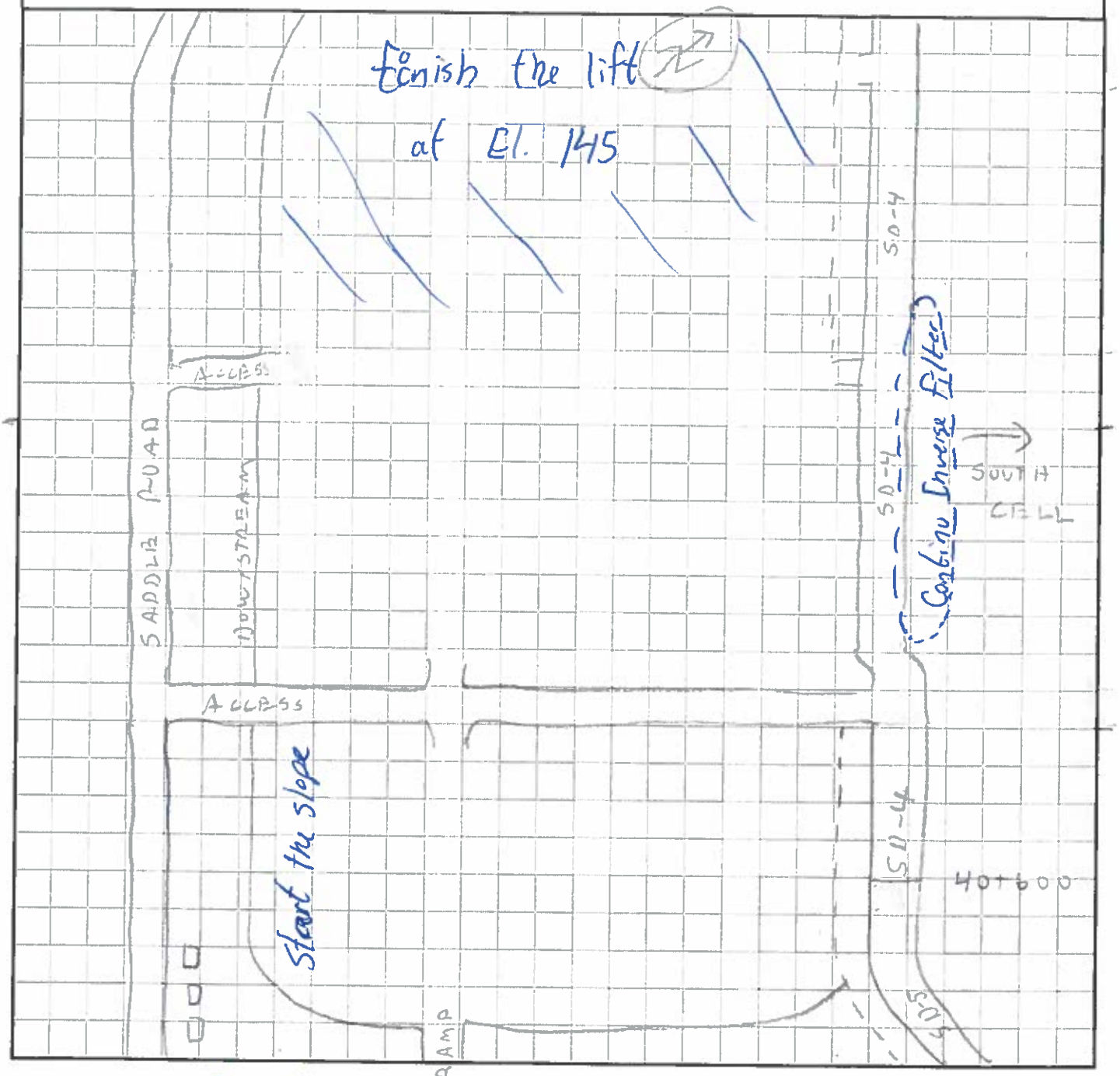
Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page _____ de _____
Date d'inspection: 2017-	



Préparé par: _____ Vérifié par: _____

Plan/Croquis

Client: A.E.M	Projet no.: 1111 8538-B1
Projet: SADDLE DAM 3-4-5	Page _____ de _____
Date d'inspection: 2017-	



Préparé par: _____ Vérifié par: _____

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 14-Aug-17 **Inspector - Day/Night:** Pierrick Trecasse, night shift

Weather : sunny

Project: Saddle dam 3 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☑		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☑		

Description : QC activities.

Placement of rockfill to SD3. (see sketch)

Finish the slope up stream side to SD5

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345, Hauletrucks

Dozer D8T

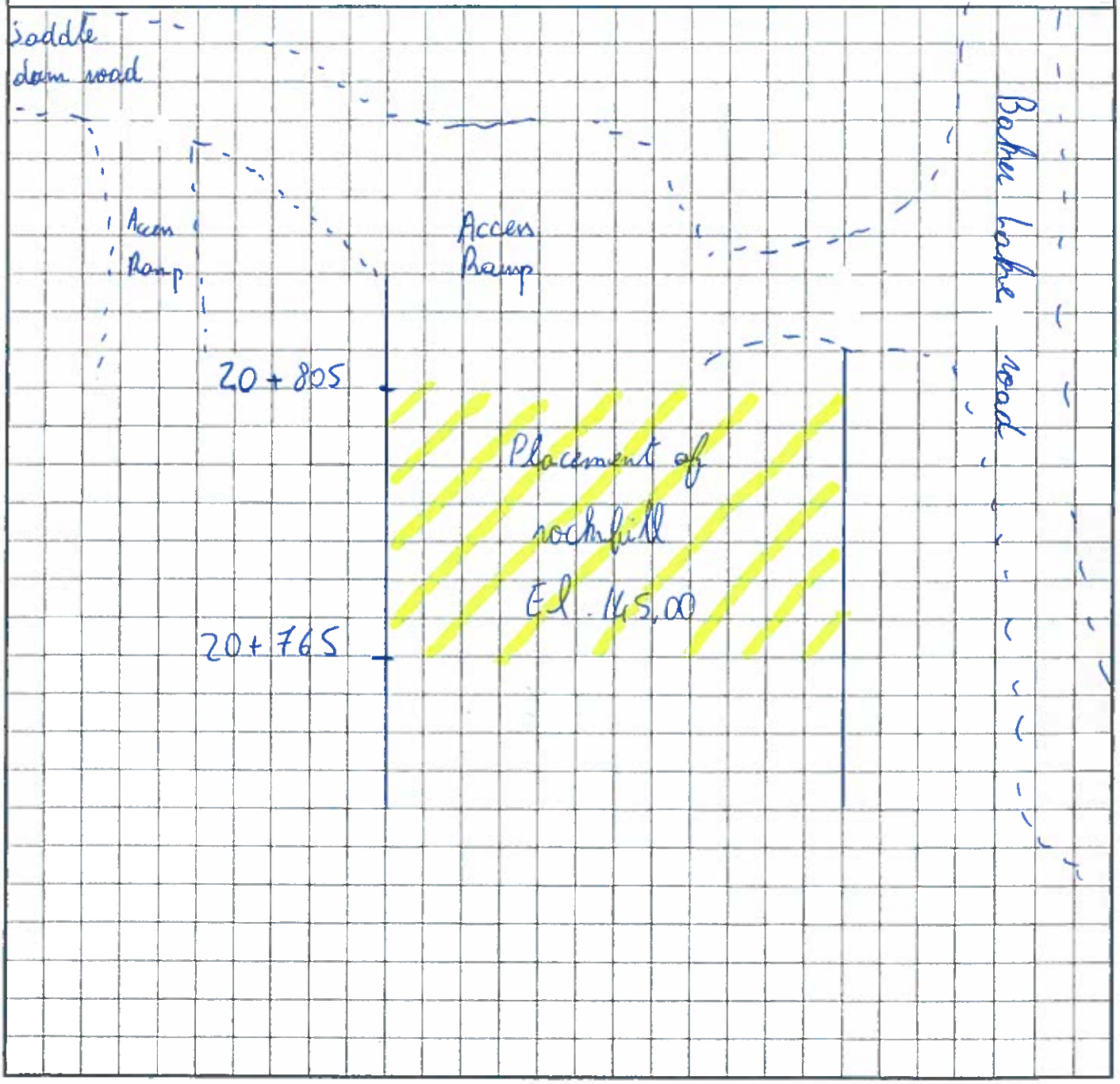
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

Client: AEM	Project no.: 11 11 85 38 - B1
Project: SD3	Page 1 of 1
Inspection date: 14 - 08 - 2017	



Prepared by: T. Pinnick Verified by:

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 15-Aug-17 **Inspector - Day/Night:** Cédrick Fillon Tremblay, Day shift

Weather : cloudy

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Rockfill placement, compaction, disposing excavated material.

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

-finish the slope on SD-5 at El. 145. (see sketch join to the report)

-Start the slope on SD-4 at El. 145. (see sketch join to the report)

-Rockfill placemant on SD-3 at 145 El. (see sketch join to the report)

-Continue the inverse filter on SD-4. (see sketch)oin to the report)

-Start the inverse filter on SD-3. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Komat'Su PC 450LC \ loader (50% \ 50%), D8 dozer, Haule trucks, Packer 10 tonnes

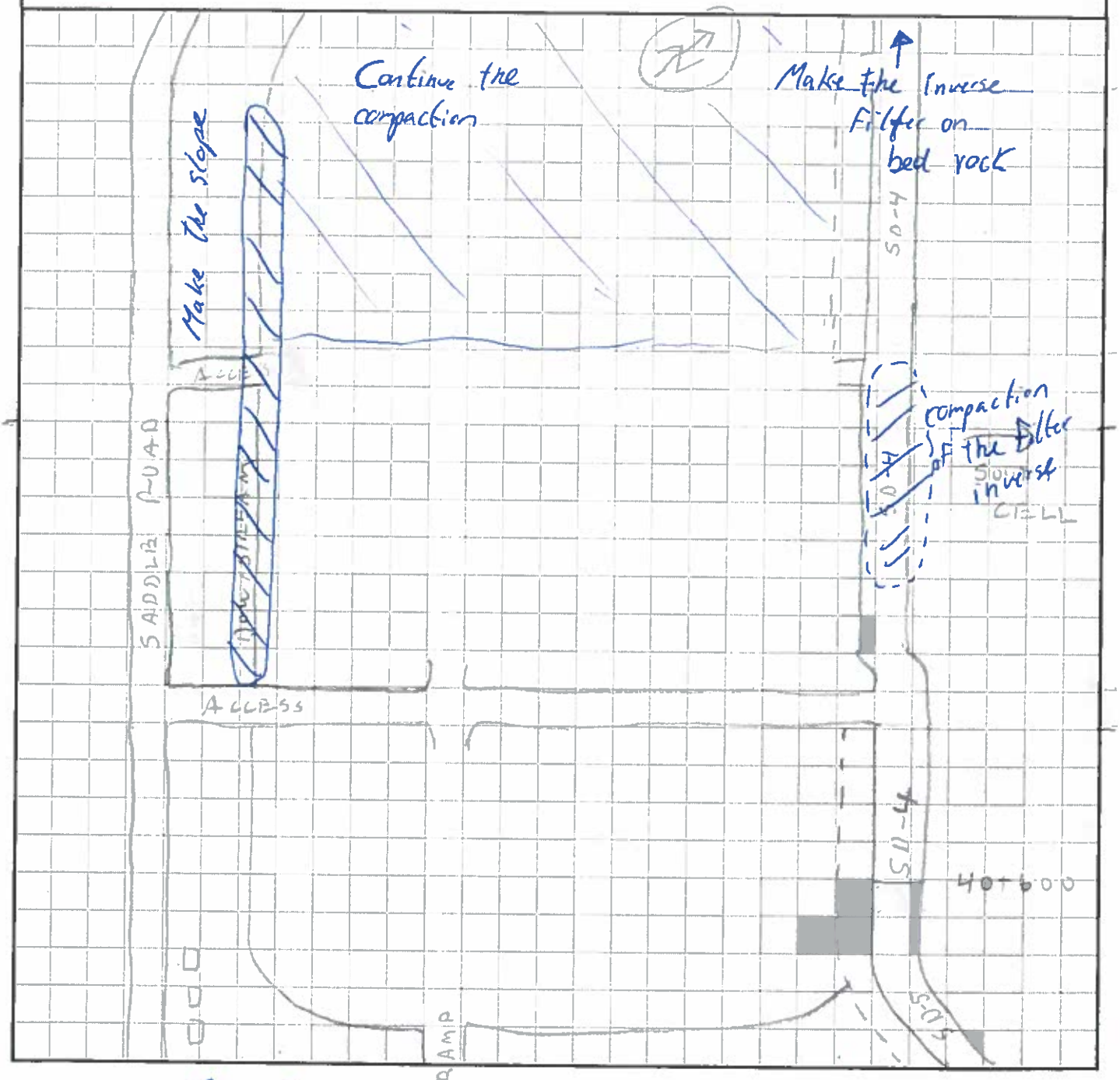
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

Client: A.E.M	Projet no.: 1111 8538-B1
Projet: SADDLE DAM 3-4-5	Page 1 de 3
Date d'inspection: 2017-	

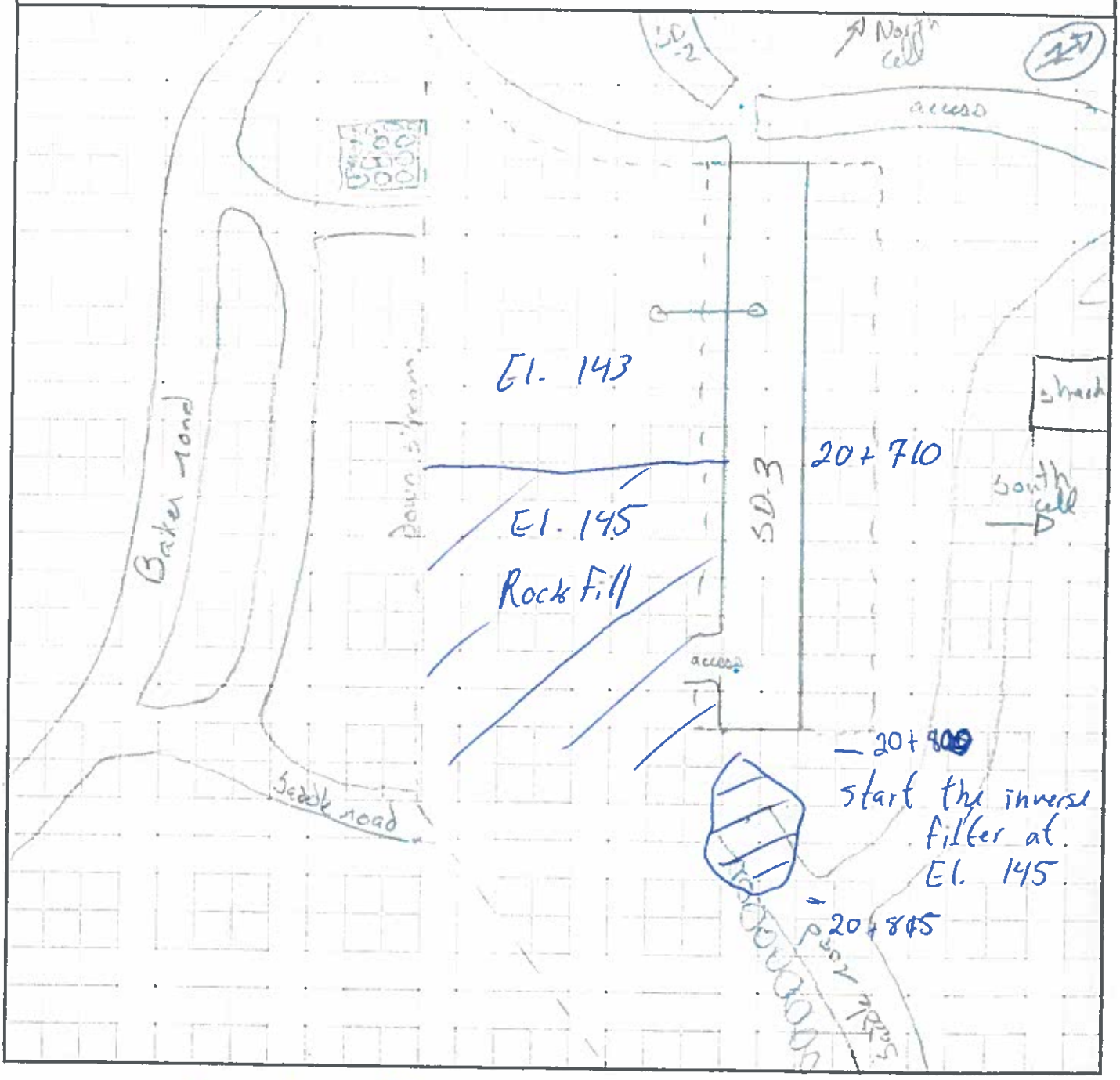


Préparé par: Edmund Fella Tenlley

Vérifié par: _____

Plan/Croquis

Client: A.E.M.	Projet no.: 1118538-B1
Projet: Saddle dam 3-4-5	Page 2 de 3
Date d'inspection: 2017-	



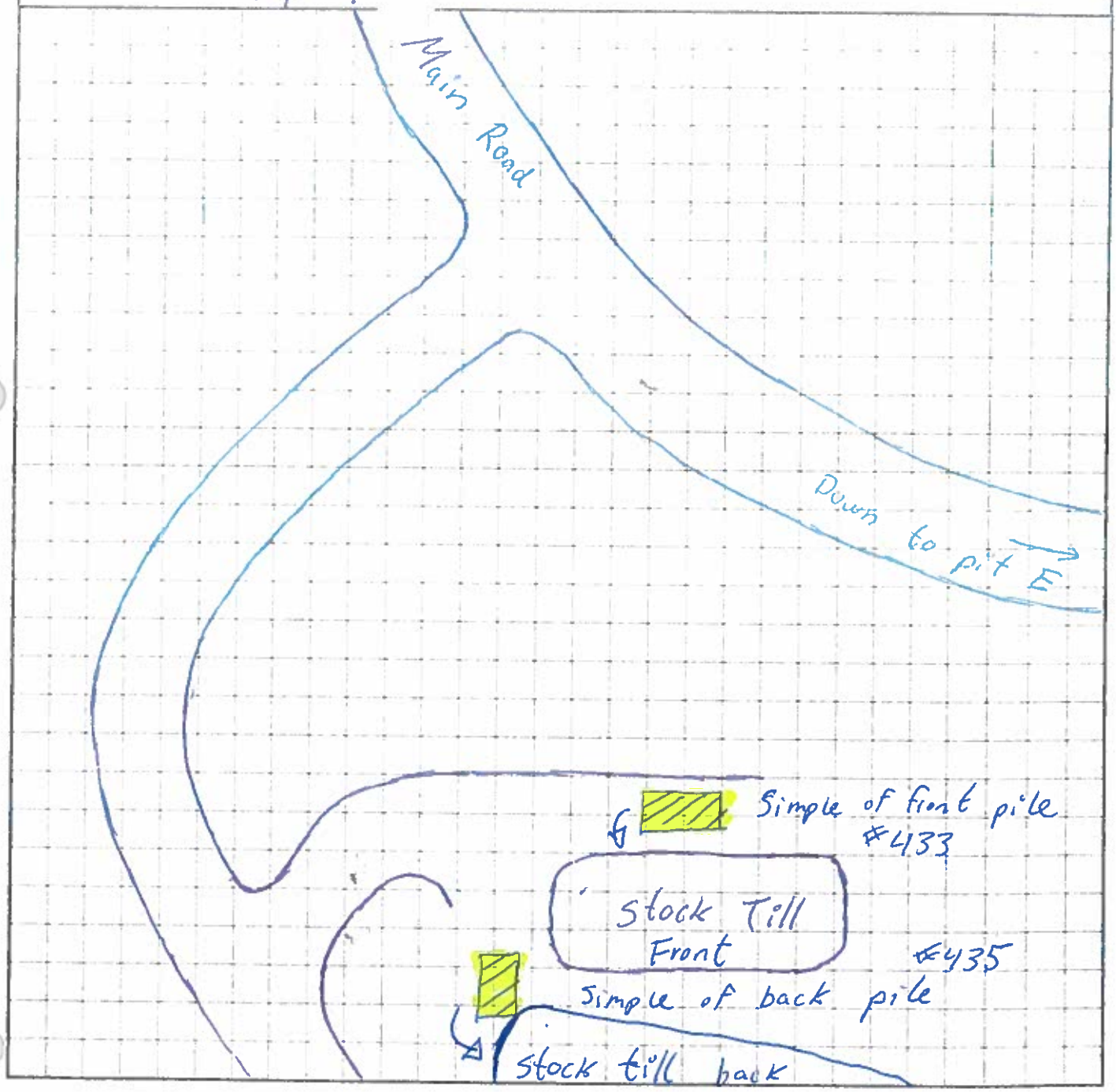
Préparé par: Edwin Tully Vérifié par:

Plan/Sketch

Client: A.E.M. | Project no.: 111/8538-B1

Project: Saddle dam 3-4-5 | Page 3 of 3

Inspection date: 2017/08/



Prepared by: Verified by:

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 15-Aug-17 **Inspector - Day/Night:** Pierrick Trecasse, night shift

Weather : sunny

Project: Saddle dam 3 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description : QC activities.

Placement of rockfill to SD3. (see sketch)

Finish the slope up stream side to SD4

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345, Hauletrucks

Dozer D8T

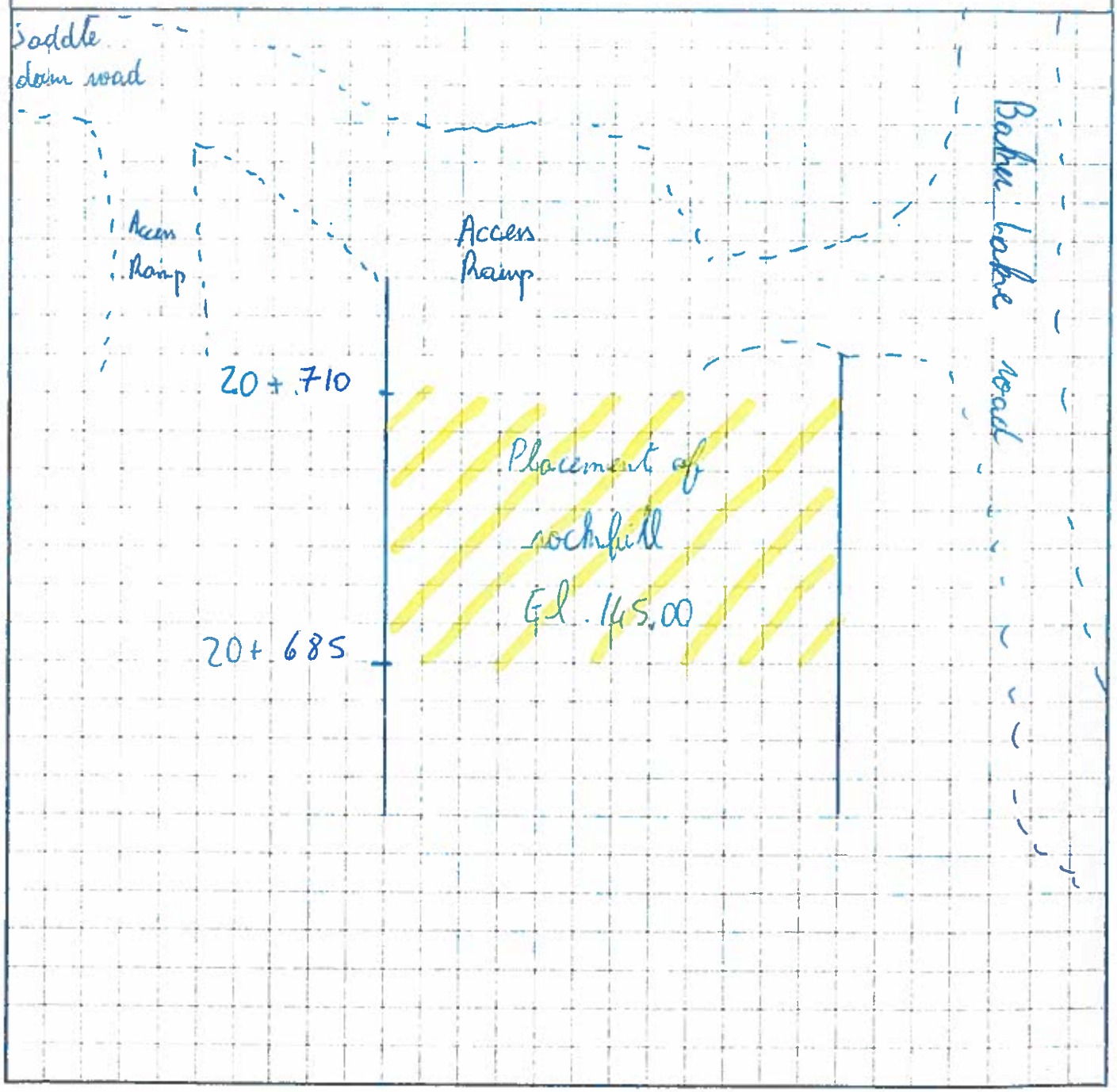
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Sketch

Client: AEM	Project no.: 11185538-B1
Project: SD3	Page 1 of 1
Inspection date: 14-08-2017	



Prepared by: T. Pinnick

Verified by:

E:\Meadowbank 2017\Daily inspection report\Août 2017\QC-Daily Inspection Report 2017-08-16 Day Shift.xls\Daily Report

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 16-Aug-17 **Inspector - Day/Night:** Cédrick Fillon Tremblay, Day shift

Weather : cloudy

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Rockfill placement, compaction, disposing excavated material.

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

-finish the slope on SD-4 at El. 145. (see sketch join to the report)

-Start the slope on SD-3 at El. 145. (see sketch join to the report)

-Rockfill placemant on SD-3 at 145 El. (see sketch join to the report)

-Finish the inverse filter on SD-4. (see sketch join to the report)

-Continue the inverse filter on SD-3. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Komat'Su PC 450LC \ loader (50% \ 50%), D8 dozer, Haule trucks, Packer 10 tonnes

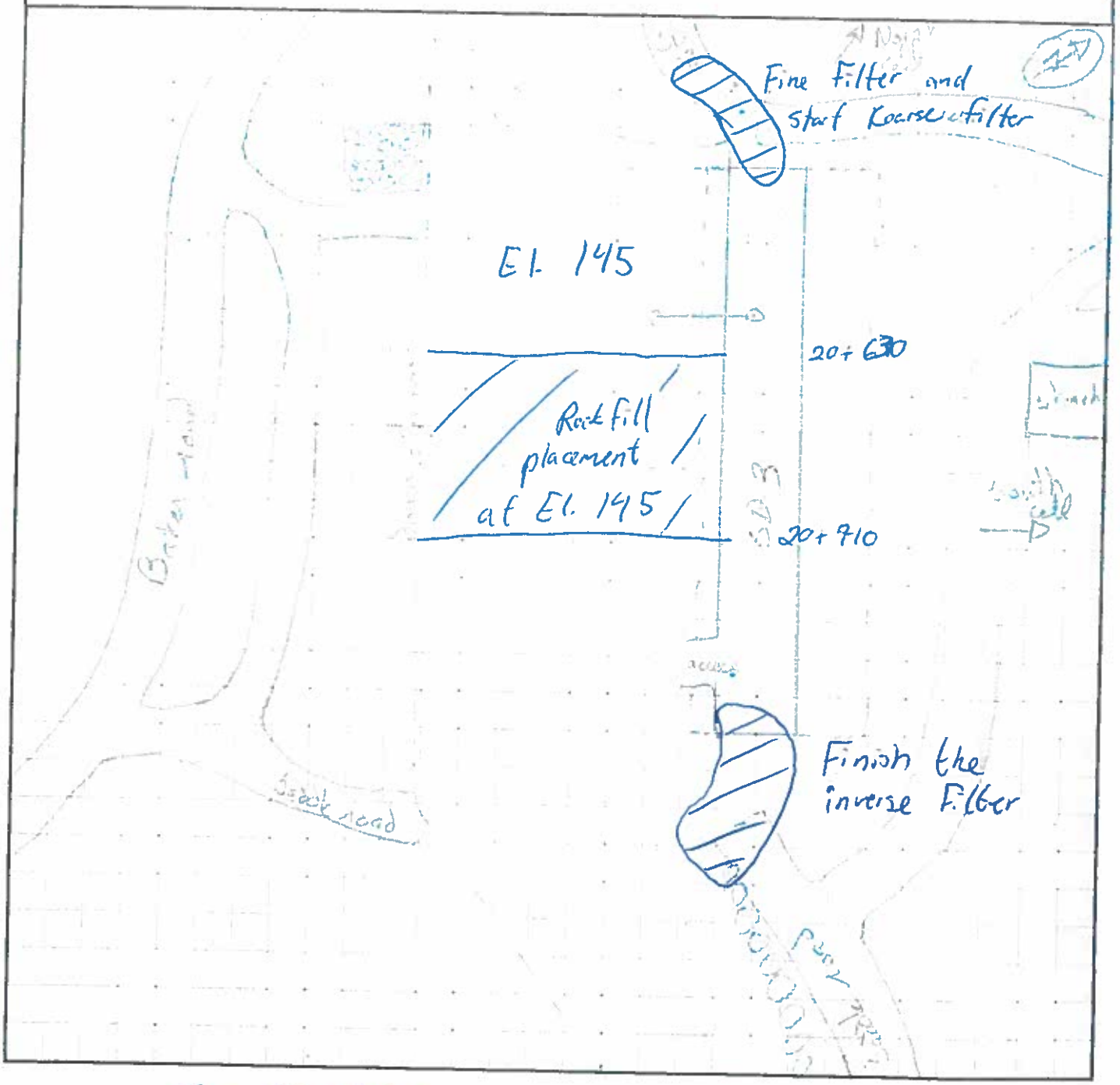
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

Client: AEM	Projet no.: [illegible]
Projet: [illegible] dam 3-4-5	Page 2 de 2
Date d'inspection: 2017-	



Préparé par: Edwards Fields Franklin Vérifié par:

Plan/Croquis

Client: A.E.M	Projet no.: 1111 8539-B1
Projet: SADDLE DAM 3-4-5	Page 1 de 2
Date d'inspection: 2017-	



Préparé par: Edwige Elie Feuilly Vérifié par:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 16-Aug-17 **Inspector - Day/Night:** Pierrick Trecasse, night shift

Weather : Cloudy

Project: Saddle dam 3 and 4 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description : QC activities.

Placement of rockfill to SD3. (see sketch)

Make the slope down stream side to SD4

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345, Hauletrucks

Dozer D8T

Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

GHD

Plan/Sketch

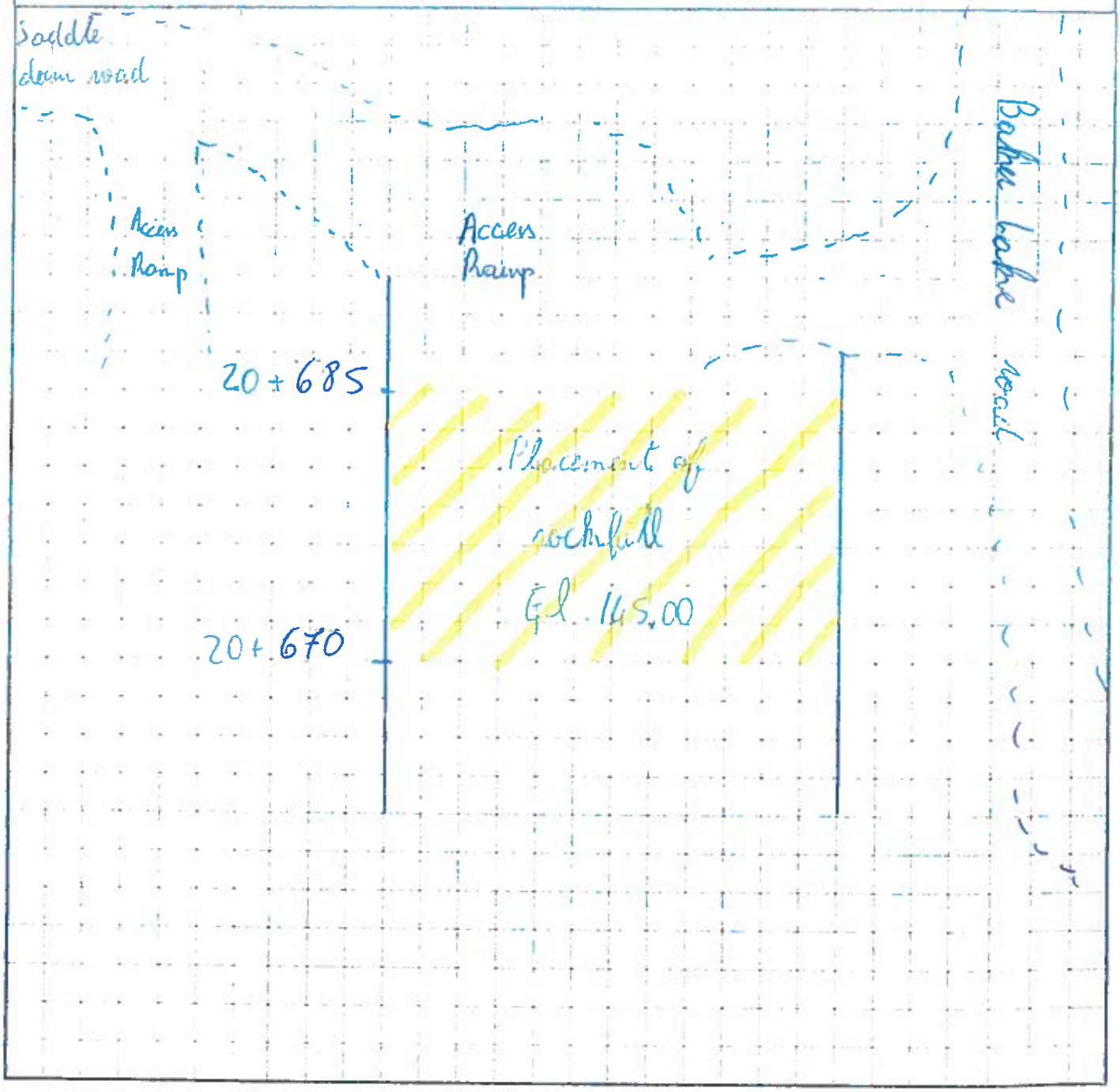
Client: AEM

Project no: 11185538-B1

Project: SD3

Page 1 of 1

Inspection date: 14-08-2017



Prepared by: T. Pinnick

Verified by:

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 17-Aug-17 **Inspector - Day/Night:** Cédrick Fillon Tremblay, Day shift

Weather : cloudy

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Rockfill placement, compaction, disposing excavated material.

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

-finish the slope up stream on SD-5 at El. 145. (see sketch join to the report)

-continue the slope up stream on SD-3 at El. 145. (see sketch join to the report)

-Rockfill placemant on SD-3 at 145 El. (see sketch join to the report)

-Continue the inverse filter on SD-3. (see sketch join to the report)

-Fix the problem of water down stream on SD-3. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Komat'Su PC 450LC \ loader (50% \ 50%), D8 dozer, Haule trucks, Packer 10 tonnes

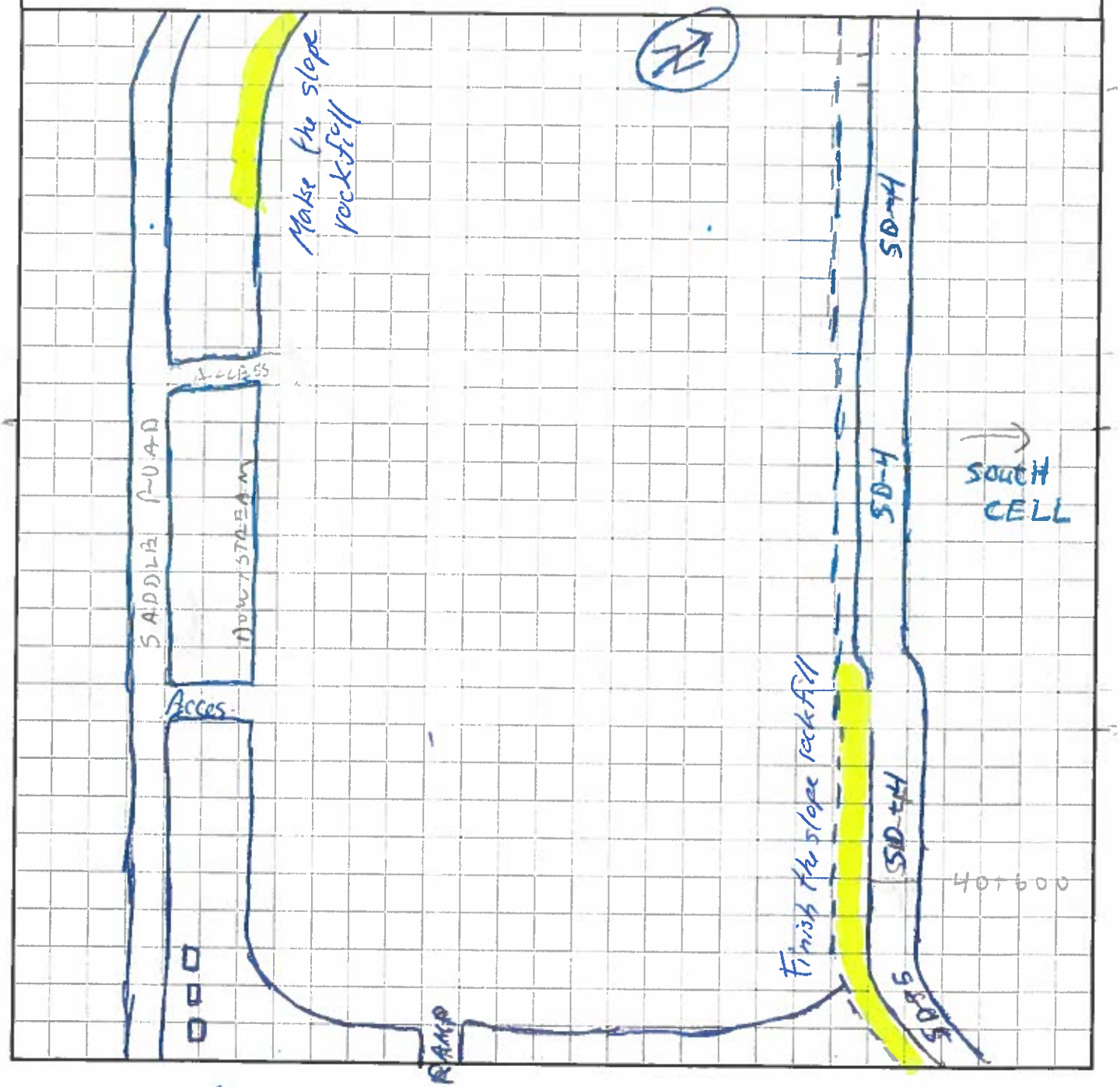
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Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

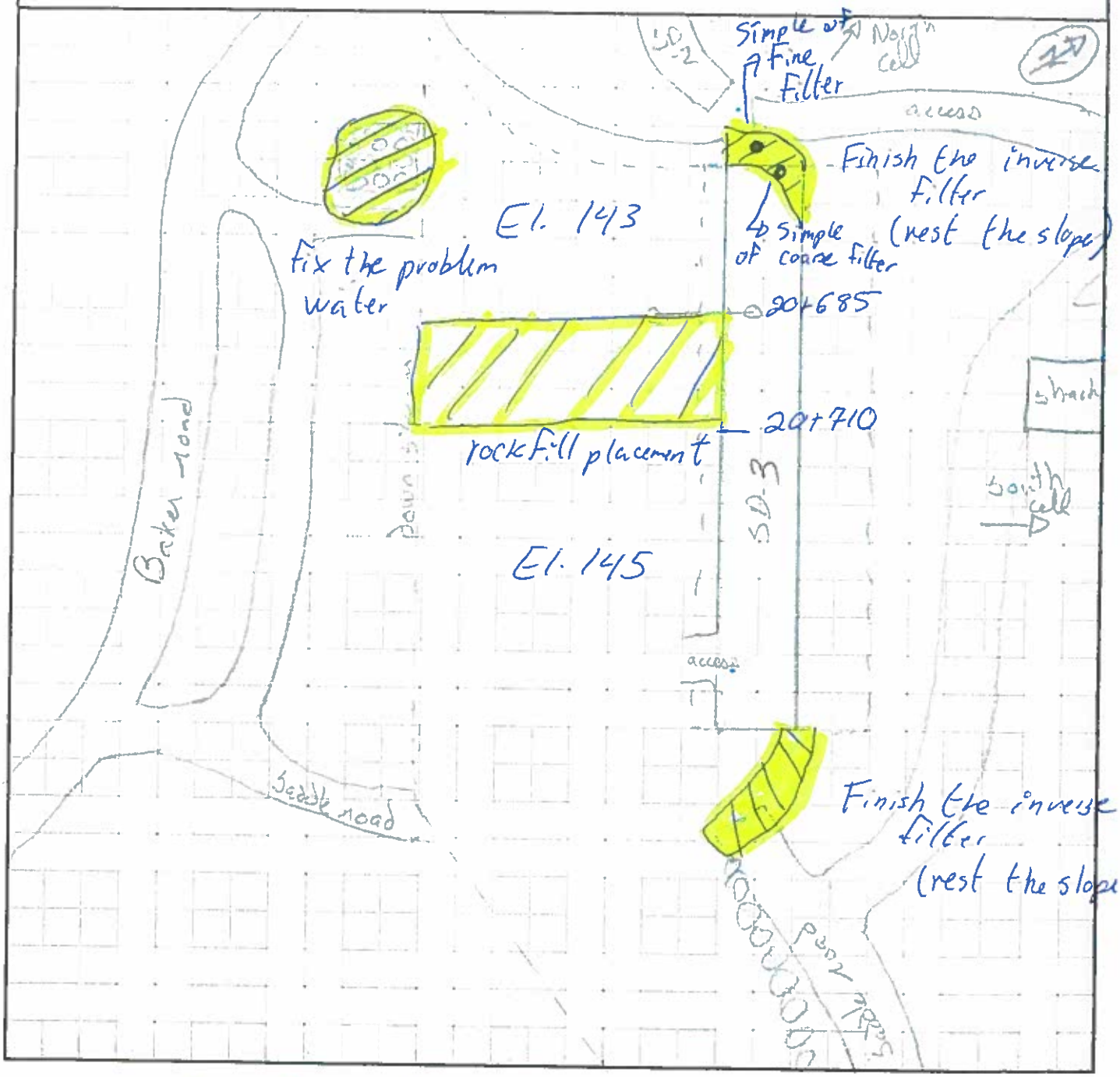
Client: A.E.M	Projet no.: 1111 8538-B1
Projet: SADDLE DAM 3-4-5	Page 1 de 2
Date d'inspection: 2017-	



Préparé par: Vérifié par:

Plan/Croquis

Client: A.E.M.	Projet no.: 1118538-131
Projet: Saddle dam 3-4-5	Page 2 de 2
Date d'inspection: 2017-	



Préparé par: Vérifié par:

E:\Meadowbank 2017\Daily inspection report\August 2017\[QC-Daily inspection Report 2017-08-17 Night Shift.xls]Daily Report

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 17-Aug-17 **Inspector - Day/Night:** Pierrick Trecasse, night shift

Weather : Cloudy

Project: Saddle dam 3 and 4 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description : QC activities.

Placement of rockfill to SD3. (see sketch)

Make the slope down stream side to SD4

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345, Hauletrucks

Dozer D8T

Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

GHD

Plan/Sketch

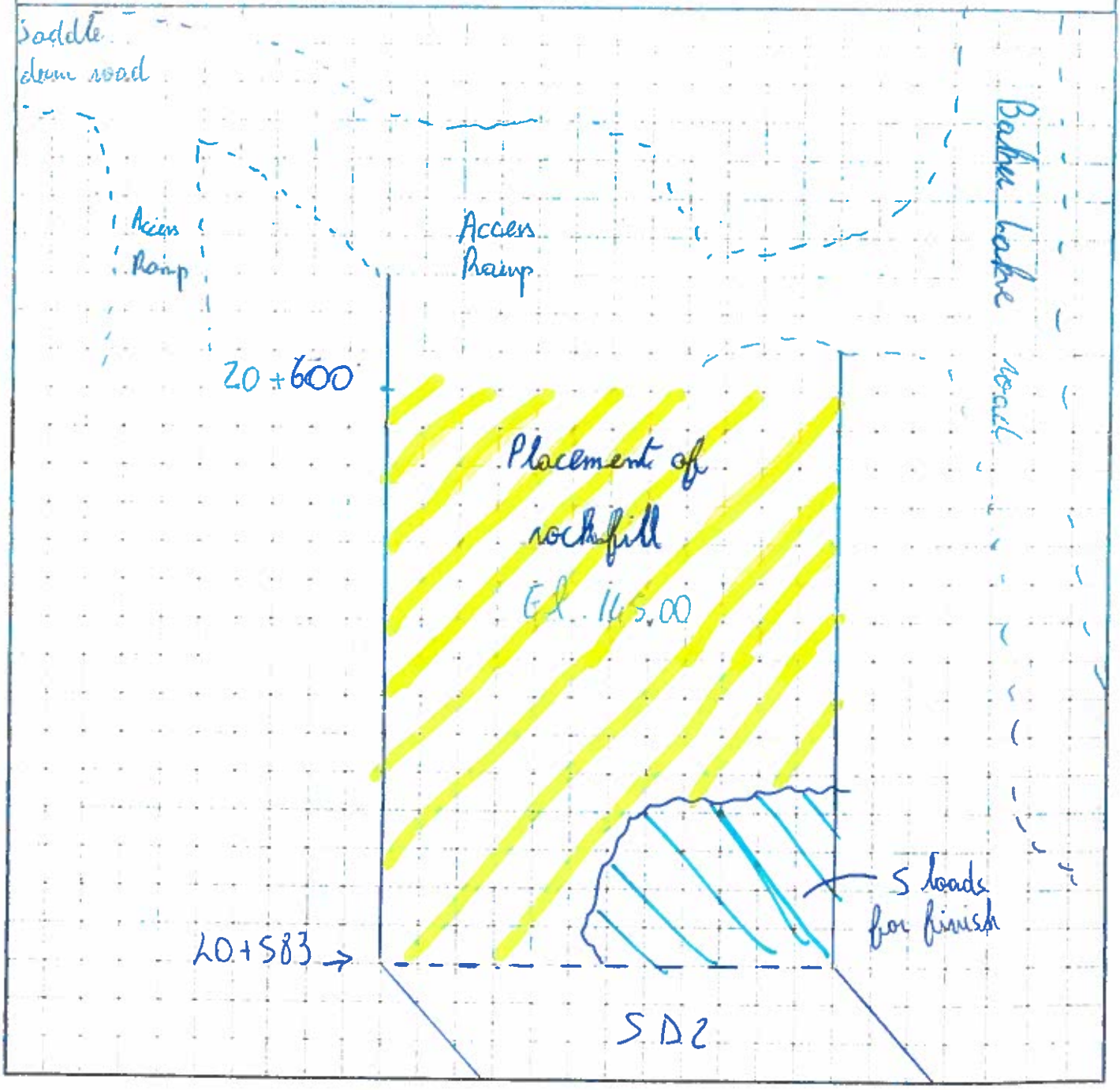
Client: AEM

Project no.: 11185538-B1

Project: SD3

Page 1 of 1

Inspection date: 17-08-2017



Prepared by: T. Pinnick

Verified by:

E:\Meadowbank 2017\Daily inspection report\Août 2017\Surface\Rapport sy 18 août\[QC-Daily Inspection Report 2017-08-18 Day Shift.xls]Daily Report

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 18-Aug-17 **Inspector - Day/Night:** Cédrick Fillon Tremblay, Day shift

Weather : sunny & cloudy

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Rockfill placement, compaction, disposing excavated material.

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

-start the slope inverse filter up stream on SD-5 & SD-4 at El. 145. (see sketch join to the report)

-complete the inverse filter on centrale dike at El. 145. (see sketch join to the report)

-Start rock Fill placement on Centrale Dike at El. 145. (see sketch)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Komat'Su PC 450LC \ loader (50% \ 50%), D8 dozer, Haule trucks, Packer 10 tonnes

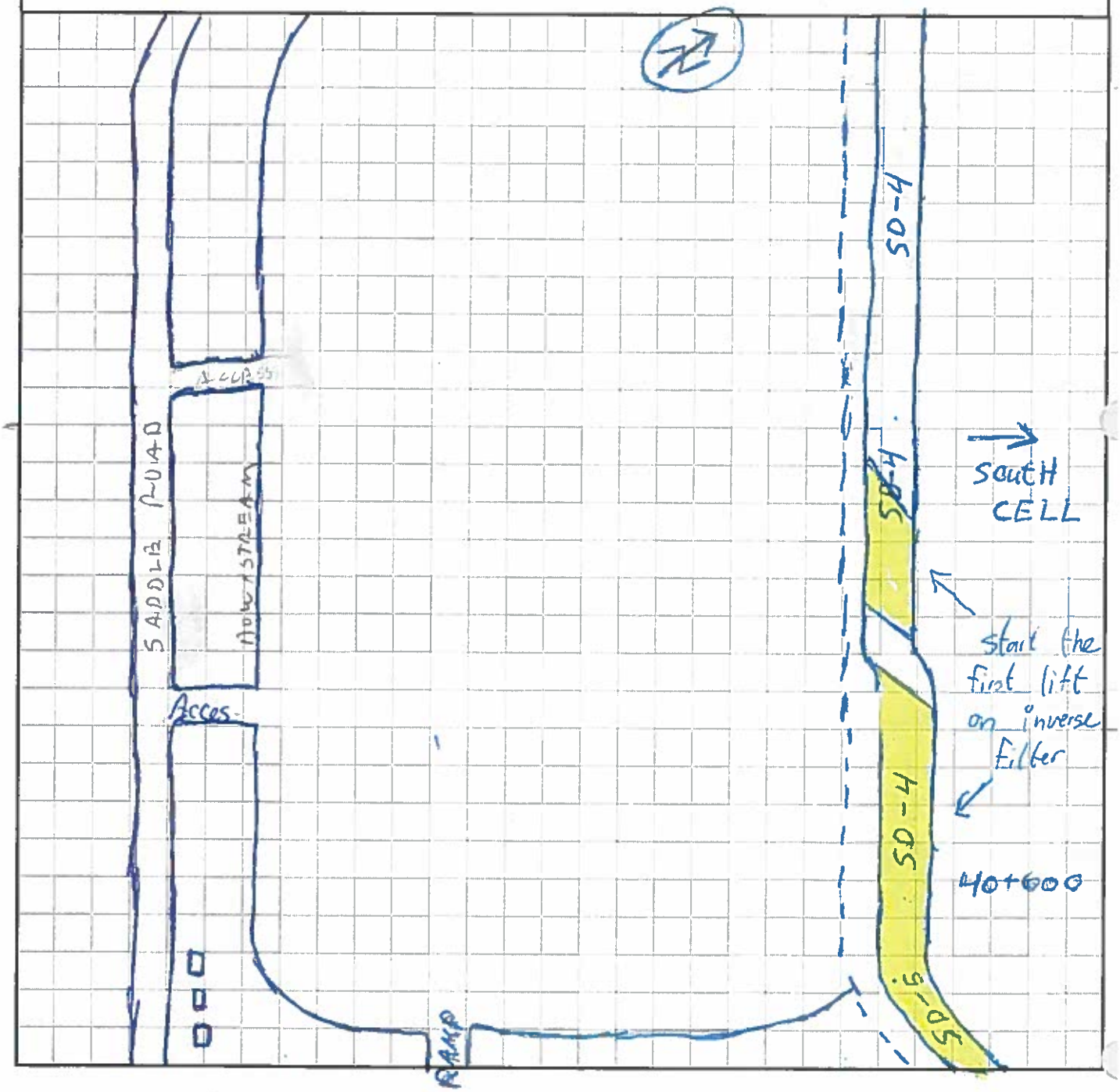
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

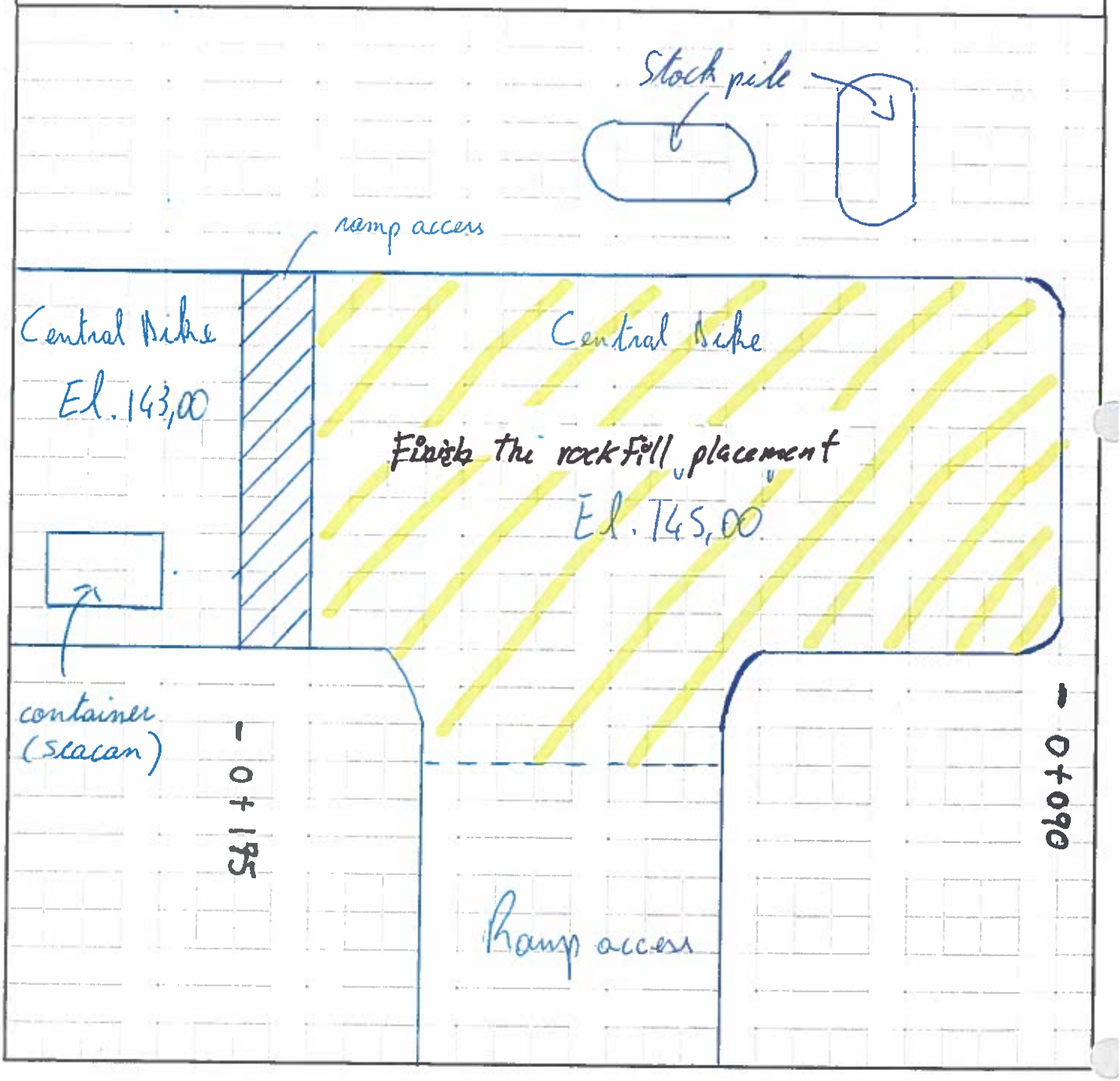
Client: A.E.M	Projet no.: 1111 8538-B1
Projet: SADDLE DAM 3-4-5	Page 1 de 2
Date d'inspection: 2017-	



Préparé par: Ludwig Kalla Vérifié par: _____

Plan/Croquis

Client: AEM	Projet no.: 11118538-B1
Projet: Central Bike	Page 2 de 2
Date d'inspection:	



Préparé par: Vérifié par:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 18-Aug-17 **Inspector - Day/Night:** Pierrick Trecasse, night shift

Weather : Cloudy

Project: SD4 , central dike **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description : QC activities.

Placement of rockfill to central dike. (see sketch)

Make the slope dpwn stream side to SD4

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345, Hauletrucks

Dozer D8T

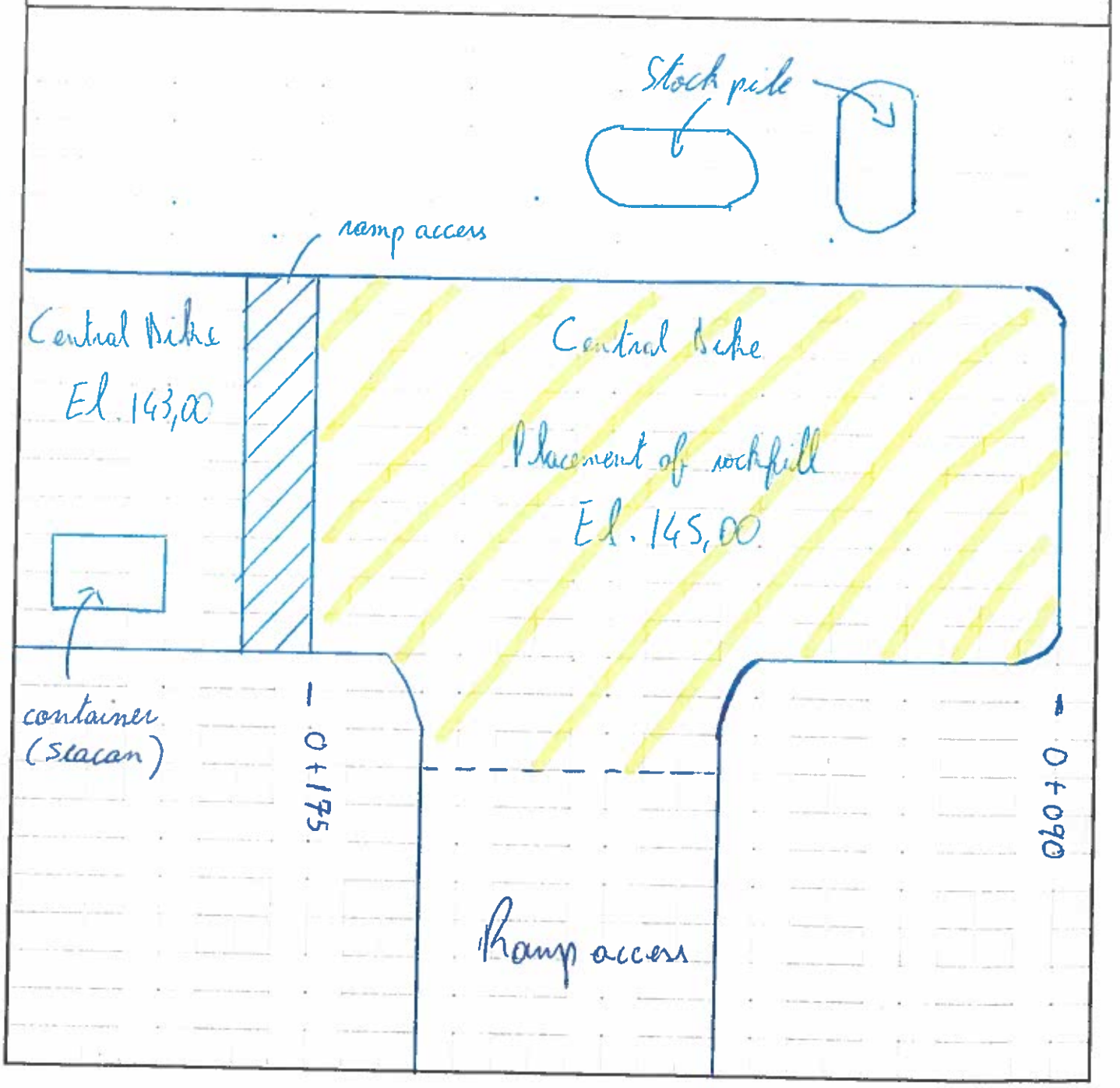
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

Client: AEM	Projet no.: 11185538-B1
Projet: Central Bike	Page 1 de 1
Date d'inspection: 18-08-2017	



Préparé par: T. Pieniek

Vérifié par:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 19-Aug-17 **Inspector - Day/Night:** Cédrick Fillon Tremblay, Day shift

Weather : cloudy

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Rockfill placement, compaction, disposing excavated material.

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

-Continue the filter up stream on SD-5 & SD-4 at El. 145. (see sketch join to the report)

-Finish the rockfill placement on centrale dike at El. 145. (see sketch join to the report)

-compaction on SD-3 at El. 145. (see sketch join to the report)

-take Fine Filter sample on SD-4/SD-5. (" ") #379

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Komat'Su PC 450LC \ loader (50% \ 50%), D8 dozer, Haule trucks, Packer 10 tonnes

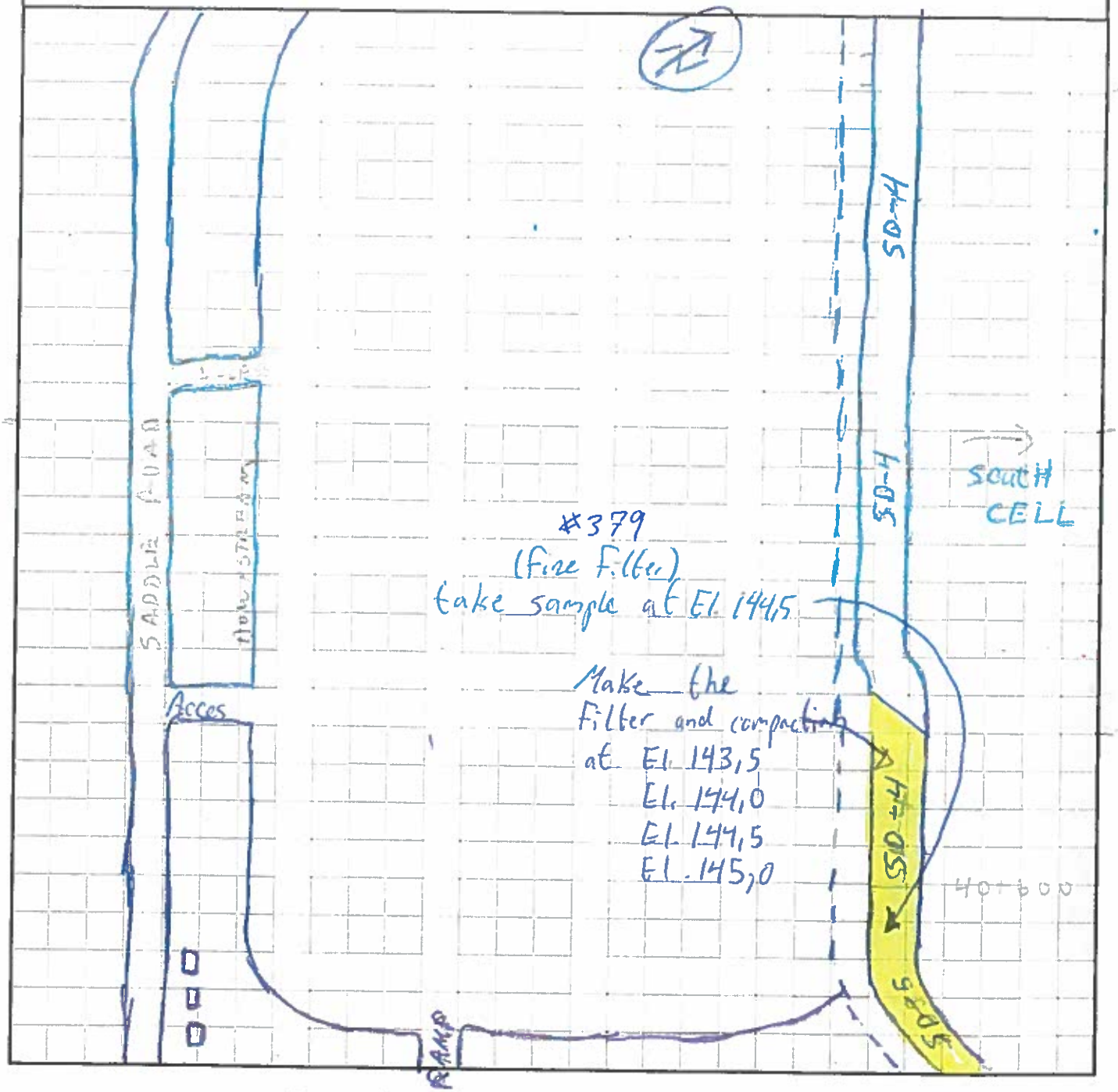
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Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

Client: A.E.M	Projet no.: 1111 8538-B1
Projet: SADDLE DAM 3-4-5	Page 1 de 2
Date d'inspection: 2017-	



Préparé par: Edwards Kelly Kendley Vérifié par:

Plan/Croquis

Client: A.E.M.	Projet no.: 11183381
Projet Leduk Dam 3-4-5	Page 2 de 2
Date d'inspection: 2017-	



Préparé par: Vérifié par:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 19-Aug-17 Inspector - Day/Night: Pierrick Trecasse, night shift

Weather : Cloudy

Project: central dike Contractor: Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities: see work in progress

Soft Sediment Excavation	☐	Key Excavation	☐	Coarse Filter	☐	Drilling/Blasting	☐
Foundation Preparation	☐	LLDPE/Geotextile	☐	Till	☐		
Water Control	☐	Fine Filter	☐	Rockfill	☐		

Description : QC activities.

Sreening of till to central dike

Make the slope to central dike

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345

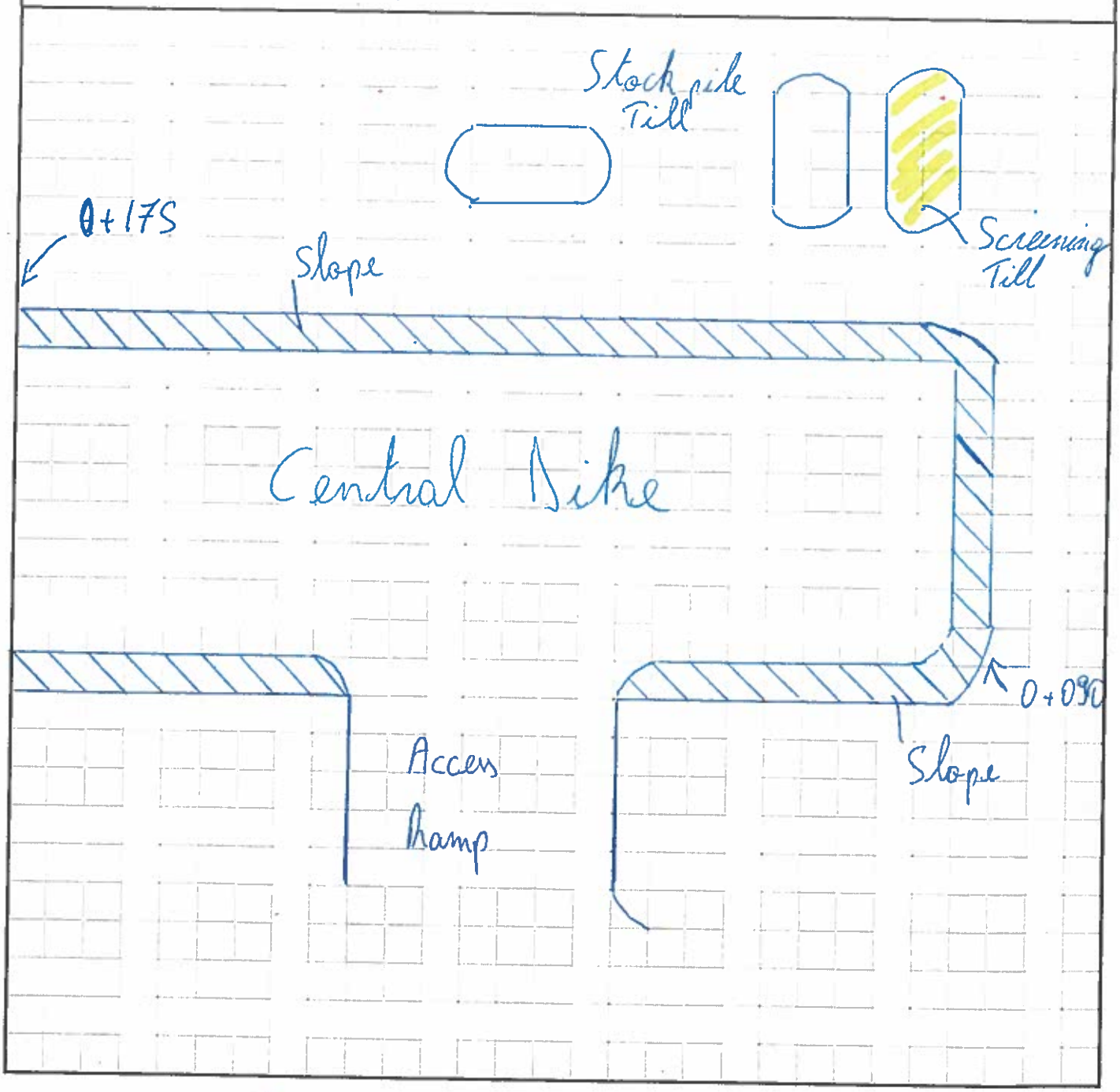
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Photos Location:

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Plan/Croquis

Client: AEM	Projet no.: II 118538
Projet: Central Bike	Page 1 de 1
Date d'inspection: 19-08-2017	



Préparé par: T. Pierrich Vérifié par:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 20-Aug-17 **Inspector - Day/Night:** Cédrick Fillon Tremblay, Day shift

Weather : sunny & cloudy

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Rockfill placement, compaction, disposing excavated material.

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

-Finish a section for the filter up stream on SD-5 & SD-4 at El. 145. (see sketch join to the report)

-Start the key clan-up on SD-4 & SD-5. (see sketch join to the report)

-Finish the compaction on north of Centrale Dike at El. 145. (see sketch join to the report)

-Slope up and down stream on SD-3 at El. 145. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Komat'Su PC 450LC \ loader (50% \ 50%), D8 dozer, Haule trucks, Packer 10 tonnes

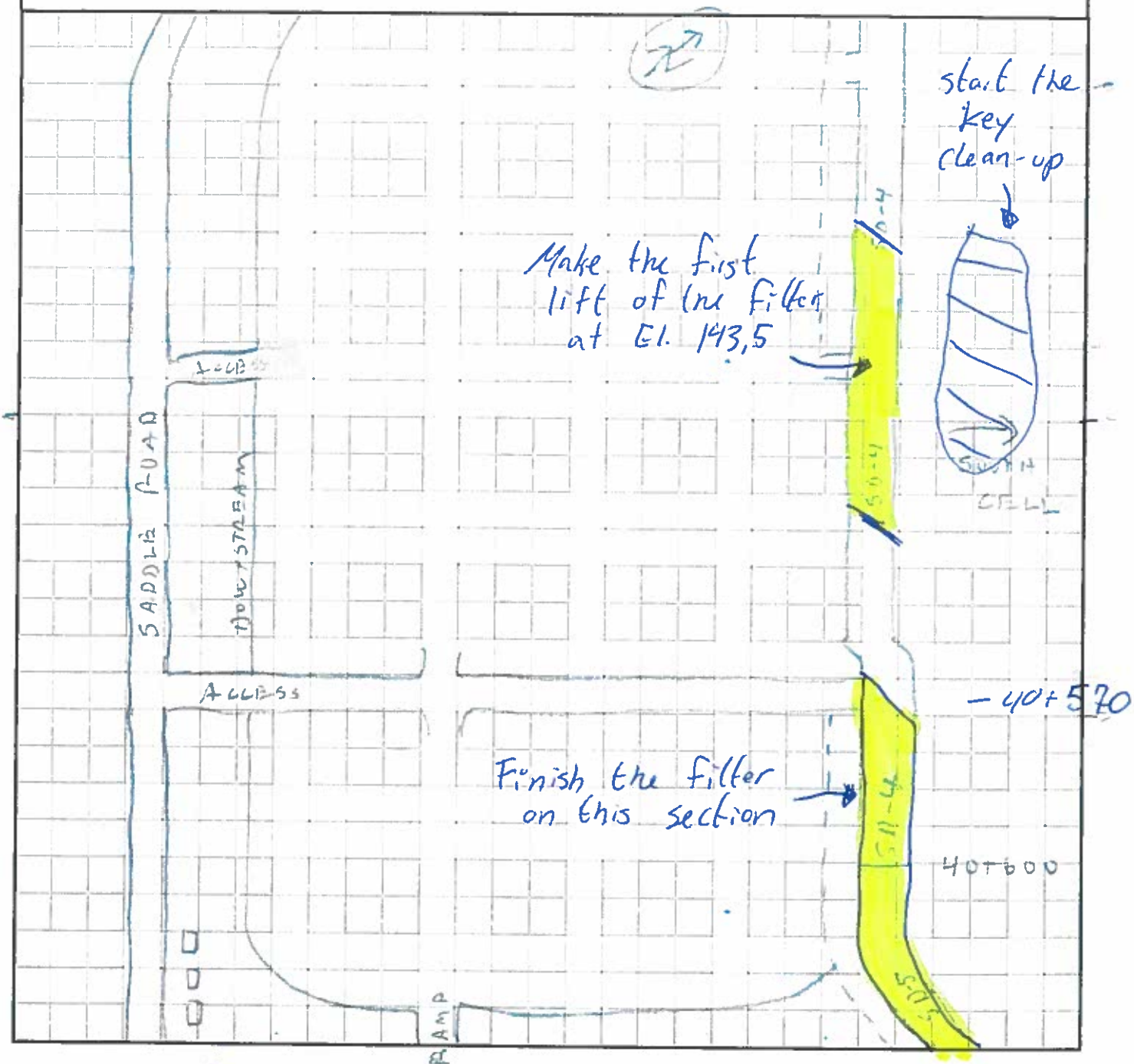
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Plan/Croquis

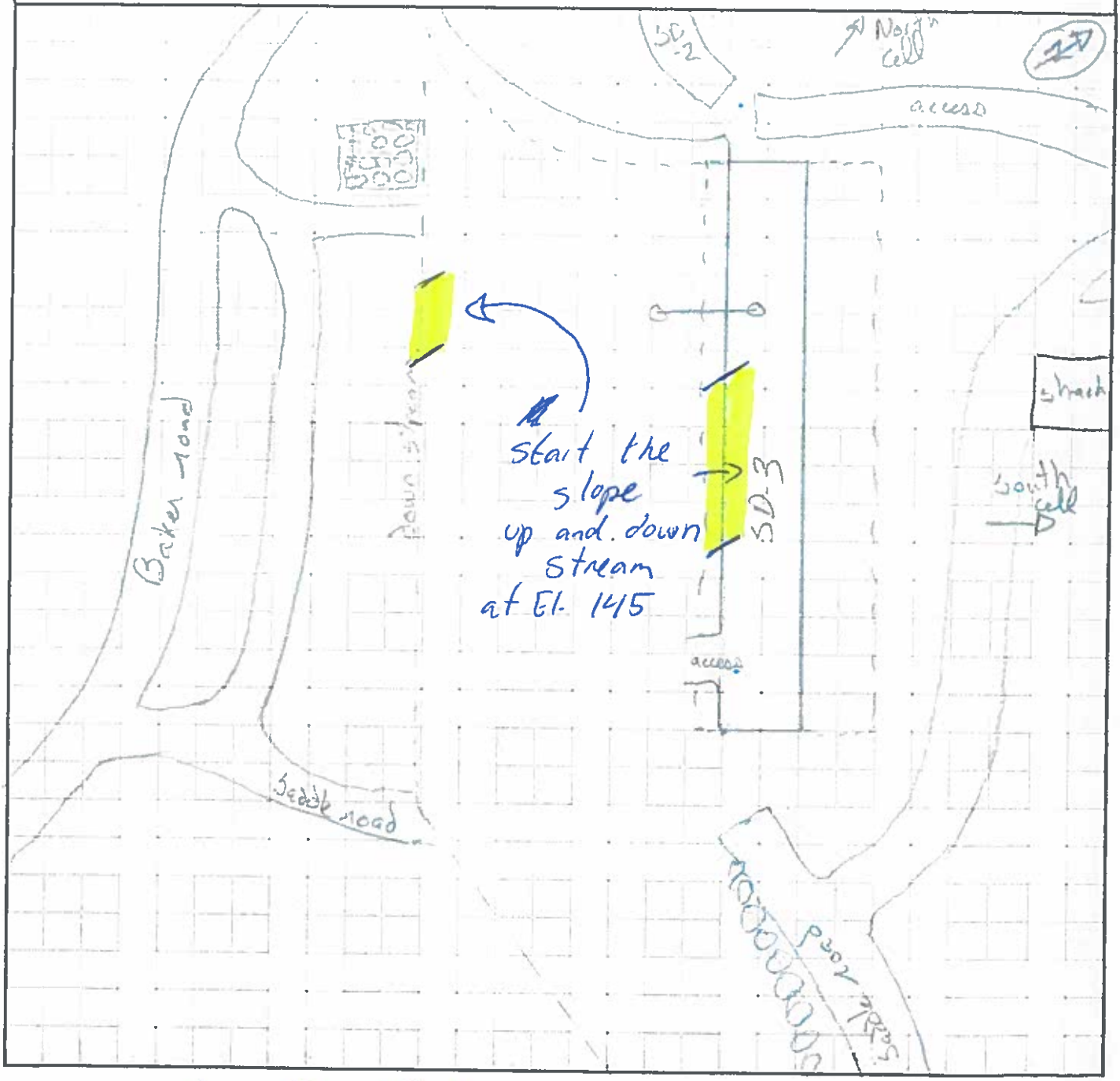
Client: A.E.M	Projet no.: 1111 8538-B1
Projet: SADDLE DAM 3-4-5	Page 1 de 2
Date d'inspection: 2017-	



Préparé par: _____ Vérifié par: _____

Plan/Croquis

Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 2 de 2
Date d'inspection: 2017-	



Préparé par: _____ Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 20-Aug-17 **Inspector - Day/Night:** Pierrick Trecasse, night shift

Weather : sunny

Project: SD3 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☑		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☑		

Description : QC activities.

Make the slope up stream side to SD3

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345

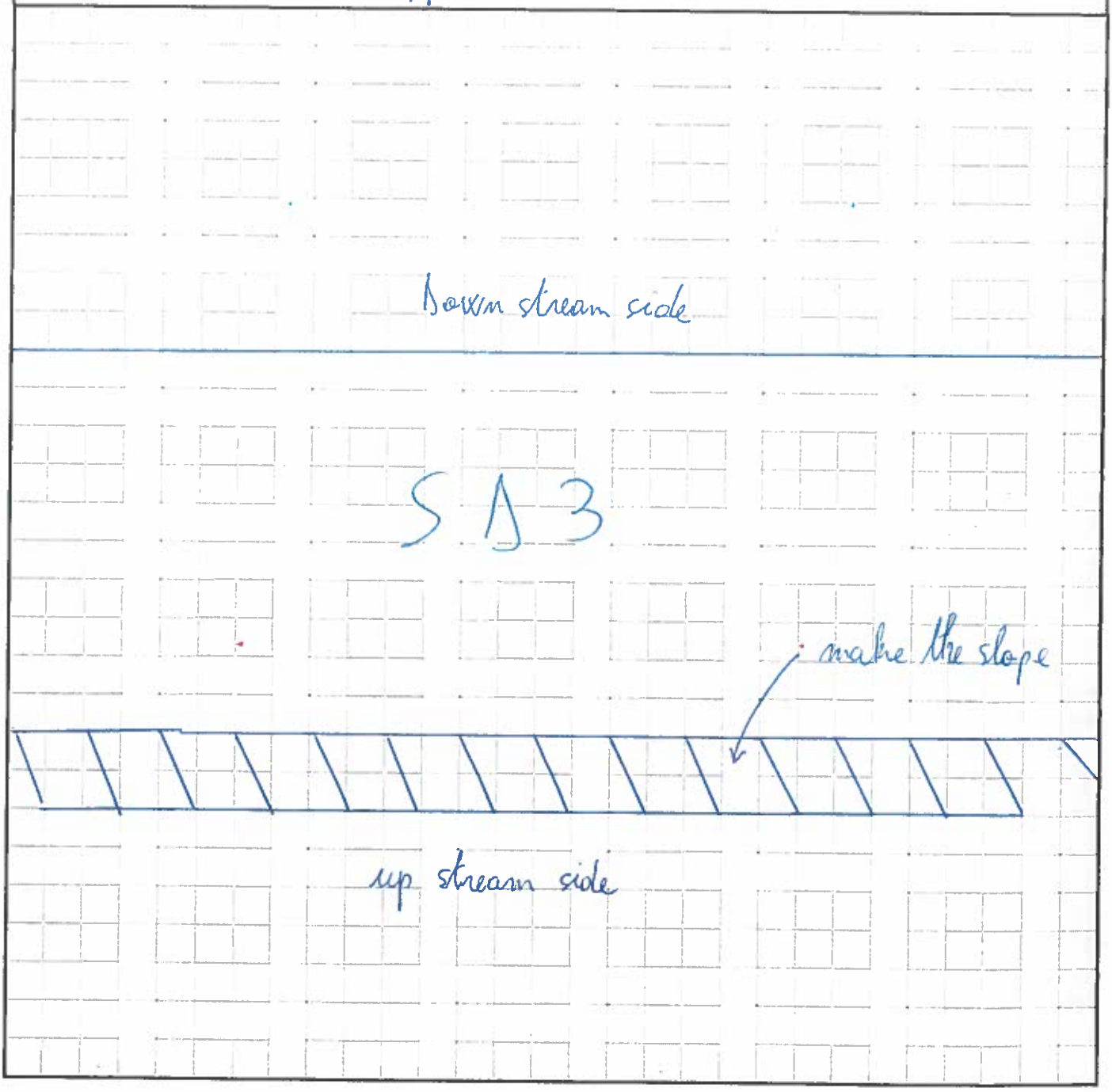
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Photos Location:

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Plan/Croquis

Client: AEM	Projet no.: 11 11 85 38 - B1
Projet: SD3	Page 1 de 1
Date d'inspection: 20-08-2017	



Préparé par: T. Pierrick Vérifié par:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 21-Aug-17 **Inspector - Day/Night:** Cédrick Fillon Tremblay / Sébastien Blackburn, Day shift

Weather : sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Key cleaning, sloping and water pumping

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

-Finish the first key cleaning of SD-4 up stream. (see sketch join to the report)

-Slope up on down stream of SD-3 at El. 145. (see sketch join to the report)

-Pump the water down stream of SD-4. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Packer 10 tonnes, pepine, water truck

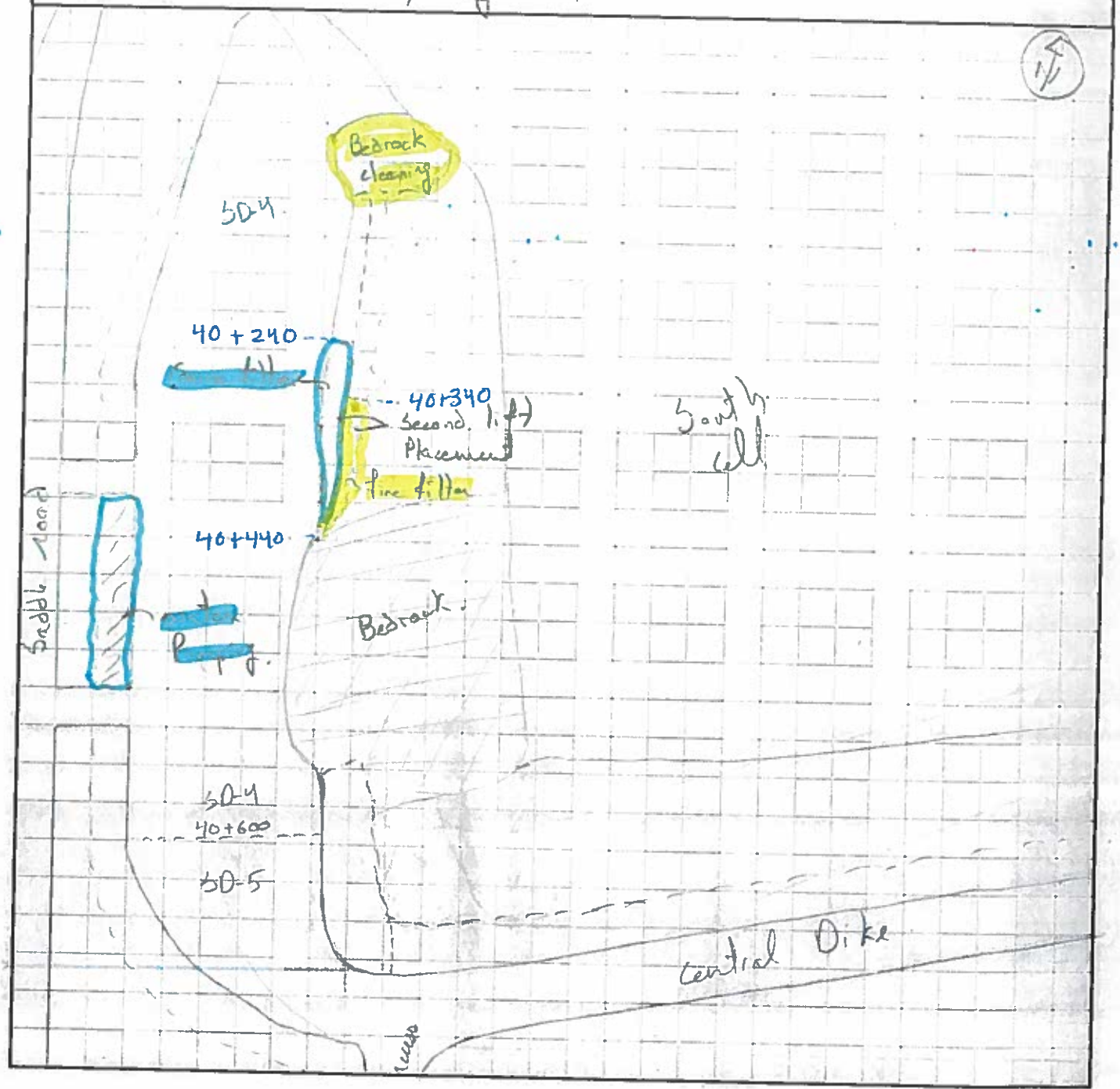
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Photos Location:

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Plan/Croquis

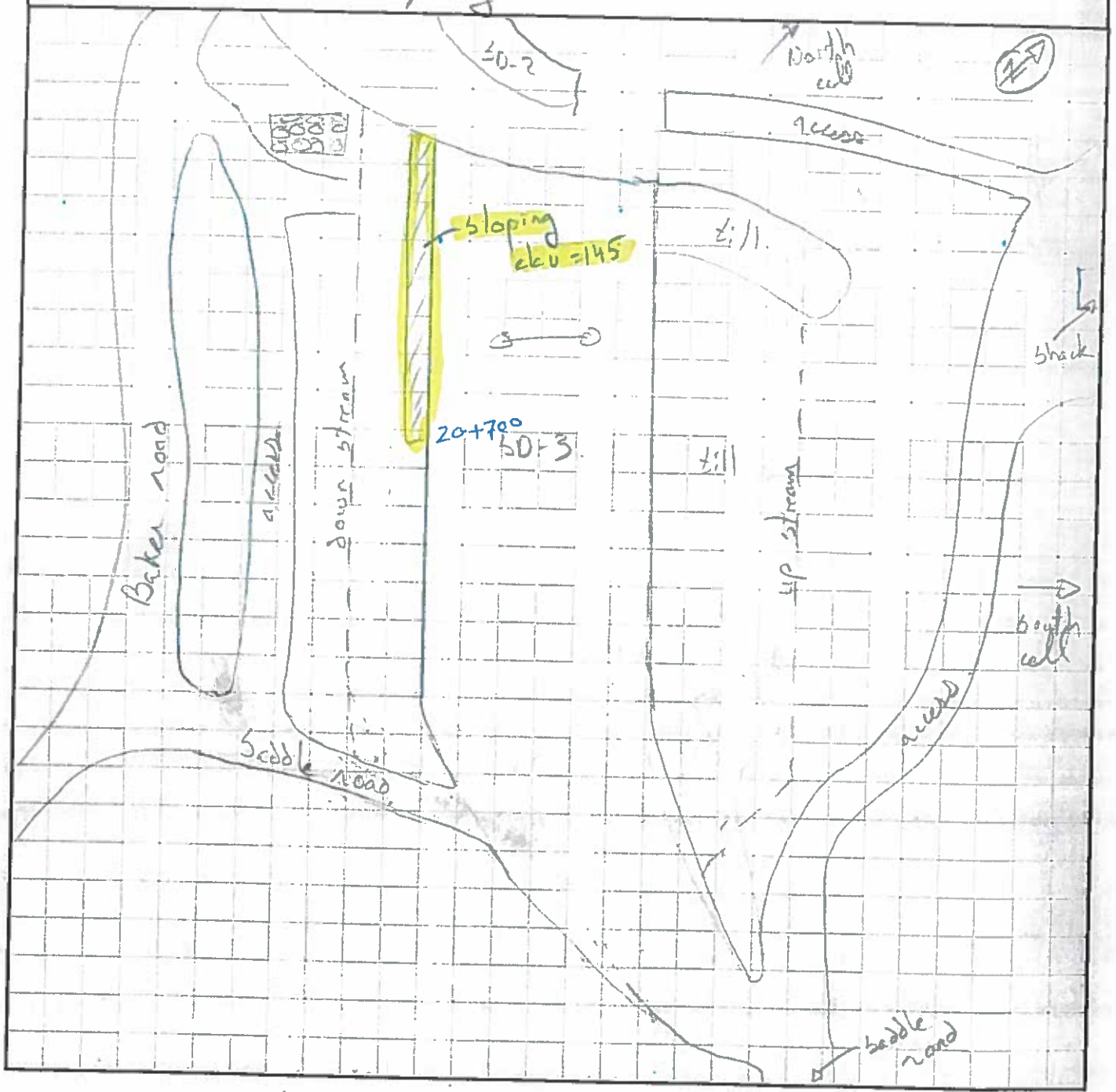
Client: A.E.M	Projet no.: 11118538-B1
Projet: Saddle Dam 3-4-5	Page 1 de 2
Date d'inspection: 2017-08-21 / day shift	



Préparé par: BB / cédrick F.T. Vérifié par: _____

Plan/Croquis

Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 2 de 2
Date d'inspection: 2017-08-21 / day shift	



Préparé par: S.P. / C.F.T. Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 22-Aug-17 **Inspector - Day/Night:** Sébastien Blackburn, Day shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Fine and Coarse Filter placement, bedrock cleaning, compaction

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

- Placement of 0.5m tick lift of coarse and fine filter on the second an third lift of SD-4. (see sketch join to the report)
- Compaction of the second lift on SD-4 of the fine and coarse filters. (see sketch join to the report)
- Bedrock cleaning of Central dike's key. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Packer 10 tonnes, 2-6 Weels trucks, Cat 420E 25% of a day

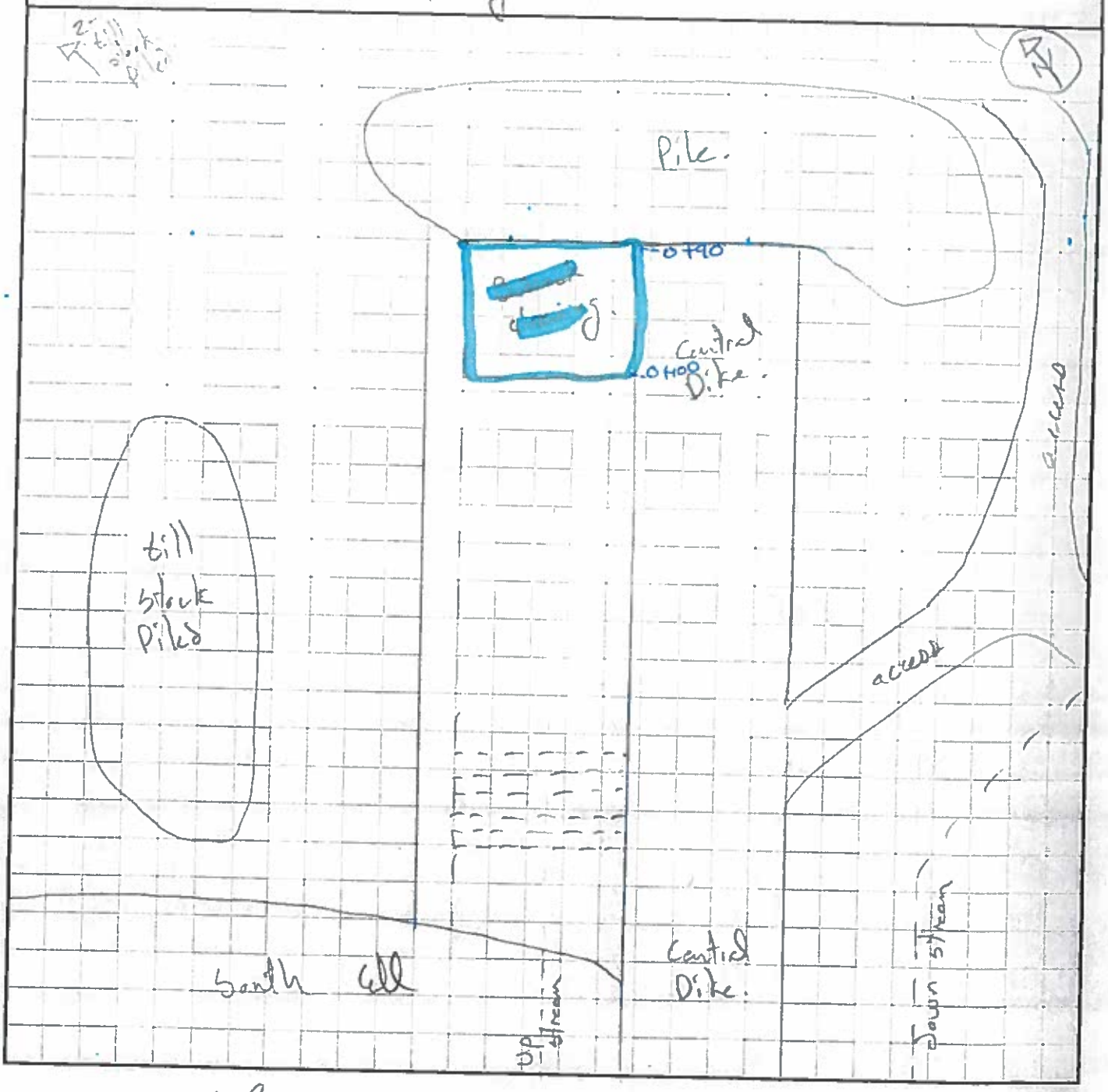
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Photos Location:

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Plan/Croquis

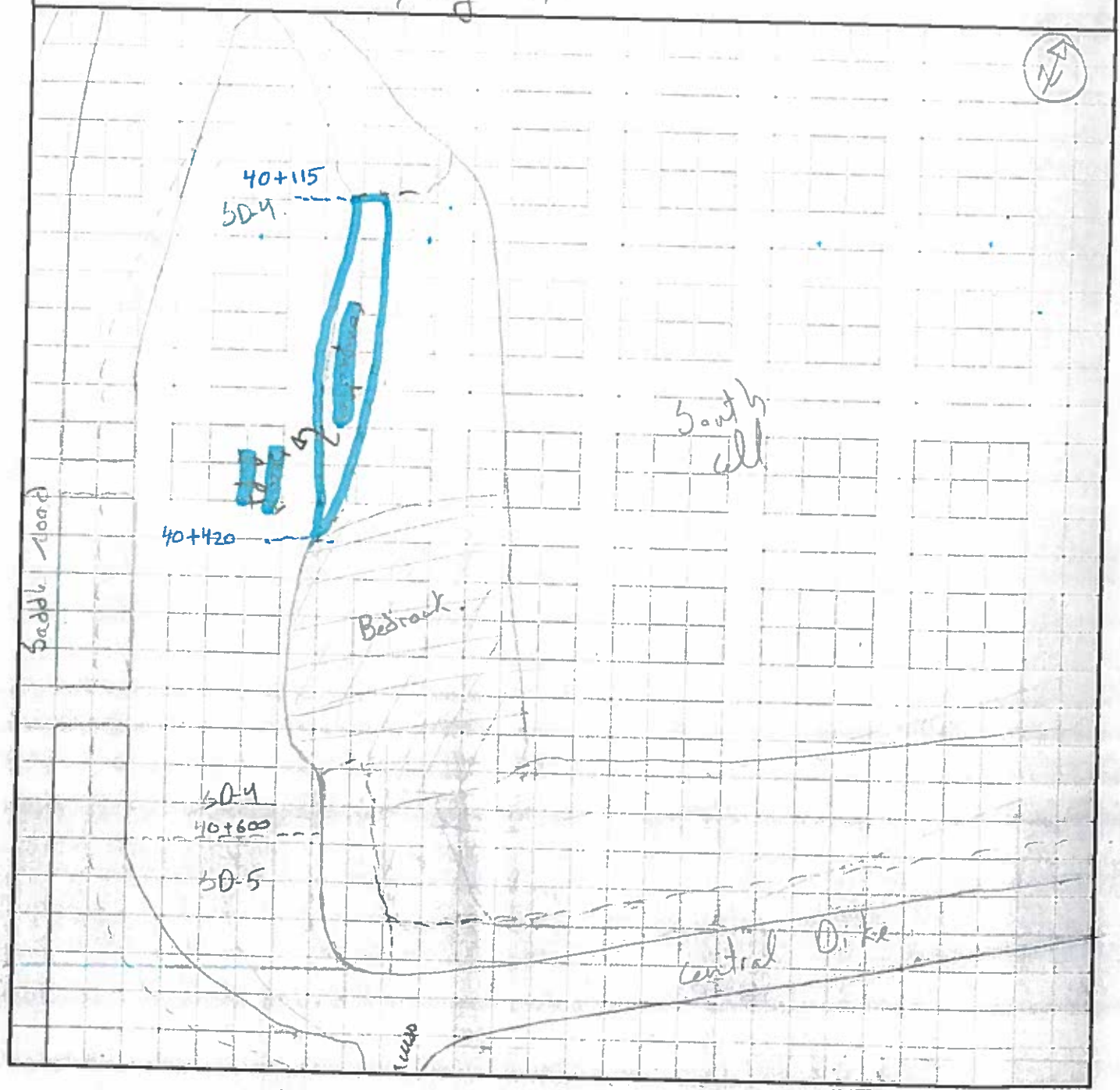
Client: AEM.	Projet no.: 1118538-B1
Projet: Saddle dam 3-4-5	Page 1 de 4
Date d'inspection: 2017-08-22 / day shift	



Préparé par: BB. Vérifié par: _____

Plan/Croquis

Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle Dam 3-4-5	Page 2 de 4
Date d'inspection: 2017-08-22 / day shift	



Préparé par: _____ Vérifié par: _____

Plan/Croquis

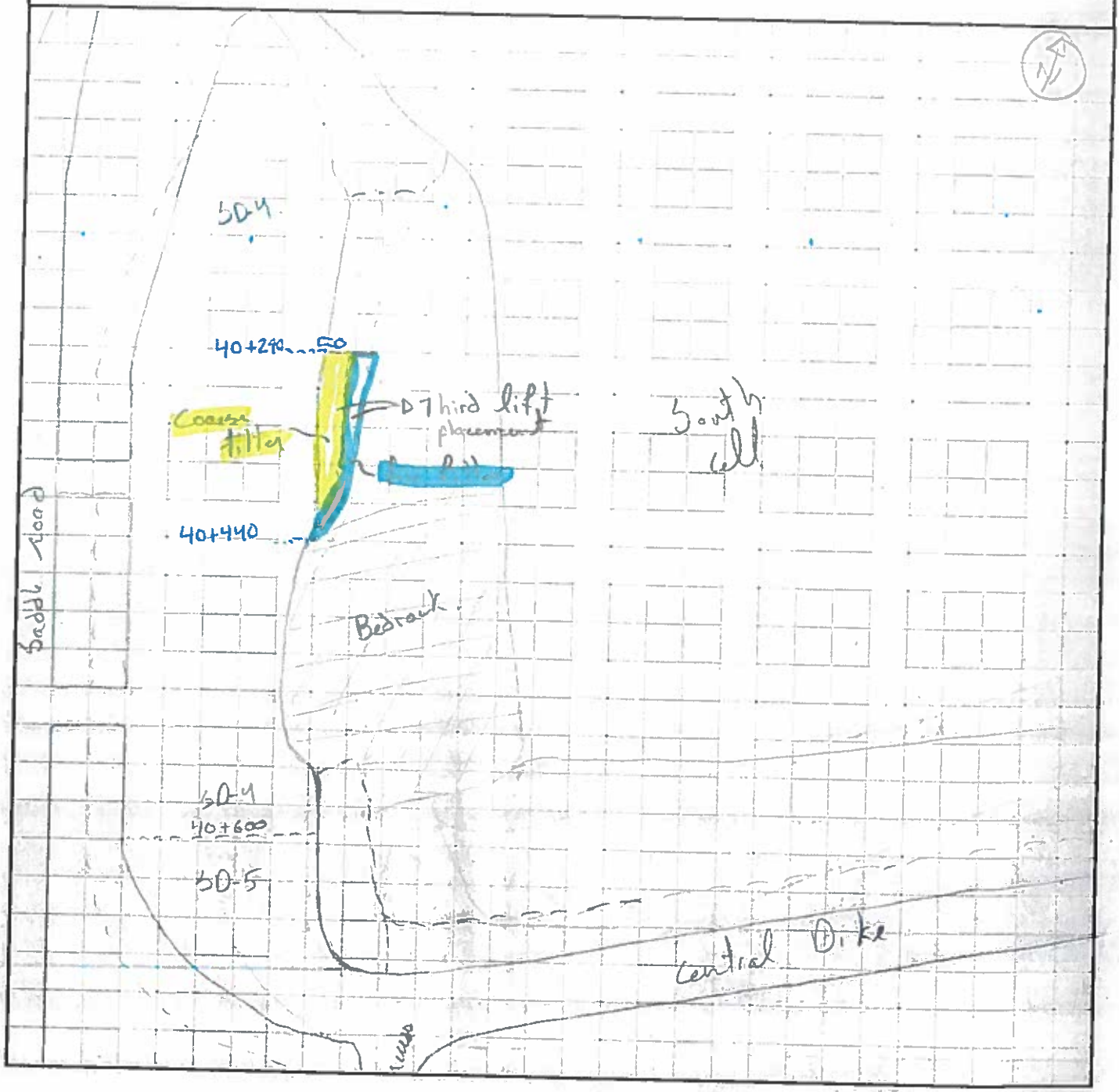
Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle Dam 3-4-5	Page 3 de 4
Date d'inspection: 2017-08-22 / day shift	



Préparé par: SB Vérifié par: _____

Plan/Croquis

Client: A.E.M	Projet no.: 1118538-B1
Projet: Saddle Dam 3-4-5	Page 4 de 4
Date d'inspection: 2017-08-22	



Préparé par: SB Vérifié par:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 23-Aug-17 **Inspector - Day/Night:** Sébastien Blackburn, Day shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Fine and Coarse Filter placement, bedrock blowing, compaction, sloping

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☒	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☒	**Rockfill**	☐		

Description:

- **Placement of 0.5m tick lift of coarse and fine filter on the third an the fourth lift of SD-4. (see sketch join to the report)**
- **Compaction of the third lift on SD-4 of the fine and coarse filters. (see sketch join to the report)**
- **Bedrock blowing of SD-5 plug. (see sketch join to the report)**
- **Sloping on SD-3. (see sketch join to the report)**

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Packer 10 tonnes, 2-6 Weels trucks, Komat'su 450 of a day

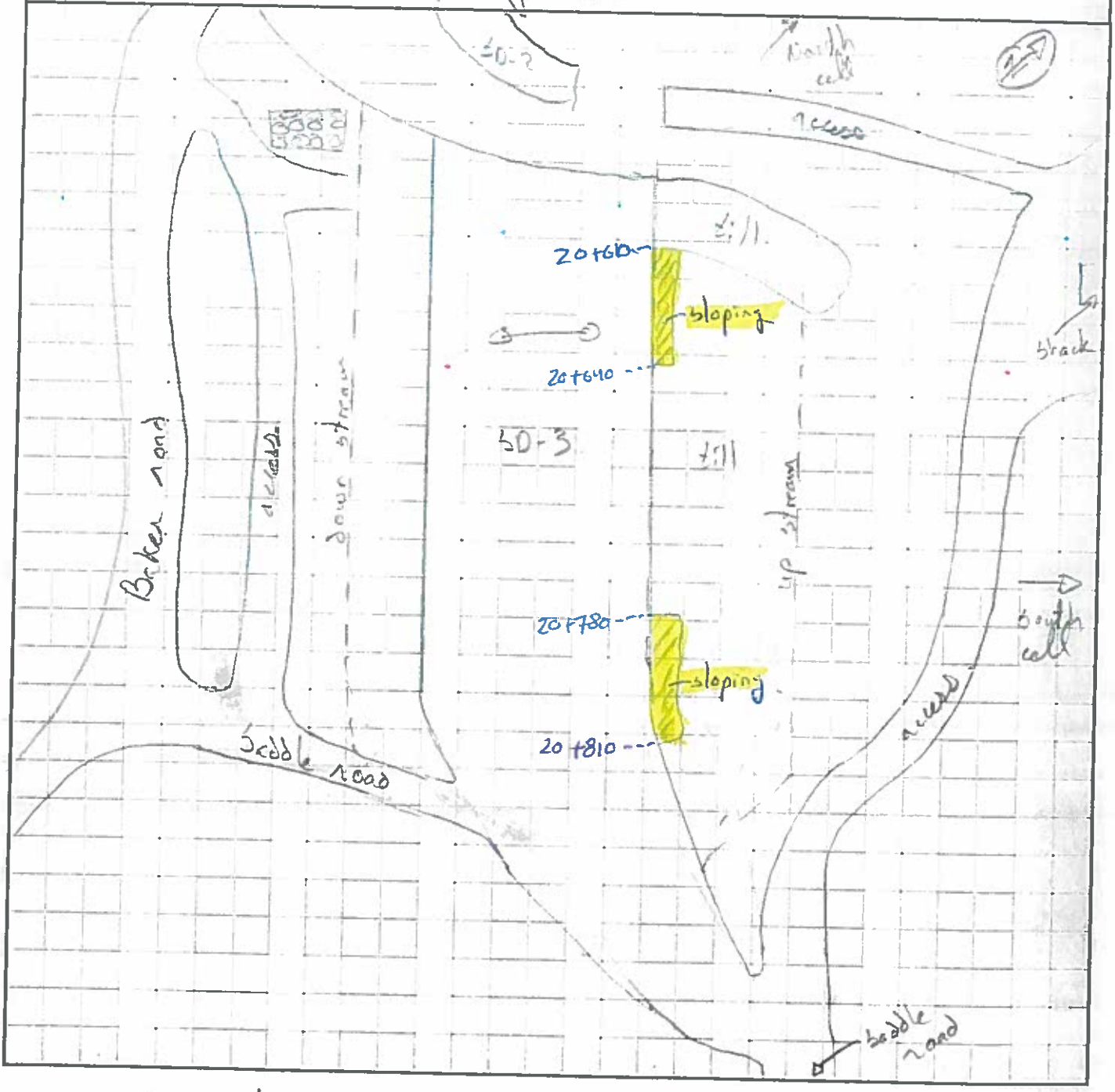
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Photos Location:

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Plan/Croquis

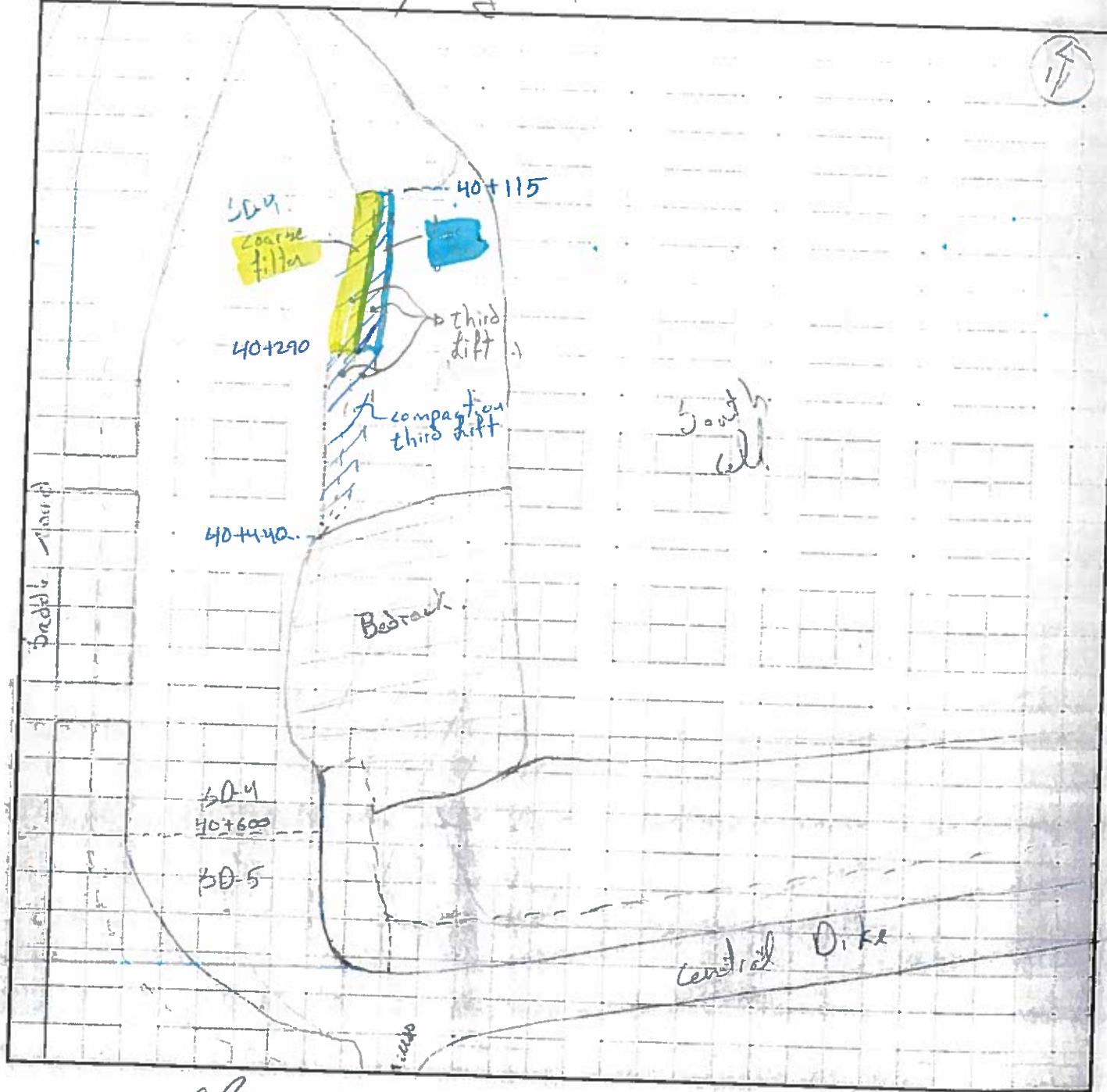
Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 1 de 3.
Date d'inspection: 2017-08-23 / day shift	



Préparé par: B/B Vérifié par: _____

Plan/Croquis

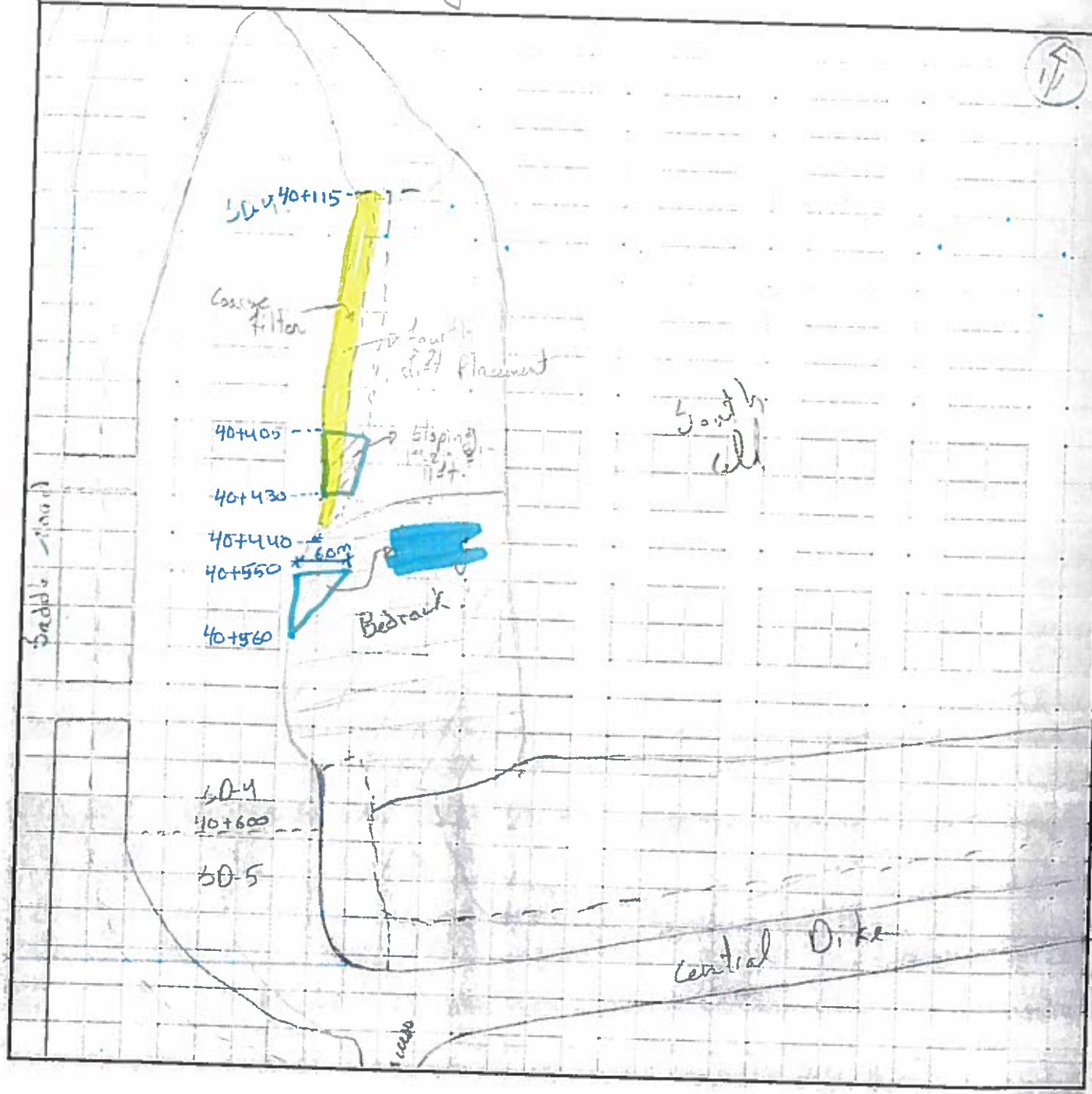
Client: A.E.M	Projet no.: 11118538-B1
Projet: Saddle Dam 3-4-5	Page 2 de 3
Date d'inspection: 2017-08-23 / day shift	



Préparé par: _____ Vérifié par: _____

Plan/Croquis

Client: AEM	Projet no.: 11118538-B1
Projet: Saddle Dam 3-4-5	Page 3 de 3
Date d'inspection: 2017-08-23 / day shift	



Préparé par: _____ Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 24-Aug-17 **Inspector - Day/Night:** Sébastien Blackburn, Day shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Fine and Coarse Filter placement, bedrock blowing, sloping

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

- Placement of 0.5m tick lift of coarse and fine filter on the fourth lift of SD-4. (see sketch join to the report)
- Bedrock blowing of SD-5 plug. (see sketch join to the report)
- Sloping on SD-3. (see sketch join to the report)
- Sloping the filters on SD-4. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, 2-6 Weels trucks, Komat'su 450 of a day, blower

Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Croquis

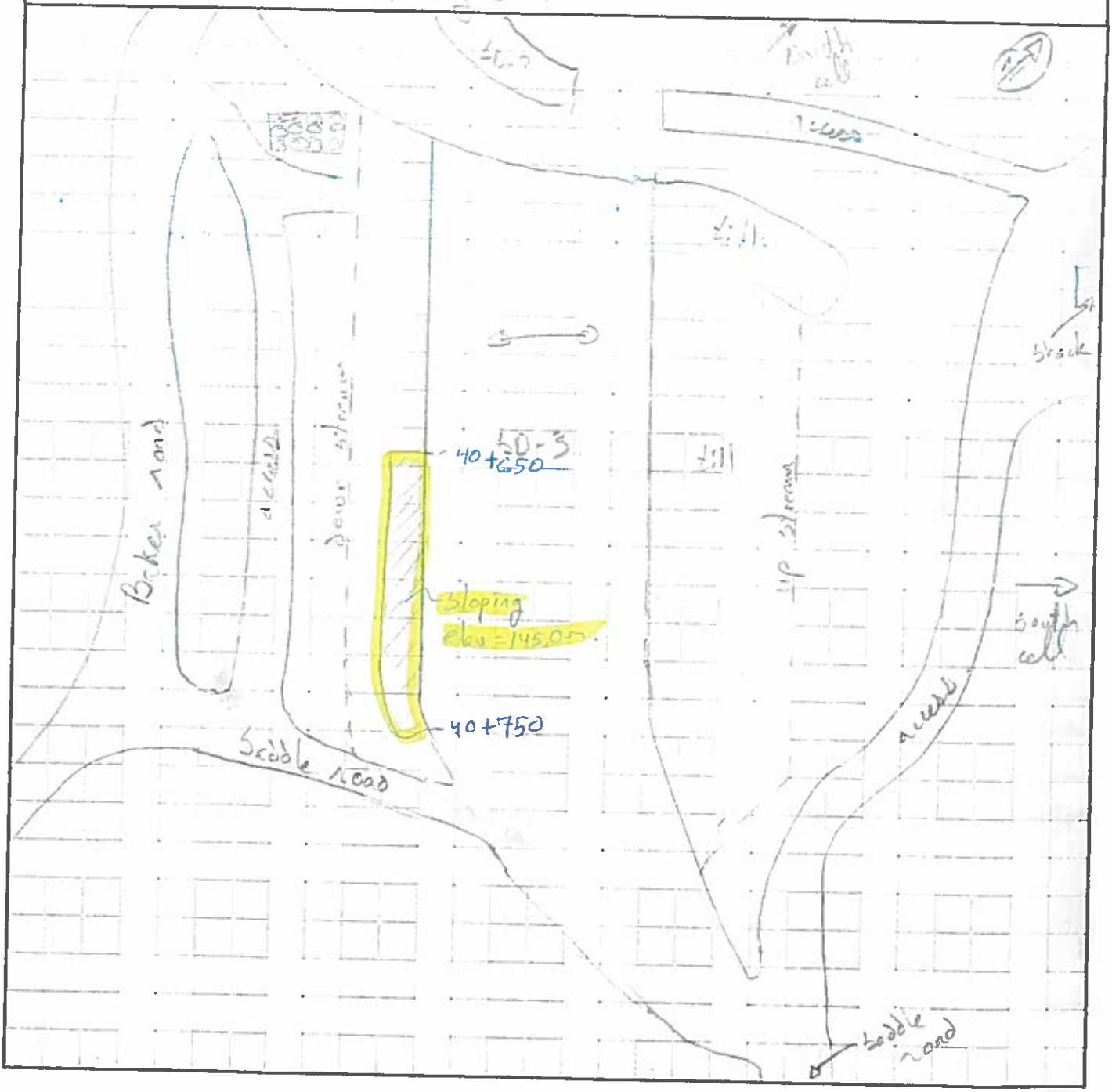
Client: A.E.M	Projet no.: 11118538-B1
Projet: Bobby Burns 3-4-5	Page 1 de 3
Date d'inspection: 2017-08-24 / day shift	



Préparé par: _____ Vérifié par: _____

Plan/Croquis

Client: A.E.M.	Projet no.: 11118538-01
Projet: Saddle dam 3-4-5	Page 2 de 3
Date d'inspection: 2017-08-24 / day 6 of 7.	



Préparé par: _____ Vérifié par: _____

Plan/Croquis

Client: A E.M	Projet no.: 11115538-B1
Projet: Gaza D- 3-4-5	Page 3 de 3
Date d'inspection: 2[illegible]-7-08-24 / one shift	



Préparé par: _____ Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 25-Aug-17 Inspector - Day/Night: Sébastien Blackburn, Day shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 Contractor: Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Fine and Coarse Filter placement, bedrock

General Activities: see work in progress blowing, sloping, mapping

Soft Sediment Excavation	☐	Key Excavation	☐	Coarse Filter	☑	Drilling/Blasting	☐
Foundation Preparation	☐	LLDPE/Geotextile	☐	Till	☐		
Water Control	☐	Fine Filter	☑	Rockfill	☐		

Description:

- Placement of 0.5m tick lift of fine filter on the fourth lift of SD-4. (see sketch join to the report)
- Bedrock blowing of SD-5 plug. (see sketch join to the report)
- Sloping the filters on SD-4. (see sketch join to the report)
- Mapping on SD-5.

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, 1-6 Weels truck, blower, packer

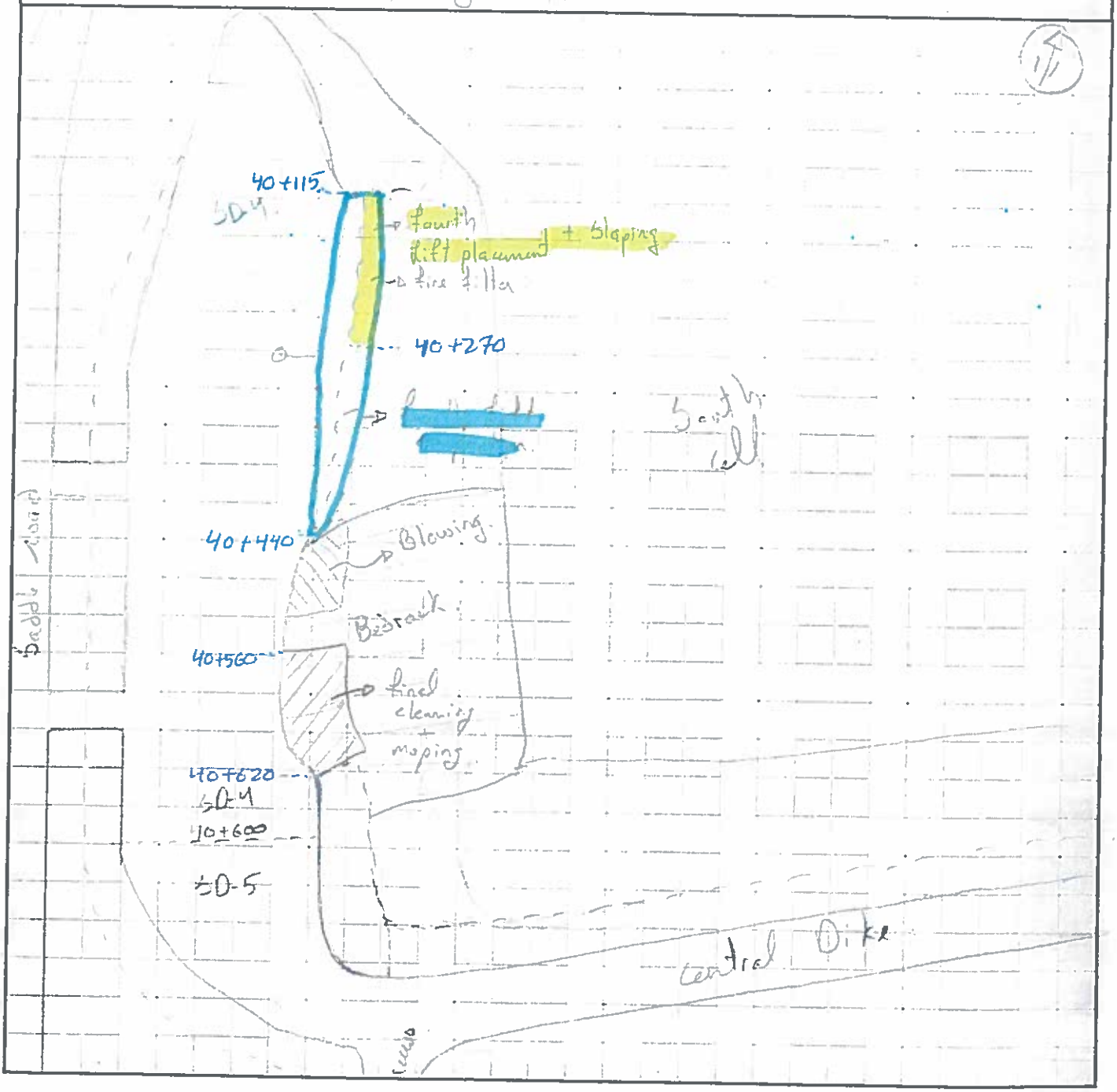
Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Croquis

Client: A.E.M	Projet no.: 1115538-B1
Projet: Saddle Dam 3-4-5	Page 1 de 1
Date d'inspection: 2017-08-25 / day shift	



Préparé par: _____ Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 26-Aug-17 **Inspector - Day/Night:** Sébastien Blackburn, Day shift

Weather : Cloudy

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work In Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Coarse Filter placement, bedrock blowing, sloping.

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☒	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☒	**Rockfill**	☐		

Description:

- Placement of 0.5m tick lift of coarse filter on the first lift of central dike. (see sketch)oin to the report)
- Bedrock blowing of SD-5 plug. (see sketch join to the report)
- Sloping the last layer of fine filter on SD-4. (see sketch)oin to the report)
- Mapping on SD-5.

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, 1-6 Weels truck, blower

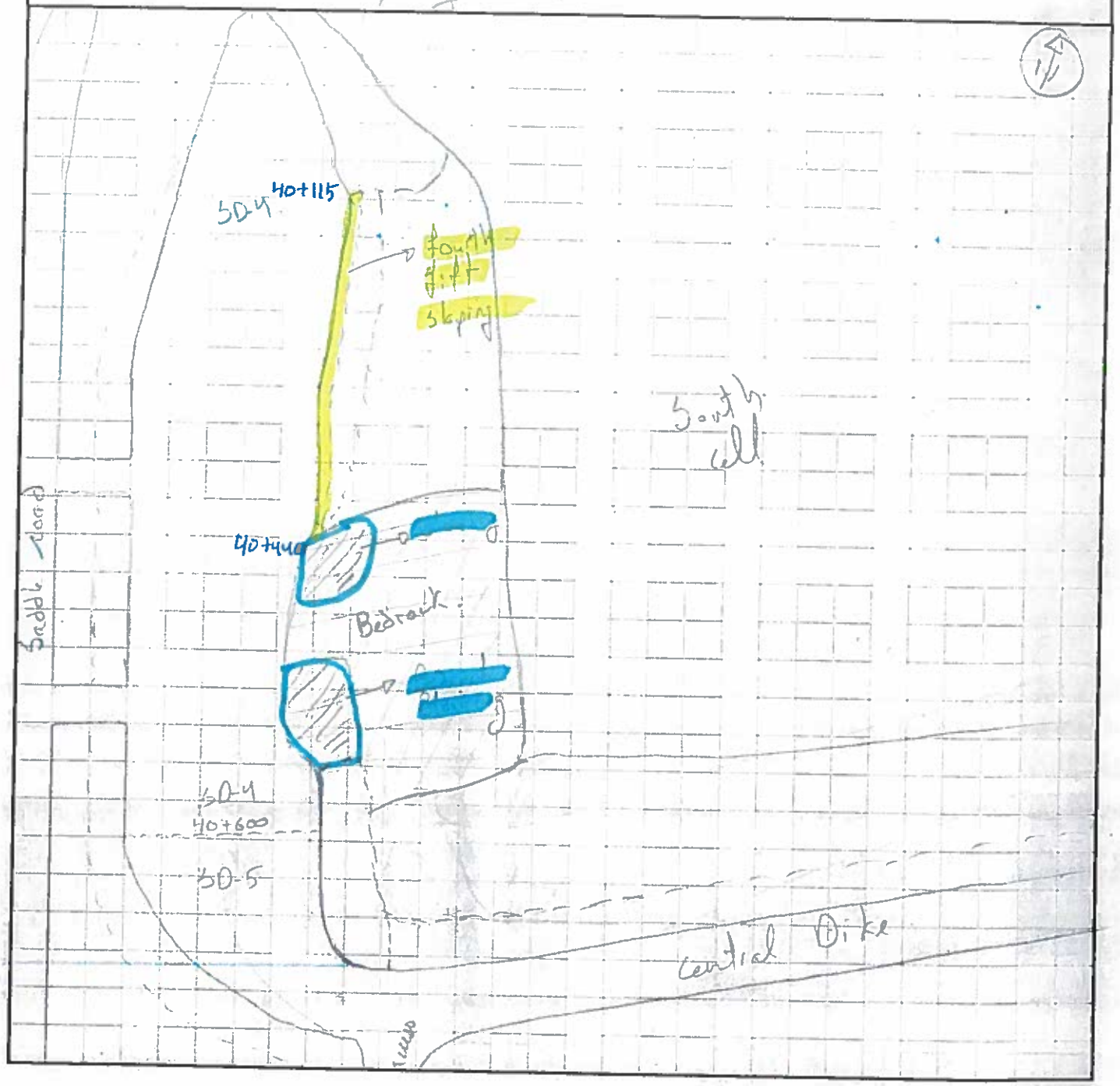
Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Croquis

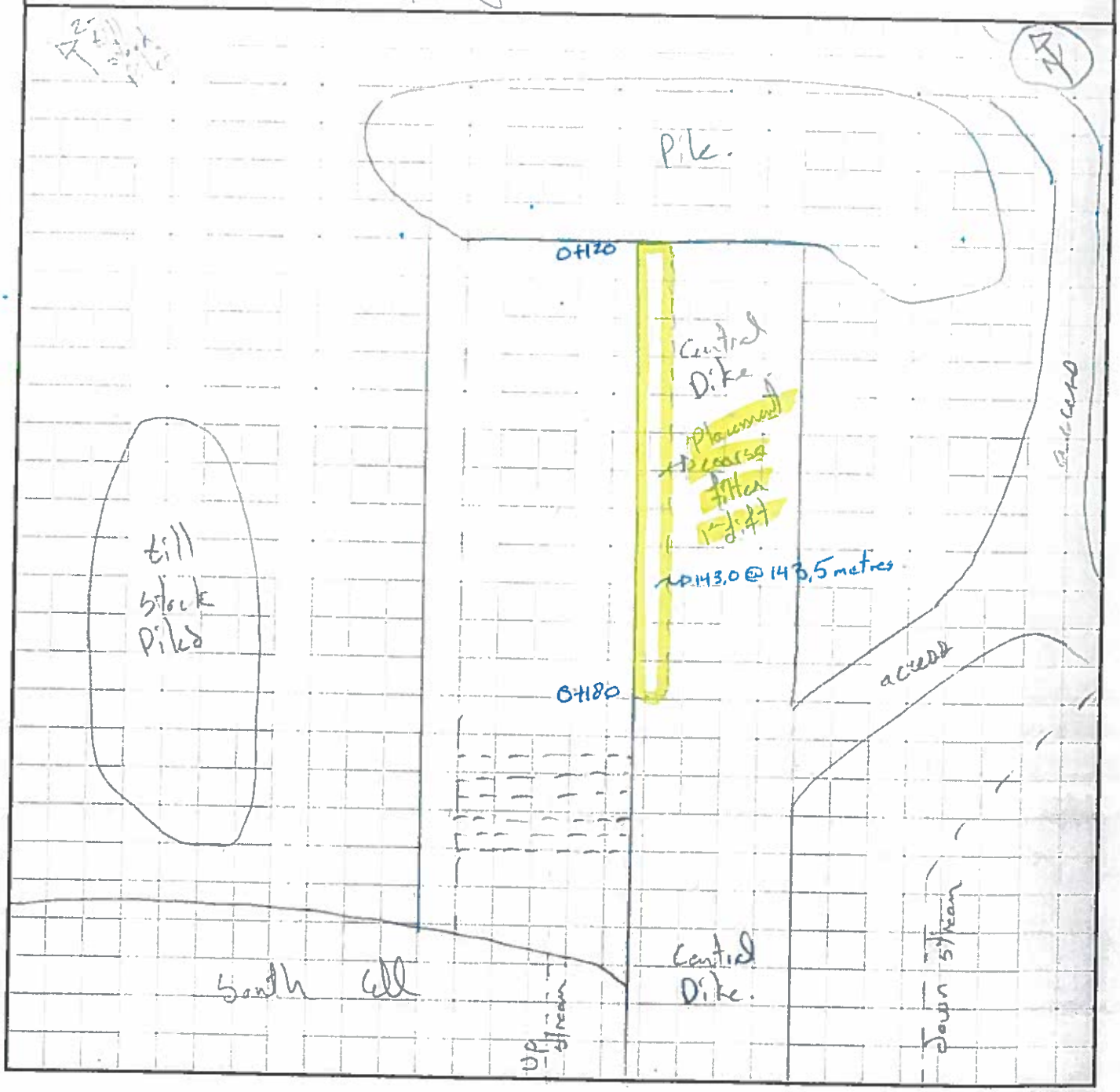
Client: A.E.M.	Projet no.: 1118538-B1
Projet: Saddle Dam 3-4-5	Page 1 de 2
Date d'inspection: 2017-08-26 / day shift	



Préparé par: JB. Vérifié par: _____

Plan/Croquis

Client: AEM	Projet no.: 1118538-B1
Projet: Saddle dam 3-4-5	Page 2 de 2
Date d'inspection: 2017-08-26 / day shift	



Préparé par: SB. Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 27-Aug-17 Inspector - Day/Night: Sébastien Blackburn, Day shift

Weather : Cloudy et rainy

Project: Saddle dams 3,4 and 5 Contractor: Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Fine and Coarse Filters placement, bedrock blowing, sloping.

General Activities: see work in progress

Soft Sediment Excavation	☐	Key Excavation	☐	Coarse Filter	☒	Drilling/Blasting	☐
Foundation Preparation	☐	LLDPE/Geotextile	☐	Till	☐		
Water Control	☐	Fine Filter	☒	Rockfill	☐		

Description:

- Placement a total of 2m of coarse and fine filter per 0.5m tick lift on the first, second, third and fourth lift of central dike. They compacted all of those layers one at the time, with the paker. (see sketch join to the report)
- They changed of 0-6 inches stockpile during the shift without any warning. When I noticed this, I stopped that immediately because the material was to much fine to be used on the job. Moreover, we have never tested it before. Right after that, they changed of stockpile but they was still wrong. I told them again and showed them the right stockpile to use. (see sketch join to the report)
- Bedrock blowing of SD-4 plug. (see sketch join to the report)
- Sloping all the layers of fine filter on central dike. (see sketch join to the report)
- Mapping on SD-5.

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, 1-6 Weels truck, blower, packer

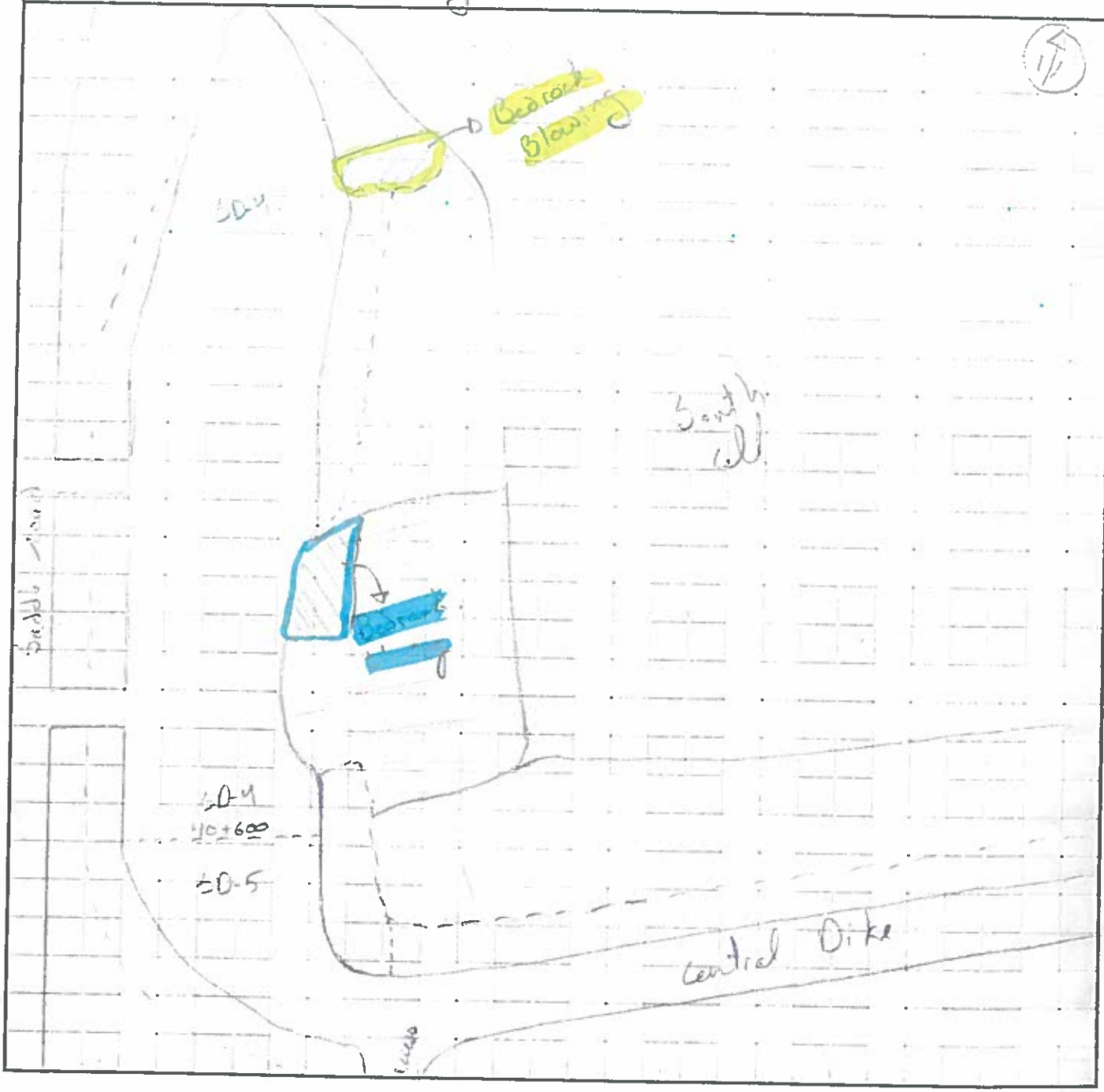
Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Croquis

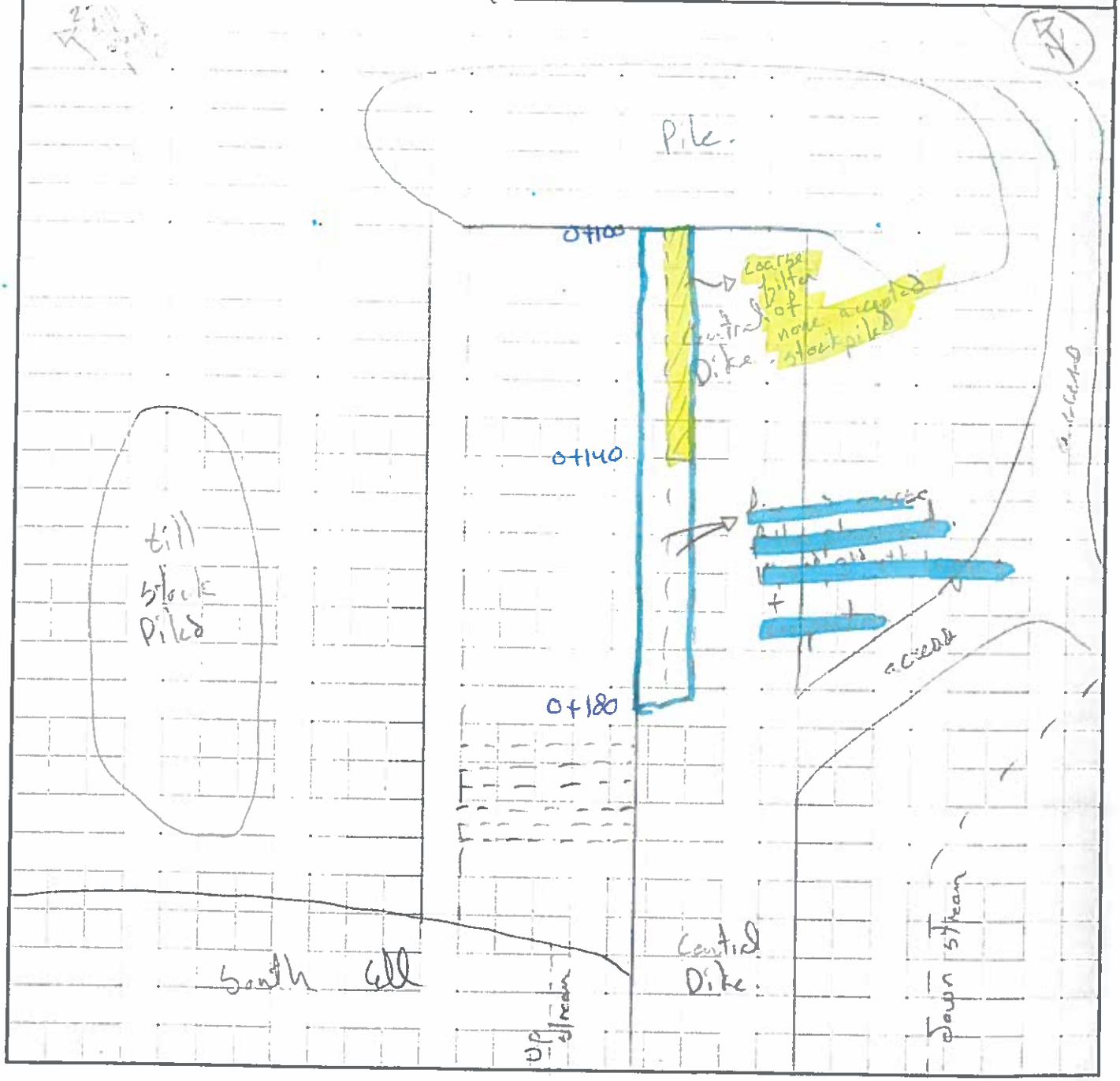
Client: A.E.M	Projet no.: 11118538-B1
Projet: [illegible]	Page 1 de 2
Date d'inspection: [illegible]-08-27 / day shift	



Préparé par: JB Vérifié par: _____

Plan/Croquis

Client: AEM.	Projet no.: 1118538-B1
Projet: Saddle dam 3-4-5	Page 2 de 2
Date d'inspection: 2017-08-27 / day shift	



Préparé par: JB Vérifié par:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 28-Aug-17 **Inspector - Day/Night:** Sébastien Blackburn, Day shift

Weather : Cloudy et sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Fine and Coarse Filters placement, bedrock blowing, sloping.

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

- Placement and compacting of 0.5m tick lift of coarse and fine filter on the first lift of SD-3. (see sketch join to the report)
- Bedrock blowing of SD-4 plug. The north and the south one. (see sketch join to the report)
- Mapping on SD-5 and the north of SD-4.

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, 2-6 Weels trucks, blower, packer

Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Croquis

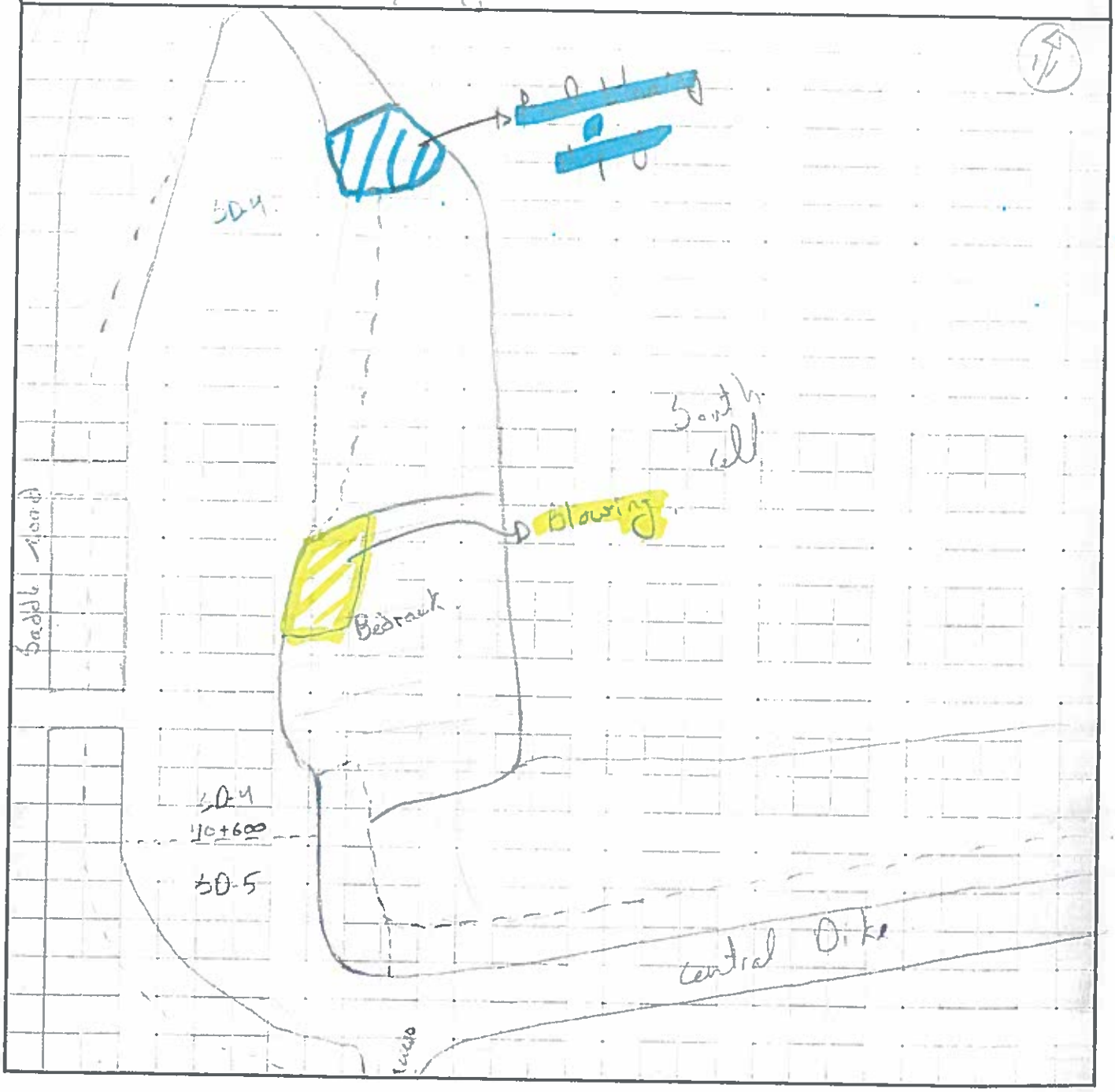
Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 1 de 2
Date d'inspection: 2017-08-28 / day shift	



Préparé par: BB Vérifié par: _____

Plan/Croquis

Client: A.E.M	Projet no.: 11118538-B1
Projet: Saddle Dam 3-4-5	Page 2 de 2
Date d'inspection: 2017-08-28 / day shift	



Préparé par: JP Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 29-Aug-17 **Inspector - Day/Night:** Sébastien Blackburn, Day shift

Weather : Cloudy et sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Fine and Coarse Filters placement, bedrock blowing, compaction.

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☒	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☒	**Rockfill**	☐		

Description:

- **Placement and compacting of 0.5m tick lift of coarse and fine filter on the second and third lift of SD-3. (see sketch join to the report)**
- **Bedrock blowing of SD-4 plug. The south part. (see sketch join to the report)**
- **Sampling the Sanna crusher 0-6 inches stock pile. #374 was given to it. (see sketch join to the report)**
- **They excavated the south key of SD-3. (see sketch join to the report)**

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, 2-6 Weels trucks, blower, packer

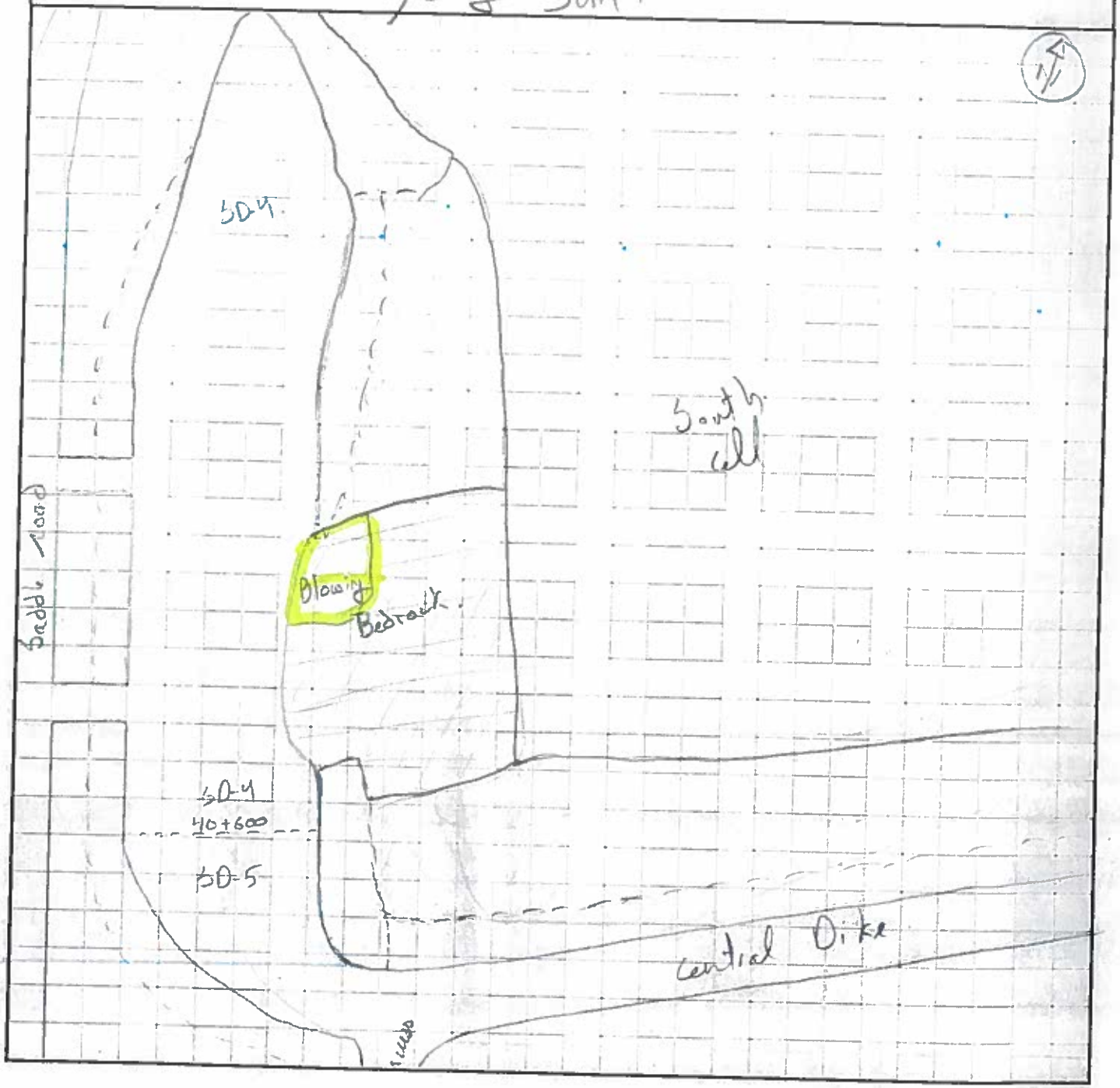
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Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

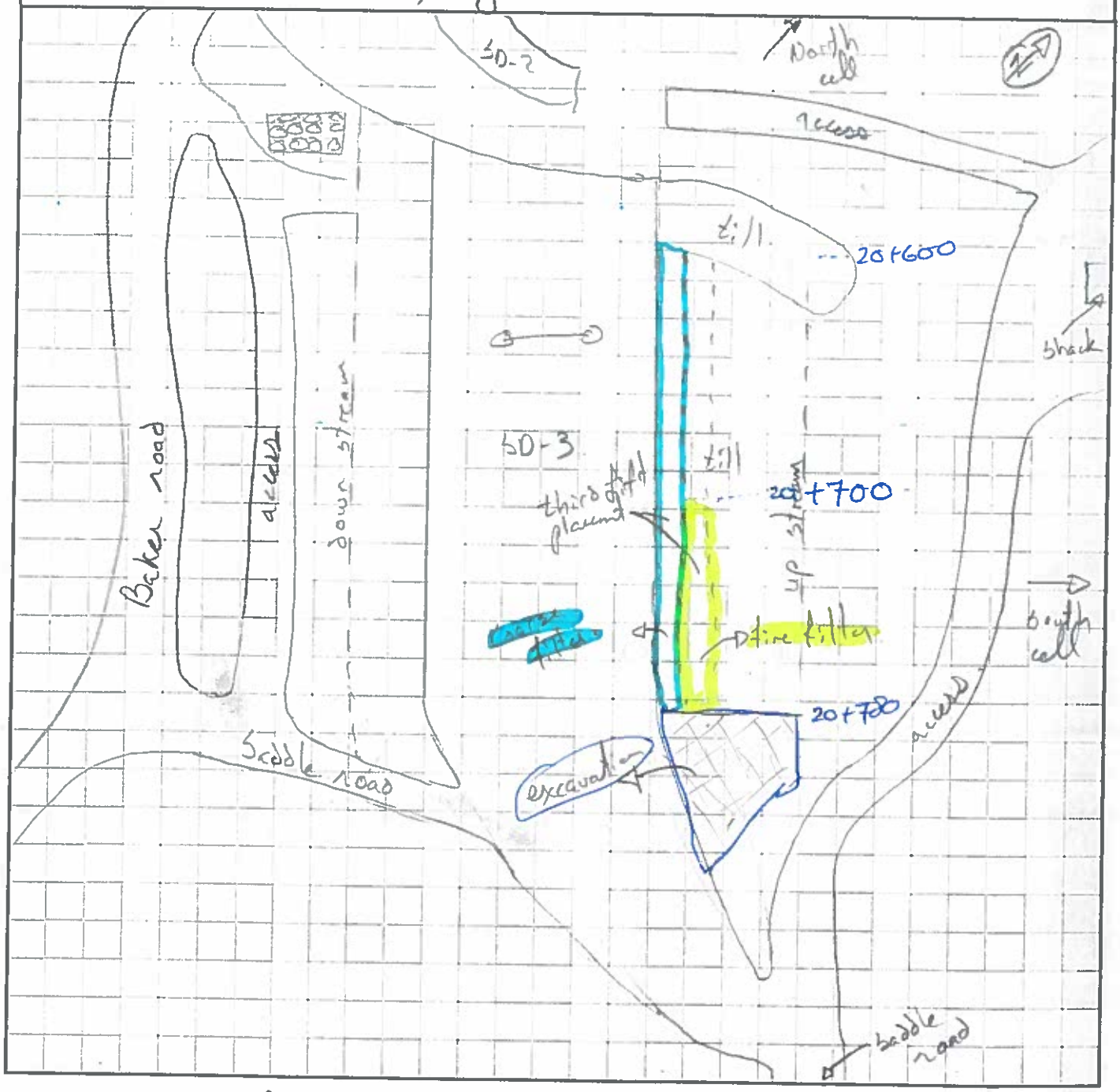
Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle Dam 3-4-5	Page 1 de 4
Date d'inspection: 2017-08-29 / Day Shift	



Préparé par: _____ Vérifié par: _____

Plan/Croquis

Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 2 de 4
Date d'inspection: 2017-08-29 / day shift.	



Préparé par: _____ Vérifié par: _____

Plan/Croquis

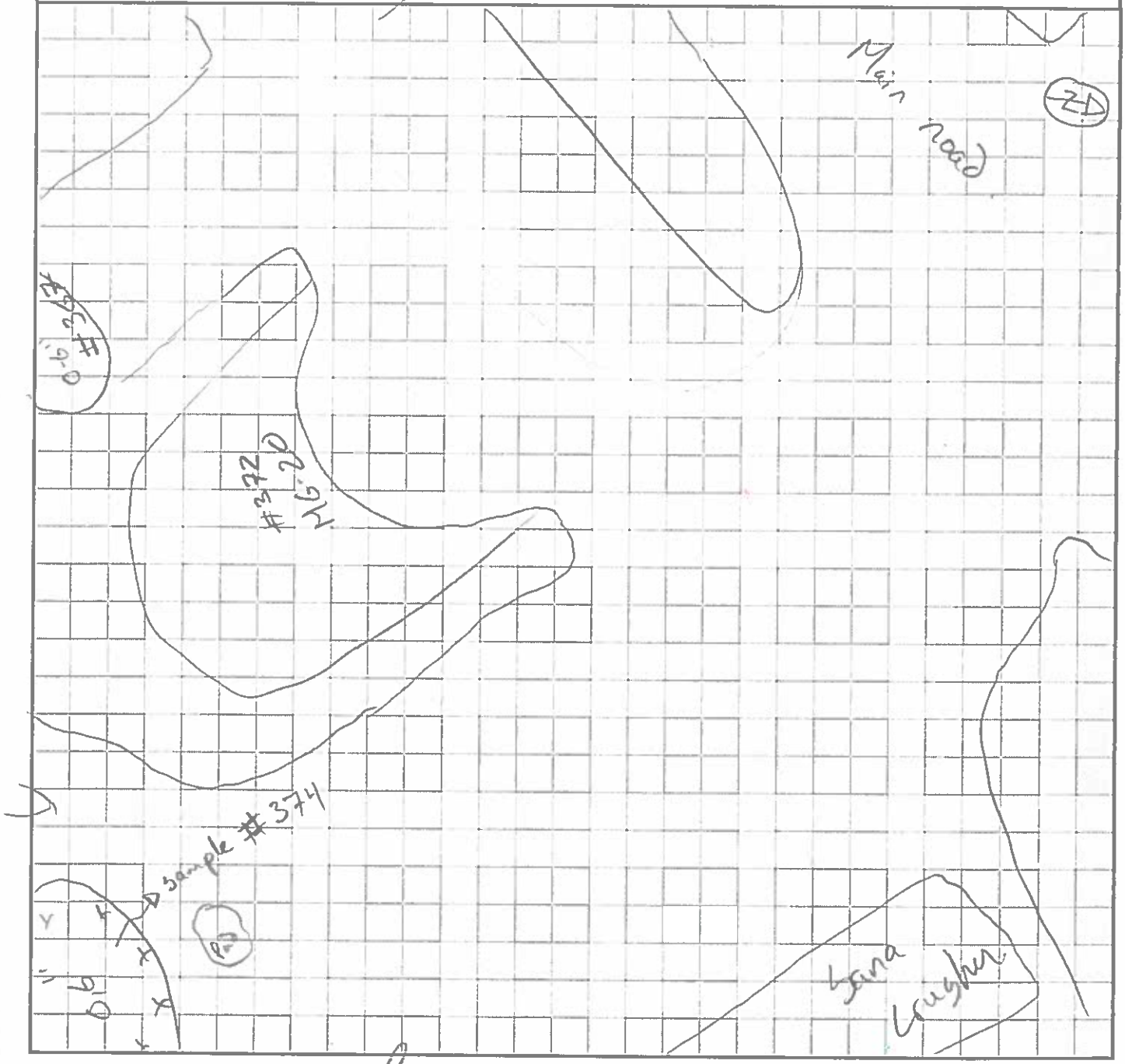
Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 3 de 4
Date d'inspection: 2017-08-29 / day shift	



Préparé par: BB Vérifié par: _____

Plan/Croquis

Client: AEM	Projet no.: 11118538 B1
Projet: Lac 206 - dam 3-4-5	Page 4 de 4.
Date d'inspection: 2017 08 29. / day shift	



Préparé par: _____ Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 30-Aug-17 **Inspector - Day/Night:** Sébastien Blackburn, Day shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Fine and Coarse Filters placement, grouting

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☒	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☒	**Rockfill**	☐		

Description:

- Placement of 0.5m tick lift of fine filter on the third lift of SD-3. (see sketch join to the report)

- They excavated the south key of SD-3. (see sketch join to the report)

- They placed un thin layer of grout in the bedrock cracks of SD-4's key (near SD-5). (see sketch join to the report)

- After de grout, they imediately added a minimum of 0.5m tick lift of sieved till. When they were in the fault zone, they used the little hand packer, than, the sieved till thickness was only 0.3m per layer. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, 2-6 Weels trucks, blower, packer

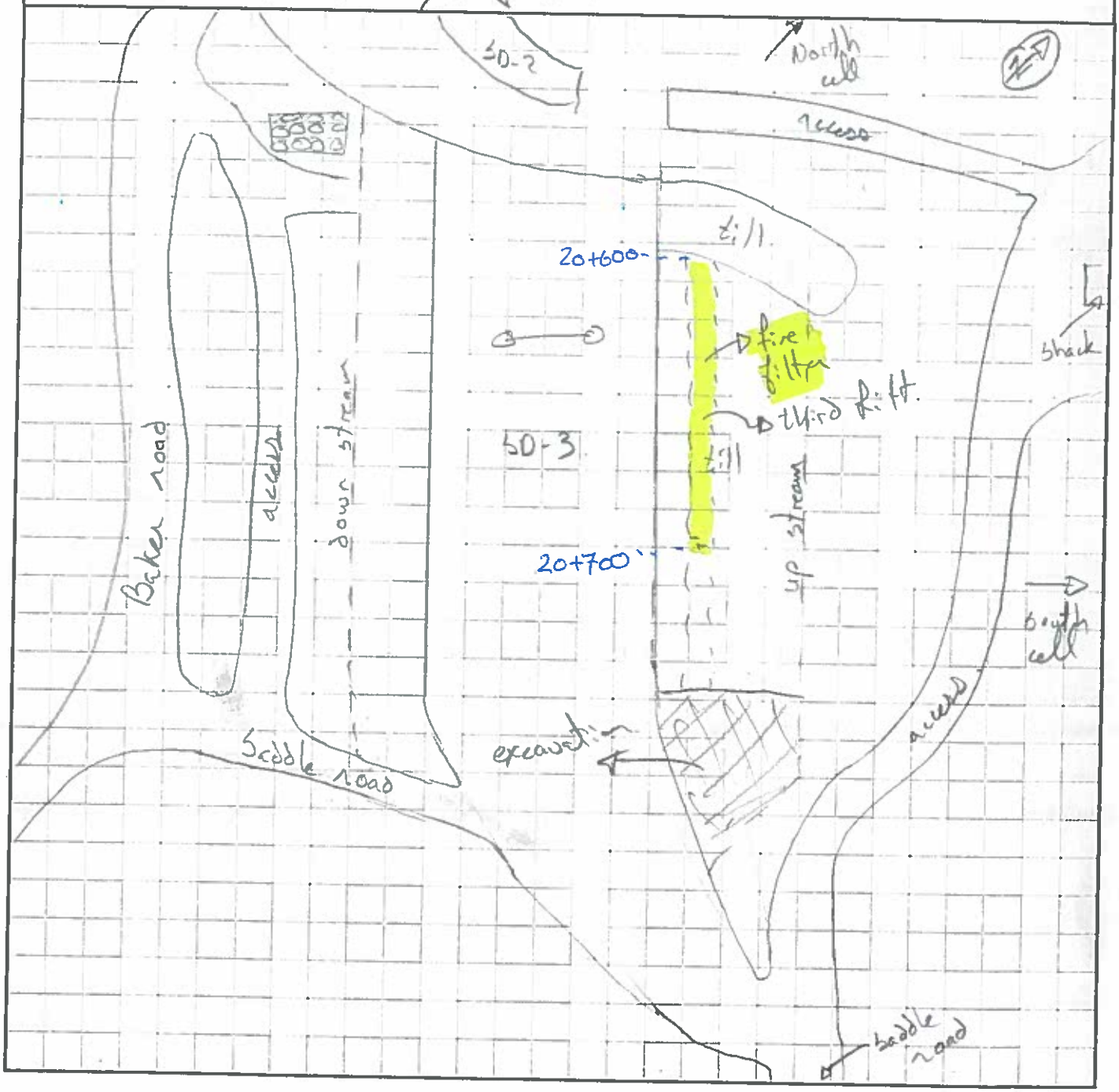
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

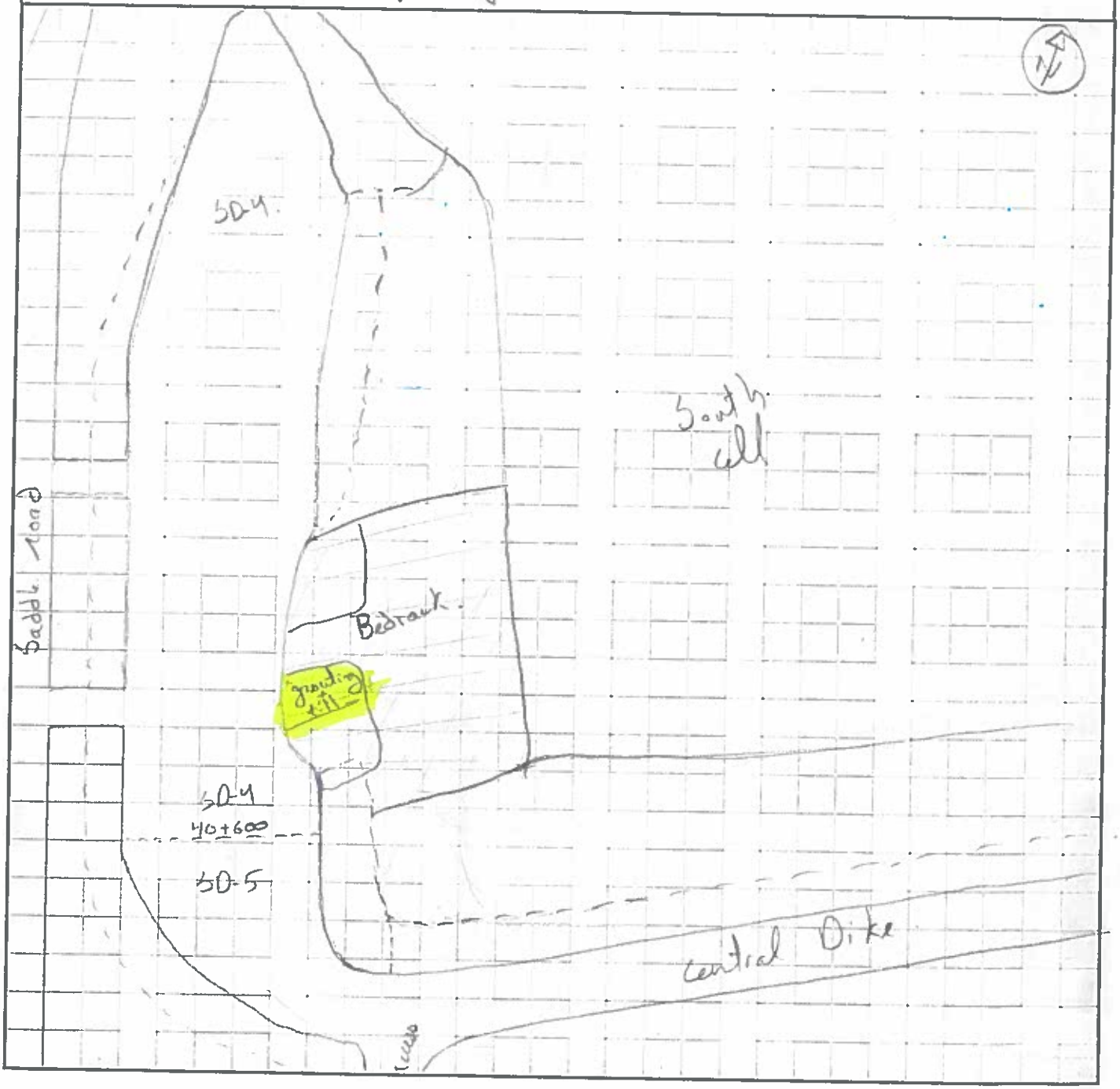
Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 1 de 2.
Date d'inspection: 2017-08-30 / day shift	



Préparé par: JB Vérifié par: _____

Plan/Croquis

Client: A.E.M	Projet no.: 11118538-B1
Projet: Saddle Dam 3-4-5	Page 2 de 2
Date d'inspection: 2017-08-30 / Day shift	



Préparé par: BB Vérifié par:

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 31-Aug-17 **Inspector - Day/Night:** Sébastien Blackburn, Day shift

Weather : Sunny, smoky

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Bedrock cleaning, grouting, blowing

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

- They excavated the south key of SD-3. (see sketch join to the report)

- They placed un thin layer of slush grout in the bedrock cracks of SD-4's key and they finished the one near SD-5. (see sketch join to the report)

- After de grout, they imediately added a minimum of 0.5m tick lift of sieved till. When they were in the fault zone, they used the little hand packer, than, the sieved till thickness was only 0.3m per layer. (see sketch join to the report)

- They start de bedrock blowing on Central dike. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, 2-6 Weels trucks, blower, packer, pepine

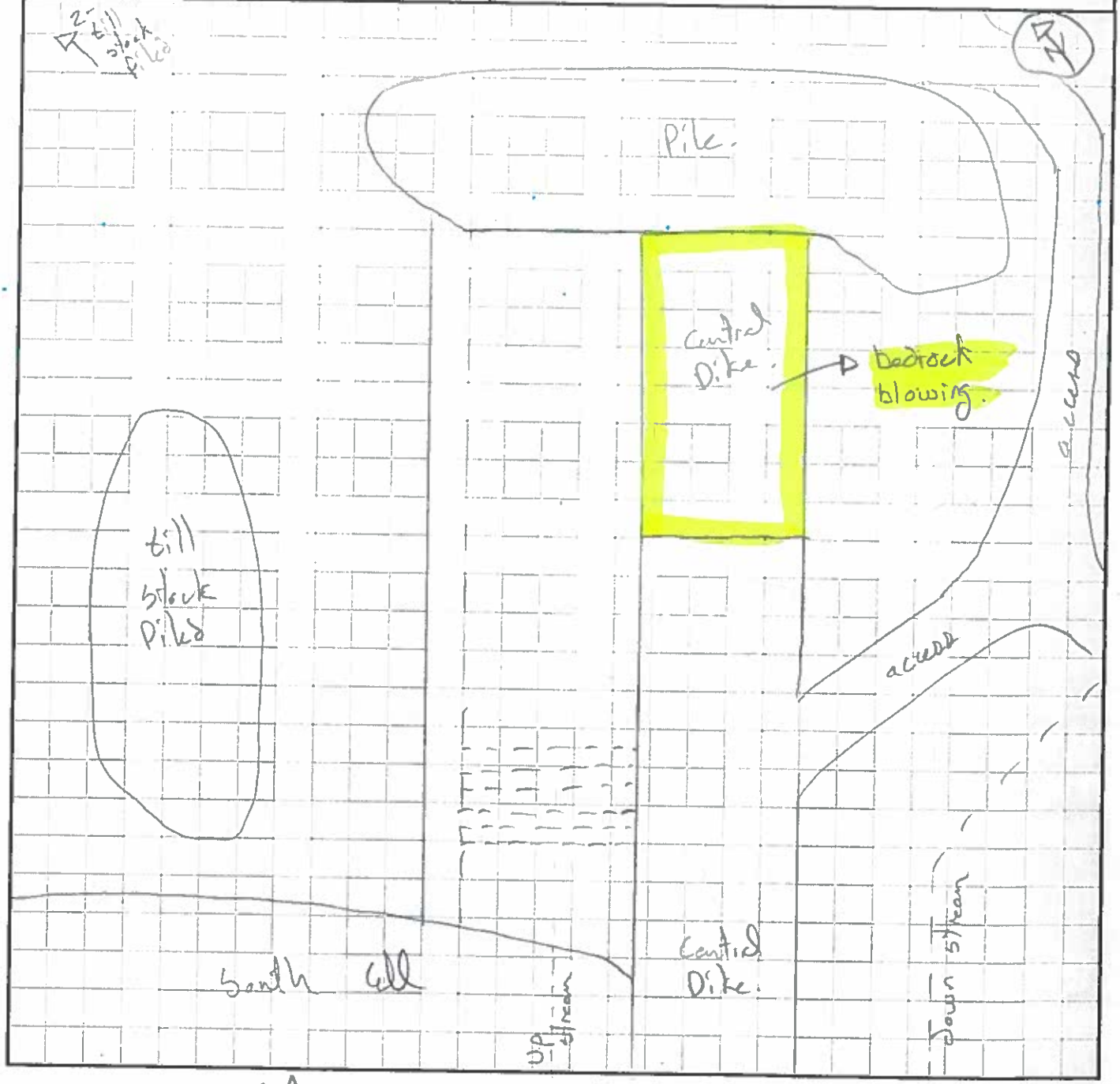
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

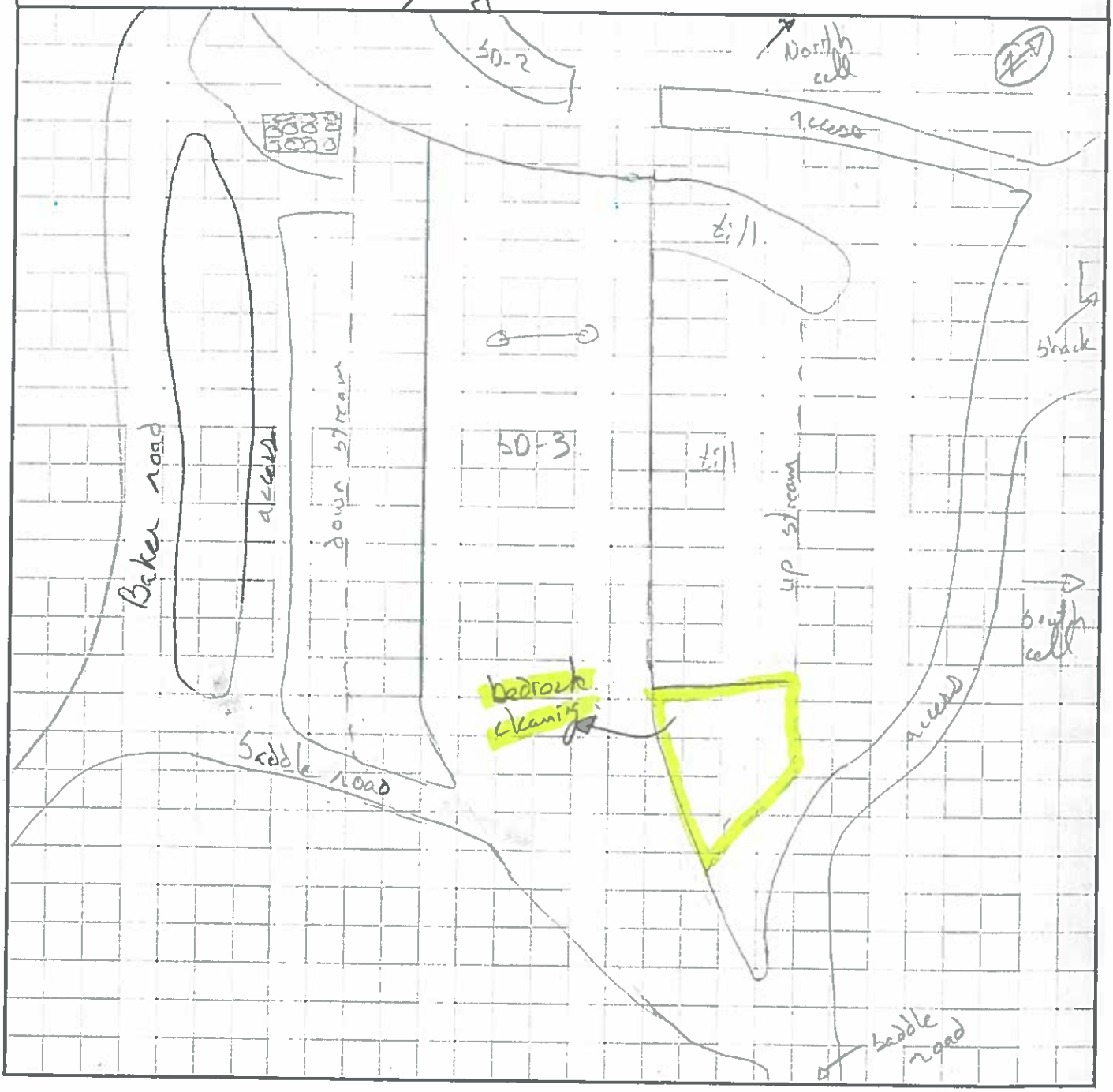
Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 1 de 3
Date d'inspection: 2017-08-31 / Day Shift	



Préparé par: SB. Vérifié par: _____

Plan/Croquis

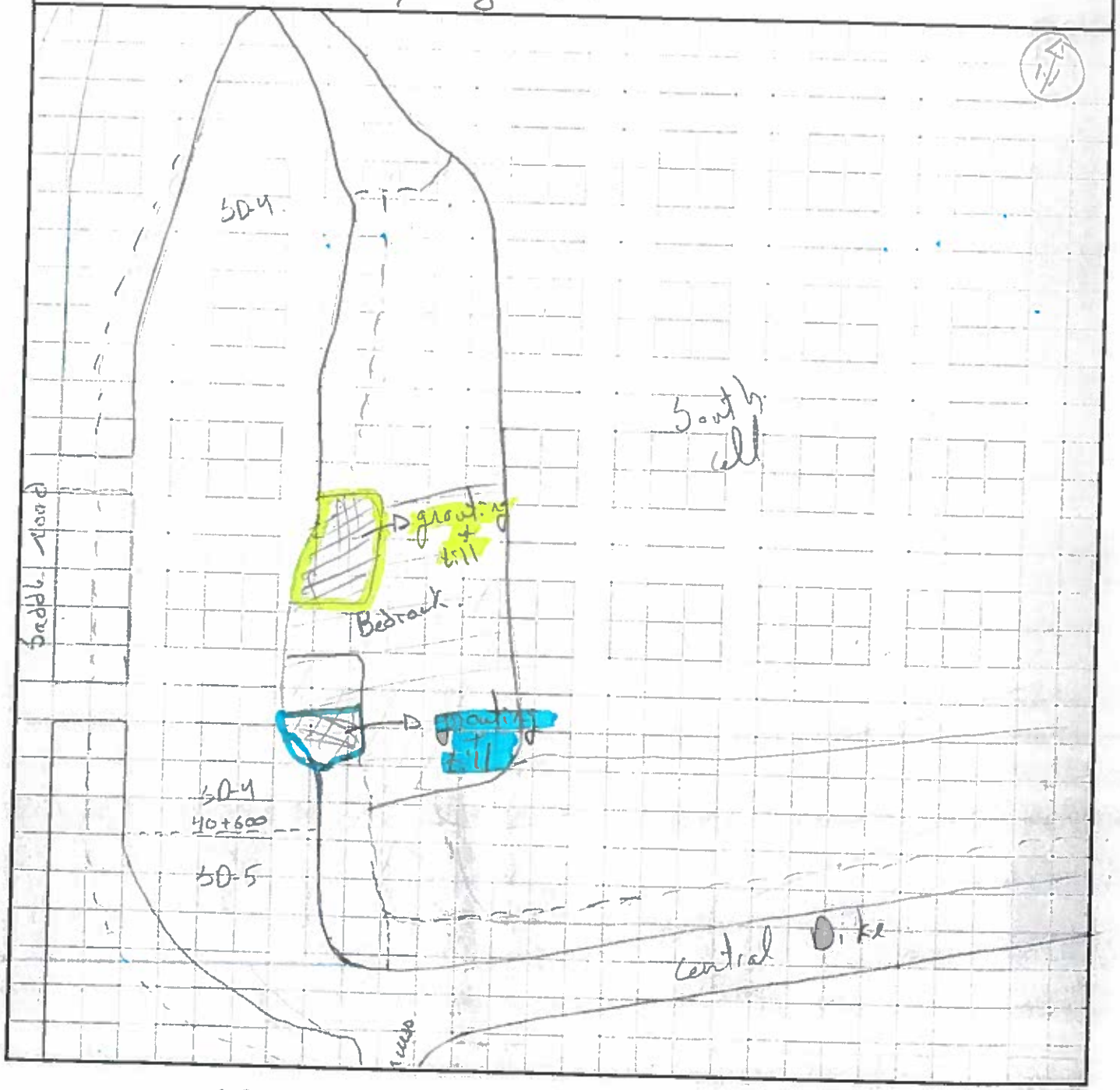
Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 2 de 3
Date d'inspection: 2017-08-31 / Day shift	



Préparé par: _____ Vérifié par: _____

Plan/Croquis

Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle Dam 3-4-5	Page 3 de 3
Date d'inspection: 2017-08-31 / day shift	



Préparé par: _____ Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 1-Sep-17 **Inspector - Day/Night:** Sébastien Blackburn, Day shift

Weather : Cloudy

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Bedrock blowing, filters placement, filters sloping

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

- Bedrock blowing at the south key of SD-3. (see sketch join to the report)
- They finished the bedrock blowing on Central dike. (see sketch join to the report)
- Compaction of the third lift of SD-3. (see sketch join to the report)
- Placement of 0.5m tick lift of the coarse filter on the fourth lift of SD-3. (see sketch join to the report)
- Sloping the first, second, and third lift of the fine filter on SD-3. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, 2-6 Weels trucks, blower, packer

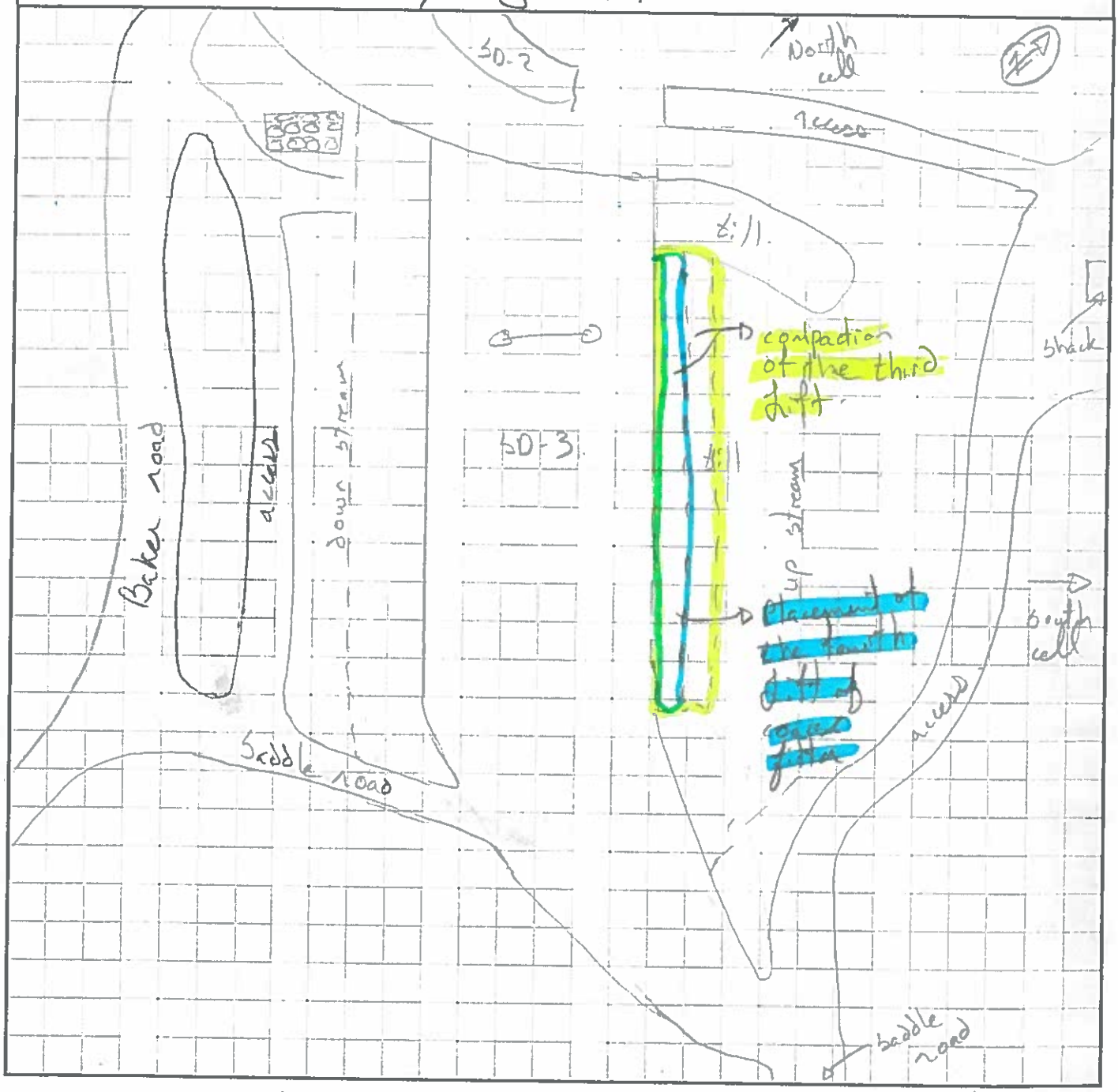
Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Croquis

Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 1 de 3
Date d'inspection: 2017-09-01 / day shift	

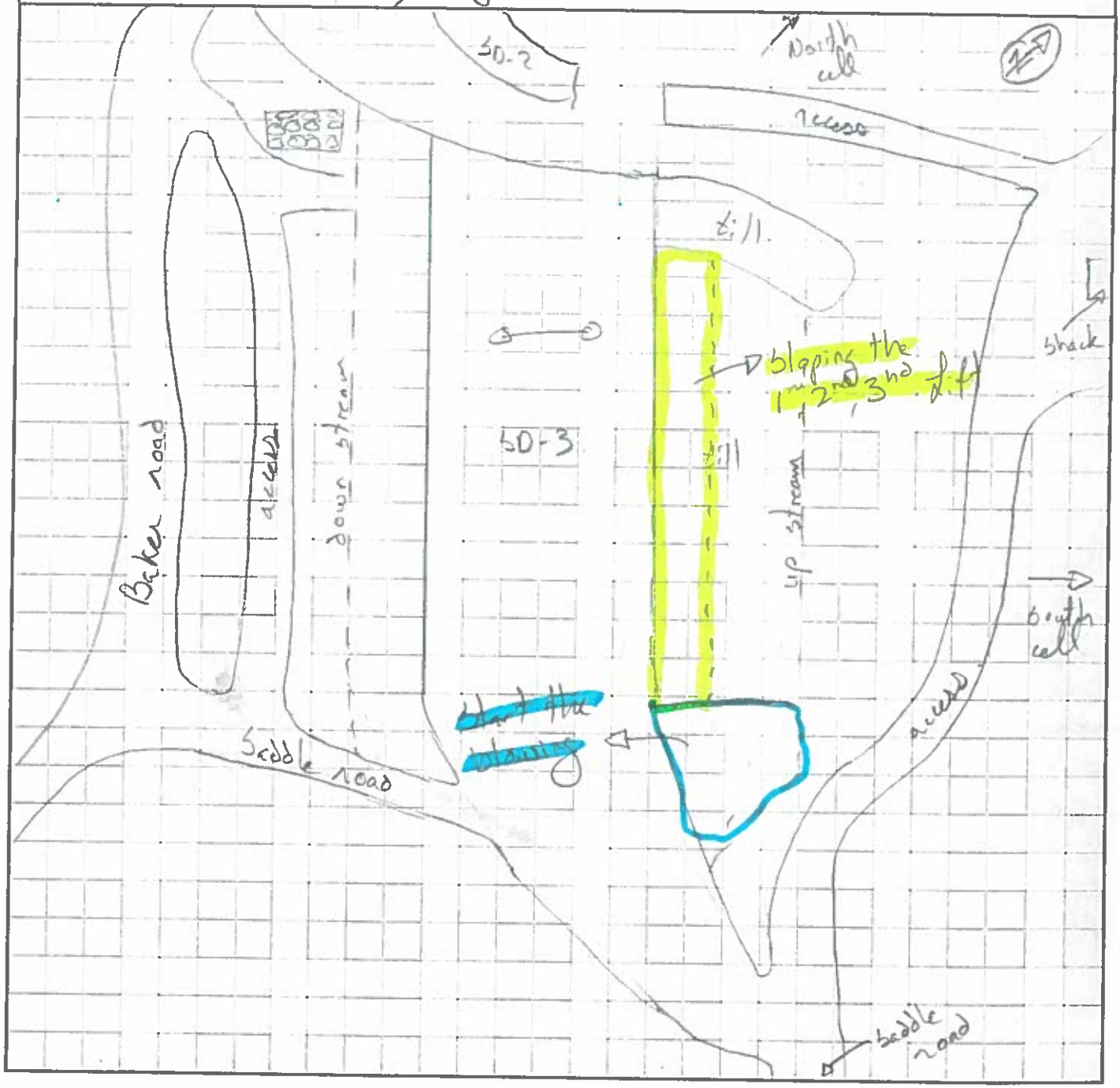


Préparé par: BB

Vérifié par: _____

Plan/Croquis

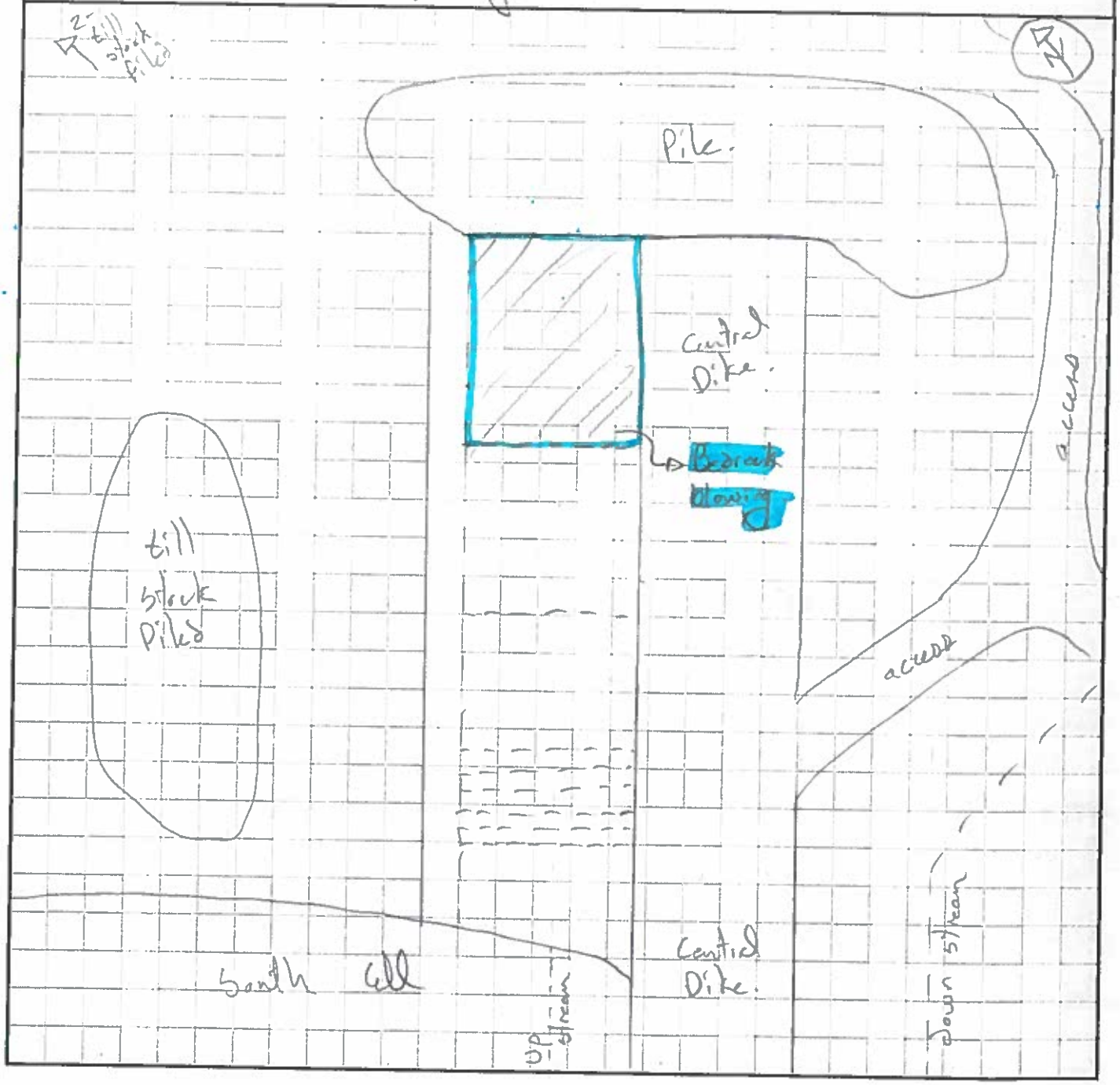
Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle Dam 3-4-5	Page 2 de 3
Date d'inspection: 2017-09-01 / Day shift	



Préparé par: BB. Vérifié par: _____

Plan/Croquis

Client: A.E.M.	Projet no.: 1118538-B1
Projet: Saddle dam 3-4-5	Page 3 de 3
Date d'inspection: 2017-09-02 / day shift	



Préparé par: _____ Vérifié par: _____

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 2-Sep-17 **Inspector - Day/Night:** Sébastien Blackburn, Day shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Bedrock blowing, filters placement, filters sloping

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

- Bedrock blowing at the north key of SD-3. (see sketch join to the report)
- Bedrock cleaning on SD-3 south key. They had to excavate more than what they did before. Lot of big bolders were still loose. (see sketch join to the report)
- Removal of soft soil and loose bolders on SD-3. (see sketch join to the report)
- Placement of 0.5m tick lift of the fine filter on the fourth lift of SD-3. (see sketch join to the report)
- Sampling the sieved till already in place at SD-4-5. Sample # 435. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, 2-6 Weels trucks, blower

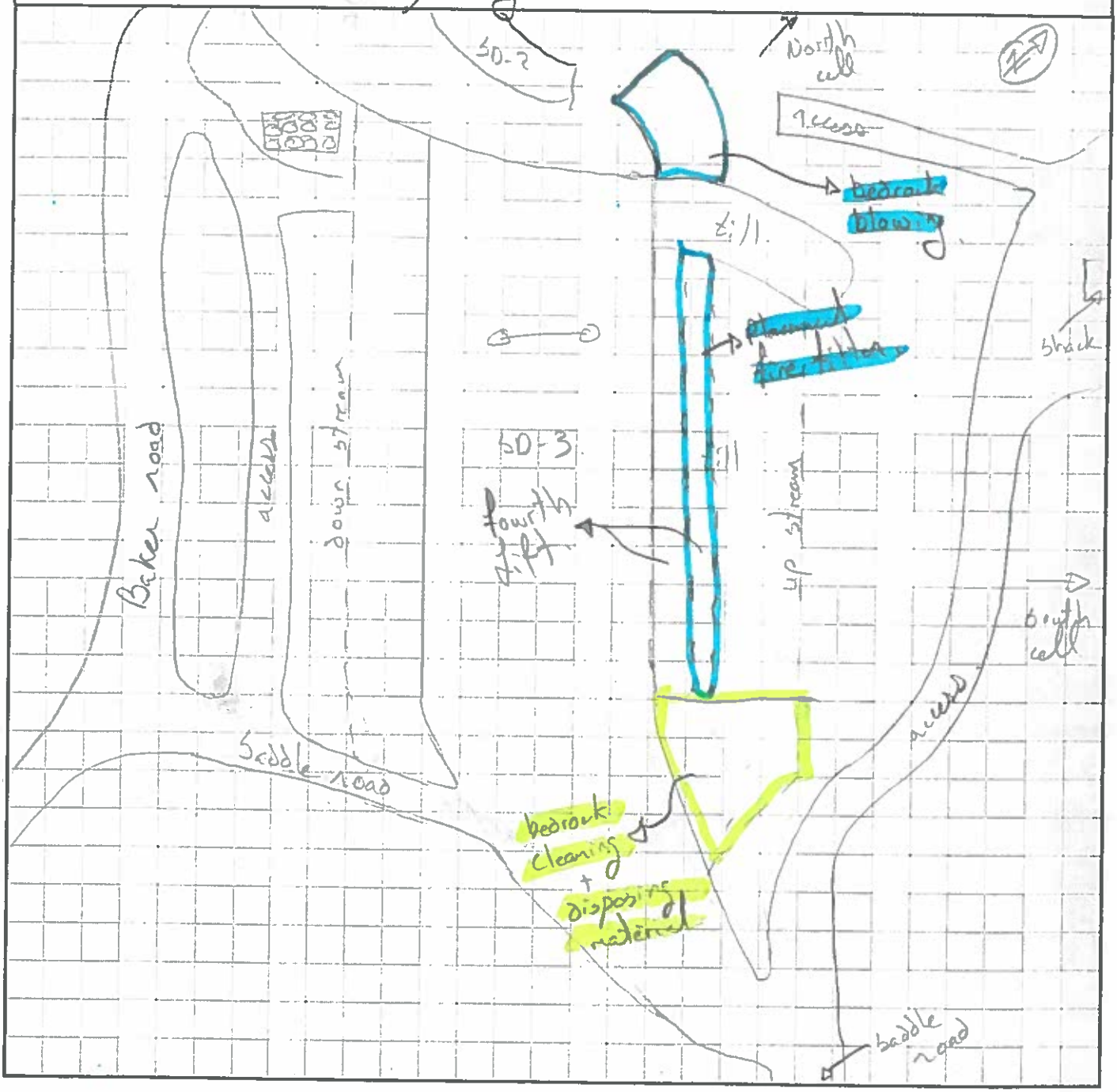
Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Croquis

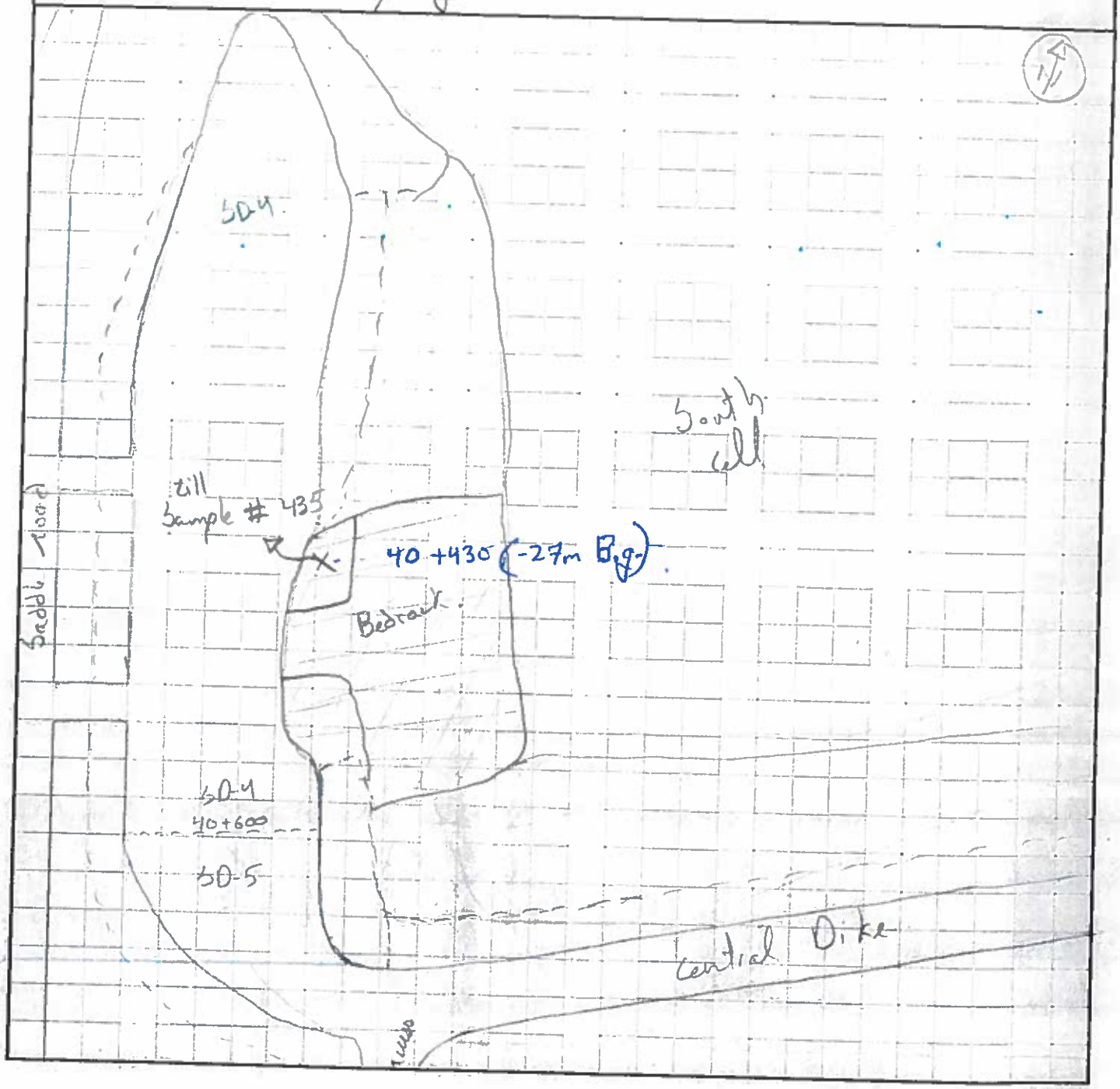
Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 1 de 2.
Date d'inspection: 2017-02-09 / day shift	



Préparé par: _____ Vérifié par: _____

Plan/Croquis

Client: A.E.M	Projet no.: 11118538-B1
Projet: Saddle Dam 3-4-5	Page 2 de 2
Date d'inspection: 2017-09-02 / day shift	



Préparé par: _____ Vérifié par: _____

E:\Meadowbank 2017\Daily inspection report\September 2017\[QC-Daily Inspection Report 2017-09-03 Day Shift on]Daily Report

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 3-Sep-17 **Inspector - Day/Night:** Sébastien Blackburn, Day shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Bedrock blowing, filters sloping, compaction grouting

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

- Bedrock blowing at the north key of SD-3. (see sketch join to the report)
- They placed un thin layer of slush grout in the bedrock cracks of SD-4's key. (see sketch join to the report)
- After de grout, they imediately added a minimum of 0.5m tick lift of sieved till. (see sketch join to the report)
- Compaction the fourth lift of the filters on SD-3. (see sketch join to the report)
- Sloping the fourtn lift of the fine filter on SD-3. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, 1-6 Weels trucks, blower

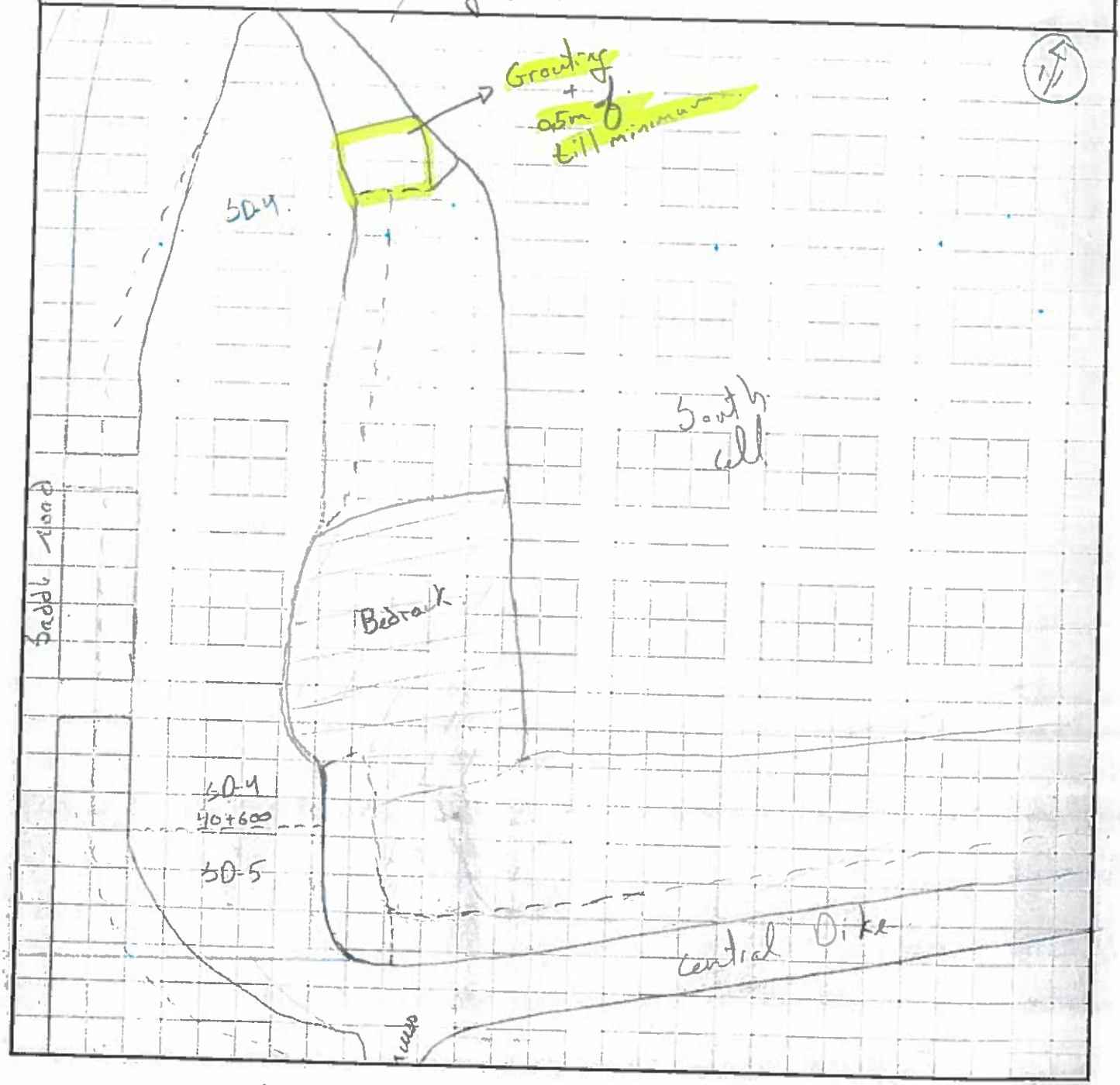
Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Croquis

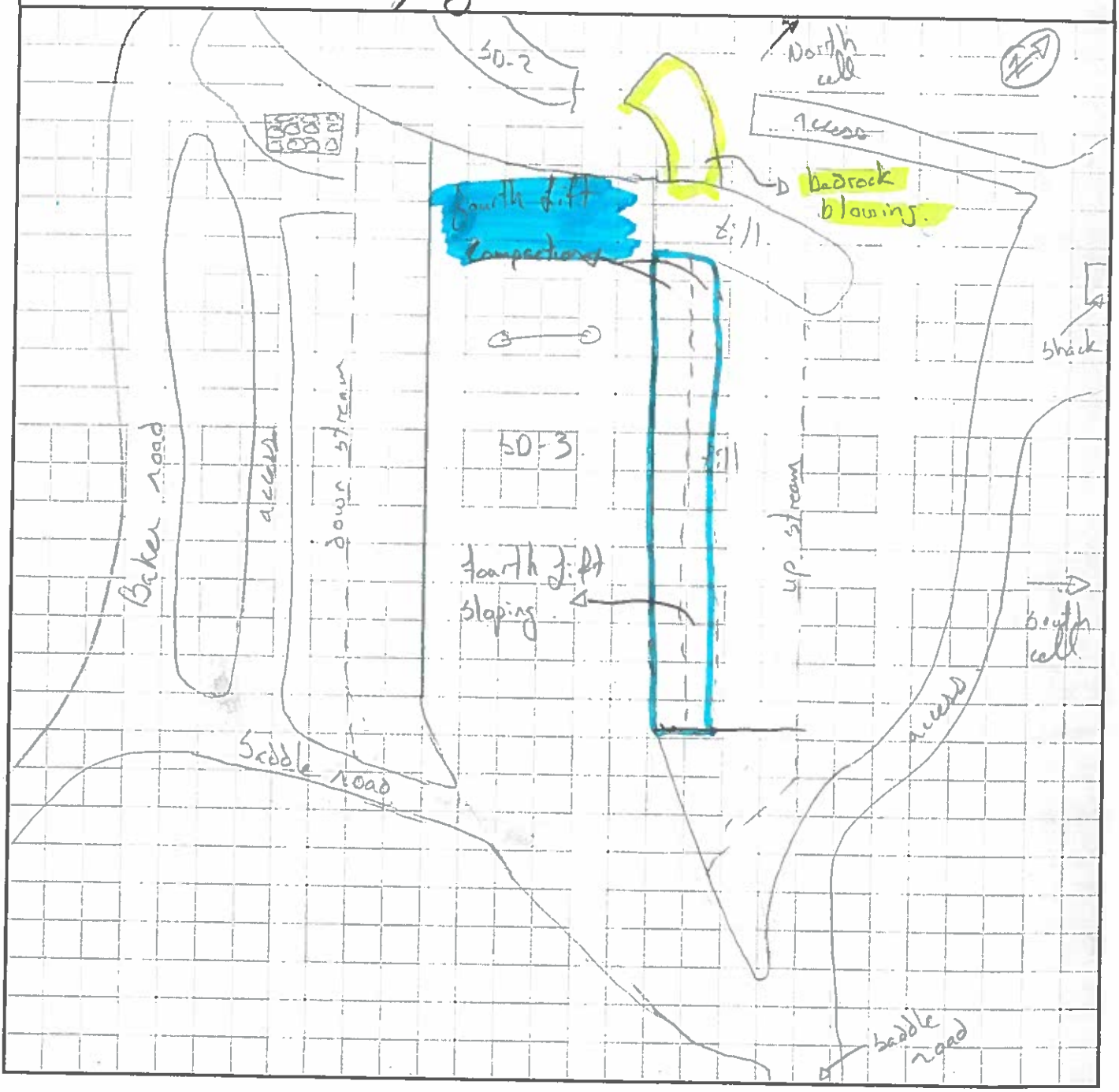
Client: A.E.M	Projet no.: 11118538-B1
Projet: Saddle Dam 3-4-5	Page 1 de 2
Date d'inspection: 2017-09-03 / Day Shift	



Préparé par: BB Vérifié par:

Plan/Croquis

Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 2 de 2
Date d'inspection: 2017-09-03 / day shift	



Préparé par: _____ Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 4-Sep-17 **Inspector - Day/Night:** Sébastien Blackburn, Cédrick Fillon Tremblay, Day shift

Weather : Sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work In Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Bedrock blowing, grouting

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

- Bedrock blowing at the south key of SD-3. (see sketch join to the report)
- They placed un thin layer of slush grout everywhere on the bedrock at central dike's key. (see sketch join to the report)
- After de grout, they imediately added a minimum of 0.5m tick lift of sieved till. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, 1-6 Weels trucks, blower

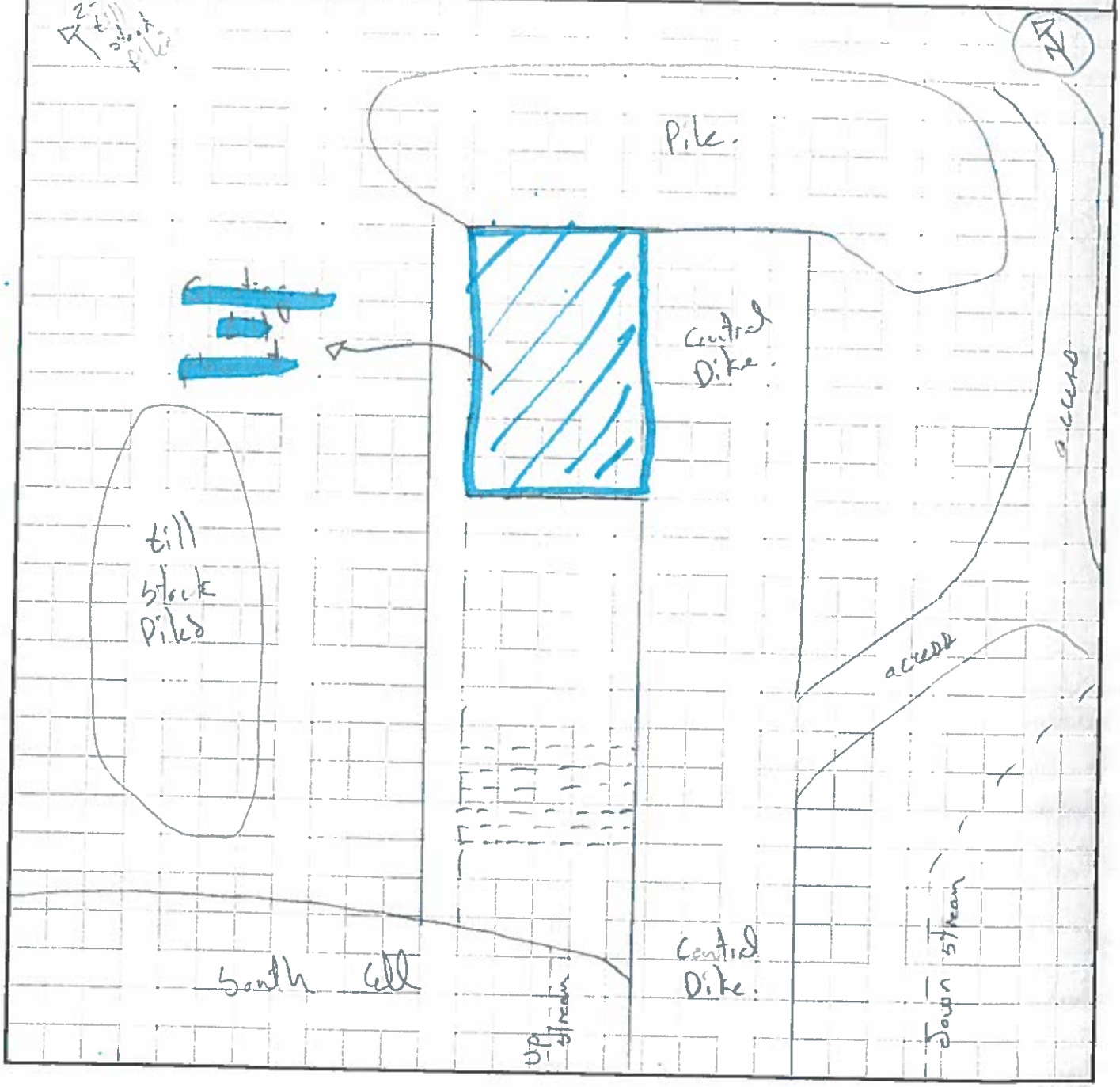
Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Croquis

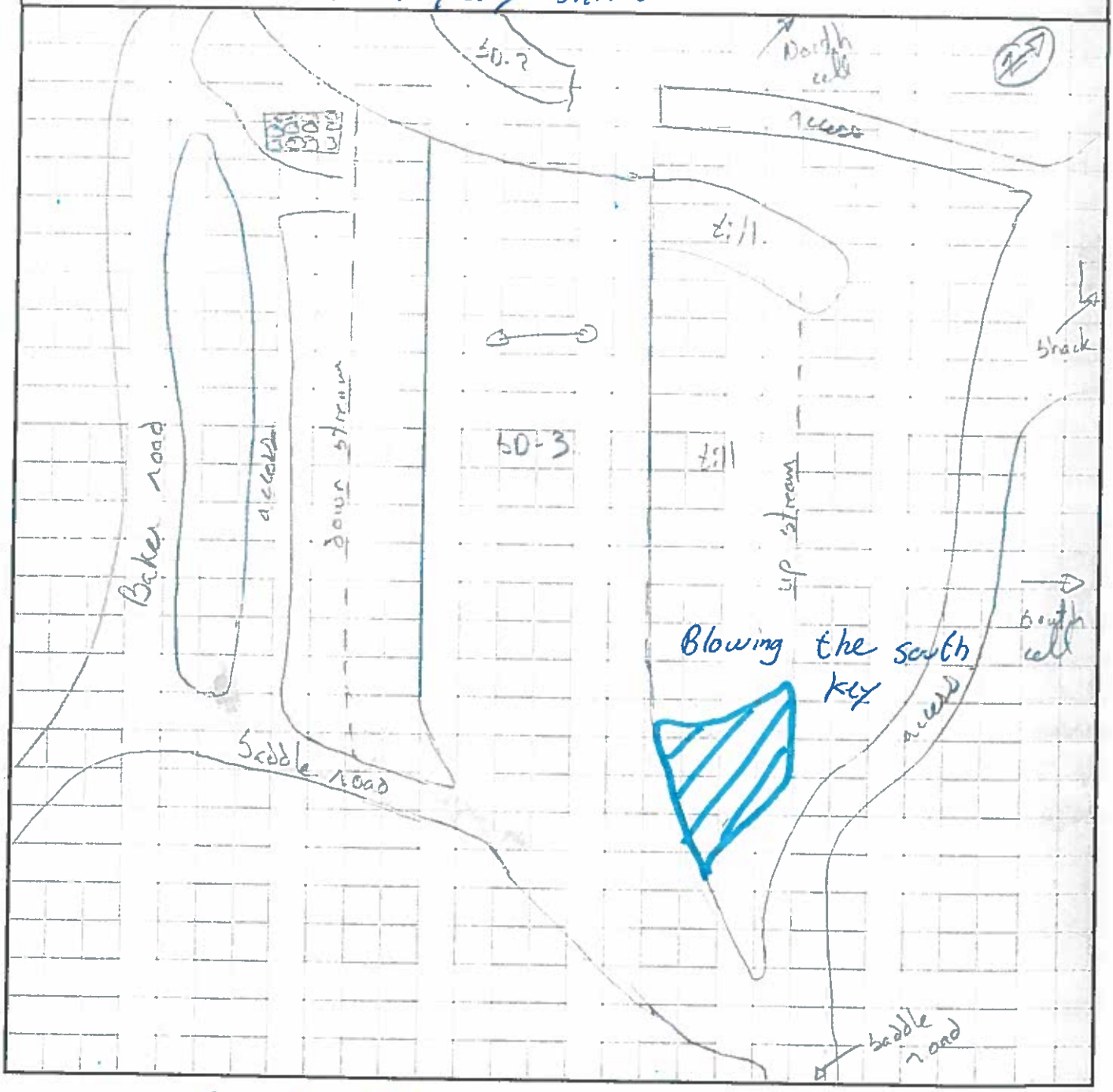
Client: A E.M.	Projet no.: 1118538-B1
Projet: Saddle dam 3-4-5	Page 1 de 2
Date d'inspection: 2017-09-04 / day shift	



Préparé par: AB Vérifié par: _____

Plan/Croquis

Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 2 de 2
Date d'inspection: 2017-09-04 / day shift	



Préparé par: _____ Vérifié par: _____

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 5-Sep-17 **Inspector - Day/Night:** Cédrick Fillon Tremblay, Day shift

Weather : cloudy & sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Bedrock blowing, grouting

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

- Finish blowing at the south key of SD-3. (see sketch join to the report)
-Finish the compaction on filter at Centrale Dike. (see sketch join to the report)
-Start the compaction on filter at SD-5 & SD-4. (see sketch join to the report)
-Make correction blowing at the noth key of SD-3. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, 1-6 Weels trucks, blower

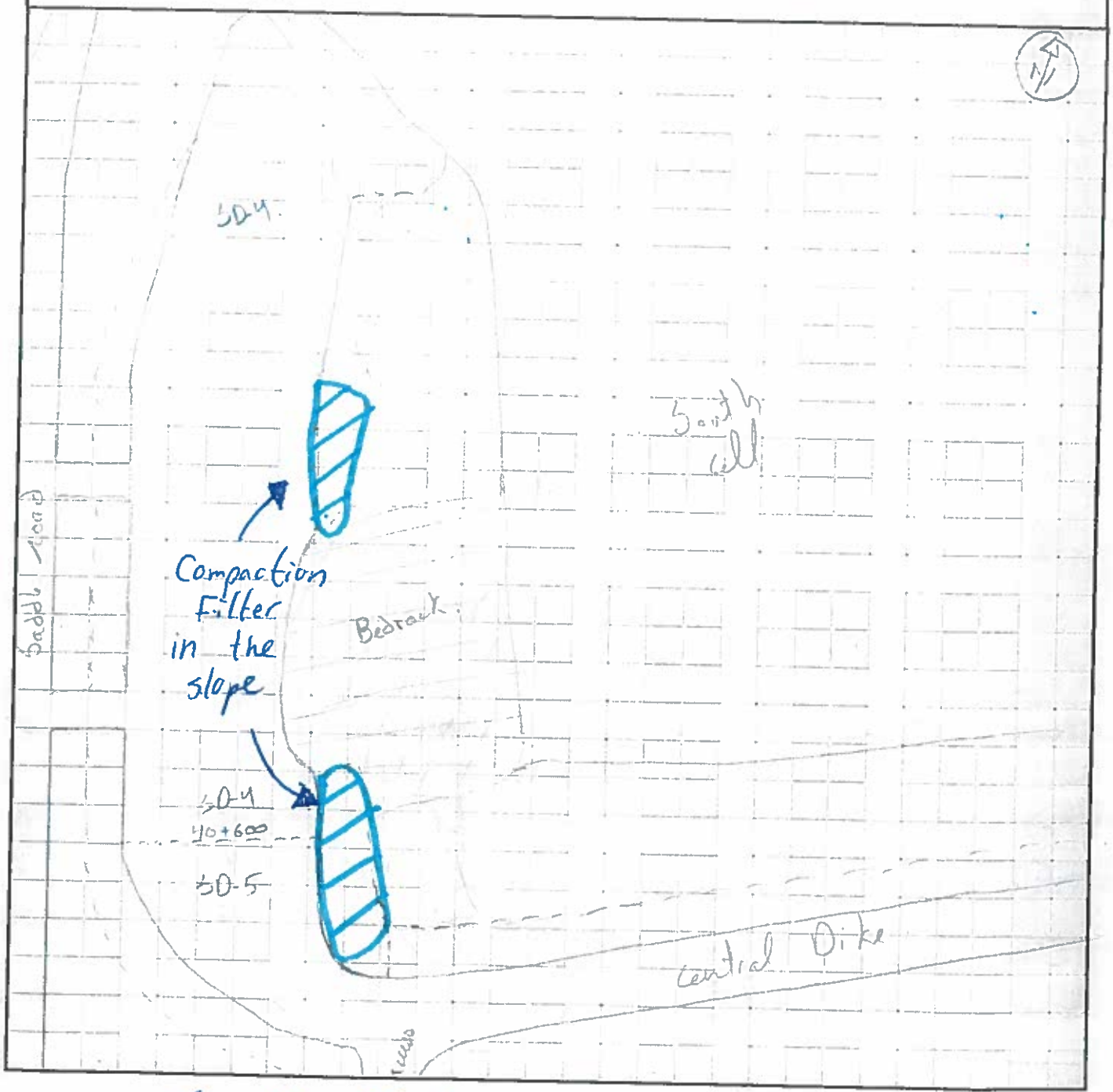
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Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Croquis

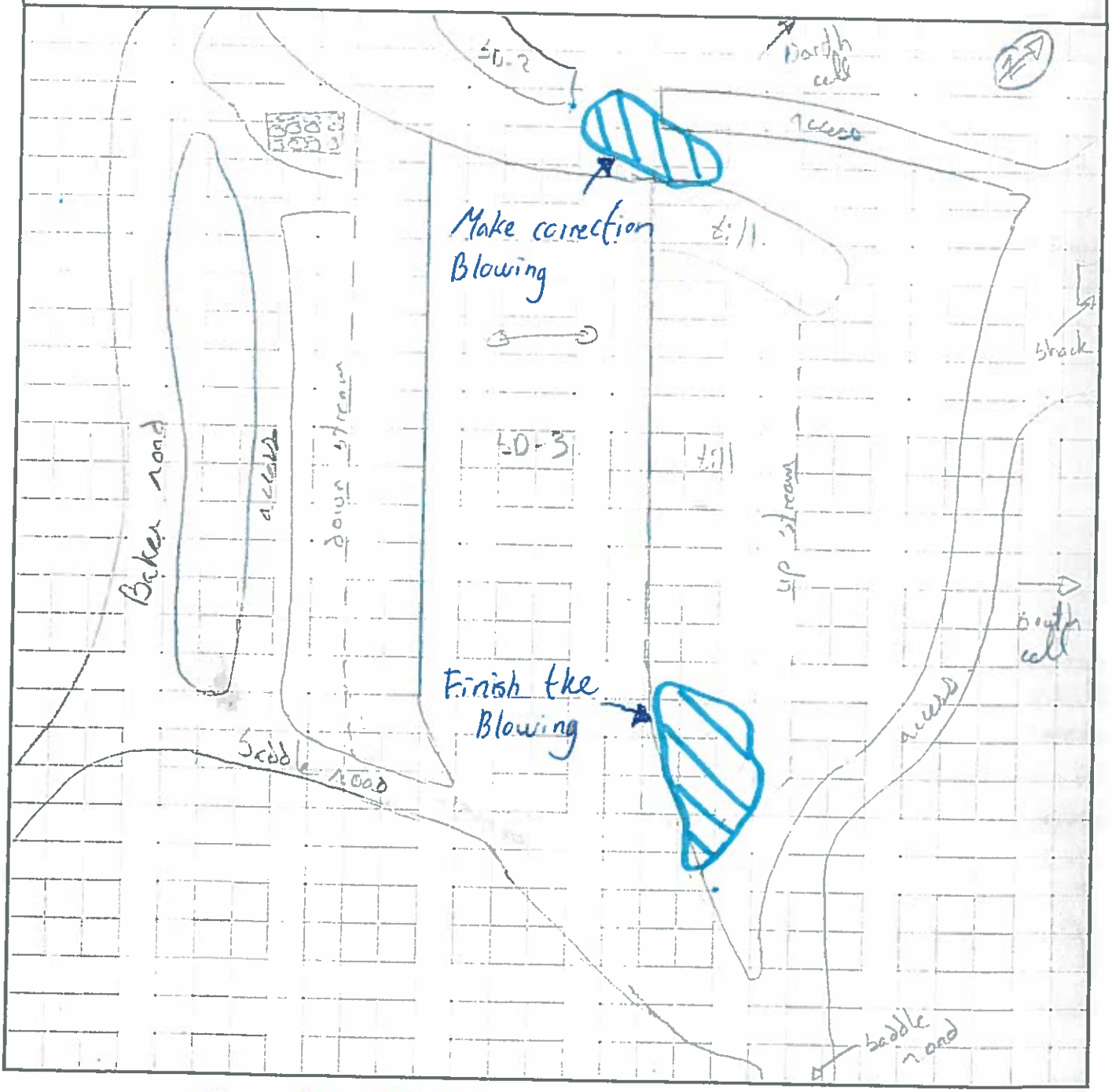
Client: A.E.M	Projet no.: 1118538-B1
Projet: Saddle Dam 3-4-5	Page 1 de 2
Date d'inspection: 2017-	



Préparé par: _____ Vérifié par: _____

Plan/Croquis

Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 2 de 2
Date d'inspection: 2017-	



Préparé par: _____ Vérifié par: _____

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 6-Sep-17 **Inspector - Day/Night:** Cédrick Fillon Tremblay, Day shift

Weather : cloudy & sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Bedrock blowing, grouting

General Activities: see work in progress

Soft Sediment Excavation	☒	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☒	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

-Finish the compaction on filter at SD-5 & SD-4. (see sketch join to the report)

-Start mass excavation on down stream SD-3 for the sump. (see sketch join to the report)

-Start the approuval maping on the north of SD-3. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, 1-6 Weels trucks, blower

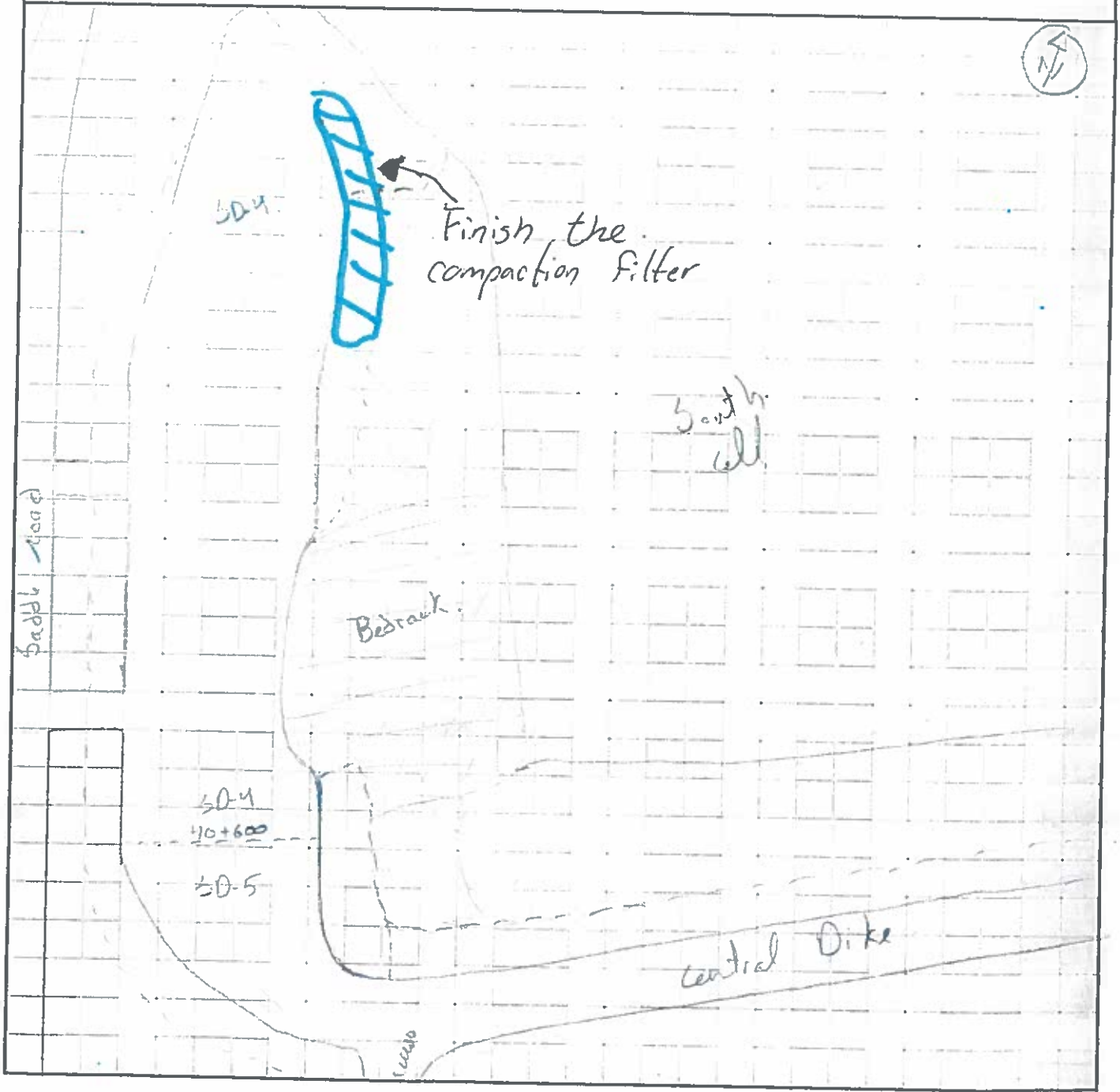
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*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

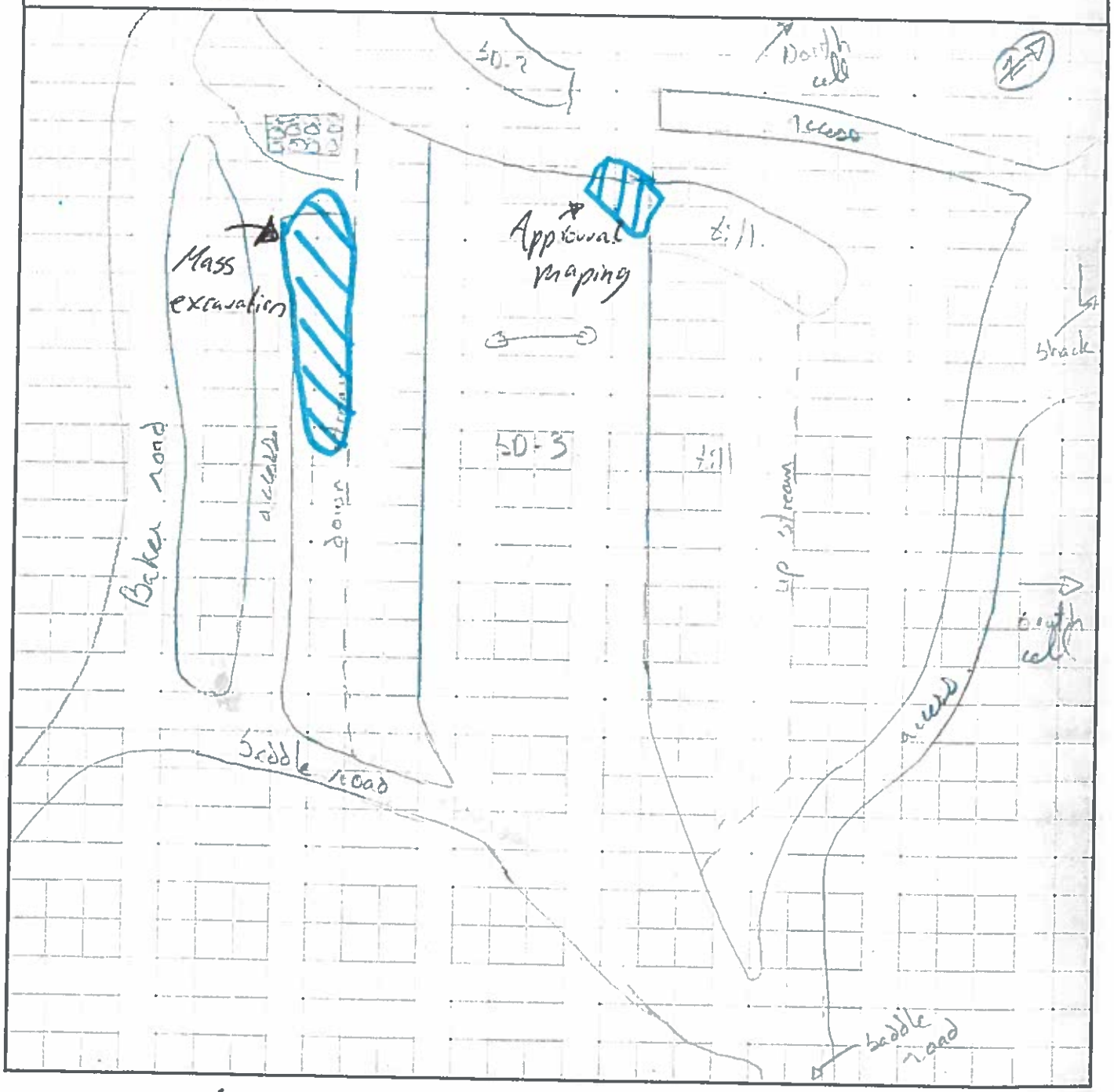
Client: A.E.M	Projet no.: 11118538-B1
Projet: Saddle Dam 3-4-5	Page 1 de 2
Date d'inspection: 2017-09-06	



Préparé par: _____ Vérifié par: _____

Plan/Croquis

Client: A.E.M.	Projet no.: 1118538-B1
Projet: Saddle dam 3-4-5	Page 2 de 2
Date d'inspection: 2017-09-06	



Préparé par: _____ Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 7-Sep-17 **Inspector - Day/Night:** Cédrick Fillon Tremblay, Day shift

Weather : cloudy

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Mass excavation

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐	**Sump Excavation**	☒
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

-Continue mass excavation on down stream SD-3 for the sump. (see sketch join to the report)

-Take compacted sieved till simple on Centrale Dike (# 437). (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, 1-6 Weels trucks, blower

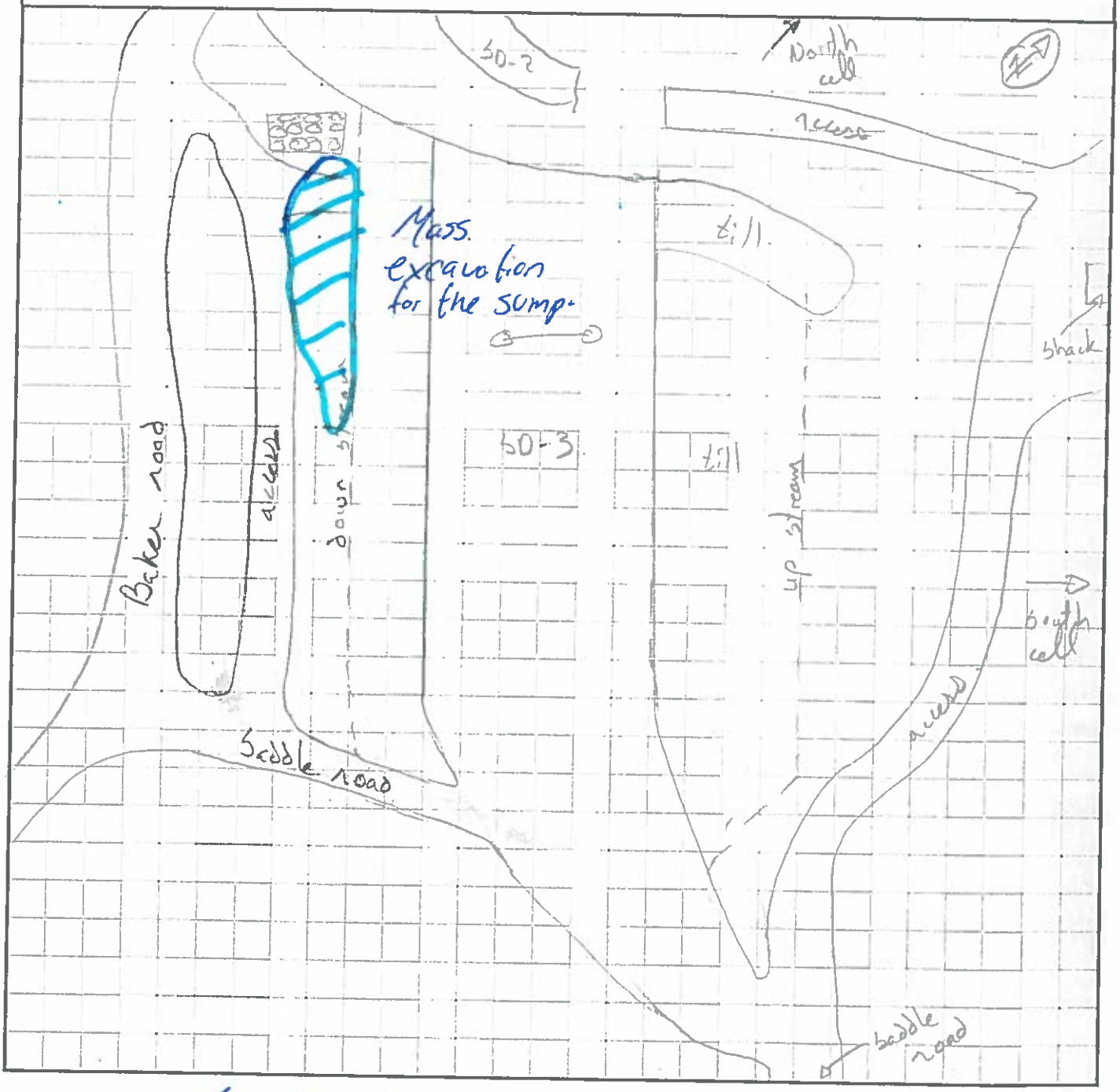
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Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Croquis

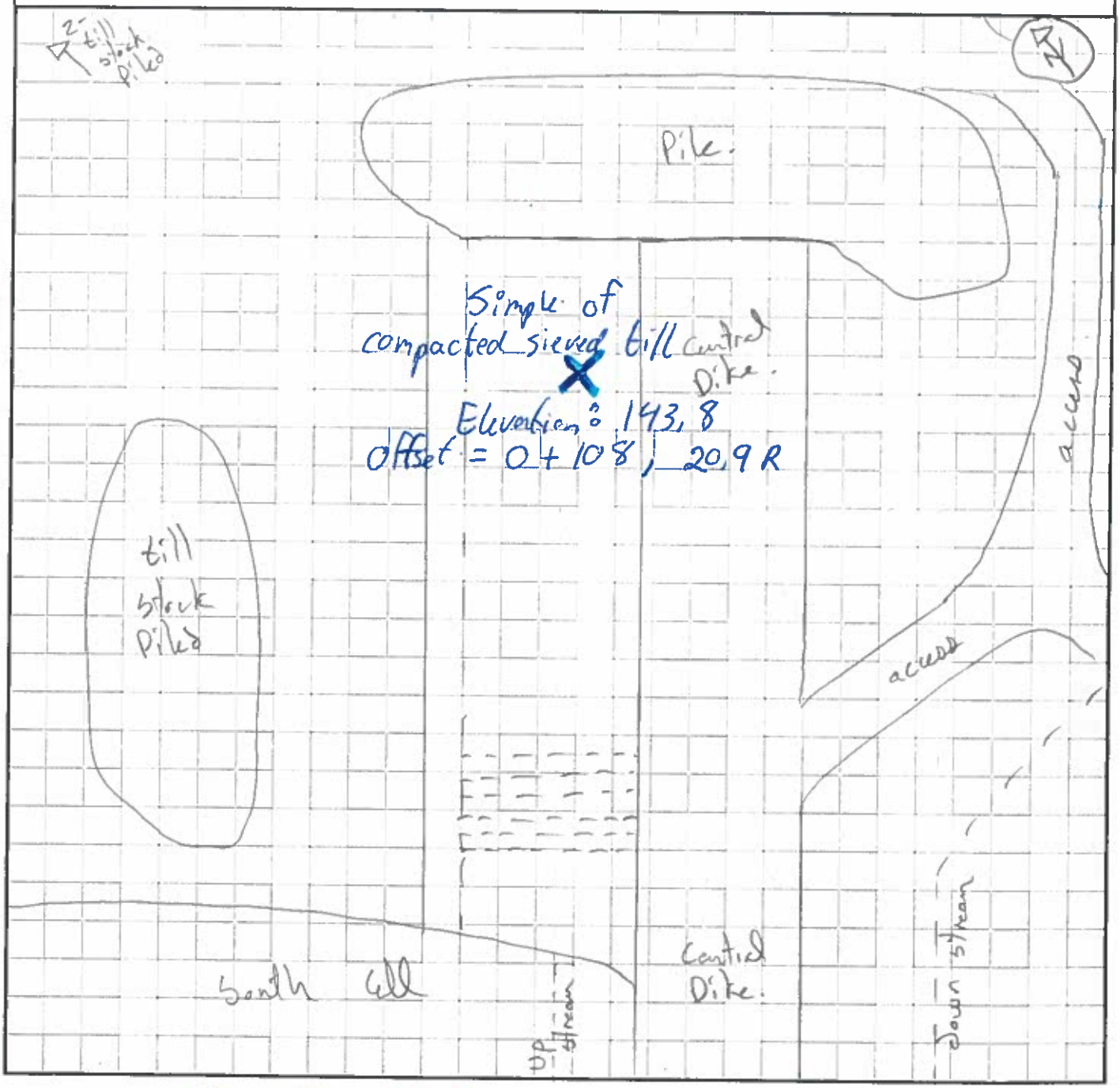
Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 1 de 2
Date d'inspection: 2017-09-07	



Préparé par: _____ Vérifié par: _____

Plan/Croquis

Client: A.E.M.	Projet no.: 1118538-B1
Projet: Saddle dam 3-4-5	Page 2 de 2
Date d'inspection: 2017-09-07	



Préparé par: _____ Vérifié par: _____

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 8-Sep-17 **Inspector - Day/Night:** Cédrick Fillon Tremblay, Day shift

Weather : cloudy & windy

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Mass excavation

General Activities: see work in progress

Soft Sediment Excavation	☒	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☒	**LLDPE/Geotextile**	☐	**Till**	☒	**Sump Excavation**	☒
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

-Check the compaction on compacted sieved till at north of Central Dike. (see sketch join to the report)

-Take compacted sieved till sample on SD-3 (# 436). (see sketch join to the report)

-Start the compacted sieved till protection on the membrane on SD-3. (see sketch join to the report)

-Finish the key clean-up and continue the foundation approval on the north of SD-3. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, 1-6 Weels trucks, blower

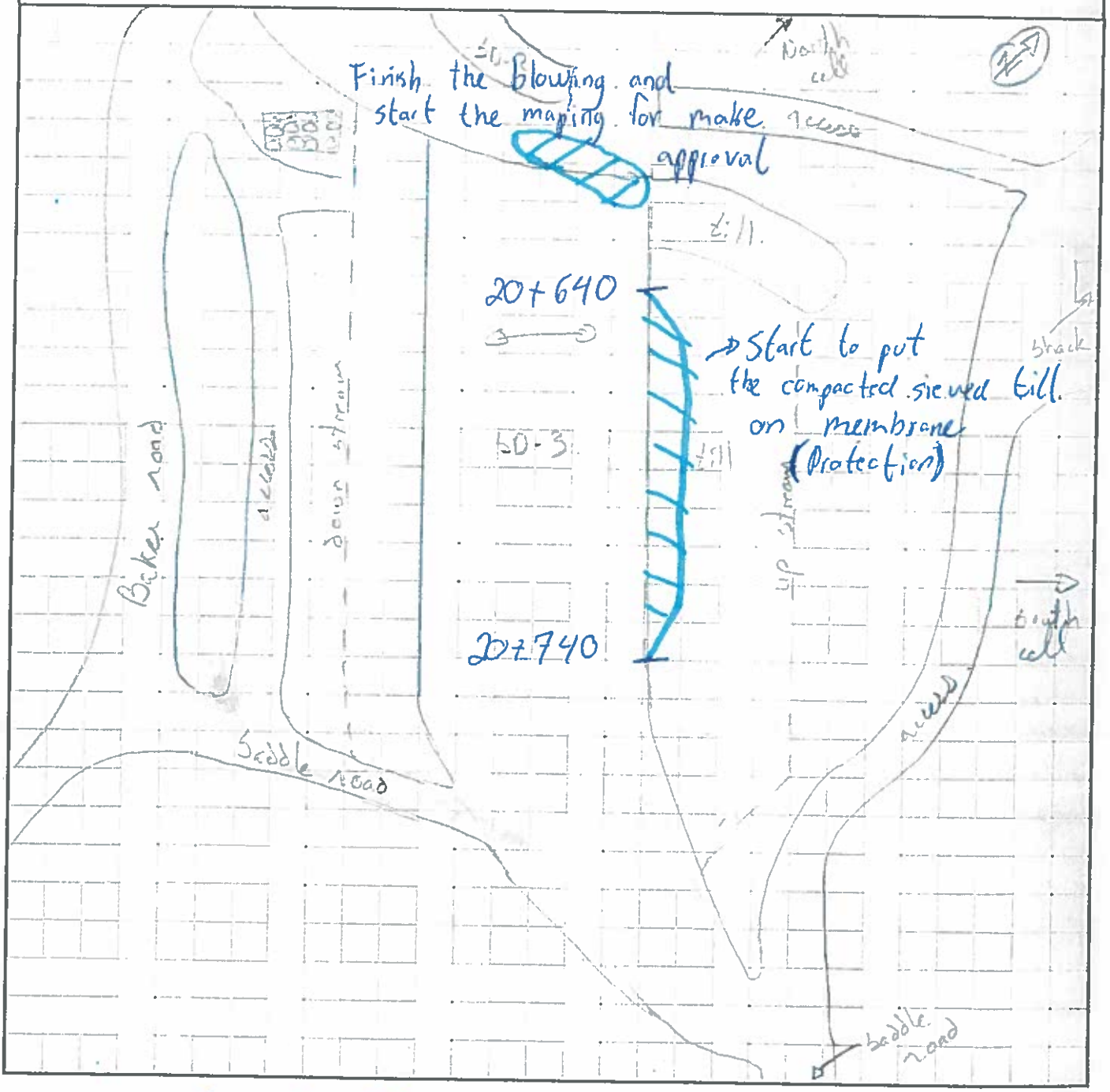
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Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

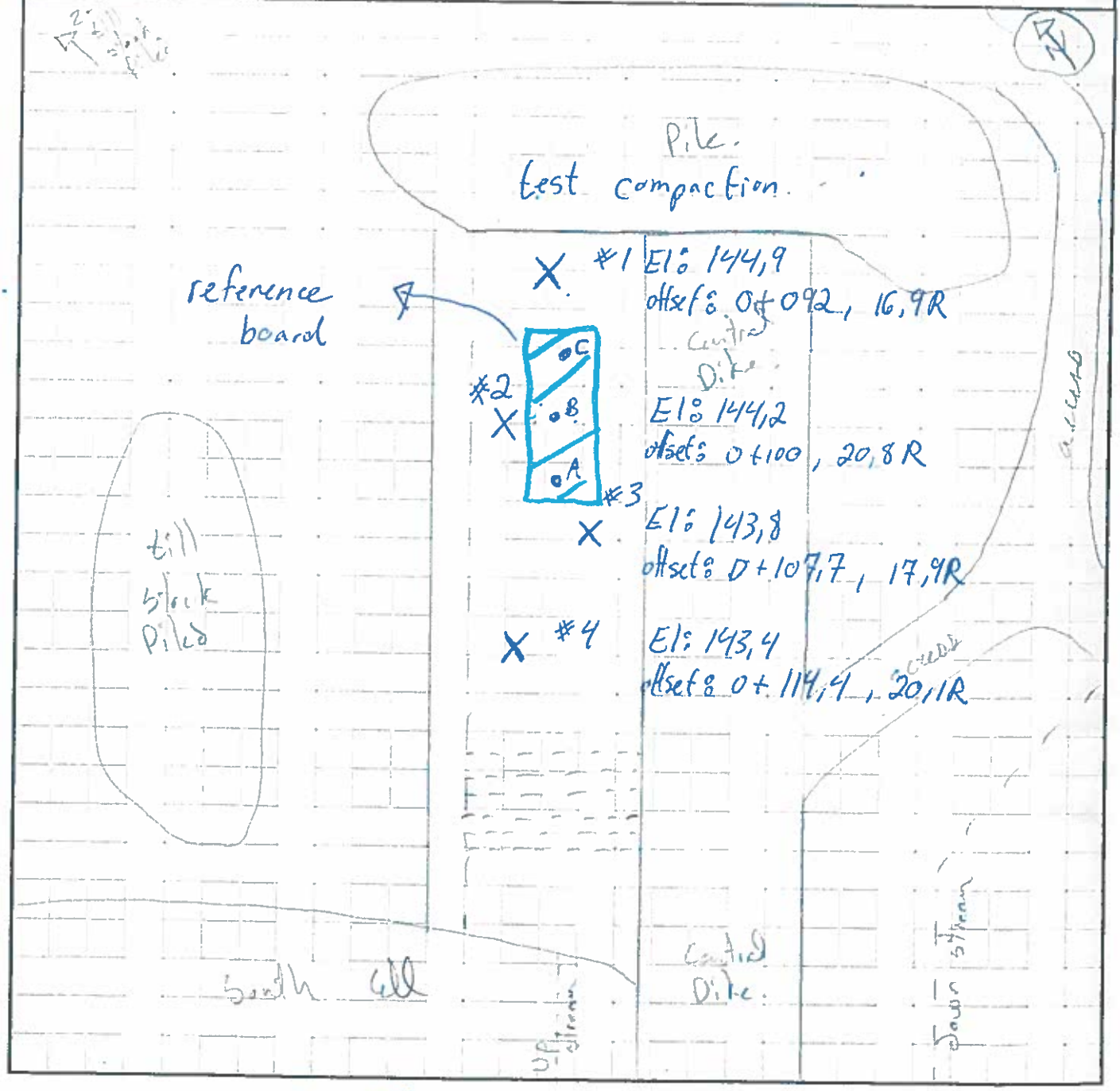
Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 1 de 2
Date d'inspection: 2017-	



Préparé par: Vérifié par:

Plan/Croquis

Client: A.E.M.	Projet no.: 1118538-131
Projet: Saddle dam 3-4-5	Page 2 de 2
Date d'inspection: 2017-	



Préparé par: Edwards Kibila Tranchey Vérifié par:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 9-Sep-17 **Inspector - Day/Night:** Cédrick Fillon Tremblay, Day shift

Weather : cloudy/windy/sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work In Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Mass excavation

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☒	**LLDPE/Geotextile**	☐	**Till**	☒	**Sump Excavation**	☐
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

-Check the compaction on compacted sieved till at SD-5 and SD-4. (see sketch join to the report)

-Take 2 compacted sieved till sample at Sana Crusher (# 438 & #439). (see sketch join to the report)

-finish the compacted sieved till protection on the membrane on SD-3. (see sketch join to the report)

-Finish all foundation approval maping on SD-3. (see sketch join to the report)

-Start to put the compacted till on down stream SD-3. (see sketch join to the report)

-After grout on SD-3, they imediately added a minimum of 0.5m tick lift of sieved till. When they were in the fault zone, they used the little hand packer, than, the sieved till thickness was only 0.3m per layer. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, 1-6 Weels trucks, blower

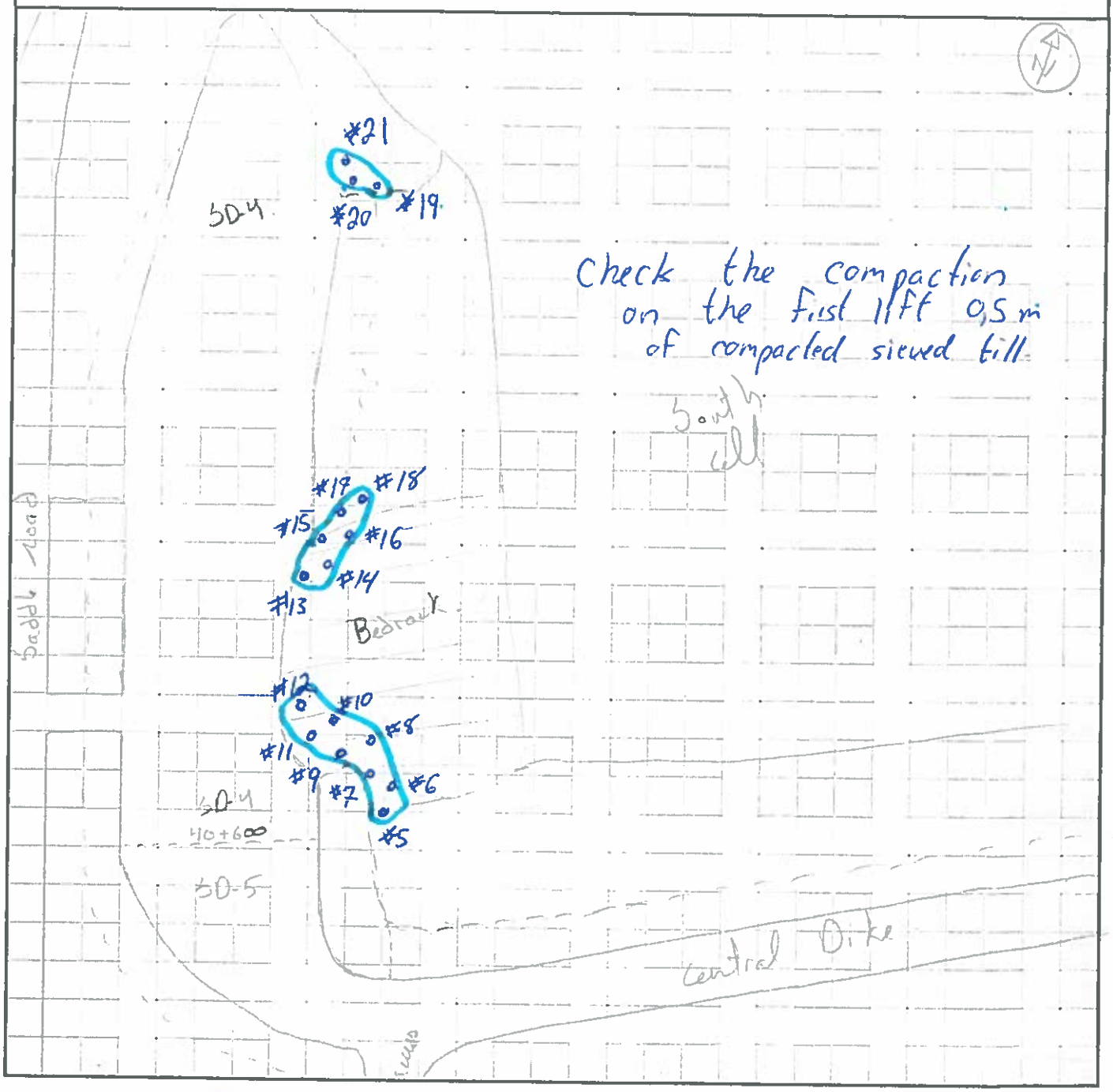
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

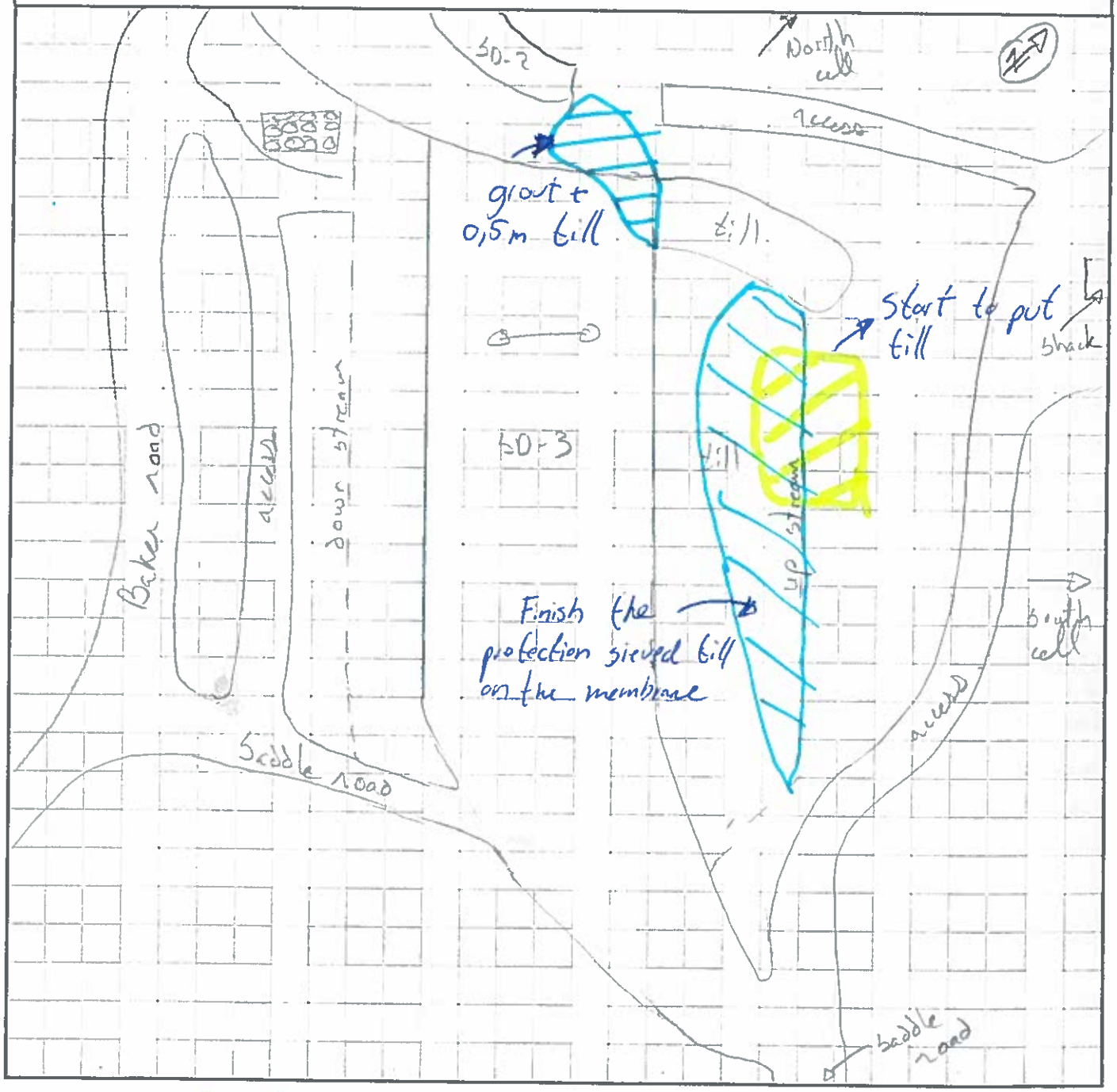
Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle Dam 3-4-5	Page 1 de 3
Date d'inspection: 2017-	



Préparé par: _____ Vérifié par: _____

Plan/Croquis

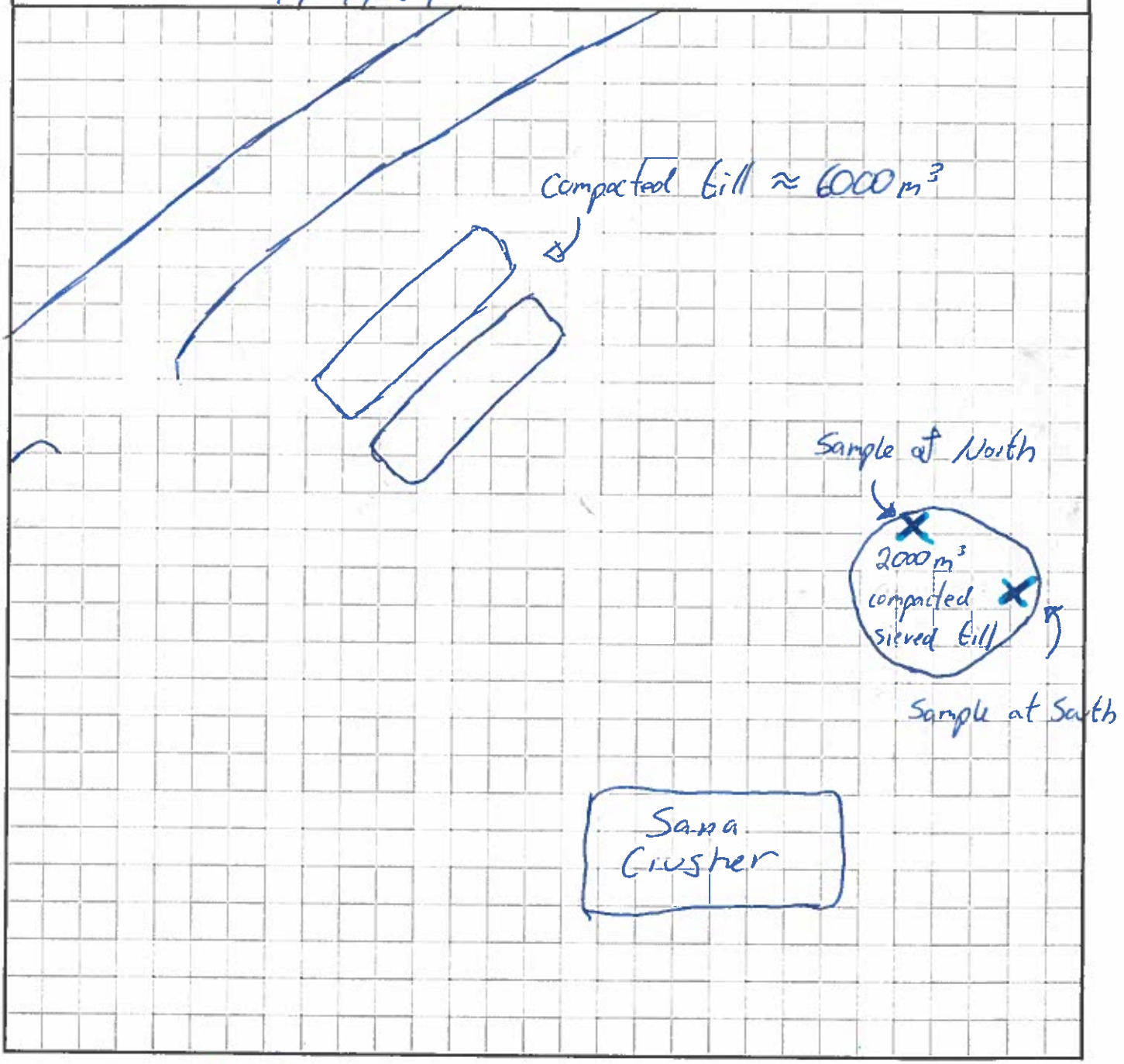
Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 2 de 3
Date d'inspection: 2017-	



Préparé par: _____ Vérifié par: _____

Plan/Croquis

Client: A.E.M	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 3 de 3
Date d'inspection: 2017/09/09	



Préparé par: _____ Vérifié par: _____

E:\Inspection\2017\Daily inspection report\Septembre 2017\Semaine en terminant le 2017-09-16\QC-Daily Inspection Report 2017-09-10 Day Shift.xls]Daily Report

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 10-Sep-17 **Inspector - Day/Night:** Cédrick Fillon Tremblay, Day shift

Weather : sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Mass excavation

General Activities: see work in progress

Soft Sediment Excavation	☐	Key Excavation	☐	Coarse Filter	☐	Drilling/Blasting	☒
Foundation Preparation	☐	LLDPE/Geotextile	☐	Till	☒	Sump Excavation	☒
Water Control	☐	Fine Filter	☐	Rockfill	☐		

Description:

-Check the compaction and water content on compacted sieved till at SD-3. (see sketch join to the report)

-The compacted sieved till is not enough wet, so before the compaction, they need to wet a little bit the materials.

-Finish the grouting and placement till contact on SD-3. (see sketch join to the report)

-Start drill the sump at down stream SD-3. (see sketch join to the report)

-Make the pig launcher pad on SD-4 & SD-5. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, 1-6 Weels trucks, blower

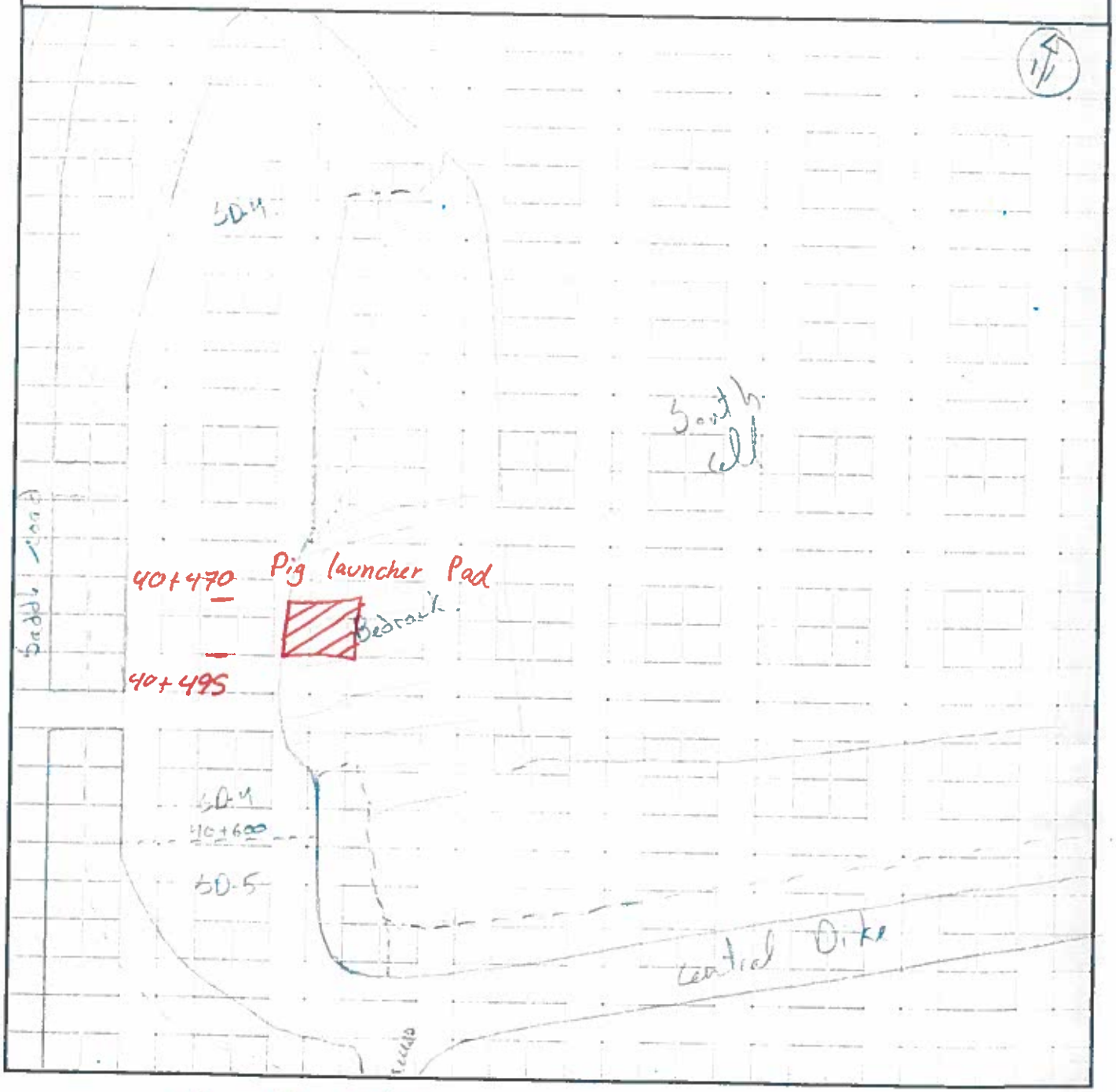
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Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Croquis

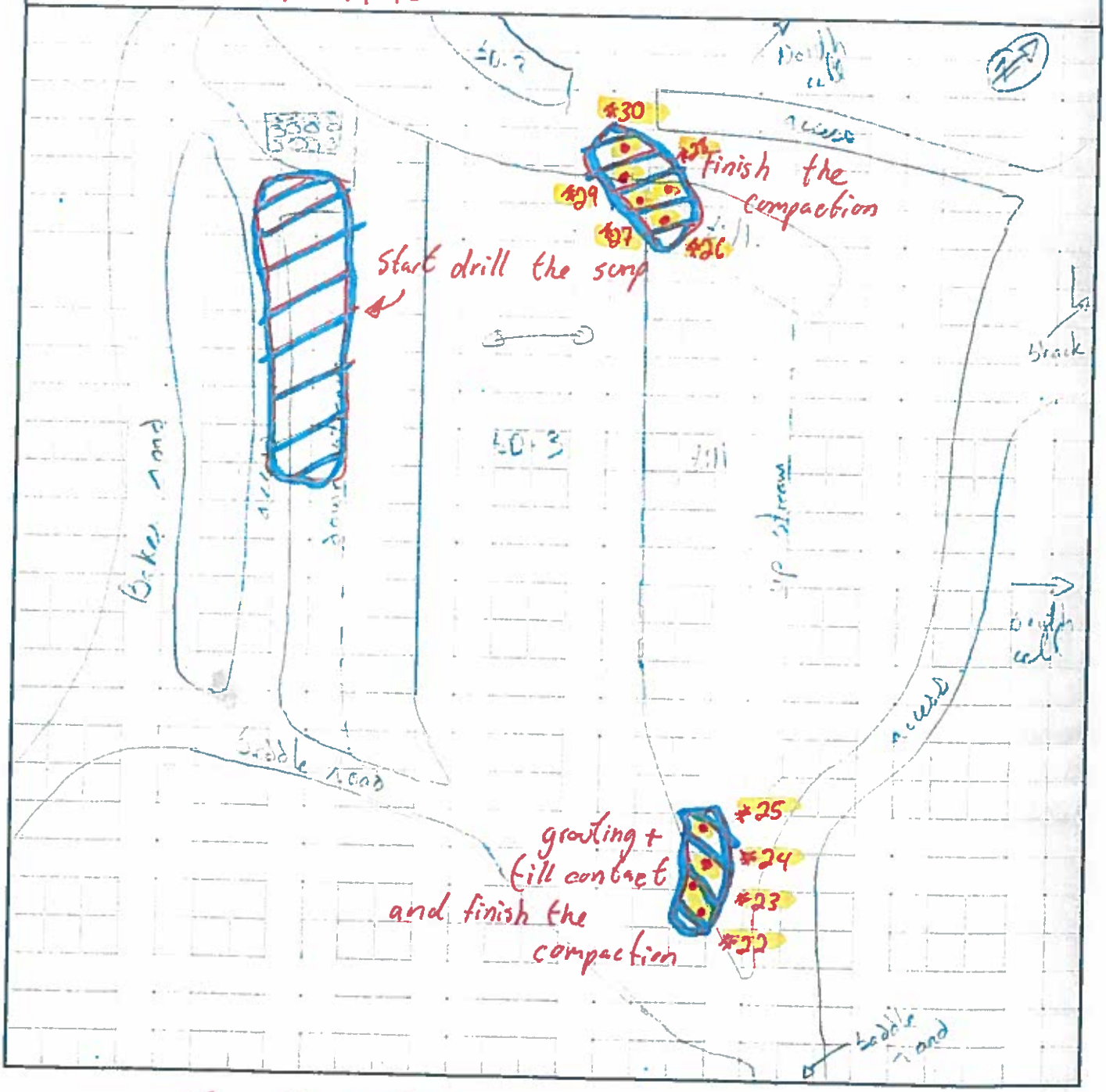
Client: A.E.M	Projet no.: 1111538-B1
Projet: Saddle Dam 3-4-5	Page 1 de 2
Date d'inspection: 2017-09-10	



Préparé par: _____ Vérifié par: _____

Plan/Croquis

Client: A.E.M.	Projet no.: 1118538-01
Projet: Saddle Dam 3-4-5	Page 2 de 2
Date d'inspection: 2017/09/10	



Préparé par: _____ Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 11-Sep-17 **Inspector - Day/Night:** Cédrick Fillon Tremblay, Day shift

Weather : sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Mass excavation

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☒
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☒	**Sump Excavation**	☒
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

-After a big discussion, the second class of till is considered like a low quality till with approximity 0 - 300 mm. We don't have to test it for the compaction, but the material needs to have a good moisture content between 9 and 14 %.

-Continue drill the sump at down stream SD-3. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, 1-6 Weels trucks, blower

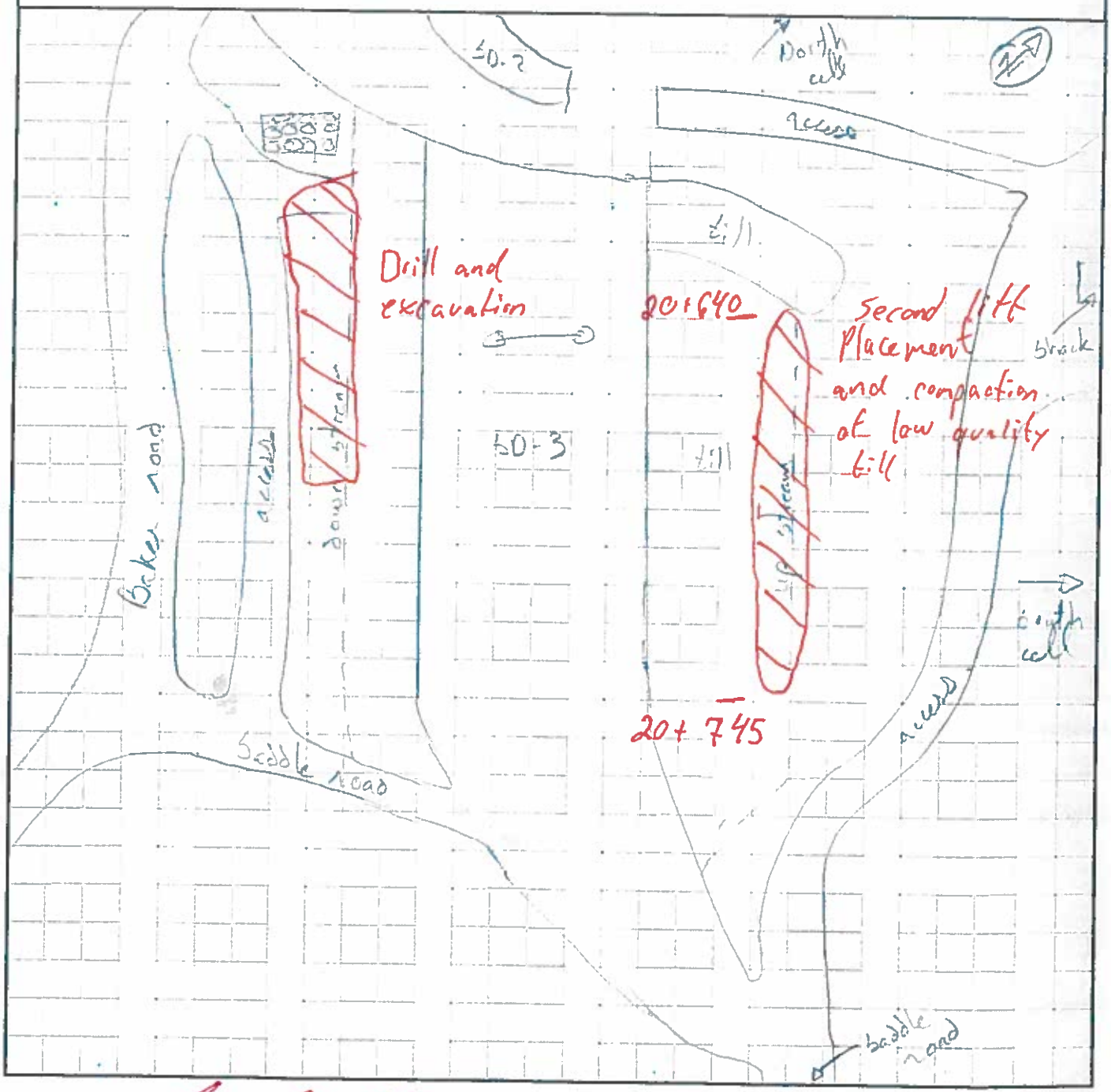
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Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

Client: A.E.M.	Projet no.: 11118538-01
Projet: Saddle dam 3-4-5	Page 1 de 1
Date d'inspection: 2017-	



Préparé par: Edwards Eliza Zealley Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 12-Sep-17 **Inspector - Day/Night:** Cédrick Fillon Tremblay, Day shift

Weather : sunny/cloudy

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Mass excavation/Backfill till

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☒
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☒	**Sump Excavation**	☒
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

-Make 2 gradation in the laboratoire.

-Continue drill the sump at down stream SD-3. (see sketch join to the report)

-Continue to put a low quality till up stream on SD-3. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, 1-6 Weels trucks, blower

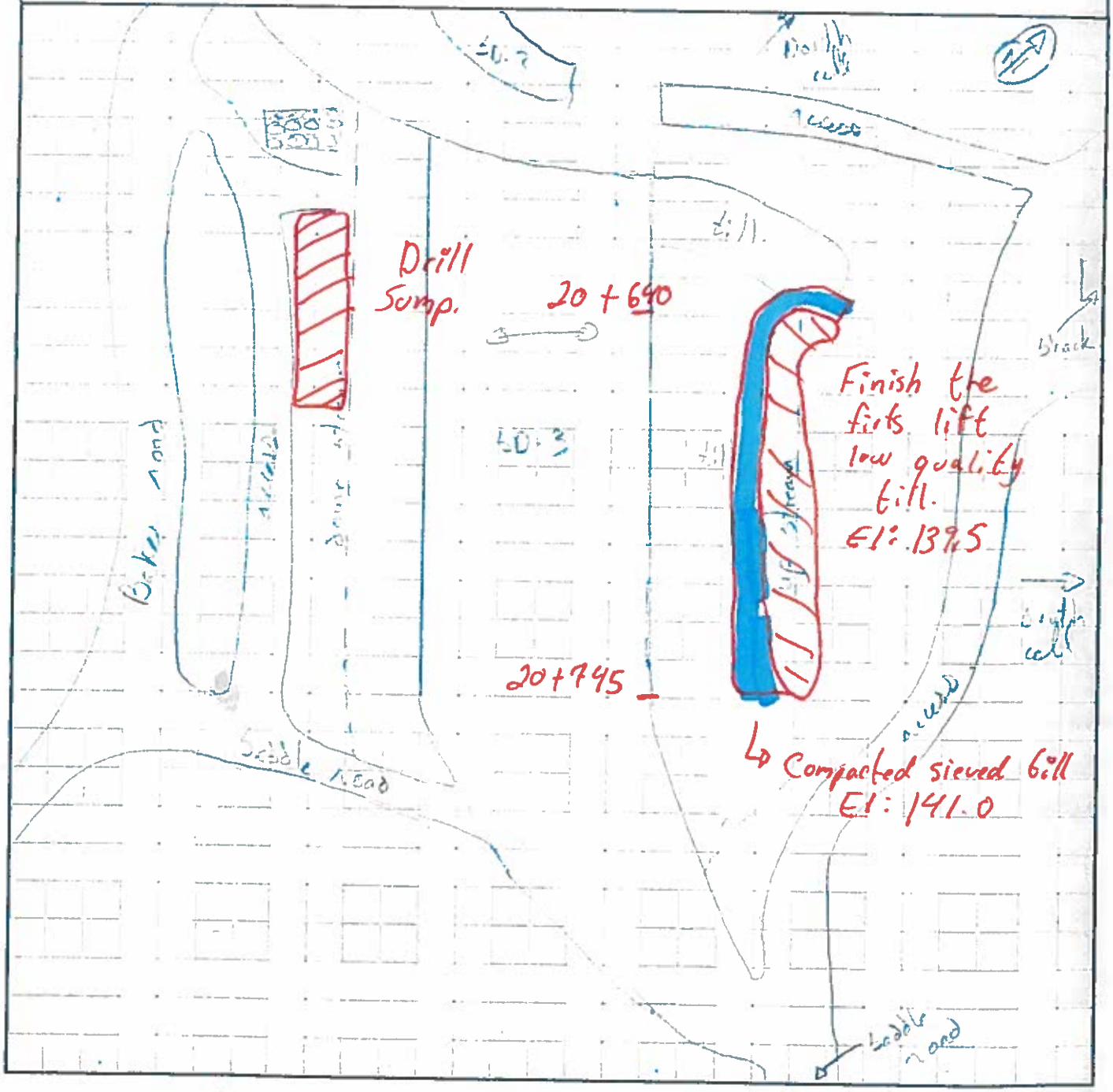
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Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

Client: A.E.M.	Projet no.: 11118538-01
Projet: Sandy Beach 3-4-5	Page 1 de 1
Date d'inspection: 2017-09-12	



Préparé par: _____ Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 13-Sep-17 **Inspector - Day/Night:** Cédrick Fillon Tremblay, Day shift

Weather : sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Mass excavation/Backfill till

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☒
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☒	**Sump Excavation**	☒
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

-Make 1 gradation in the laboratoire.

-Continue drill the sump at down stream SD-3. (see sketch join to the report)

-Continue to put a low quality till and compacted sieved till up stream on SD-3. (see sketch join to the report)

-start to put a rockfill protection up stream on SD-3.

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, 1-6 Weels trucks, blower

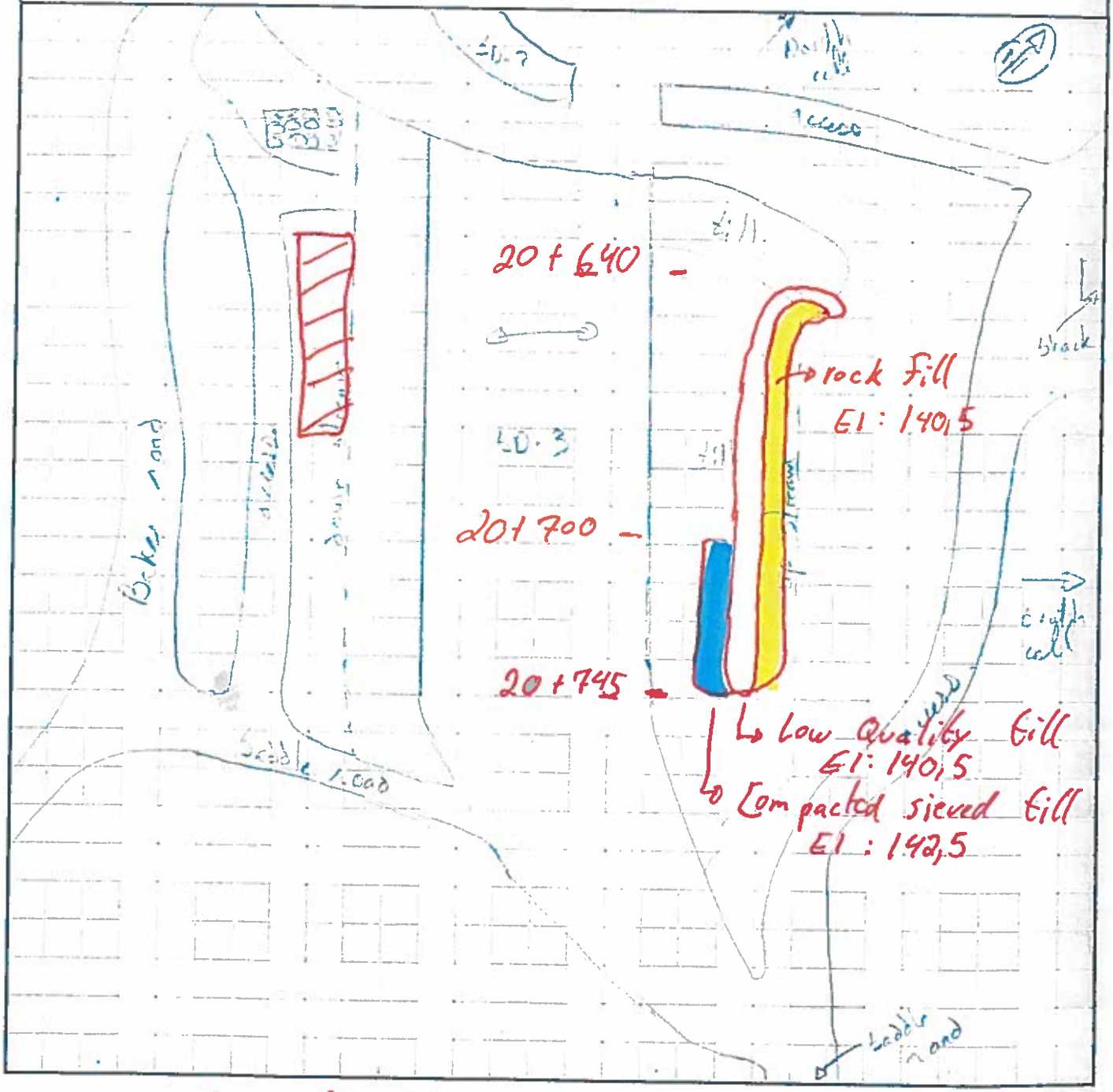
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

Client: A.E.M.	Projet no.: 11118538-01
Projet: Saddle dam 3-4-5	Page 1 de 1
Date d'inspection: 2017-09-13	


20+640
20+700
20+745
rock fill
El: 140,5
Low Quality fill
El: 140,5
Compacted sieved fill
El: 142,5
Saddle 1 road
Saddle 2 road
Saddle 3 road
Borrow road
Access road
Access road
Access

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 14-Sep-17 **Inspector - Day/Night:** Cédrick Fillon Tremblay, Day shift

Weather : sunny

Project: Saddle dams 3,4 and 5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Mass excavation/Backfill till

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☒
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☒	**Sump Excavation**	☒
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

-Continue drill the sump at down stream SD-3. (see sketch join to the report)

-Continue to put a low quality till and compacted sieved till up stream on SD-3. (see sketch join to the report)

- Start the tie in trench on SD-4

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, 1-6 Weels trucks, blower

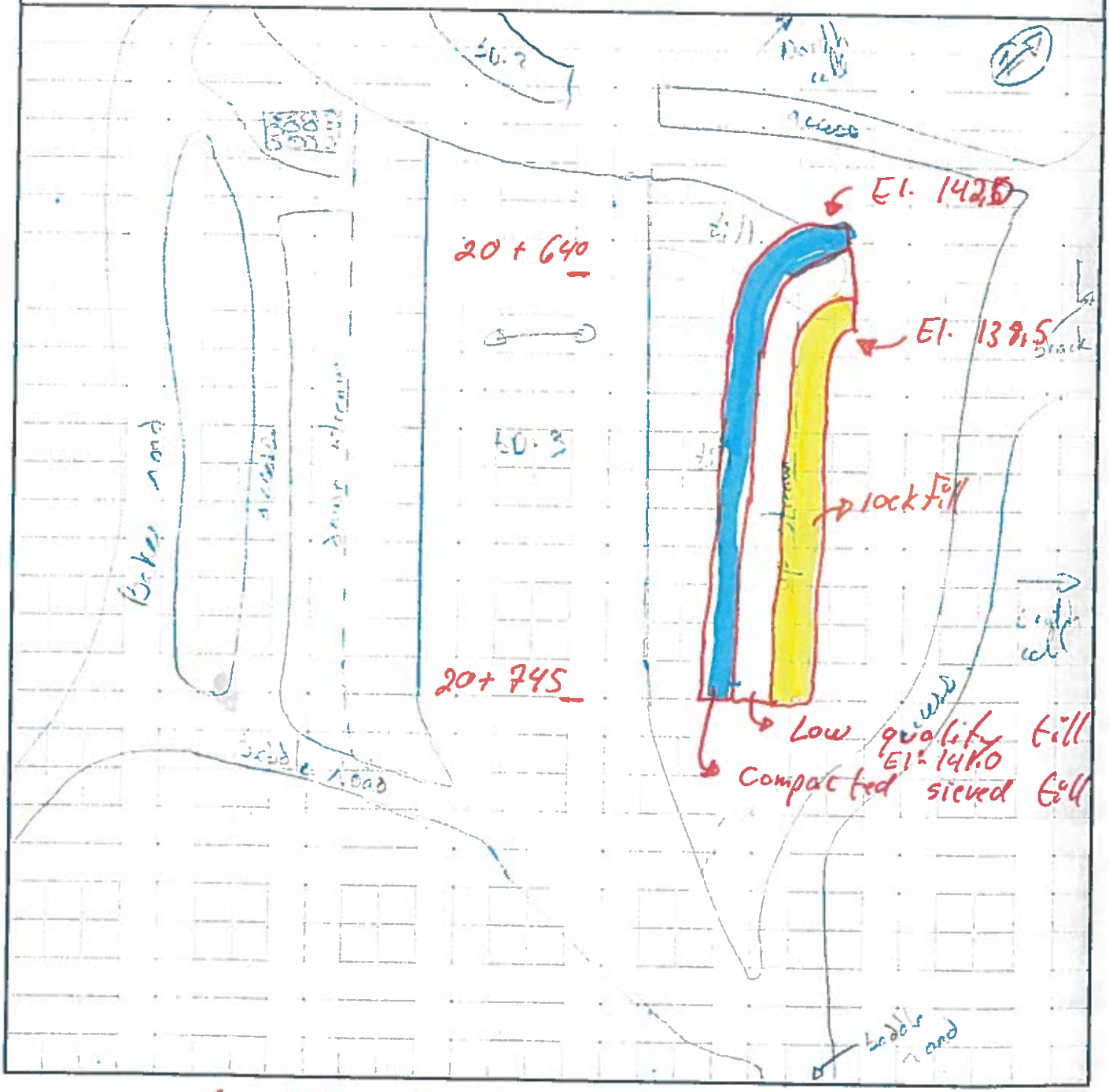
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

Client: A.E.M.	Projet no.: 11118538-01
Projet: Saddle dam 3-4-5	Page 1 de 2
Date d'inspection: 2017-09-14	



Préparé par: Melanie Gilles Tremblay

Vérifié par: _____

Plan/Croquis

Client: A.E.M.	Projet no.: 11118538-(3)
Projet: Sandy Dam 3-4-5	Page 2 de 2
Date d'inspection: 2017-09-14	



Préparé par: Vérifié par:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 15-Sep-17 **Inspector - Day/Night:** Cédrick Fillon Tremblay, Day shift

Weather : cloudy/rain

Project: Saddle dams traduction **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Mass excavation/Backfill till

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☒
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☒	**Sump Excavation**	☒
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

-Continue drill the sump at down stream SD-3. (see sketch join to the report)

-Continue to put a low quality till up stream on SD-3. (see sketch join to the report)

-Make the blast in the sump on SD-3 at 15:30.

-Finish to put the compacted sieved till up stream on SD-3. (see sketch join to the report)

-Because the rain, we stop the works for the placement till at 13h30.. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, 1-6 Weels trucks, blower

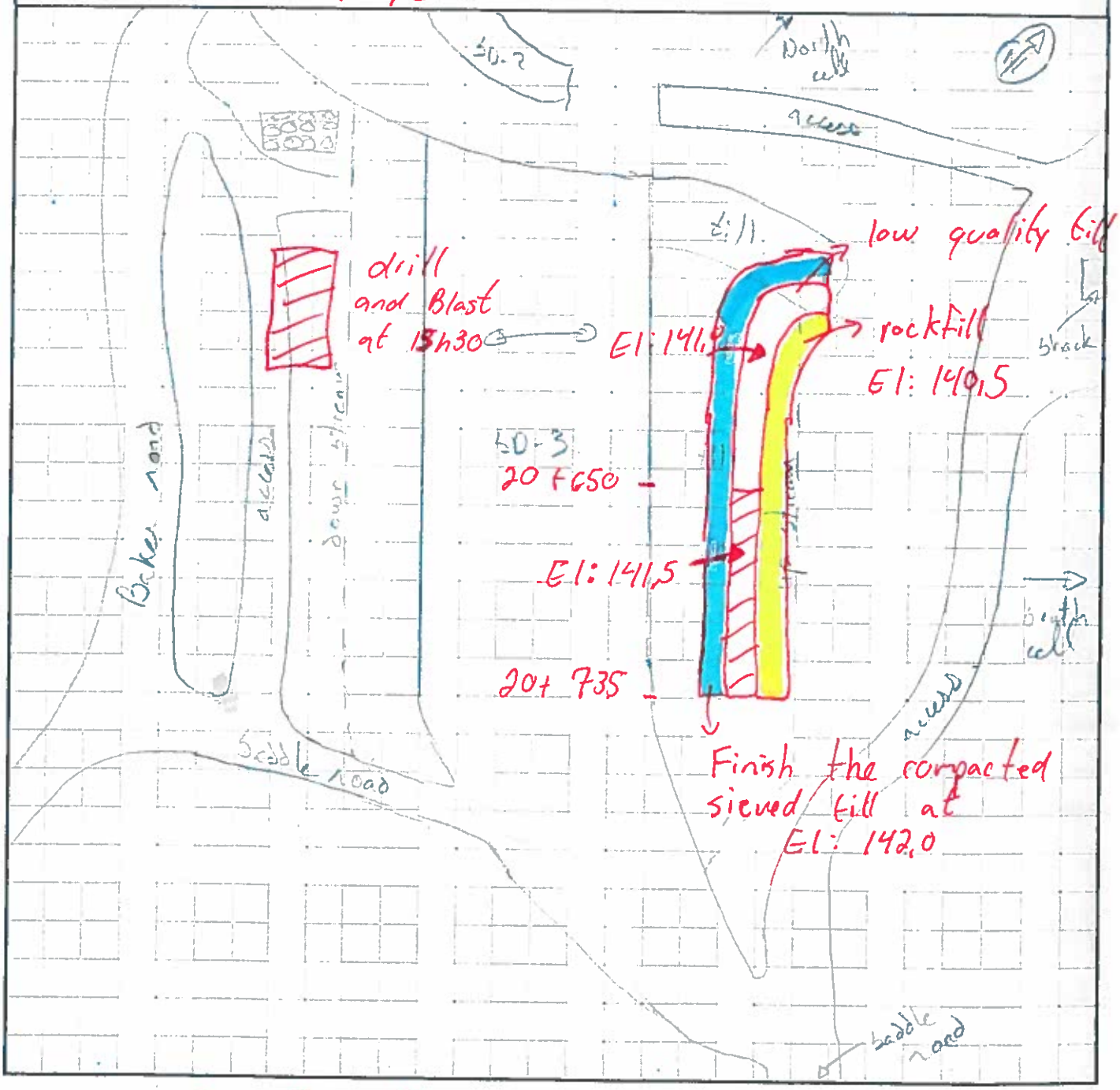
Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Croquis

Client: A.E.M.	Projet no.: 11118538-01
Projet: Saddle dam 3-4-5	Page 1 de 1
Date d'inspection: 2017-09-15	



Préparé par: Edwin Fida Kwalley Vérifié par: _____

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 16-Sep-17 **Inspector - Day/Night:** Cédrick Fillon Tremblay, Day shift

Weather : cloudy/sunny

Project: Saddle dams traduction **Contractor:** Fernand Gilbert

Work In Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Mass excavation/Backfill till

General Activities: see work in progress

Soft Sediment Excavation	☒	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☒
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☒	**Sump Excavation**	☒
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

-Excavation the sump at down stream SD-3. (see sketch join to the report)

-Continue to put a low quality till up stream on SD-3. (see sketch join to the report)

-Enlarge the acces road on SD-4. (see sketch join to the report)

-Start to drill the second blast. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, 1-6 Weels trucks, blower

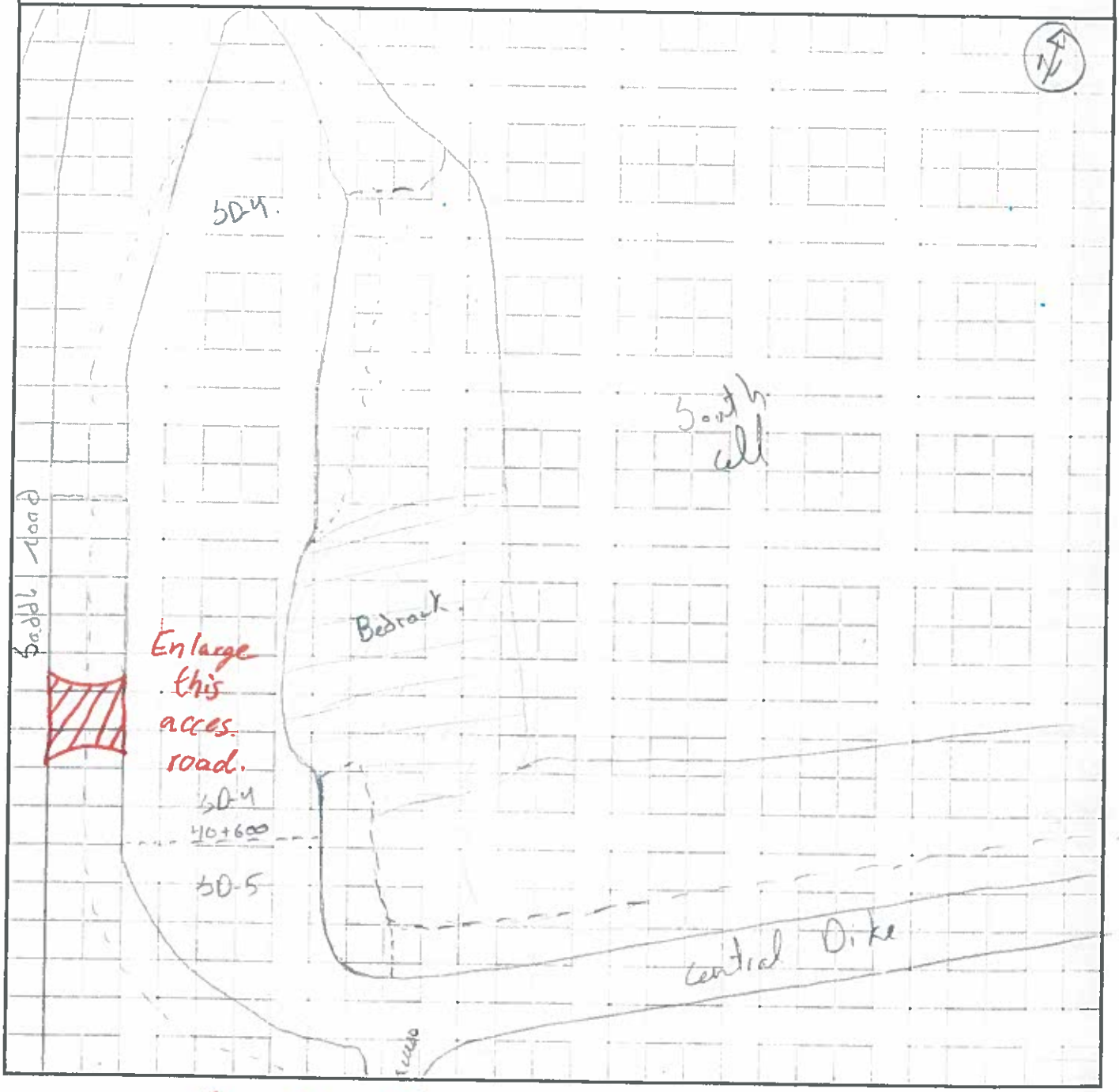
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as Indicated by the Owner Representative**

Plan/Croquis

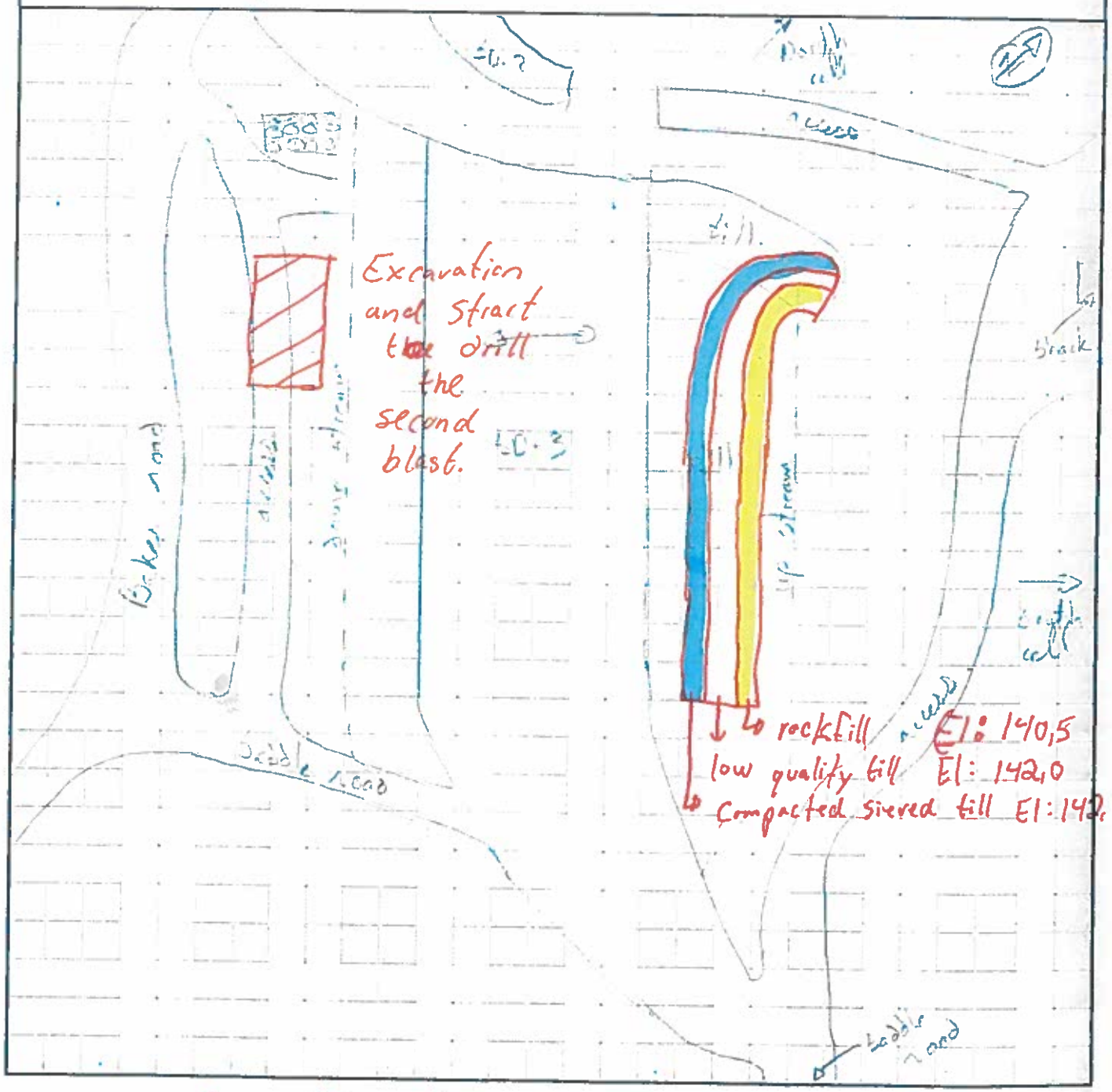
Client: A.E.M.	Projet no.: 1118538-B1
Projet: Saddle Dam 3-4-5	Page 1 de 2
Date d'inspection: 2017-09-16	



Préparé par: Adams Fills Trembly Vérifié par: _____

Plan/Croquis

Client: A.E.M.	Projet no.: 11118538-B1
Projet: Caddy dam 3-4-5	Page 2 de 2
Date d'inspection: 2017-09-16	


Excavation and start the drill the second blast.
rockfill El: 140,5
low quality till El: 142,0
Compacted sieved till El: 142,0
Broken rock
Access road
Caddy road
Caddy road
Up stream
Down stream
Crest
Crest
Crest

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 17-Sep-17 **Inspector - Day/Night:** Cédrick Fillon Tremblay, Day shift

Weather : sunny

Project: Saddle dams traduction **Contractor:** Fernand Gilbert

Work In Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Mass excavation/Backfill till

General Activities: see work in progress

Soft Sediment Excavation	☒	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☒
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☒	**Sump Excavation**	☒
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

-Excavation the sump at down stream SD-3. (see sketch join to the report)

-Finish to put a low quality till up stream on SD-3. (see sketch join to the report)

-Drill the second blast on down stream SD-3. (see sketch join to the report)

-Rockfill protection in the slope up stream on SD-3. (see sketch join to the report)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, 1-6 Weels trucks, blower

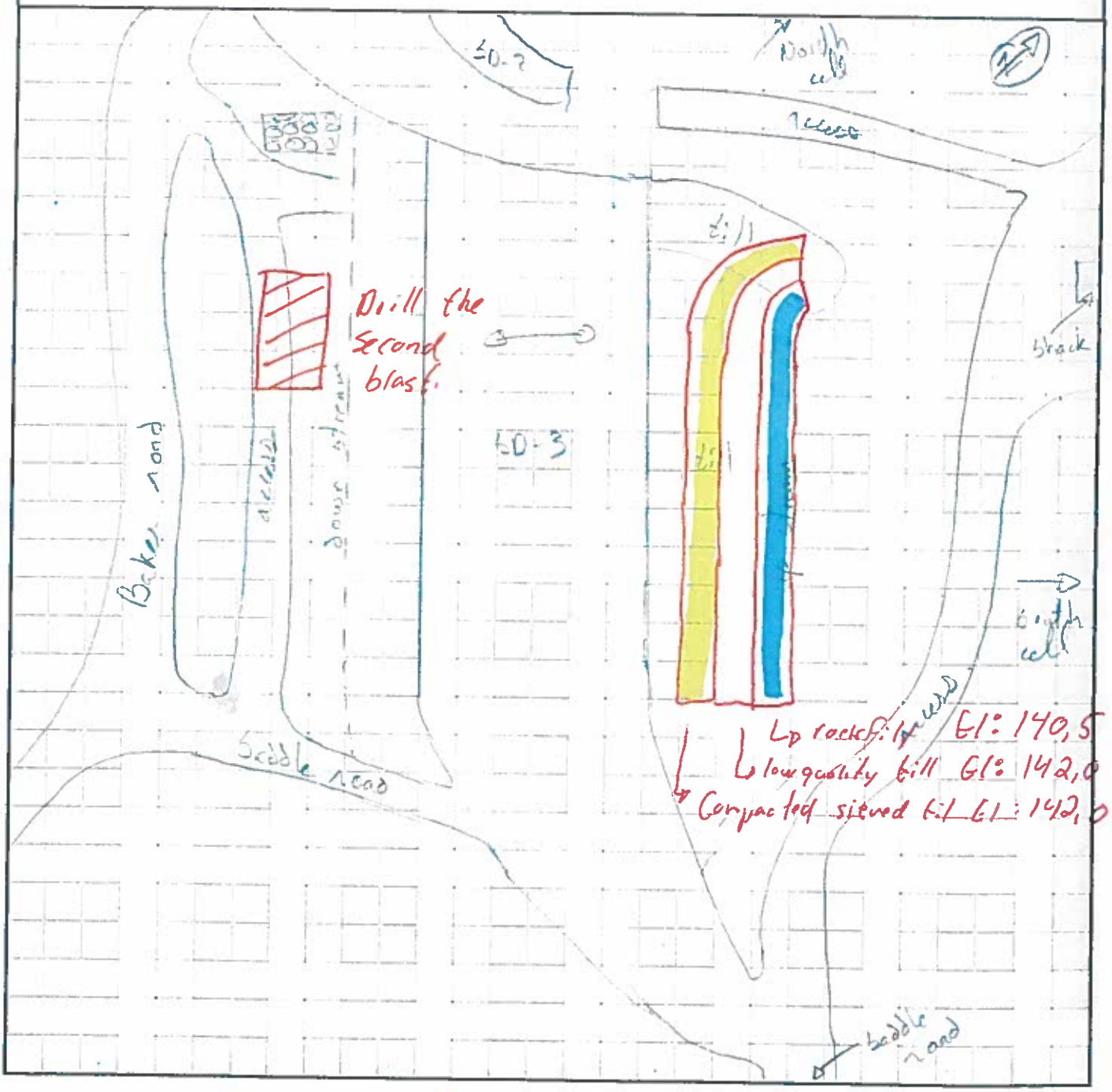
Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Croquis

Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 1 de 1
Date d'inspection: 2017-09-17	



Préparé par: Vérifié par:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 18-Sep-17 **Inspector - Day/Night:** Cédrick Fillon Tremblay, Day shift

Weather : cloudy/sunny

Project: Saddle dams traduction **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Mass excavation/Backfill till

General Activities: see work in progress

Soft Sediment Excavation	☒	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☒
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☒	**Sump Excavation**	☒
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

-Drill the second blast on down stream SD-3. (see sketch join to the report)

-Start the cleaning and blowing on membrane on SD-4 and SD-5. (see sketch join to the report)

- Make 4 sample at Amaroq.

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, 1-6 Weels trucks, blower

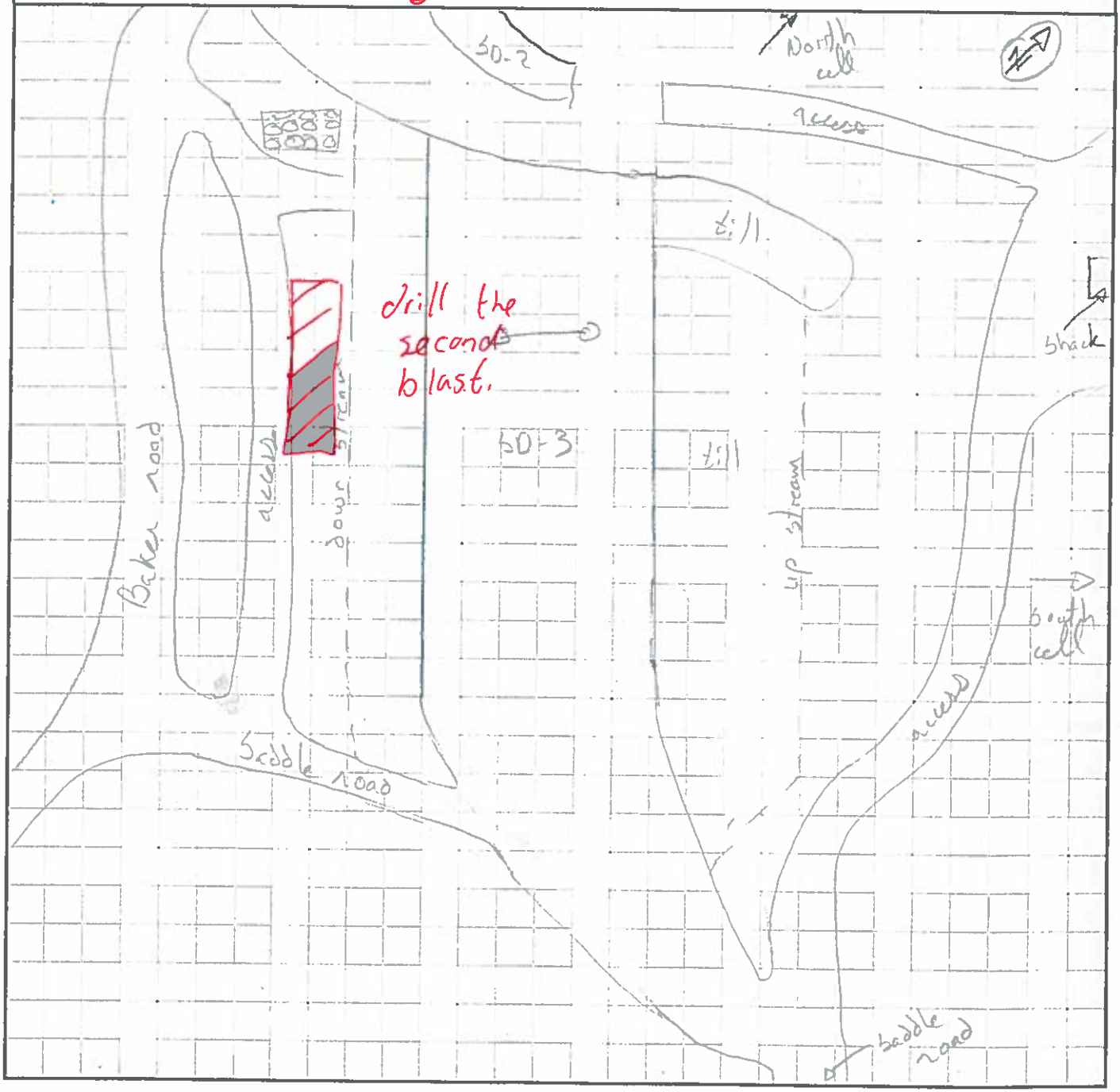
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

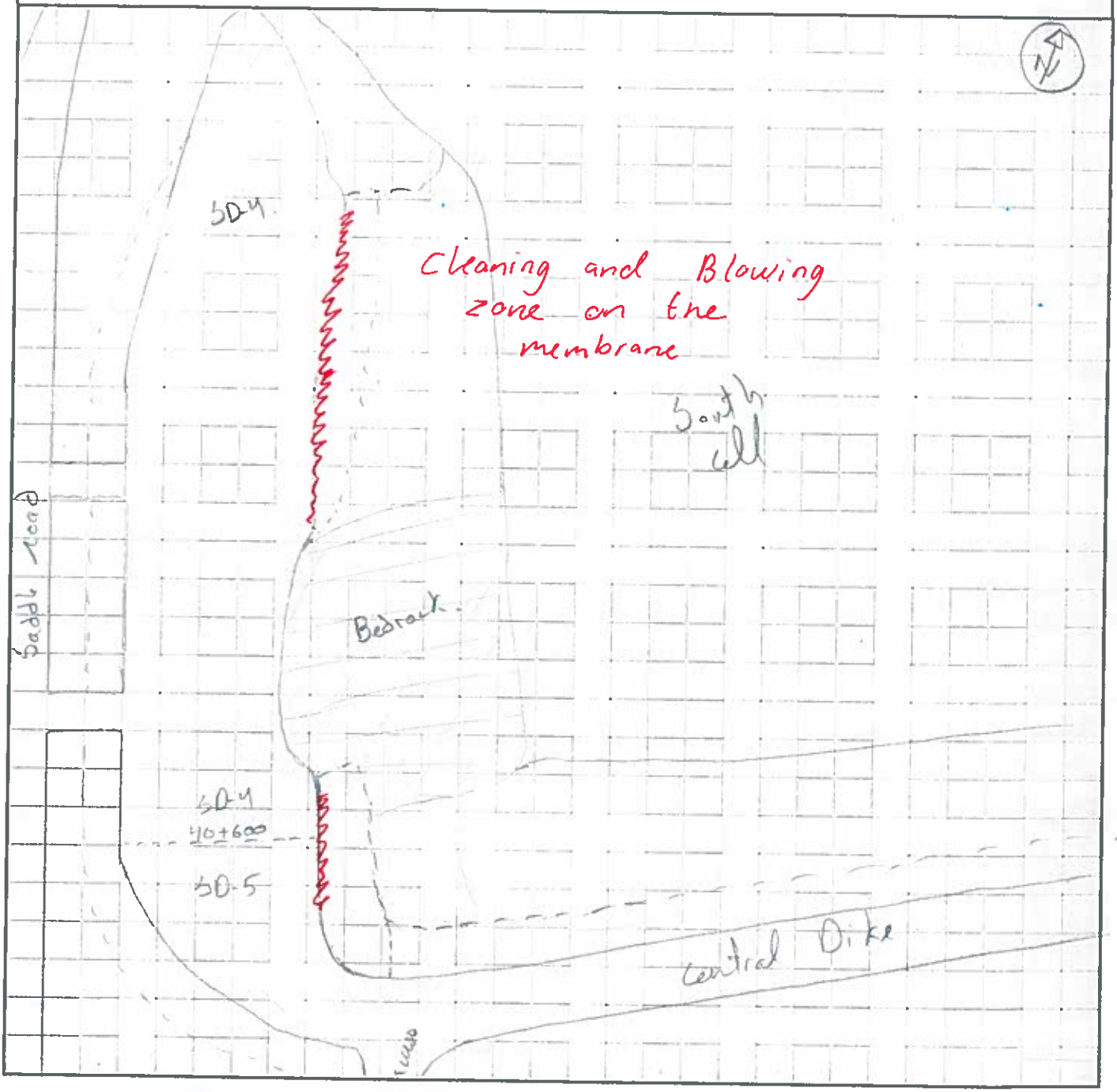
Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 1 de 2
Date d'inspection: 2017-09-18	



Préparé par: Vérifié par:

Plan/Croquis

Client: A.E.M	Projet no.: 11118538-B1
Projet: Saddle Dam 3-4-5	Page 2 de 2
Date d'inspection: 2017-	



Préparé par: _____ Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 19-Sep-17 Inspector - Day/Night: Hugues Potvin, Day shift

Weather : sunny

Project: Saddle dams traduction Contractor: Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Slope profiling, rockfill, approval

General Activities: see work in progress

Soft Sediment Excavation	☐	Key Excavation	☐	Coarse Filter	☐	Drilling/Blasting	☒
Foundation Preparation	☐	LLDPE/Geotextile	☐	Till	☒	Sump Excavation	☒
Water Control	☐	Fine Filter	☐	Rockfill	☒		

Description:

-Drill the second blast on down stream SD-3. (see sketch join to the report)

-Block (more than 1,3 m) are disposed of SD3.

-Rockfill and slope profiling on SD3 (see sketch join to the report).

-Fondation approval of surfaces under the liners at SD4 (FND-SD4-33) and Central Dyke (FDN-CD-138).

-[illegible]e adjustment with Fine Filter on SD4 and SD5 (see sketch join to the report).

-Plug till scarification at SD4, nb: Liner was broken at one place by the compactor.

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Weels trucks, Haul trucks, Compactor, Loader Komatsu 500

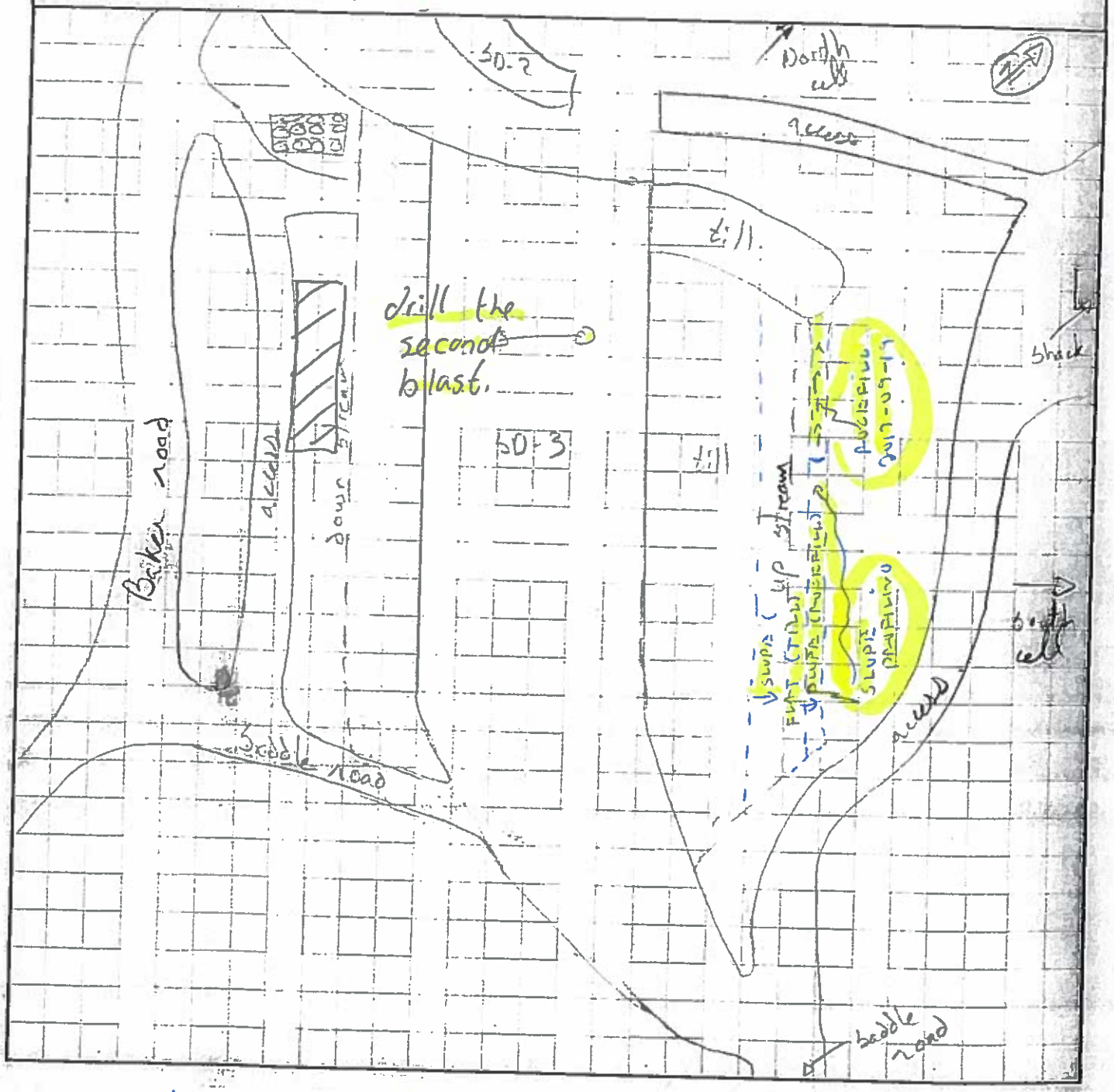
Manpower:

Photos Location:

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Plan/Croquis

Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 1 de 2
Date d'inspection: 2017-09-19	

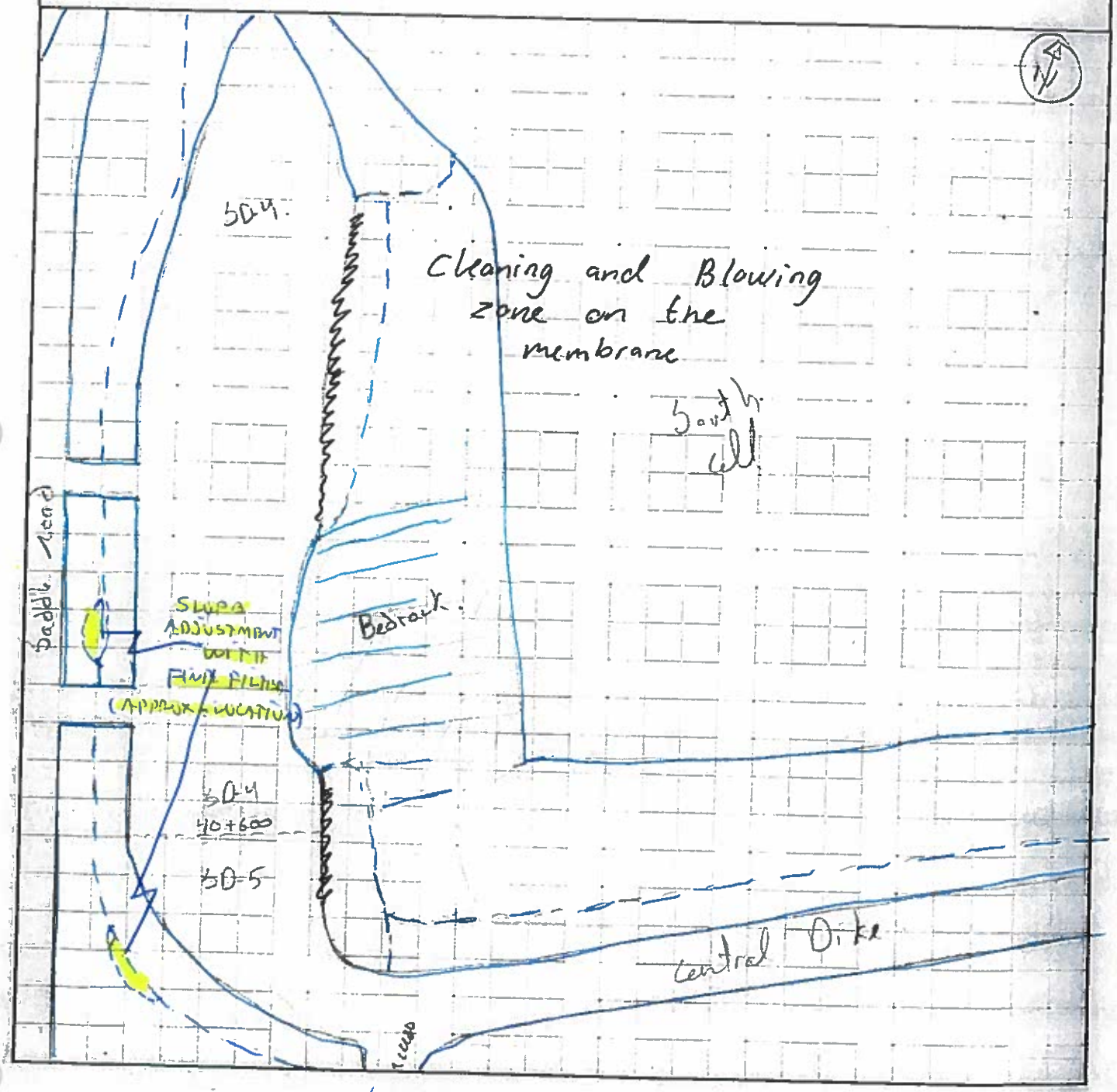


Préparé par: Hugues Poirier

Vérifié par:

Plan/Croquis

Client: A.E.M	Projet no.: 11118538-61
Projet: Saddle Dam 3-4-5	Page 2 de 2
Date d'inspection: 2017-09-19	



Préparé par: Hugues Pumin

Vérifié par: _____

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 20-Sep-17 Inspector - Day/Night: Hugues Potvin, Day shift

Weather : cloudy

Project: Saddle dams traduction Contractor: Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Blast, rockfill, plug till scarification and compaction

General Activities: see work in progress

Soft Sediment Excavation	☐	Key Excavation	☐	Coarse Filter	☐	Drilling/Blasting	☒
Foundation Preparation	☐	LLDPE/Geotextile	☐	Till	☒	Sump Excavation	☐
Water Control	☐	Fine Filter	☐	Rockfill	☒		

Description:

-Blast on SD3 (see sketch join to the report).

-Rockfill (0 to 500 mm) on SD3, one layer of 2 meter width (see sketch join to the report).

-Plug till scarification at SD5.

-Compaction of the till (0 to 3 meters of the slope) in order to eliminate excavator traces at SD4 (north part) and Central Dyke.

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Weels trucks, Haul trucks, Compactor, Loader Komatsu 500

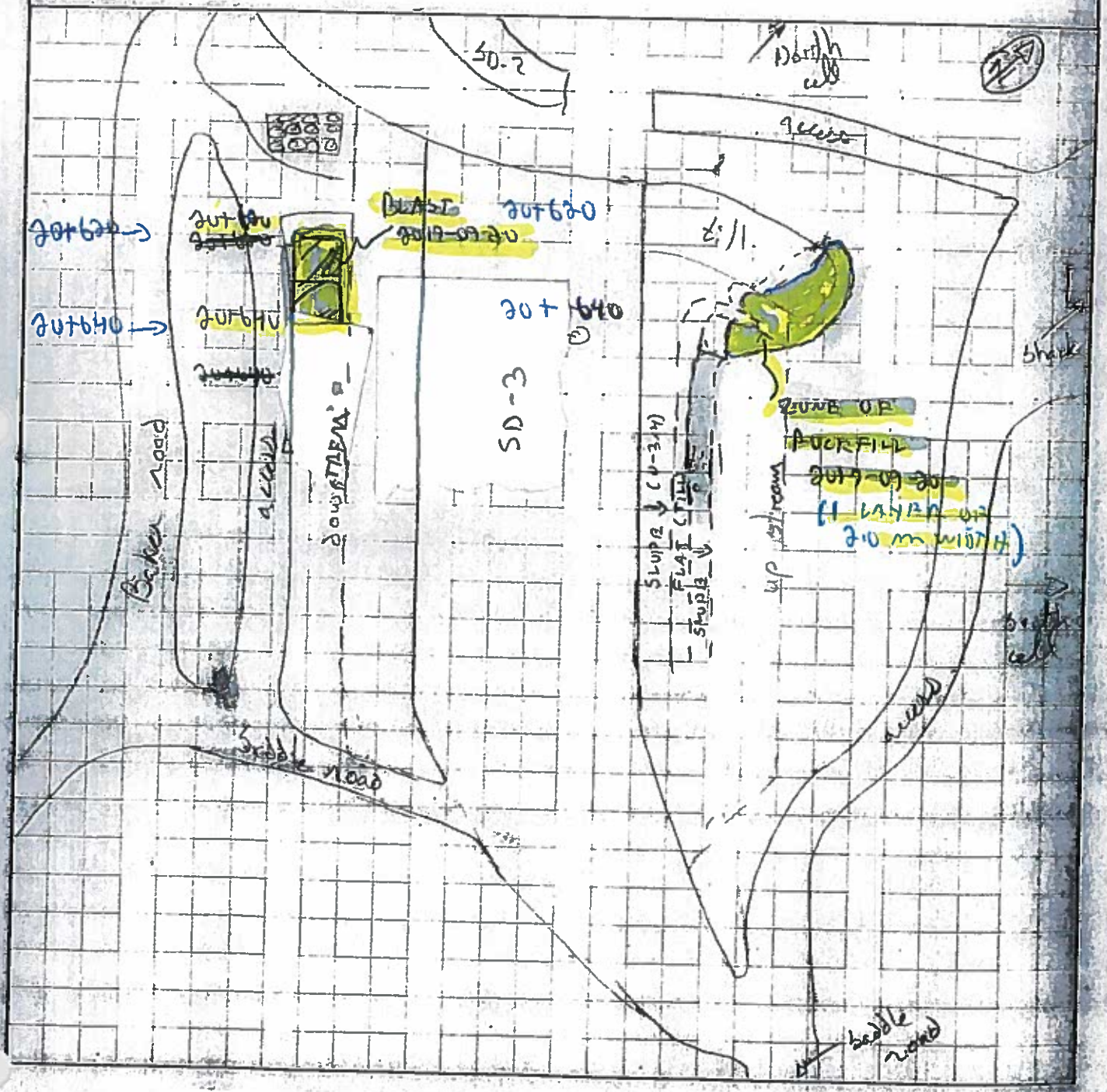
Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

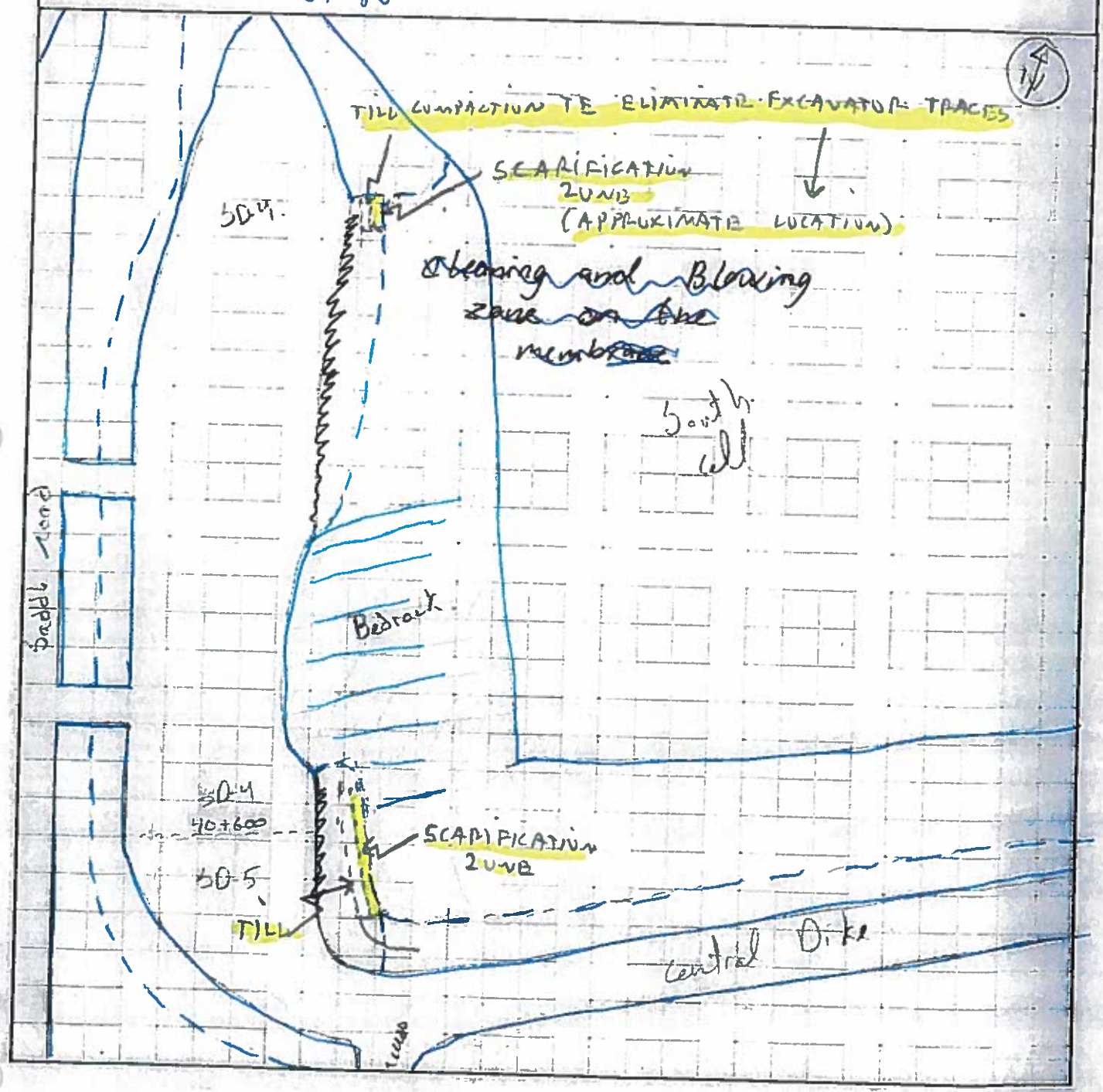
Plan/Croquis

Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 1 de 3
Date d'inspection: 2017-09-20	



Préparé par: Hugues Potvin Vérifié par: _____

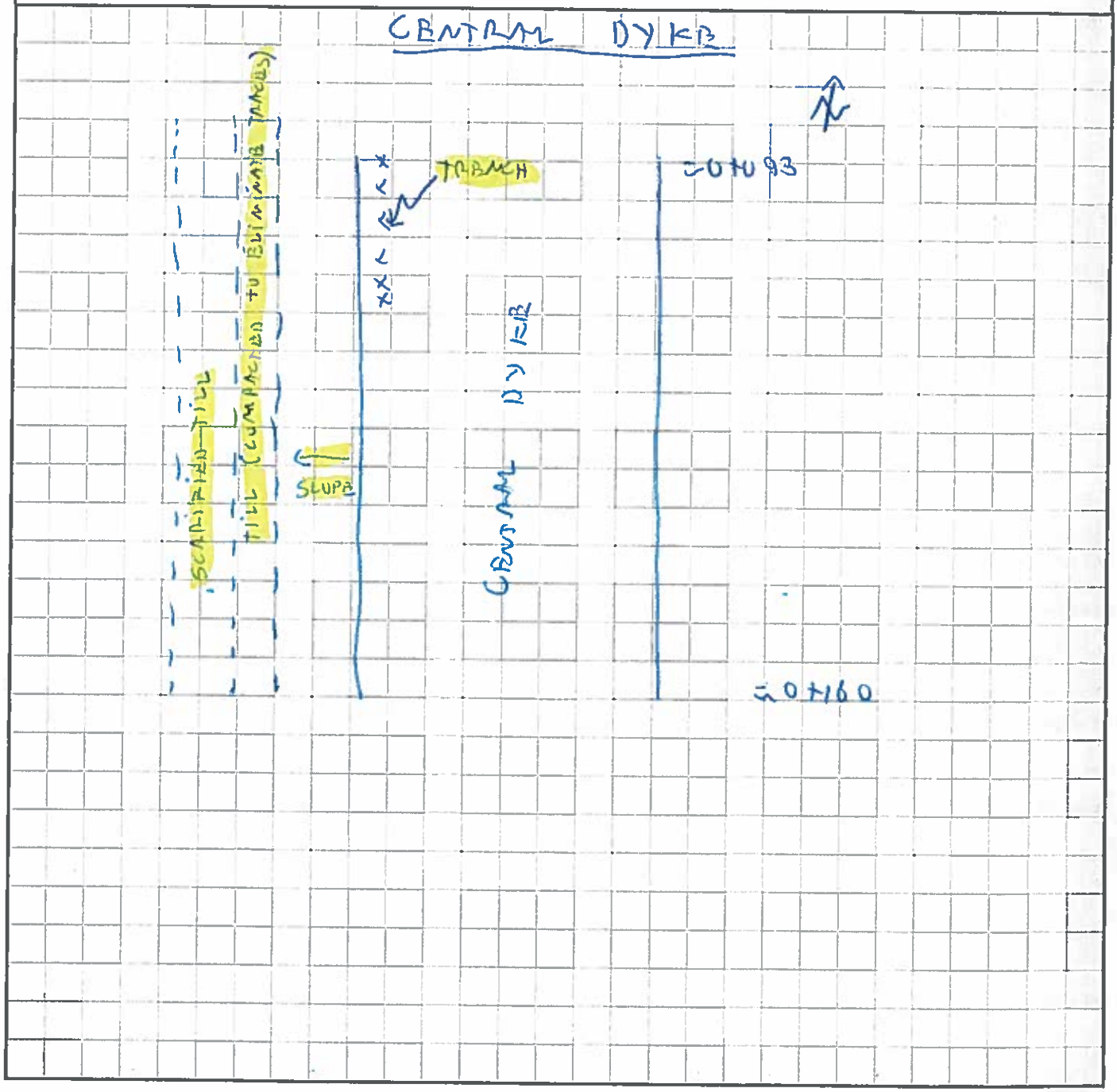
Client: A.E.M	Projet no.: 11185538-01
Projet: [illegible] Dam S-4-5	Page 2 de 3
Date d'inspection: 2017-09-20	



Préparé par: _____ Vérifié par: _____

Plan/Croquis

Client: AEM	Projet no.: 1111853B-B1
Projet: SADDLE DAM 3-45	Page 3 de 3
Date d'inspection: 2017-09-20	



Préparé par: HUGUES PUPIN Vérifié par:

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 21-Sep-17 Inspector - Day/Night: Hugues Potvin, Day shift

Weather : sunny

Project: Saddle dams traduction Contractor: Fernand Gilbert

Work In Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Cleaning liner's surfaces, disposing material

General Activities: see work in progress

Soft Sediment Excavation	☐	Key Excavation	☐	Coarse Filter	☐	Drilling/Blasting	☐
Foundation Preparation	☐	LLDPE/Geotextile	☐	Till	☐	Sump Excavation	☒
Water Control	☐	Fine Filter	☐	Rockfill	☐		

Description:

-Cleaning of the surface on which the liner will be laid at SD4 and SD5.

-Compaction of a portion of the plug till and of the slope (for correction of inequal surface) in the north part of SD4 (upstream side).

-Prolongation of the trench located on the top of the upstream slope in the north part of SD4.

'-Disposing of blasted material at SD3 (Sump area).

- Trench on the top of the upstream slope completed on Central Dyke.

See sketch for location of work

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Haul trucks, Loader Komatsu 500, compactor

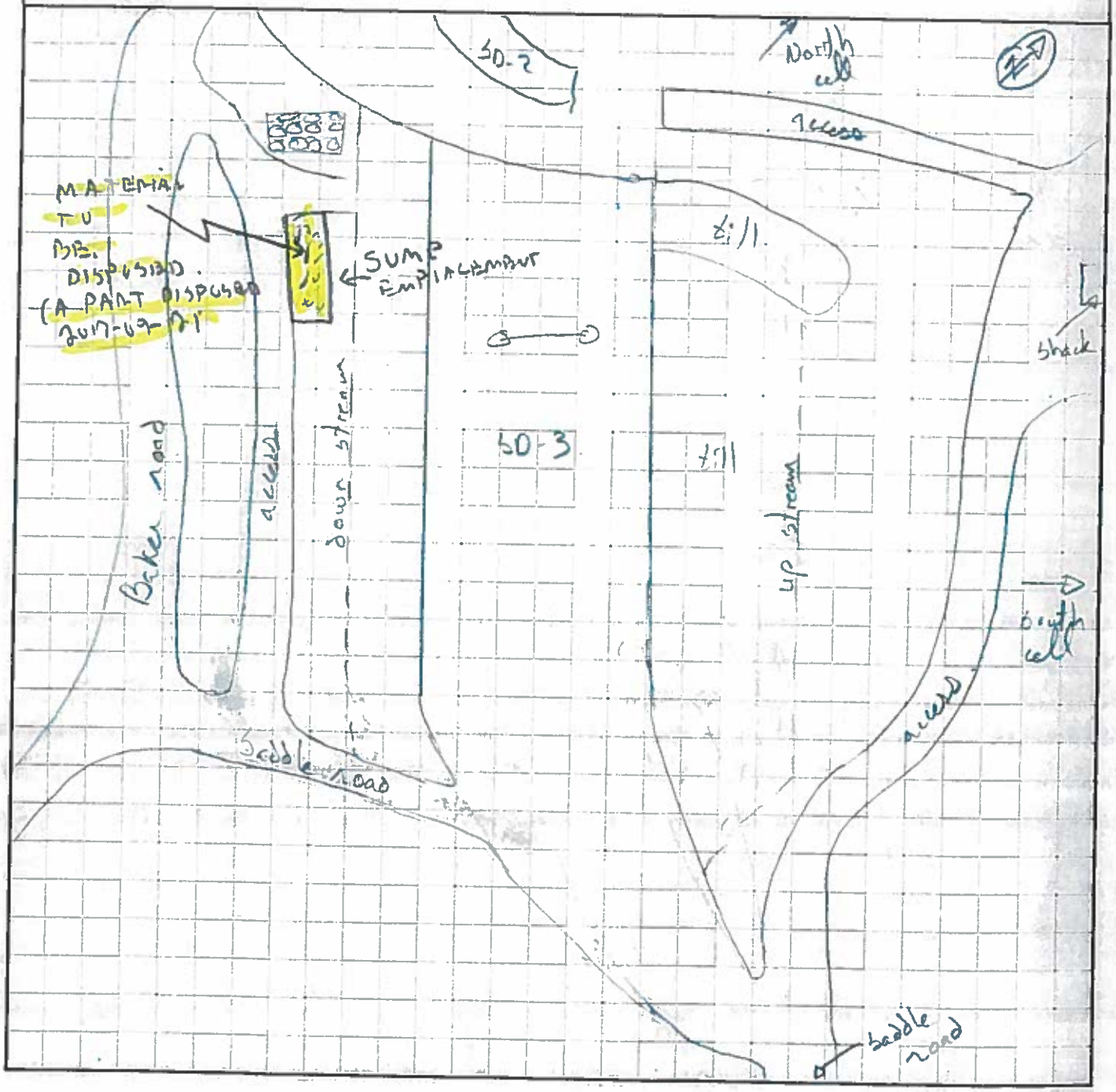
Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Croquis

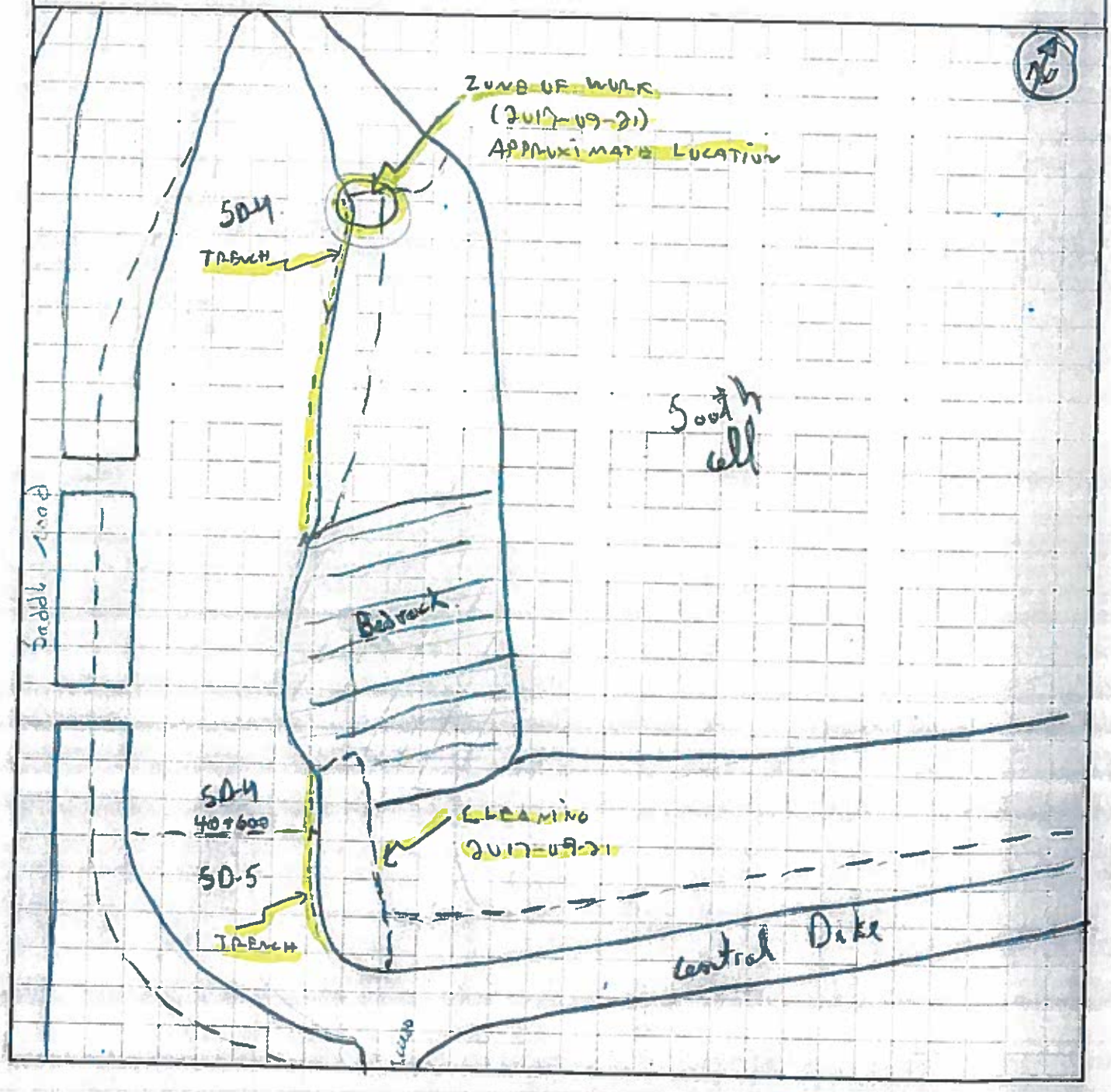
Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 1 de 3
Date d'inspection: 2017-09-21	



Préparé par: Hugues Putvin Vérifié par: _____

Plan/Croquis

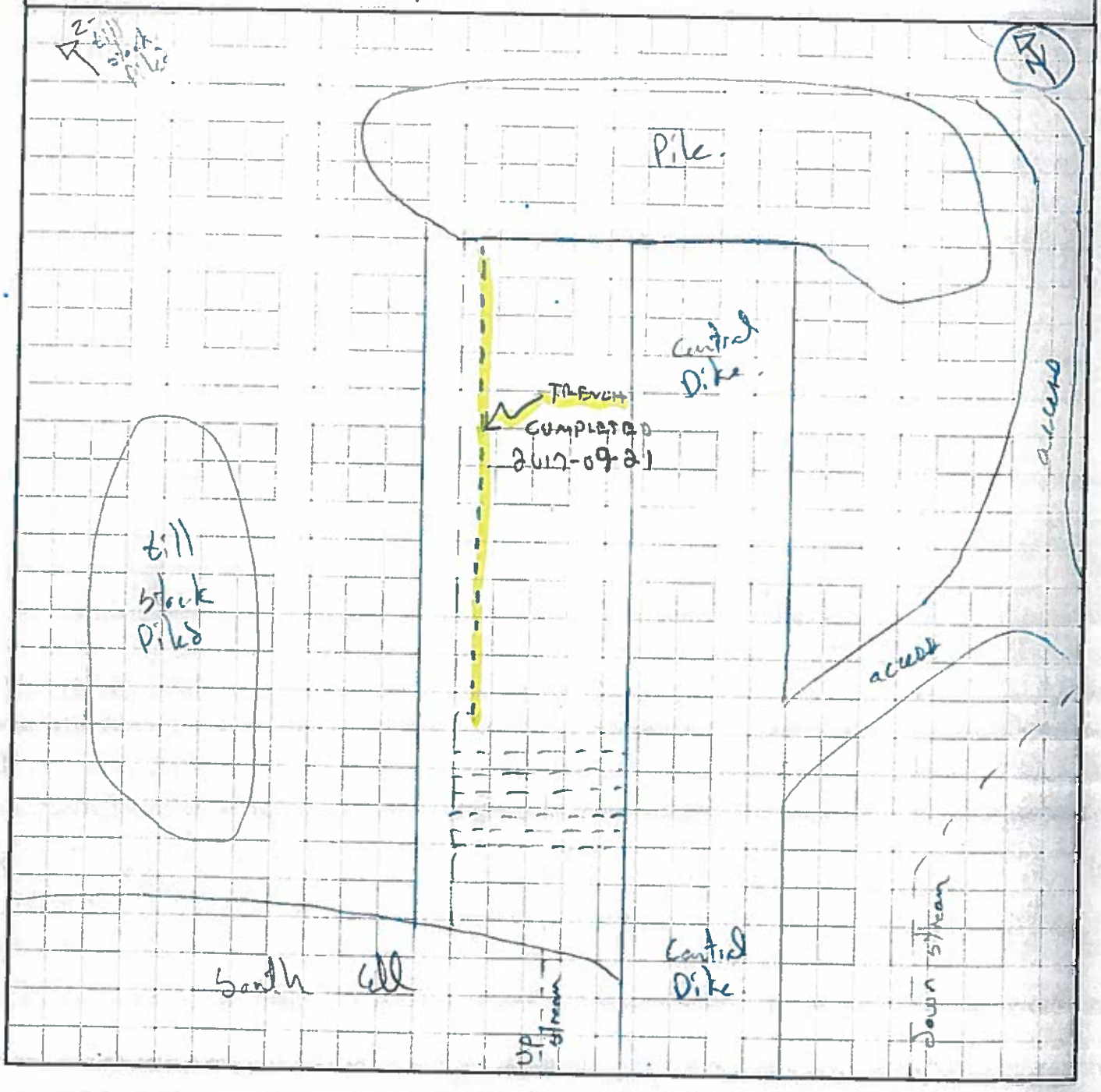
Client: A.E.M	Projet no.: 11118538-B1
Projet: Saddle Dam 3-4-5	Page 2 de 3
Date d'inspection: 2017-09-21	



Préparé par: Hugues Putvin Vérifié par: _____

Plan/Croquis

Client: AEM	Projet no.: 1118538-B1
Projet: Saddle dam 3-4-5	Page 3 de 3
Date d'inspection: 2017-09-21	



Préparé par: Hugues Putvin

Vérifié par: _____

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGL
MEADOWBAN

Date: 22-Sep-17 **Inspector - Day/Night:** Hugues Potvin, Day shift

Weather : sunny

Project: Saddle dams traduction **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Cleaning liner's surfaces, disposing material

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☒	**Till**	☐	**Sump Excavation**	☒
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

-Cleaning of the surface on which the liner will be laid and compaction (plug till and upstream slope) at SD5.

-Disposing of blasted material at SD3 (Sump area).

-Installation of geotextile and liner on SD4 (see sketch #2).

See sketch for location of work

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, [redacted] trucks, Loader Komatsu 500, compactor

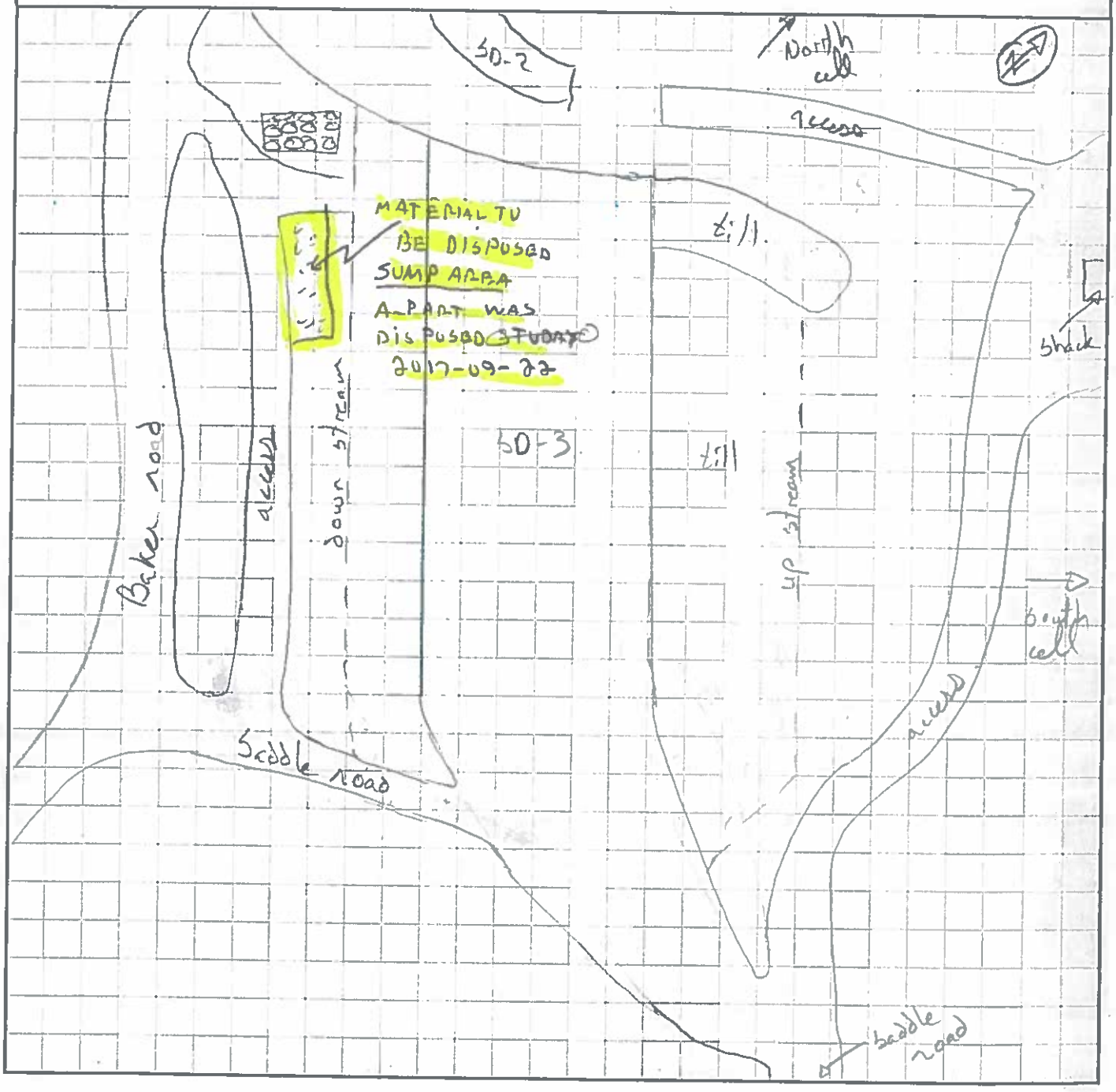
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

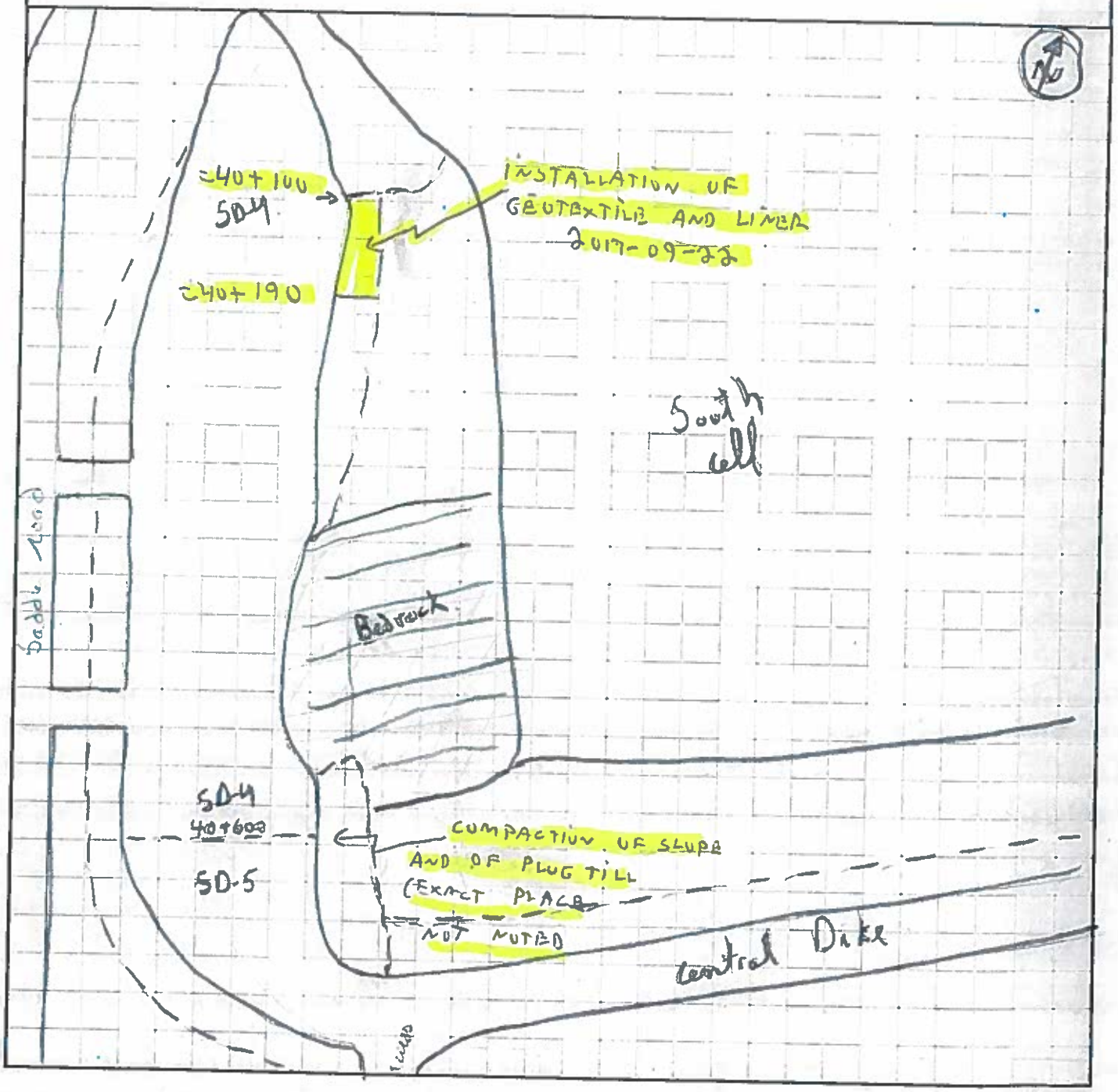
Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 1 de 2
Date d'inspection: 2017-09-22	



Préparé par: Hugues Potvin Vérifié par: _____

Plan/Croquis

Client: A.E.M	Projet no.: 11118538-B1
Projet: Saddle Dam 3-4-5	Page 2 de 2
Date d'inspection: 2017-09-22	



Préparé par: Hugues Potvin Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 23-Sep-17 **Inspector - Day/Night:** Hugues Potvin, Day shift

Weather : cloudy with little snow this morning, a little sun in afternoon

Project: Saddle dams traduction **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Installation of liners, disposing material

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☒	**Till**	☐	**Sump Excavation**	☒
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: **-Finish welding of the horizontal joints of the membrane between ch 40+100 and 40+190 at SD4.**

-Installation of geotextile and liner on SD4, no work in the moning because it was snowing (see sketch #1).

-Disposing of blasted material at SD3 (Sump area) (see sketch #2).

-Cleaning the surface on which the liner will be laid and slope compaction (for final corrections) on Central Dyke.

See sketch for location of work

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Testing instrument for the liner was broken this morning.

Equipment: Cat 345D, Cat PC450, trucks

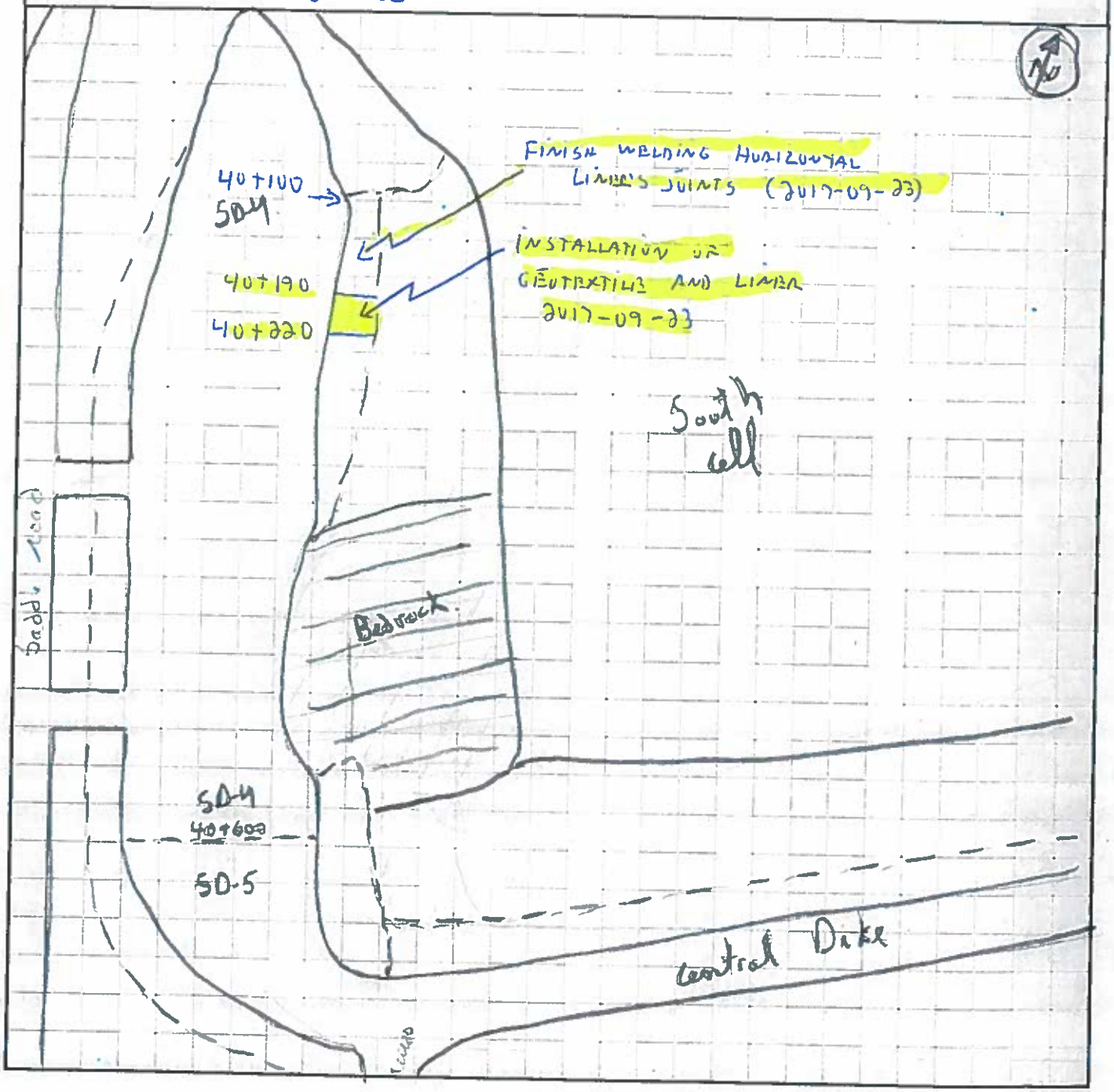
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

Client: A.E.M	Projet no.: 11118538-B1
Projet: Saddle Dam 3-4-5	Page 1 de 2
Date d'inspection: 2017-09-23	



Préparé par: Hugues Potvin

Vérifié par:

Plan/Croquis

Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 2 de 2
Date d'inspection: 2017-09-23	



Préparé par: Hugues Potvin Vérifié par: _____

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 24-Sep-17 **Inspector - Day/Night:** Hugues Potvin, Day shift

Weather : Cloudy

Project: Saddle dams traduction **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Installation of liners, disposing material

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☒	**Till**	☐	**Sump Excavation**	☒
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

-Installation of geotextile and liner on SD4 (see sketch #1).

-Disposing of blasted material at SD3 (Sump area). The hole are appoximately 7 to 8 m depth (see sketch #2).

-Approval of the surface on which the liner will be laid at SD5 (approval # FND-SD5-17) (see sketch #2).

See sketch for location of work

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Cat PC450, trucks

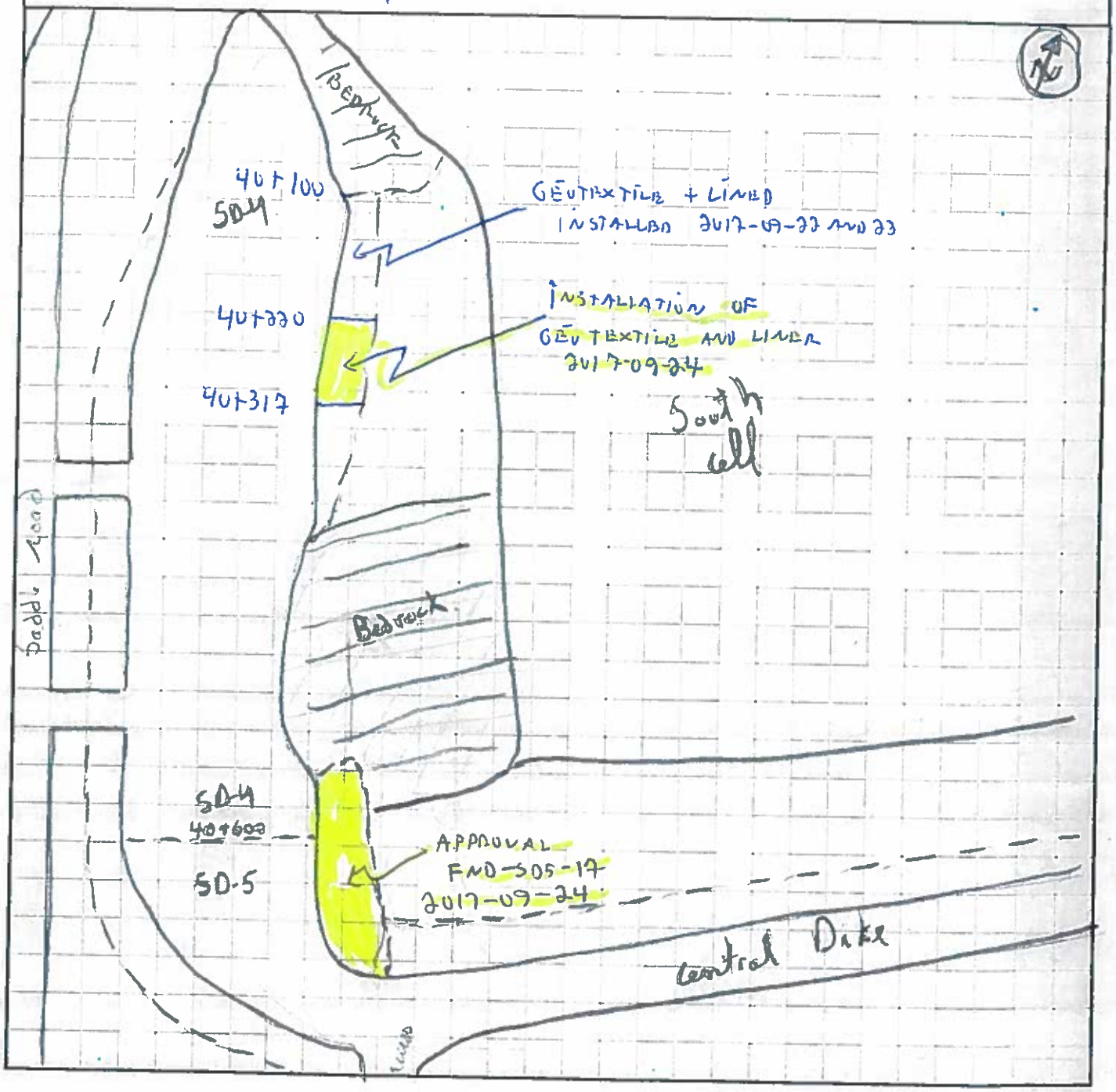
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

Client: A.E.M	Projet no.: 11118538-B1
Projet: Saddle Dam 3-4-5	Page 1 de 2
Date d'inspection: 2017-09-24	

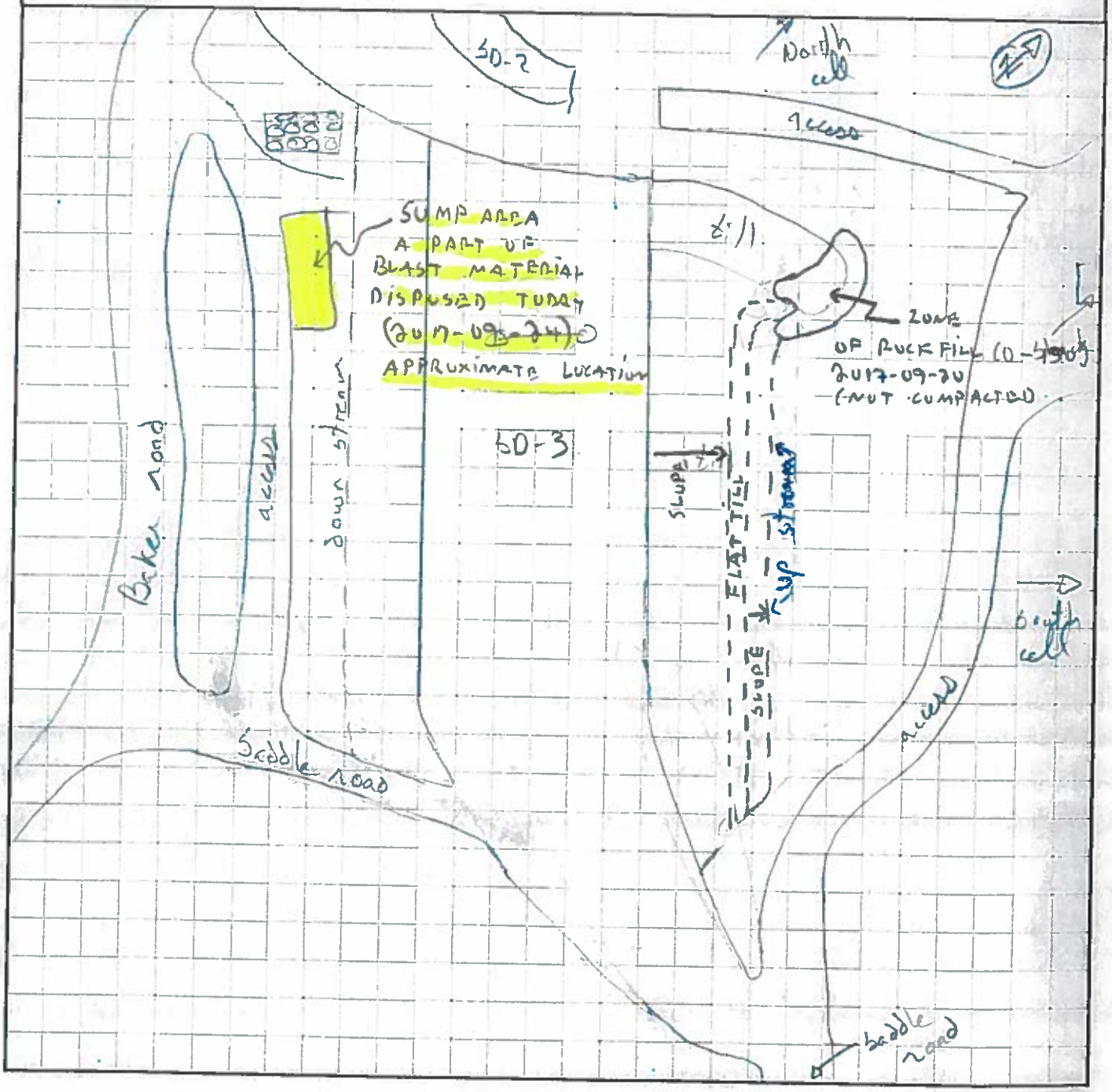


Préparé par: Hugues Purvin

Vérifié par:

Plan/Croquis

Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 2 de 2
Date d'inspection: 2017-09-24	



Préparé par: Hugues Potvin

Vérifié par:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 25-Sep-17 **Inspector - Day/Night:** Hugues Potvin, Day shift

Weather : Fog in morning, Cloudy in afternoon

Project: Saddle dams traduction **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Installation of liners, disposing material

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☒	**Till**	☐	**Sump Excavation**	☒
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

-Installation of geotextile and liner on SD4(see sketch #1).

-The trench was burried and the rockfill place in it was compacted between ch. 40100 and 40+455 at SD4.

-Disposing of blasted material at SD3 (Sump area), the sump is now aproximately 7 m long by 4 m wide and 7 to 8 m deep (see sketch #2).

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Cat PC450, one truck

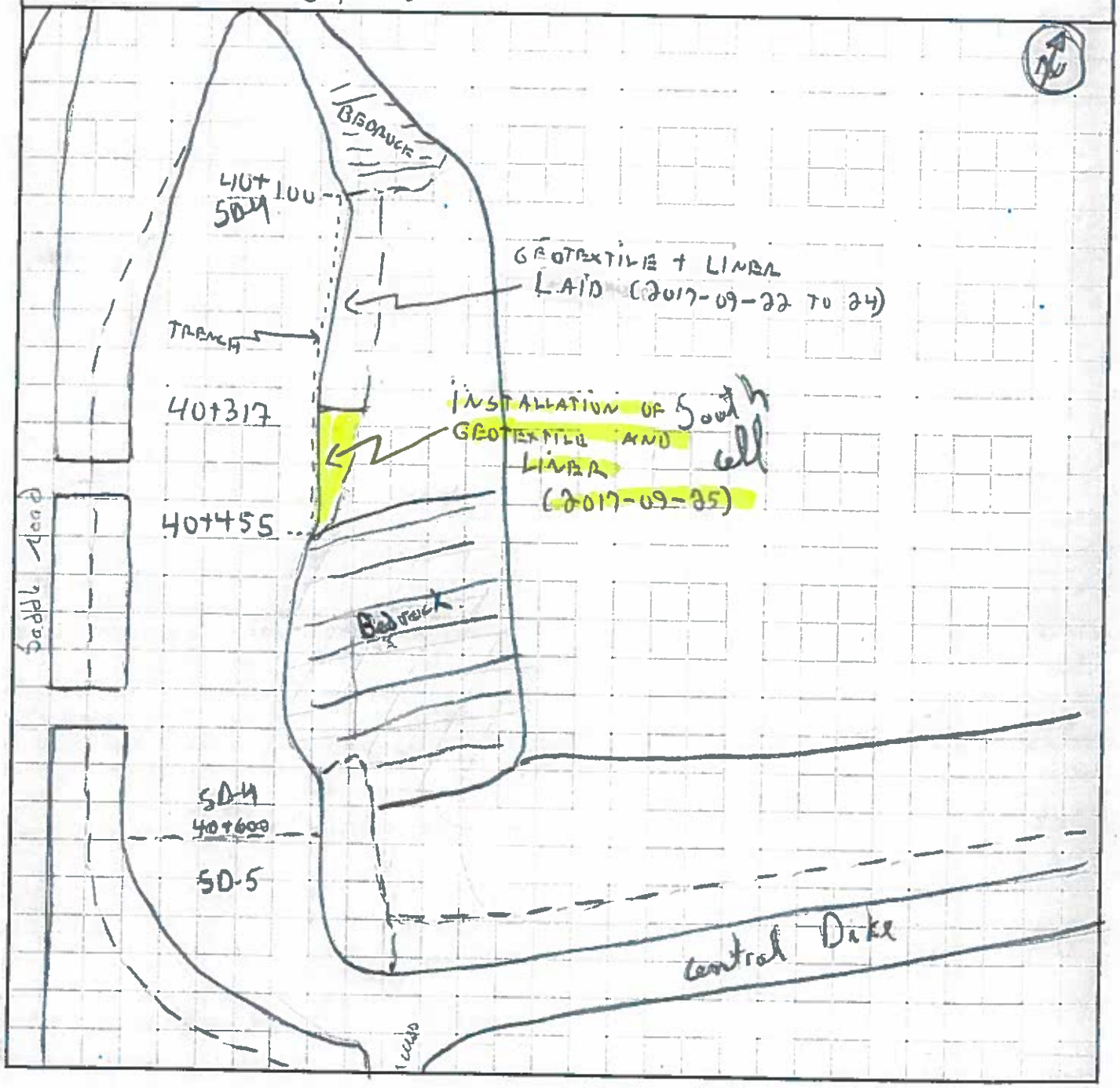
Manpower: LLDPE team, excavator operators

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

Client: A.E.M	Projet no.: 11118538-B1
Projet: Saddle Dam 3-4-5	Page 1 de 2
Date d'inspection: 2017-09-25	

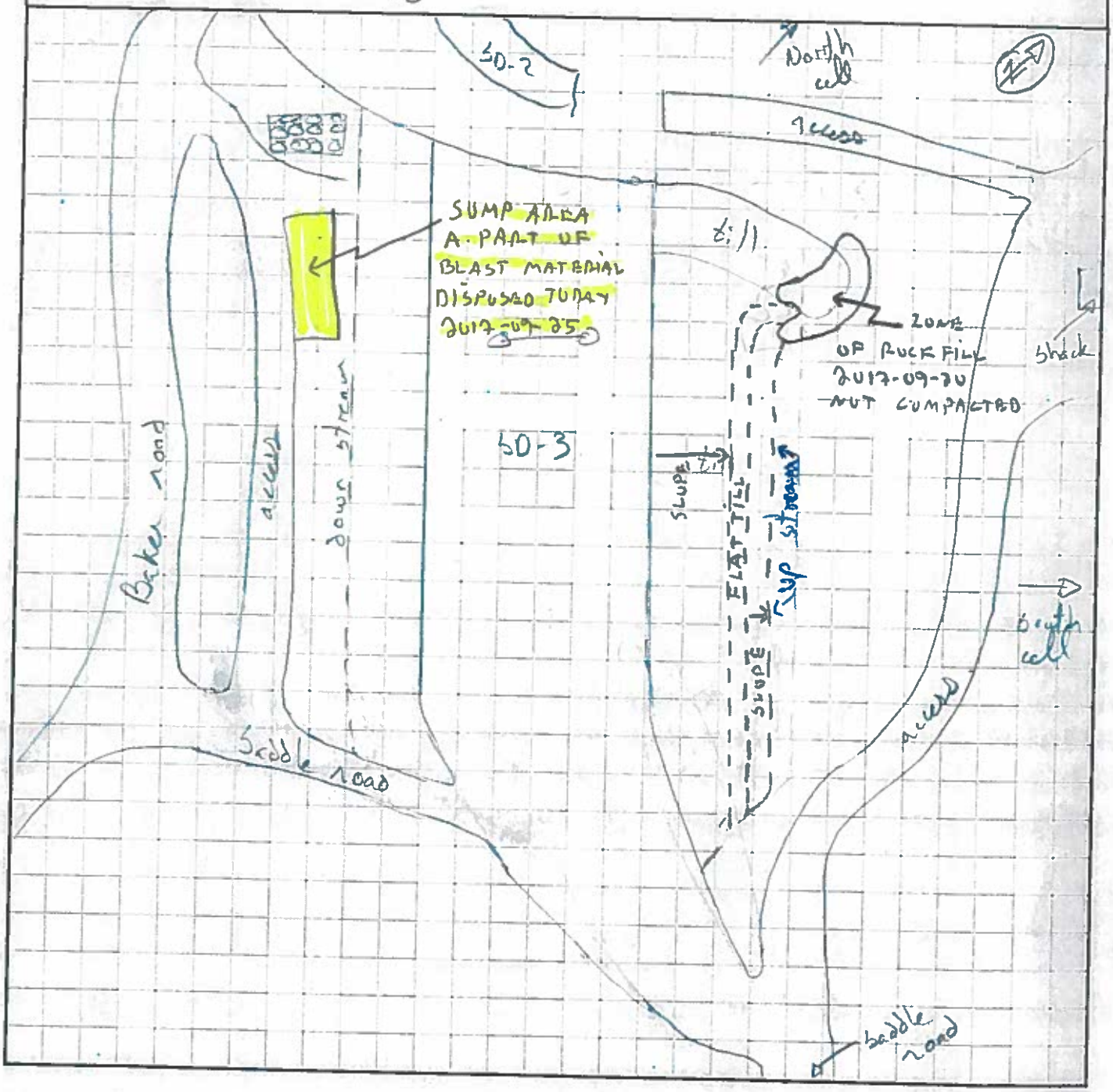


Préparé par: Hugues Potvin

Vérifié par: _____

Plan/Croquis

Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 2 de 2
Date d'inspection: 2017-09-25	



Préparé par: Hugues Poirier Vérifié par:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 26-Sep-17 **Inspector - Day/Night:** Hugues Potvin, Day shift

Weather : - Sunny + Cloudy

Project: Saddle dams traduction **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Installation of liners, disposing material

General Activities: see work in progress

Soft Sediment Excavation	☐	Key Excavation	☐	Coarse Filter	☐	Drilling/Blasting	☐
Foundation Preparation	☐	LLDPE/Geotextile	☒	Till	☐	Sump Excavation	☒
Water Control	☐	Fine Filter	☐	Rockfill	☐		

Description: -Finish welding on the liner (LLDPE) at SD4.

-Installation of geotextile and liner (LLDPE) at SD5 (see sketch #1).

-The trench was burried and the rockfill place in it was compacted between approximately ch. 40+563 and 40+690 at SD5.

-Disposing of blasted material at SD3 (Sump area) .

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Cat PC450, trucks

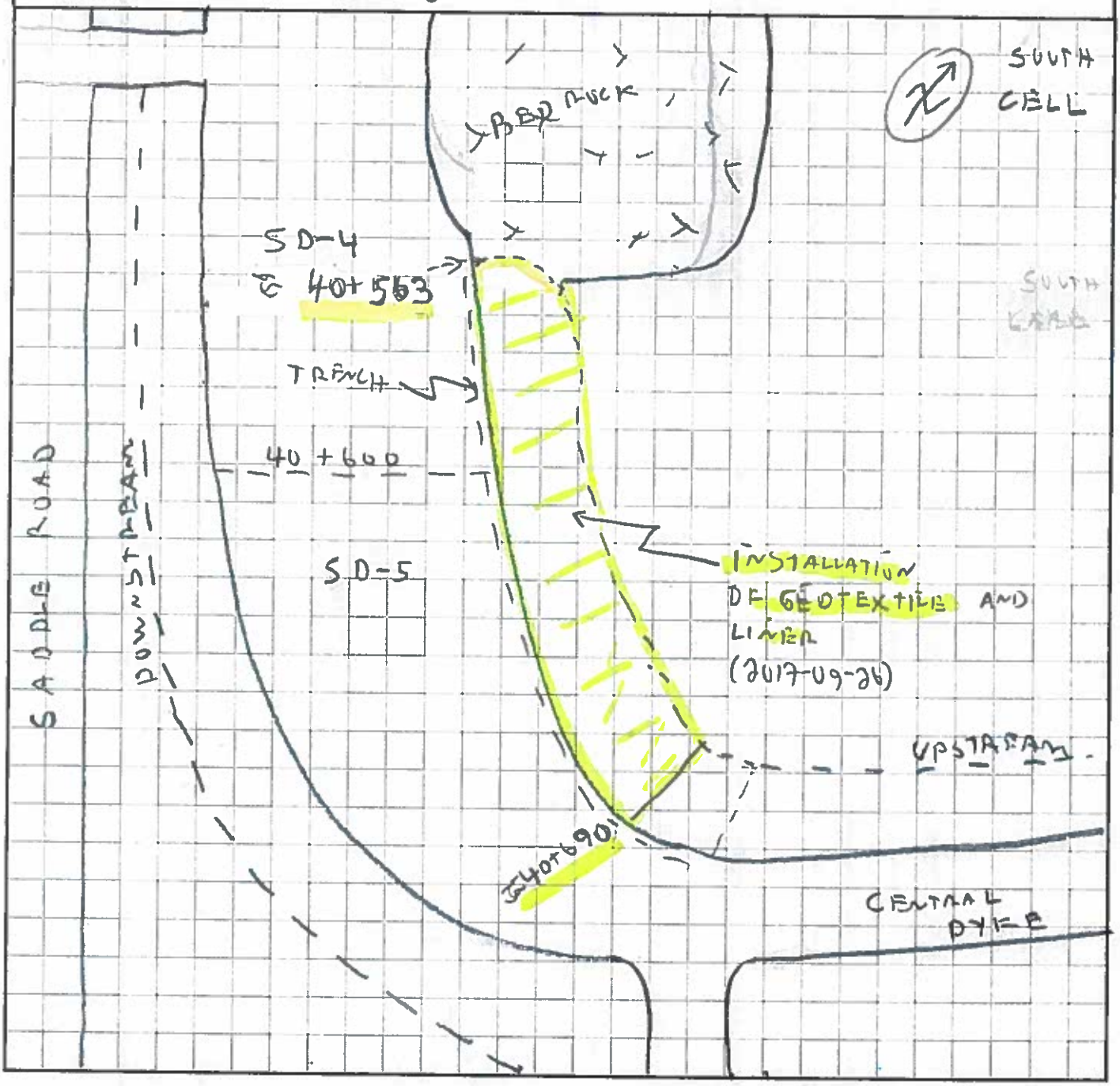
Manpower: LLDPE team, excavator operators

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Croquis

Client: A. E. M.	Projet no.: 1118538-B1
Projet: SADDLE DAM 3-4-5	Page 1 de 1
Date d'inspection: 2017-09-26	



Préparé par: HUGUES POTVIN Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 27-Sep-17 **Inspector - Day/Night:** Hugues Potvin, Day shift

Weather : Fog in the morning, rain in the afternoon

Project: SD3-4-5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Installation of geotextile, disposing material

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☒	**Till**	☐	**Sump Excavation**	☒
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description: -Approval on liner (LLDPE) laid at SD4 (LLDPE-SD4-003).

-Installation of geotextile at Central Dyke (see sketch #1).

-Evacuation of blast material and excavation of trench in the bebrock between the old and the new sump with a tremac at SD3.

Delays:

No work on liner (LLDPE) in the afternoon because of the rain.

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Komatsu PC450, trucks

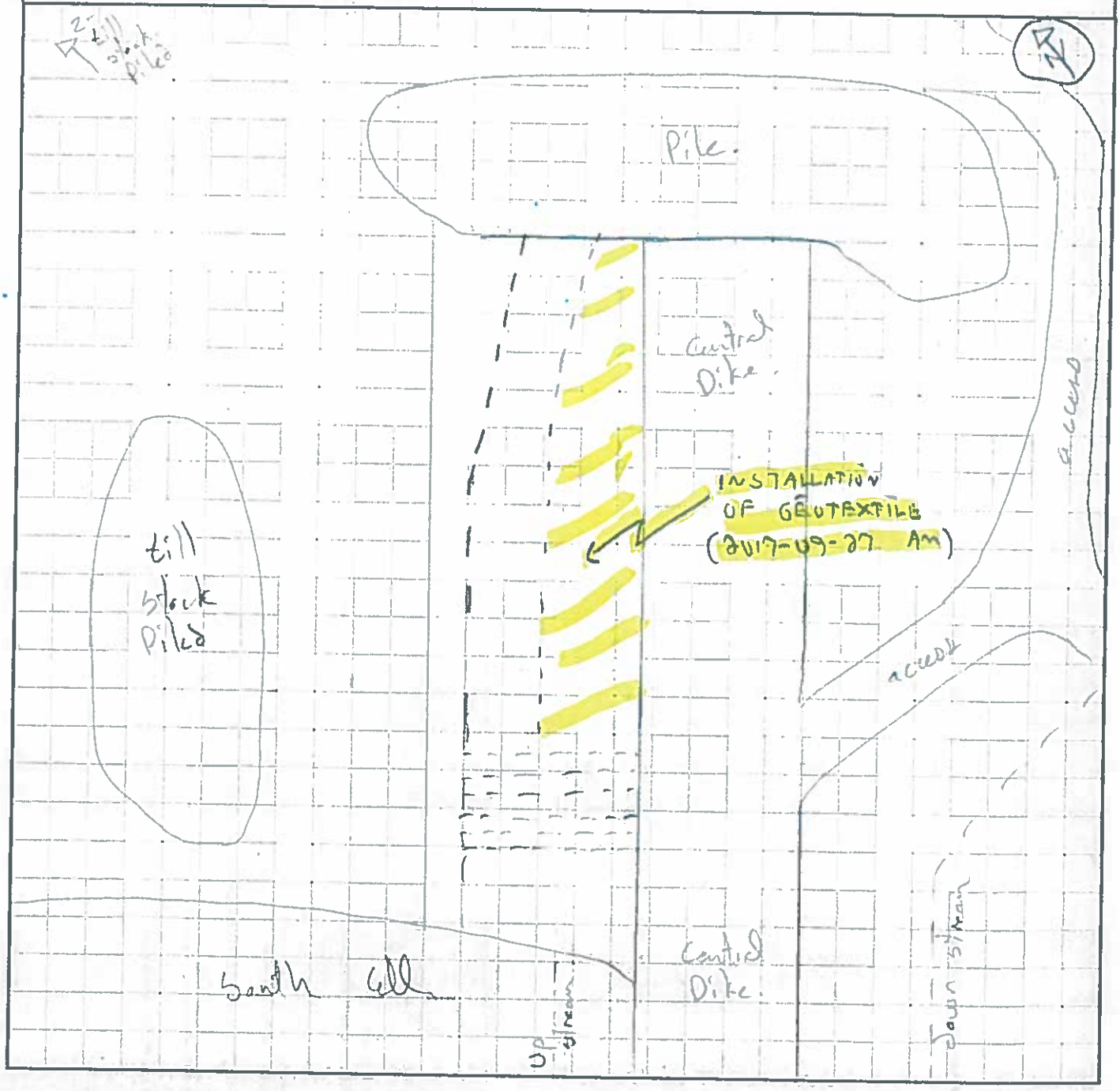
Manpower: LLDPE team, excavator operators

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

Client: AEM	Projet no.: 1118538-131
Projet: Saddle dam 3-4-5	Page 1 de 1
Date d'inspection: 2017-09-27	



Préparé par: HUGUES POTVIN Vérifié par:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGI
MEADOWBA

Date: 28-Sep-17 **Inspector - Day/Night:** Hugues Potvin, Day shift

Weather : Cloudy

Project: SD3-4-5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Installation of liner,

General Activities: see work in progress

Soft Sediment Excavation	☐	Key Excavation	☐	Coarse Filter	☒	Drilling/Blasting	☐
Foundation Preparation	☐	LLDPE/Geotextile	☒	Till	☒	Sump Excavation	☒
Water Control	☐	Fine Filter	☒	Rockfill	☒		

Description: -Welding (extrusion) of the liner (LLDPE) at SD5 (see sketch #1).

-Approval of bedrock cleaning at SD4 (north of approximately ch. 40+100.

-Work on the sump at SD3, placement on rockfill in the slope of the sump and of the road located west....

-Placement of till (in the key and to protect the LLDPE), fine filter, coarse filter and fine rockfill at SD4 (see sketch #2).

Delays:

Comments (observations, comments, discussions with contractor, ect.):

- The fine filter, coarse filter and fine rockfill place in the upstream slope at SD4 (see sketch page 2) was only compacted with the excavator bucket.

Equipment: Cat 345D, Komatsu PC450, trucks

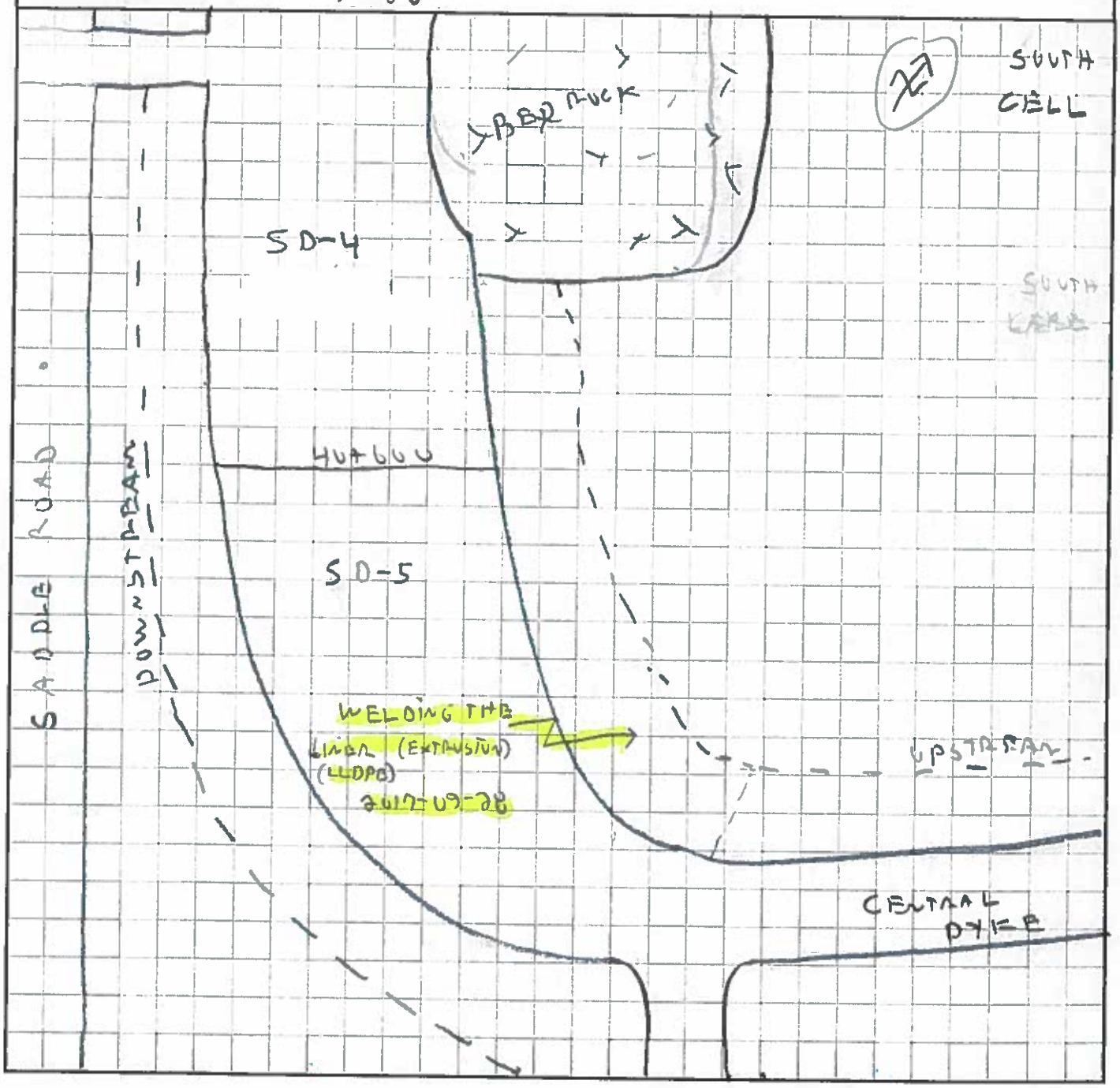
Manpower: LLDPE team, excavator operators,

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Croquis

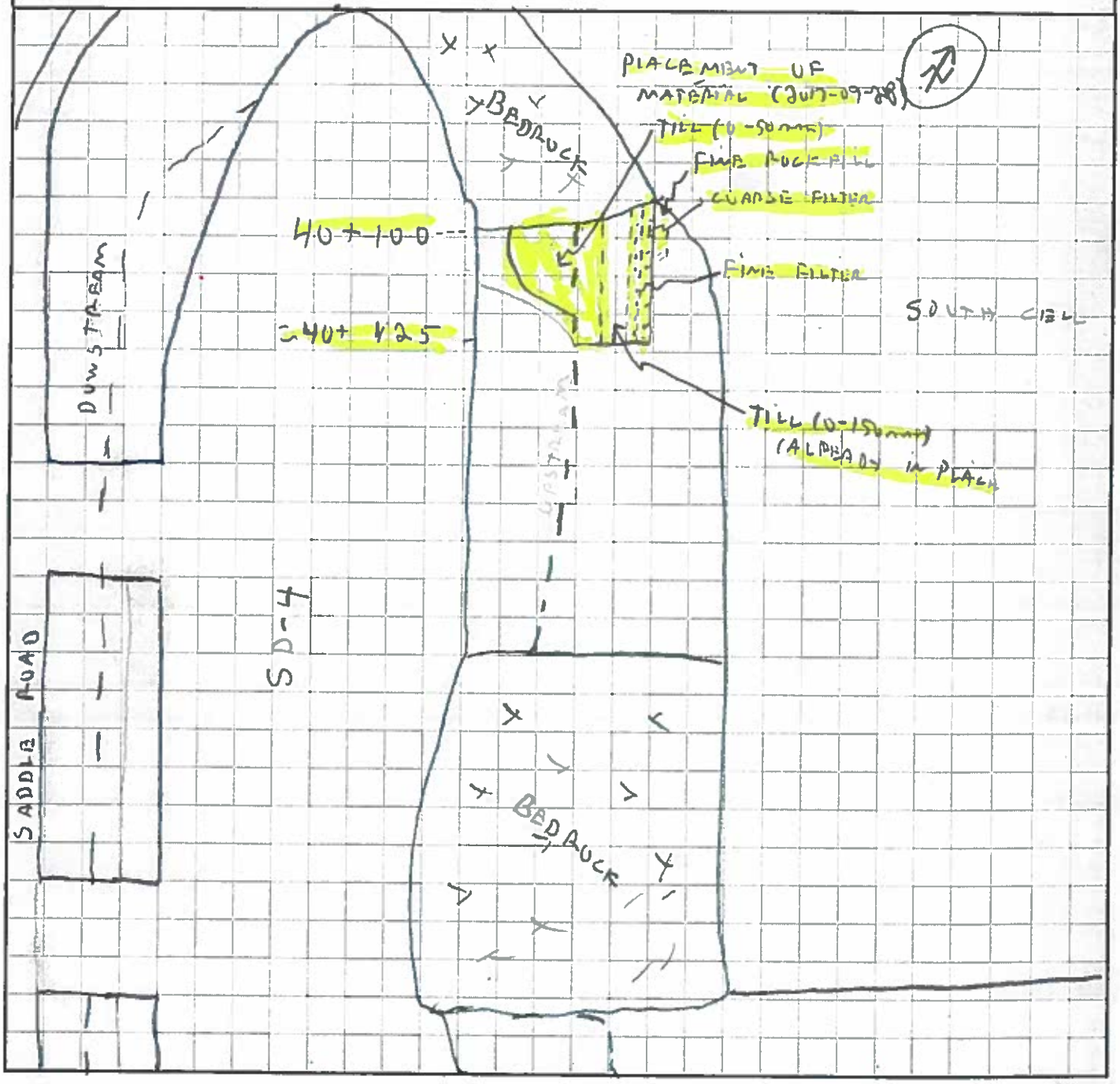
Client: A. E. M.	Projet no.: 11118538-B1
Projet: SADDLE DAM 3-4-5	Page 1 de 2
Date d'inspection: 2017-09-28	



Préparé par: Hugues Putvin Vérifié par: _____

Plan/Croquis

Client: A.E.M.	Projet no.: 11118538-B1
Projet: SADDLE DAM 3-4-5	Page 2 de 2
Date d'inspection: 2017-09-28	



Préparé par: Hugues Putvin Vérifié par: _____

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 29-Sep-17 **Inspector - Day/Night:** Hugues Potvin, Day shift

Weather : Snow and rain

Project: SD3-4-5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Work on Sump, bedrock cleaning

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐	**Sump Excavation**	☒
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☒		

Description:

-Work on the sump at SD3, placement on rockfill in the slope of the sump and of the access road located west....

- Placement of fine rockfill in the slope at SD4 (see sketch page #1).

-Cleanup of bedrock at SD4 (approved) and SD4-5 (see sketch page #1 and 2) .

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Komatsu PC450, trucks

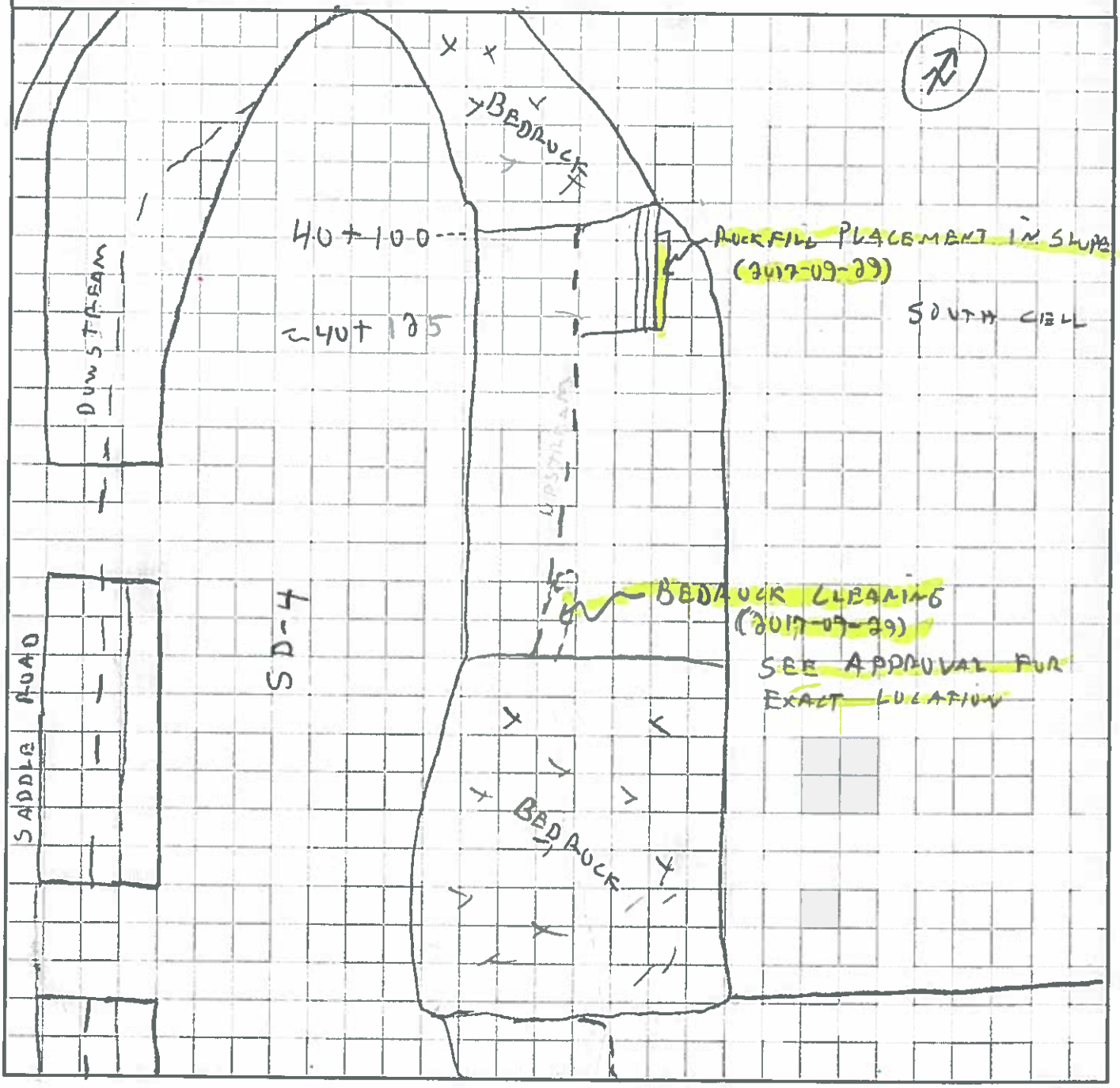
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

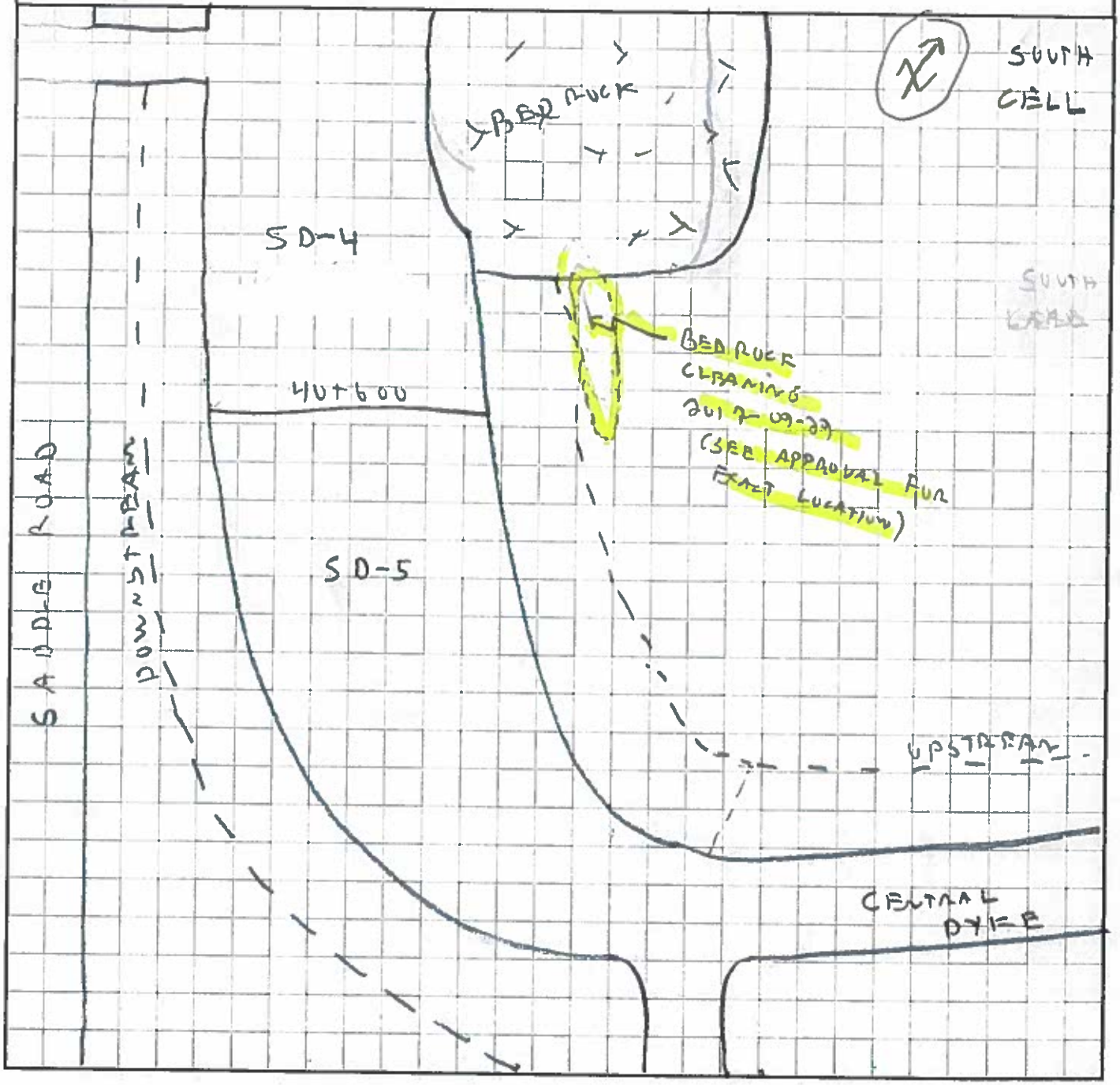
Client: A.E.M.	Projet no.: 11118538-B1
Projet: SADDLE DAM 3-4-5	Page 1 de 2
Date d'inspection: 2017-09-29	



Préparé par: Hugues Potvin Vérifié par: _____

Plan/Croquis

Client: A. E. M.	Projet no.: 1111853B-B1
Projet: SADDLE DAM 3-4-5	Page 2 de 2
Date d'inspection: 2017-09-29	



Préparé par: HUGUES PUTVIN Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

30-Sep-17 | Inspector - Day/Night: Hugues Potvin, Day shift

Weather : Sunny

Project: SD3-4-5 | **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities: see work in progress

Soft Sediment Excavation	☐	Key Excavation	☐	Coarse Filter	☐	Drilling/Blasting	☐
Foundation Preparation	☐	LLDPE/Geotextile	☐	Till	☒	Sump Excavation	☐
Water Control	☐	Fine Filter	☐	Rockfill	☒		

Description:

-Placement of fine rockfill (0 to 500 mm) at SD3 (see sketch page #1). Note that rockfill is more than 500 mm at some places.

-Installation of liner (LLDPE) at Central Dyke (see sketch page #2).

-Placement of till (0 to 50 mm) at Central Dyke, (see sketch page #2). A reference board was made.

-Placement of till (0 to 150 mm) at SD5, compacted 4 to 6 pass (see sketch page #3).

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Komatsu PC450, trucks, loader

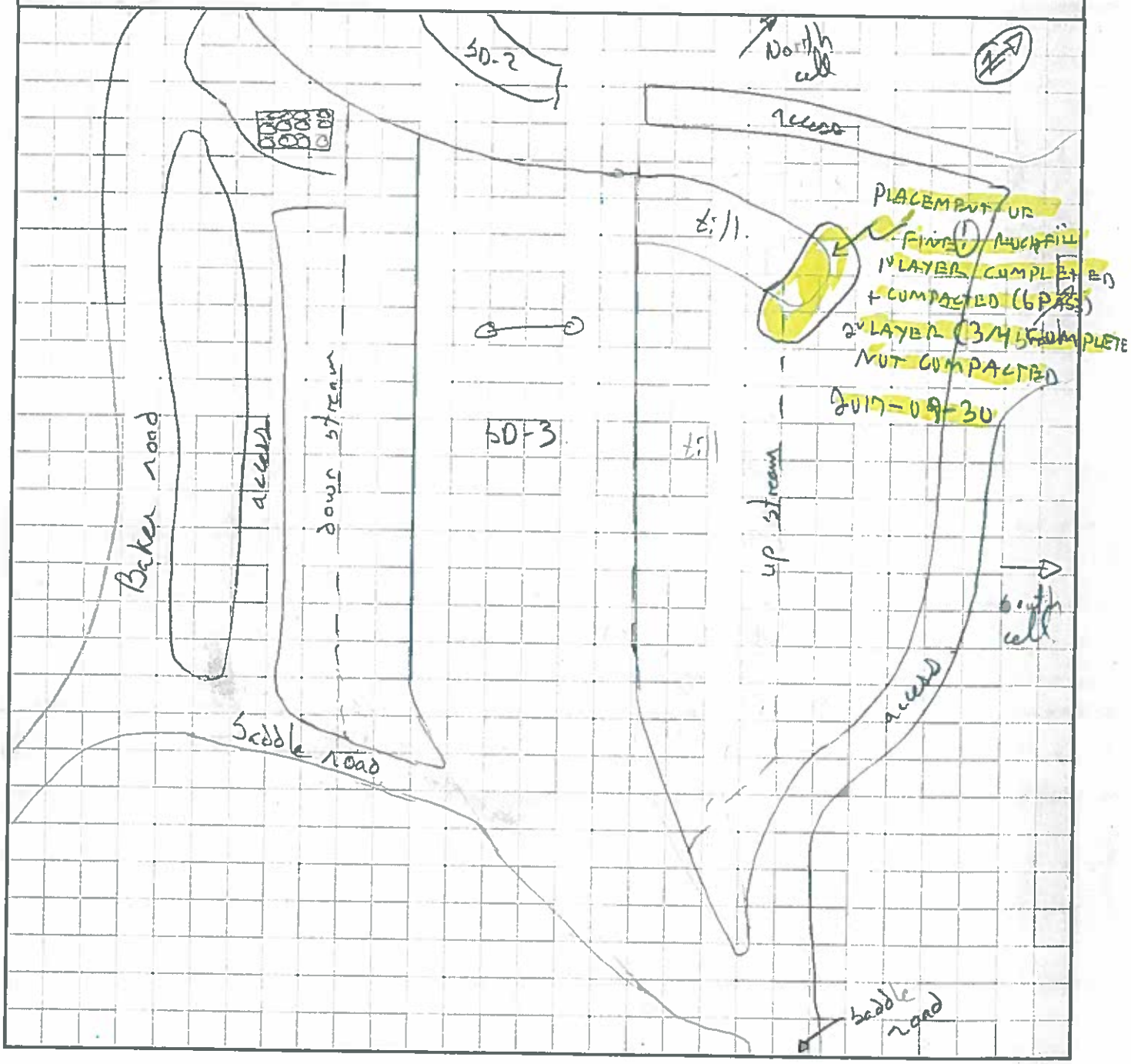
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Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Croquis

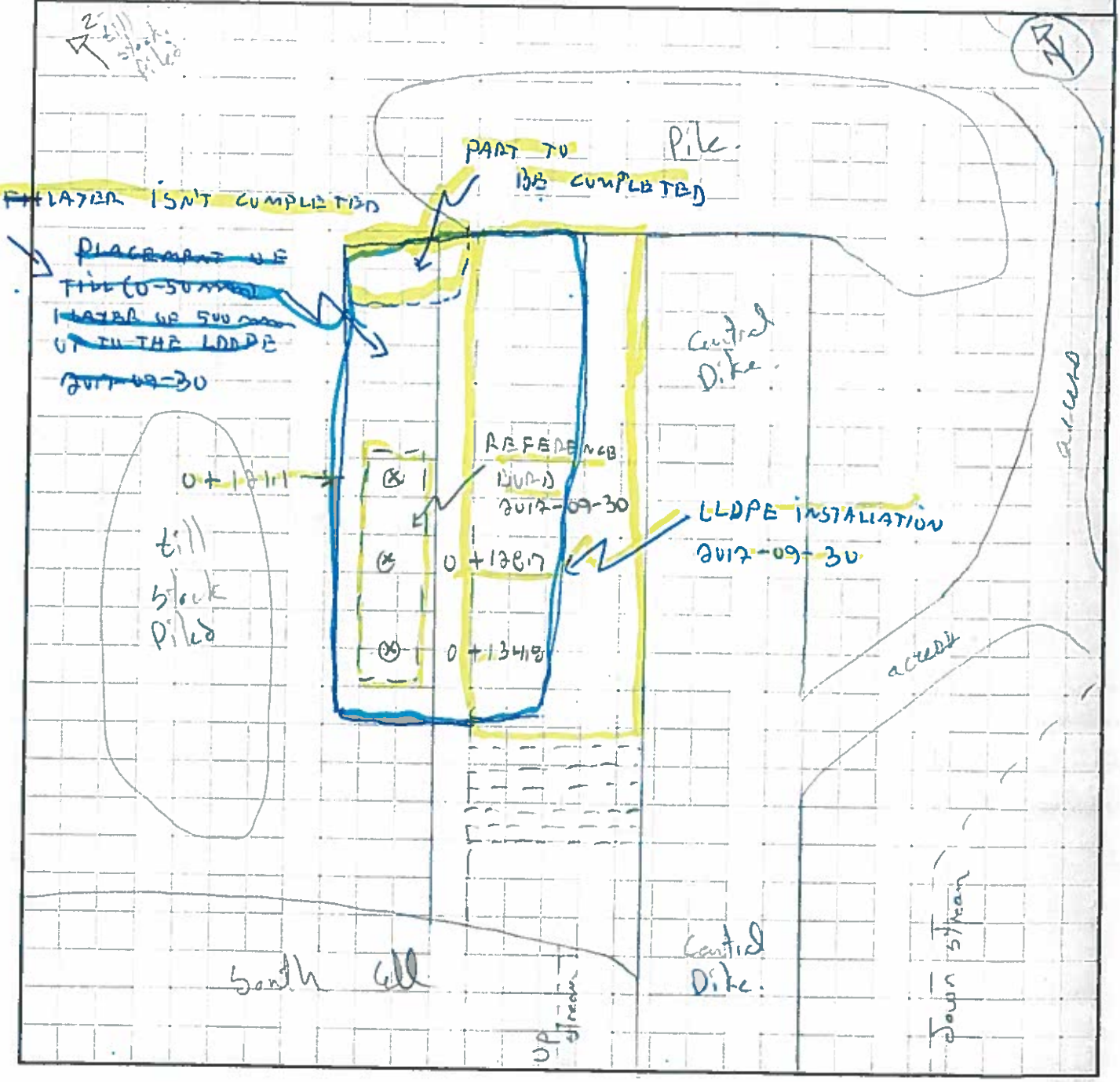
Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 1 de 3
Date d'inspection: 2017-09-30	



Préparé par: Hugues Poirier Vérifié par:

Plan/Croquis

Client: A.E.M.	Projet no.: 1118538-131
Projet: Saddle dam 3-4-5	Page 2 de 3
Date d'inspection: 2017-09-30	

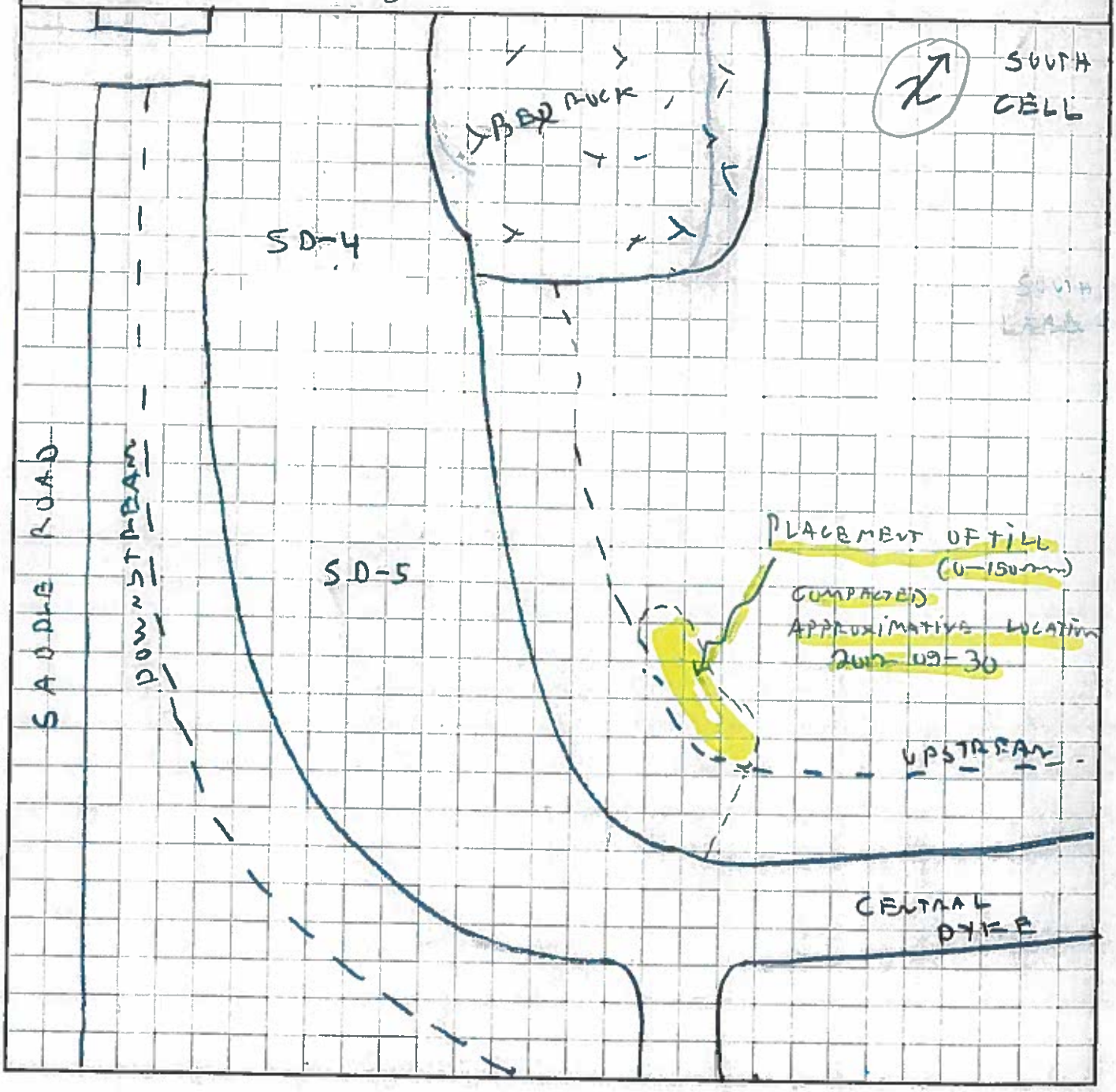


Préparé par: Hugues Potvin

Vérifié par:

Plan/Croquis

Client: A. E. M.	Projet no.: 11118538-B1
Projet: SADDLE DAM 3-4-5	Page 3 de 3
Date d'inspection: 2017-09-30	



Préparé par: Hugues Potvin

Vérifié par: _____

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 1-Oct-17 Inspector - Day/Night: Hugues Potvin, Day shift

Weather : Cloudy + Rain

Project: SD3-4-5 Contractor: Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.):

General Activities: see work in progress

Soft Sediment Excavation	☐	Key Excavation	☐	Coarse Filter	☐	Drilling/Blasting	☐
Foundation Preparation	☐	LLDPE/Geotextile	☐	Till	☒	Sump Excavation	☐
Water Control	☐	Fine Filter	☒	Rockfill	☒		

Description:

-Placement of till (0 to 50 mm) at Central Dyke, adjustment for the second layer, and compaction (6 pass) (see sketch page 1).

-Placement of till (0 to 150 mm) and fine filter at SD5, compacted 4 to 6 pass and fine filter (see sketch page 2).

-Placement of fine rockfill at SD3 (see sketch page 3).

- 3 measures of compaction were made on the till (0 to 50 mm) at Central Dyke, results are conform.

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Komatsu PC450, trucks, loader

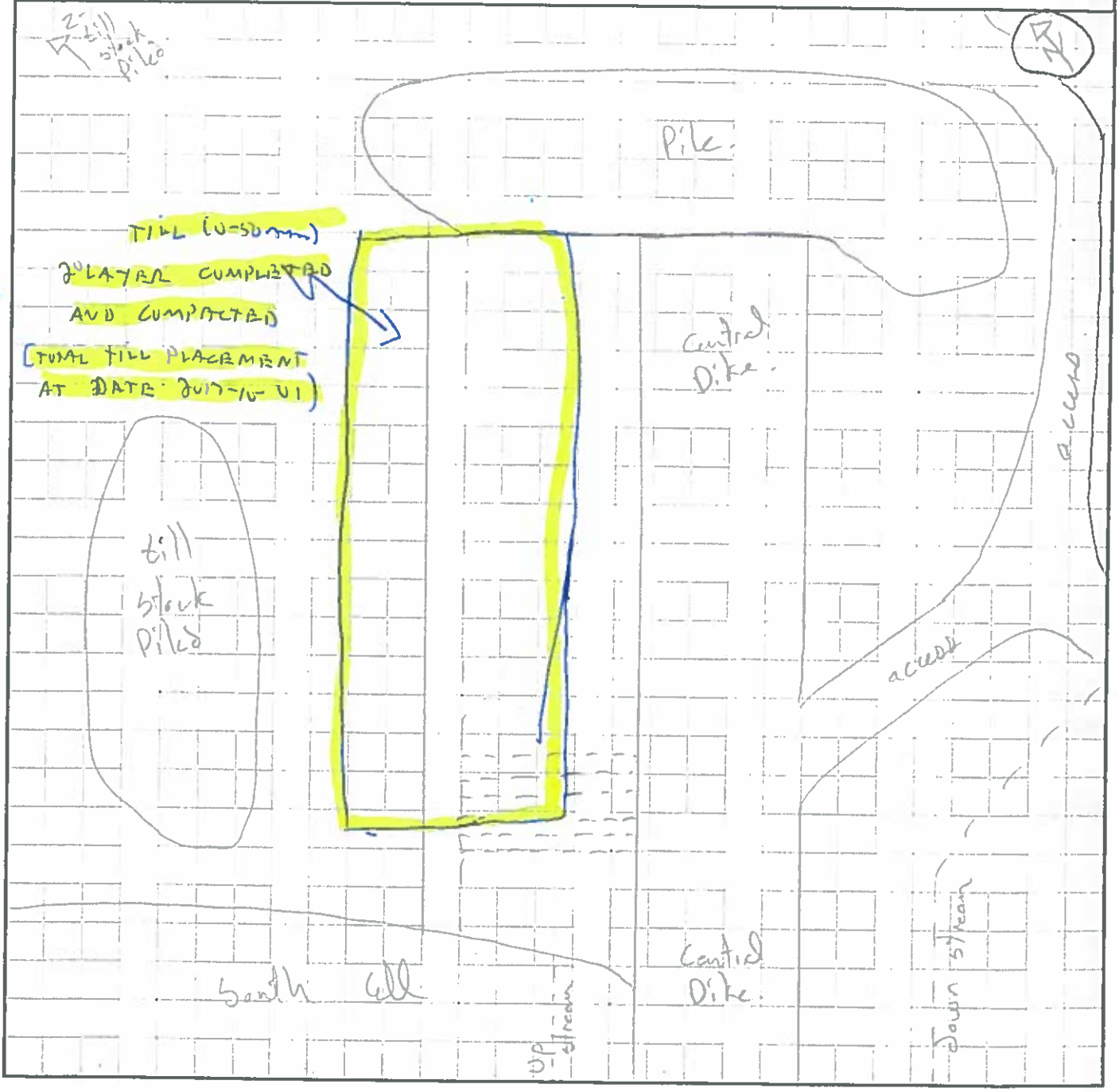
Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Croquis

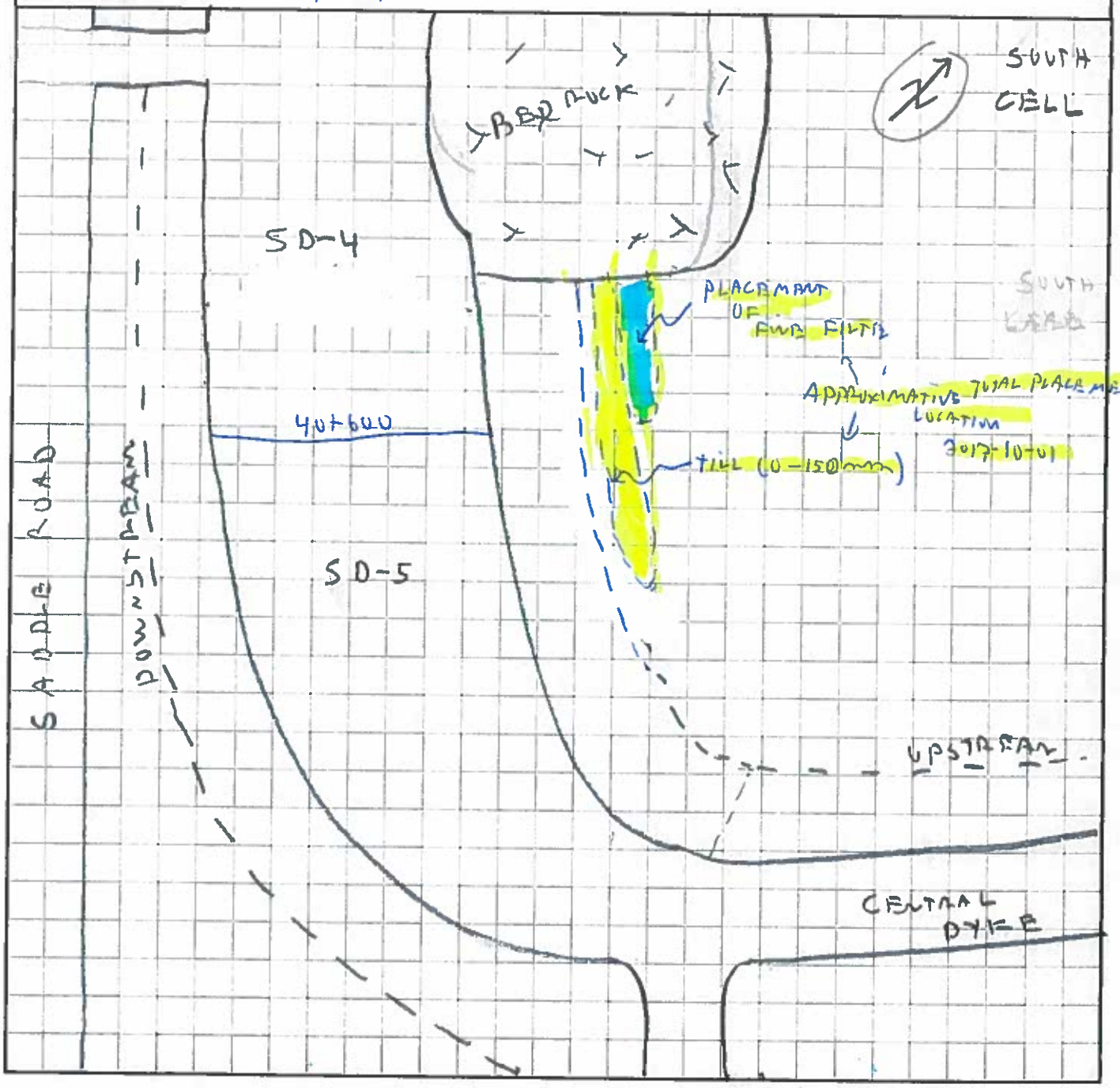
Client: AEM.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 1 de 3
Date d'inspection: 2017-10-01	



Préparé par: HUGUES PORVIN Vérifié par: _____

Plan/Croquis

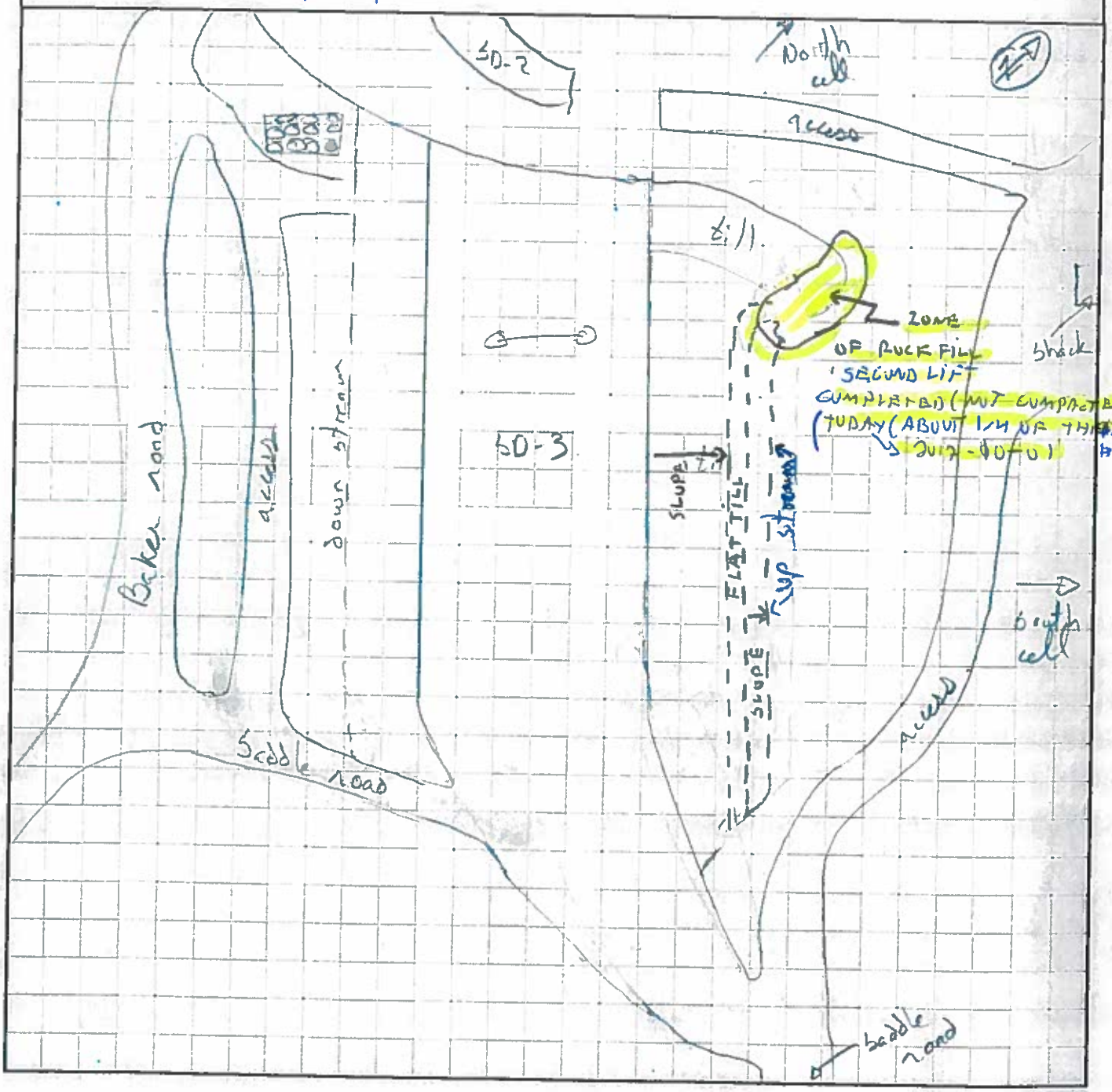
Client: A. E. M.	Projet no.: 11118538-B1
Projet: SADDLE DAM 3-4-5	Page 2 de 3
Date d'inspection: 2017-10-01	



Préparé par: HUGUES POTVIN Vérifié par: _____

Plan/Croquis

Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 3 de 3
Date d'inspection: 2017-10-01	



Préparé par: Hugues Potvin

Vérifié par:

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 2-Oct-17 **Inspector - Day/Night:** Hugues Potvin, Day shift

Weather : Cloudy

Project: SD3-4-5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): PLACEMENT OF TILL

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☒	**Sump Excavation**	☐
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

-Placement of till (0 to 150 mm) at Central Dyke (see sketch page 1). Presence of 300 t0 350 mm particule. Not possible to compact because till is too wet in the north part of the lift (approx. 12% of water and more).

-Placement of till (0 to 50 mm) and (0-150 mm) at SD5,not compacted (see sketch page 2).

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: 345D, Komatsu PC450, trucks, loader

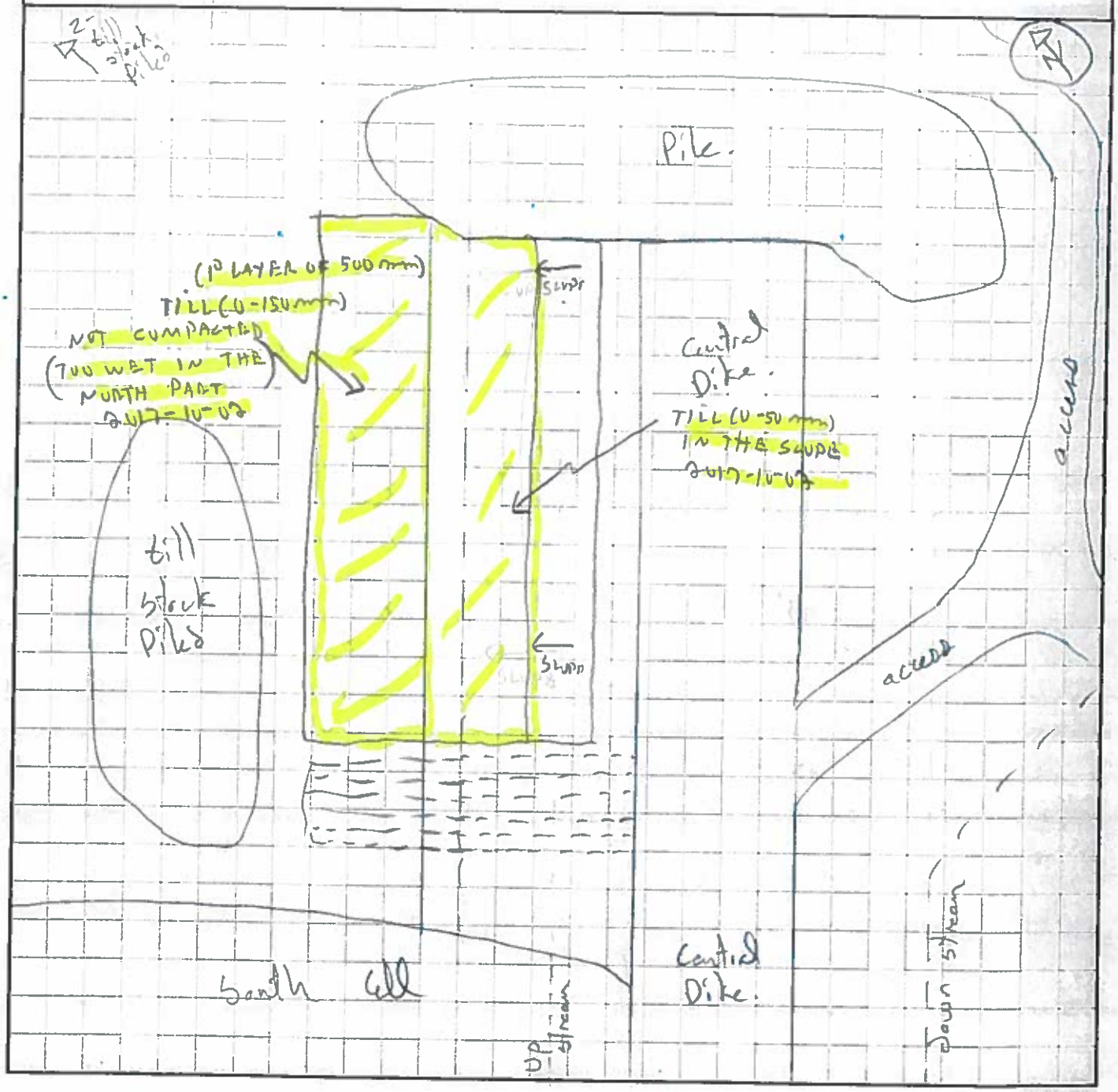
Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Croquis

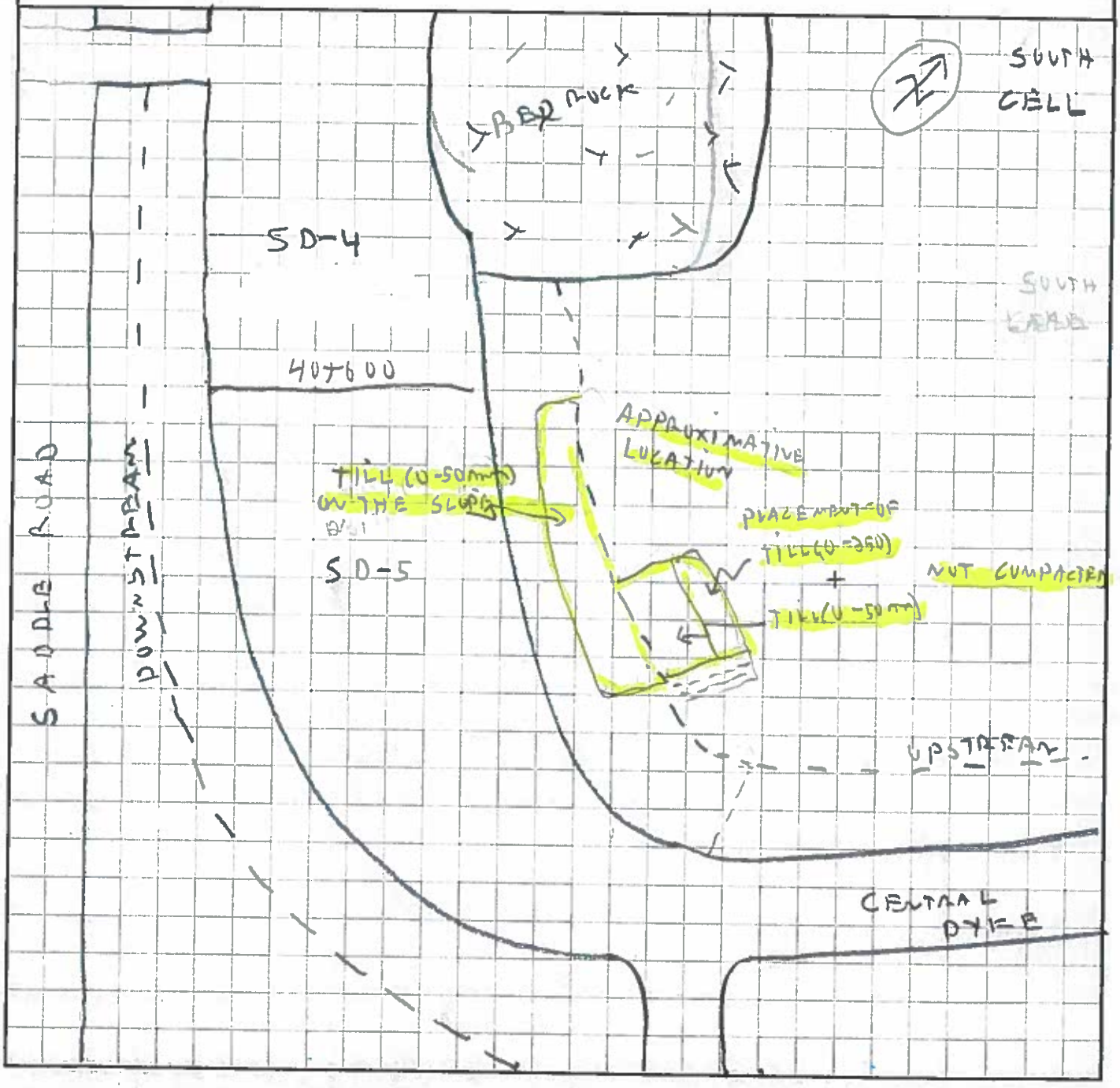
Client: AEM	Projet no.: 1118538-B1
Projet: Saddle dam 3-4-5	Page 1 de 2
Date d'inspection: 2017-10-02	



Préparé par: Hugues Potvin Vérifié par: _____

Plan/Croquis

Client: A. E. M.	Projet no.: 11118538-B1
Projet: SADDLE DAM 3-4-5	Page 2 de 2
Date d'inspection: 2017-10-02	



Préparé par: HUGUES POTVIN Vérifié par: _____

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 3-Oct-17 **Inspector - Day/Night:** Hugues Potvin, Day shift

Weather : Cloudy + snow

Project: SD3-4-5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Placement of till

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☒	**Sump Excavation**	☐
Water Control	☐	**Fine Filter**	☒	**Rockfill**	☐		

Description:

-The 500 mm thick layer of till(0 to 150 mm) placed yesterday at Central Dyke was removed this morning.

- Placement of till (0 to 50 mm) at Central Dyke, compacted. Two layer of 500 mm were placed today (see sketch page 1).

-Placement of till (0 to 50 mm) at SD5 (compacted) and fine filter (see sketch page 2).

-The compaction of till (0 to 50 mm) was check at SD5 and results are conform (the material correspond with the Proctor test).

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: 345D, Komatsu PC450, trucks, loader

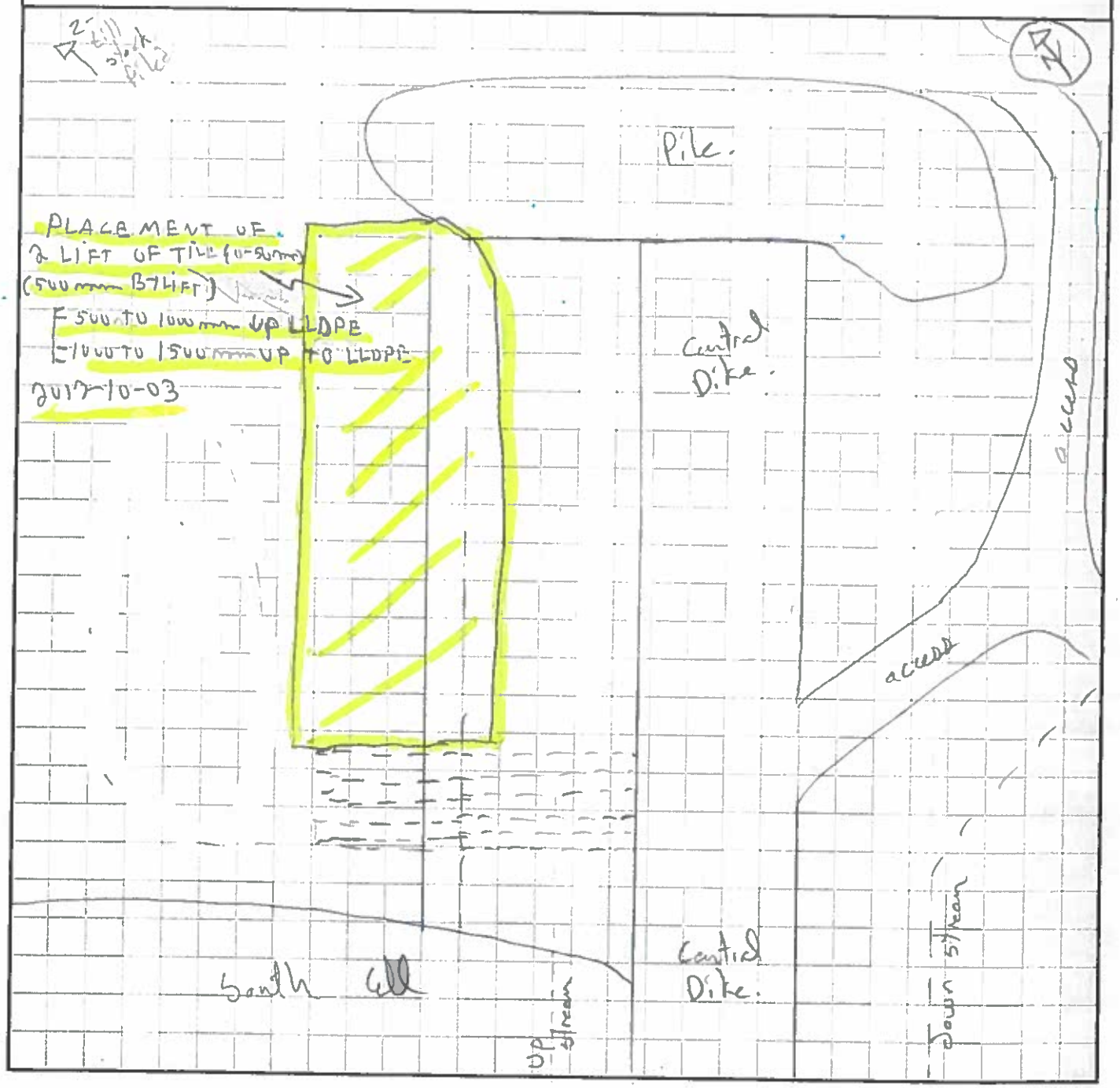
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

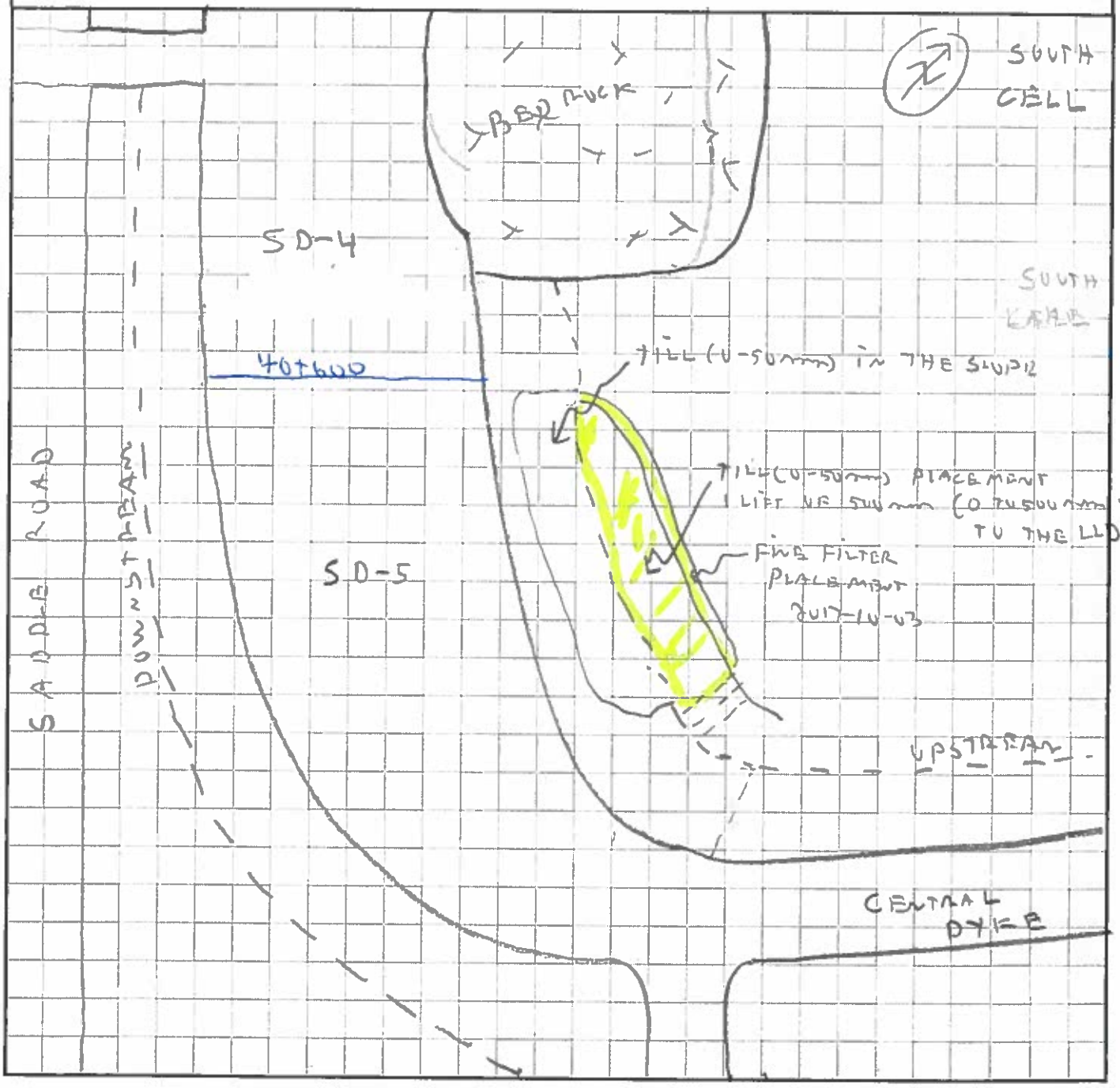
Client: AEM	Projet no.: 11118538-131
Projet: Saddle dam 3-4-5	Page 1 de 2
Date d'inspection: 2017-10-03	



Préparé par: HUGUES POTVIN Vérifié par: _____

Plan/Croquis

Client: A. E. M.	Projet no.: 1111853B-B1
Projet: SADDLE DAM 3-4-5	Page 2 de 2
Date d'inspection: 2017-10-03	



Préparé par: HUGUES PORLIN Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 4-Oct-17 **Inspector - Day/Night:** Hugues Potvin, Day shift

Weather : Cloudy + snow and wind...

Project: SD3-4-5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Placement of till, fine and coarse filter

General Activities: see work in progress

Soft Sediment Excavation	☐	Key Excavation	☐	Coarse Filter	☒	Drilling/Blasting	☐
Foundation Preparation	☐	LLDPE/Geotextile	☐	Till	☒	Sump Excavation	☐
Water Control	☐	Fine Filter	☒	Rockfill	☐		

Description:

-Placement of till (0-50mm) at SD4, one layer of 200 mm of frozen till was disposed and replaced, one lift of about 500 mm was made 0 to 500 mm up to the base of the liner (LLDPE) and compacted (see sketch page 1 for location).

-Placement of fine, coarse filter and of a little bit of fine rockfill (non measured) at SD5 (see sketch page 2).

*-Compaction of till conform at the places measured.

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Komatsu PC450, trucks, loader

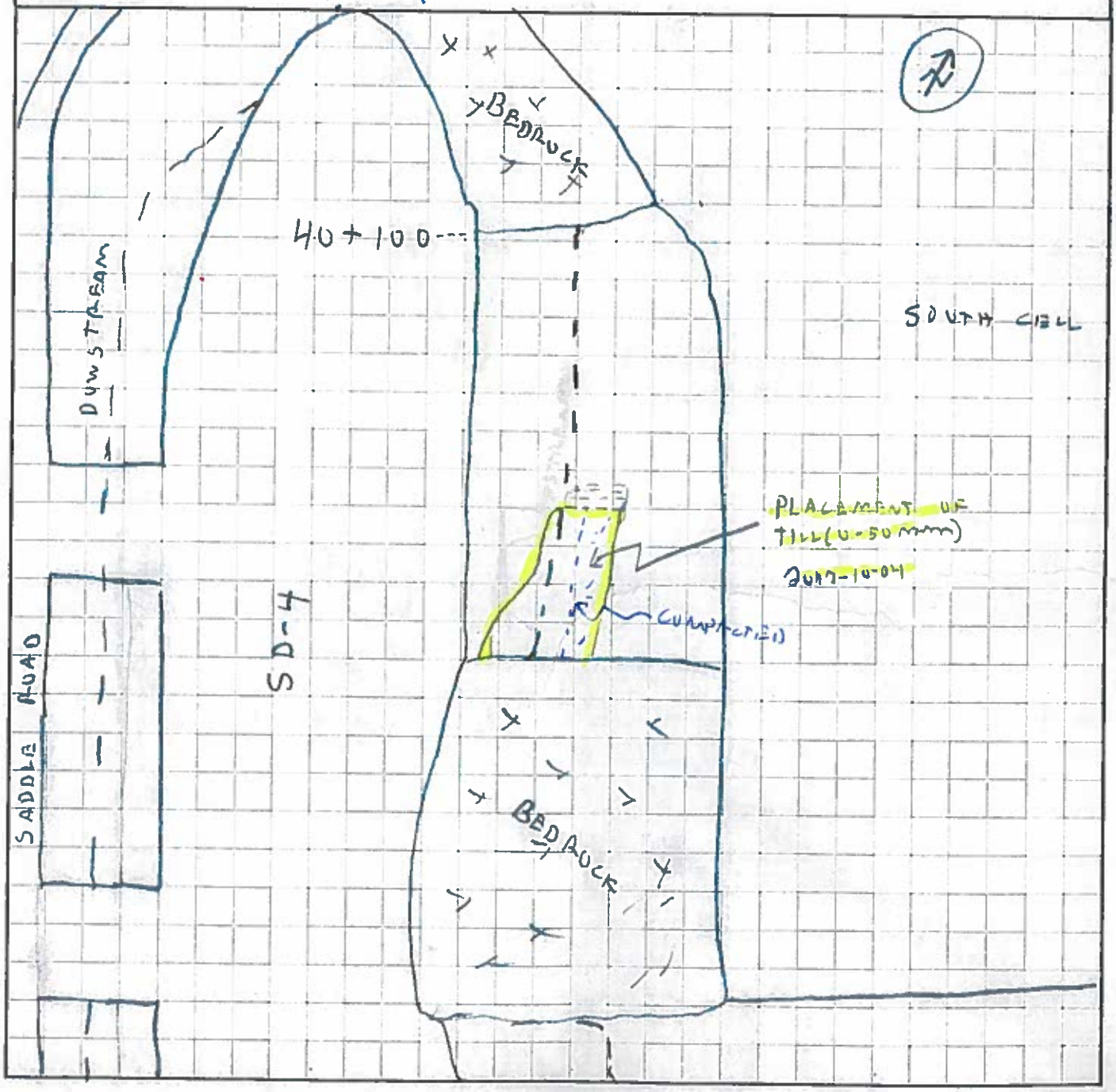
Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Croquis

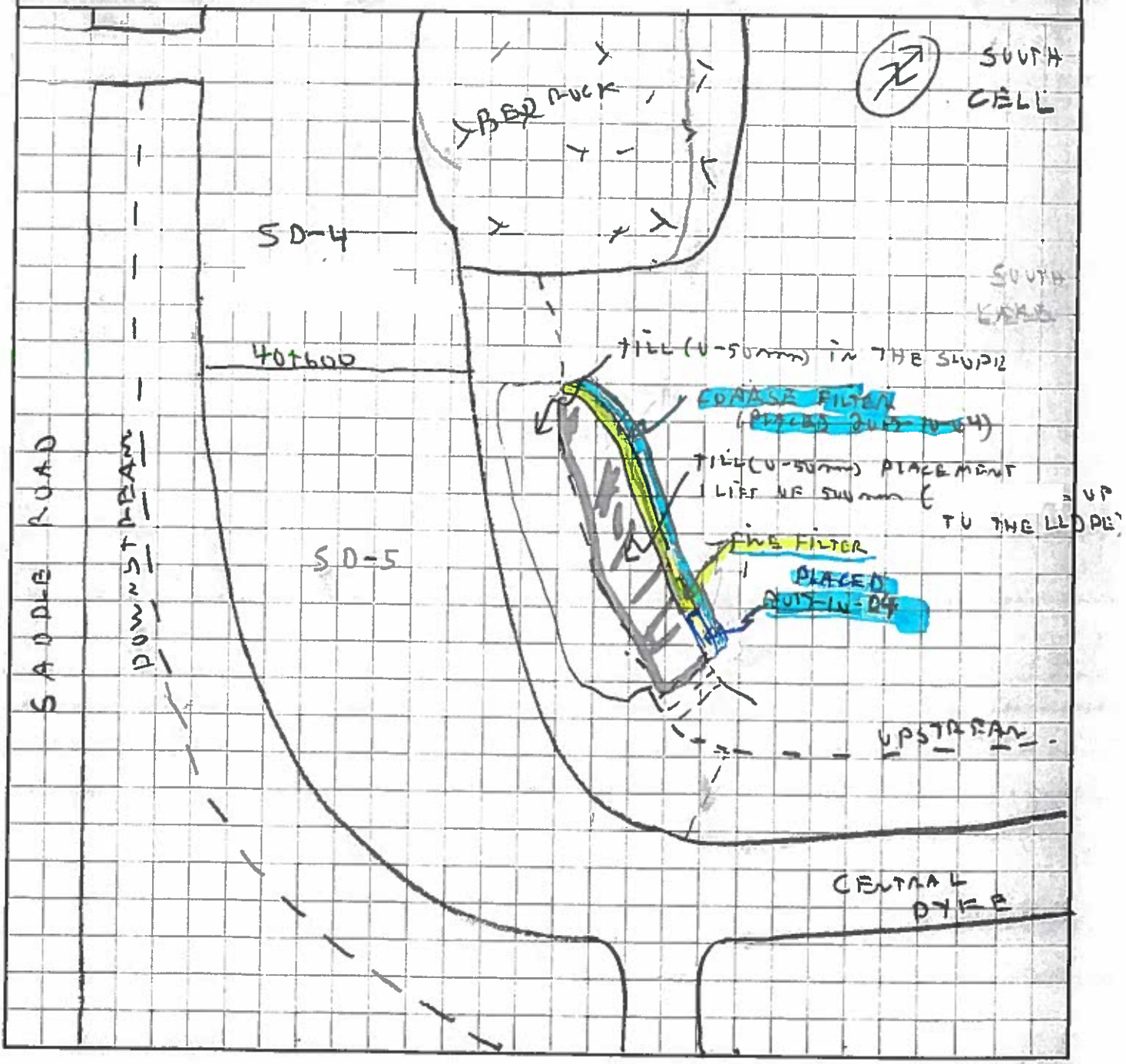
Client: A.E.M.	Projet no.: 11118538-B1
Projet: SADDLE DAM 3-4-5	Page 1 de 2
Date d'inspection: 2017-10-04	



Préparé par: HUGUES POTVIN Vérifié par: _____

Plan/Croquis

Client: A. E. M.	Projet no.: 1118538-B1
Projet: SADDLE DAM 3-4-5	Page 2 de 2
Date d'inspection: 2017-10-	



Préparé par: HUGUES PORTIN Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 5-Oct-17 **Inspector - Day/Night:** Hugues Potvin, Day shift

Weather : Cloudy + snow

Project: SD3-4-5 **Contractor:** Fernand Gilbert

Work In Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Placement of till, fine and coarse filter

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☒	**Sump Excavation**	☐
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☒		

Description:

-Placement of till (0-50mm) at SD4, 2 lifts of 500 mm compacted (6 pass) (see sketch page).

-Placement of fine rockfill at SD5 (see sketch page 2).

'-Compaction of till conform at the places measured.

Delays:

Wait for trucks.

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Komatsu PC450, trucks, loader

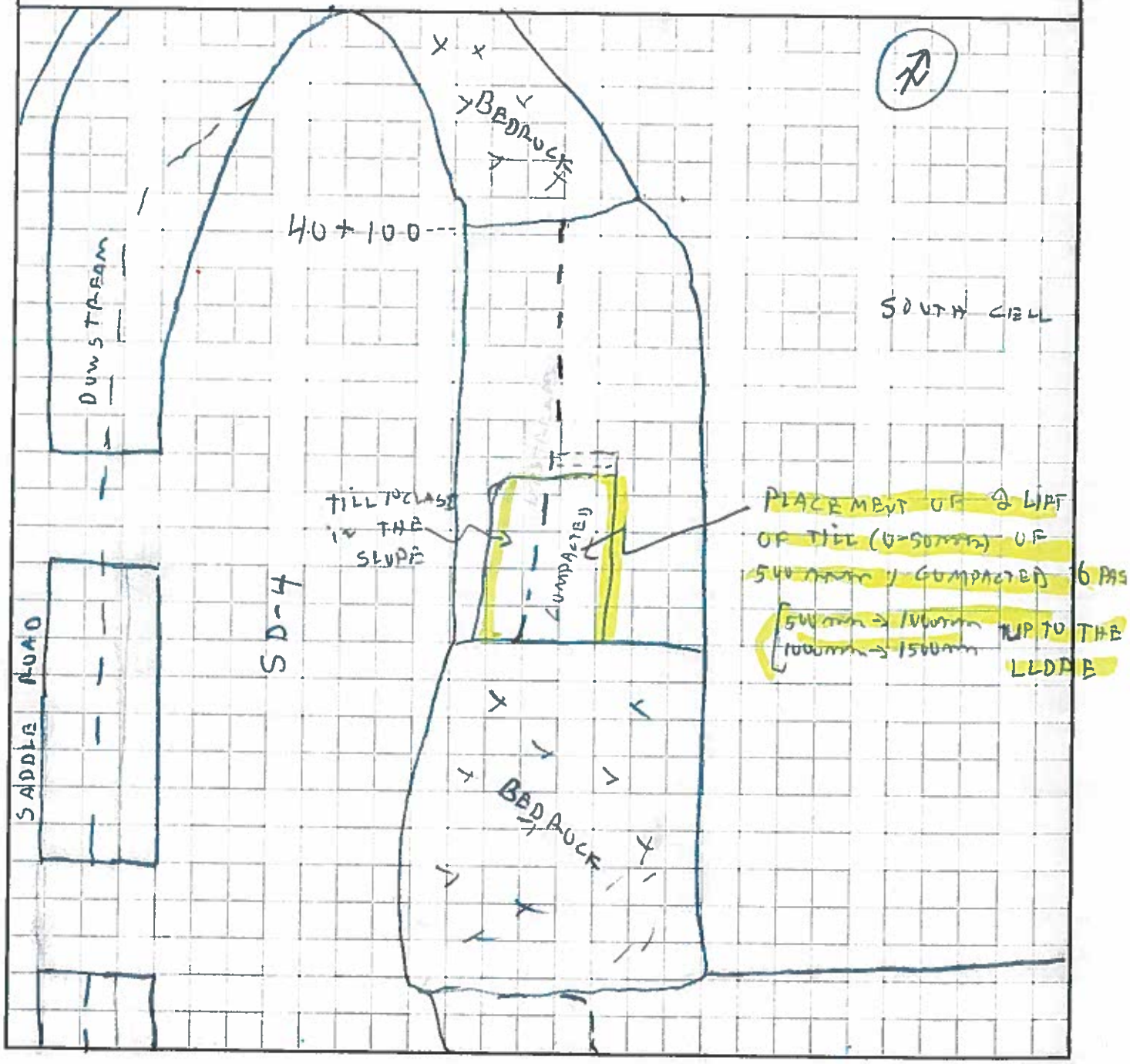
Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

Client: A.E.M.	Projet no.: 11118538-B1
Projet: SADDLE DAM 3-4-5	Page 1 de 2
Date d'inspection: 2017-	

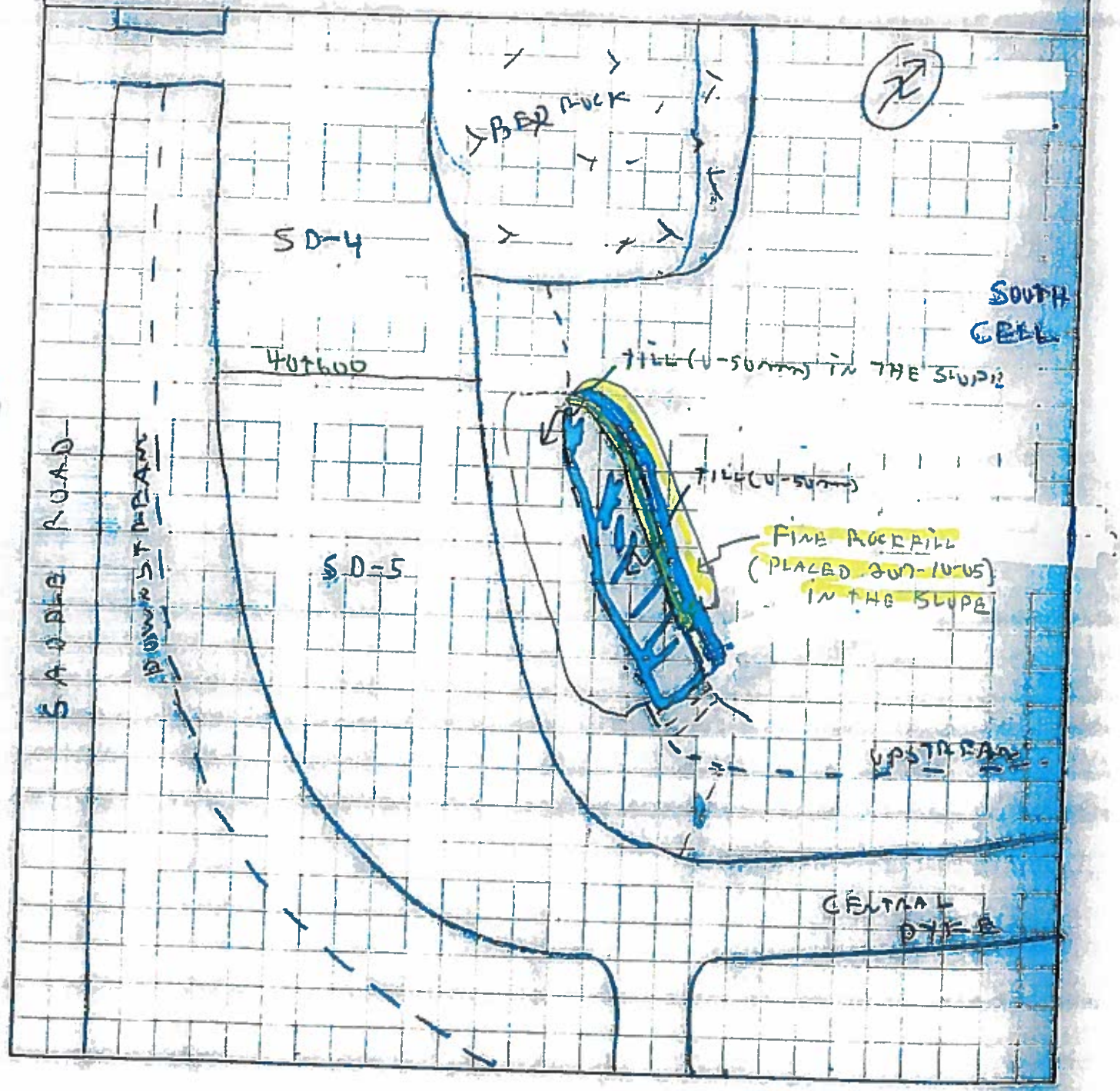


Préparé par: HUGUES POTVIN Vérifié par: _____

GHD

Plan/Croquis

Client: A. E. M.	Projet no.: 1111953Y-B1
Projet: SADDLE DAM 3-4-5	Page 2 de 2
Date d'inspection: 2017-10-	



Préparé par: HUGUES PORTIN

Vérifié par:

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 6-Oct-17 **Inspector - Day/Night:** Hugues Potvin, Day shift

Weather : SUNNY

Project: SD3-4-5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Placement of till, fine and coarse filter

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☒	**Sump Excavation**	☐
Water Control	☐	**Fine Filter**	☒	**Rockfill**	☒		

Description:

-Placement of till (0-50mm) at SD4, 2 lifts of 500 mm compacted (see sketch page 1).

-Placement of fine filted at SD4, non compacted (see sketch page 1).

-Placement of fine rockfill, till (0-50mm) and a little bit of fine filter (non measured) at SD5 (see sketch page 2).

'-Compaction of till was measured at SD4 (500 mm up to the LLDPE) and results are conform.

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Till frozen at the surface are present near ch. 40+105 at 500 mm up to thr LLDPE at SD4.

Equipment: Cat 345D, Komatsu PC450, trucks, loader

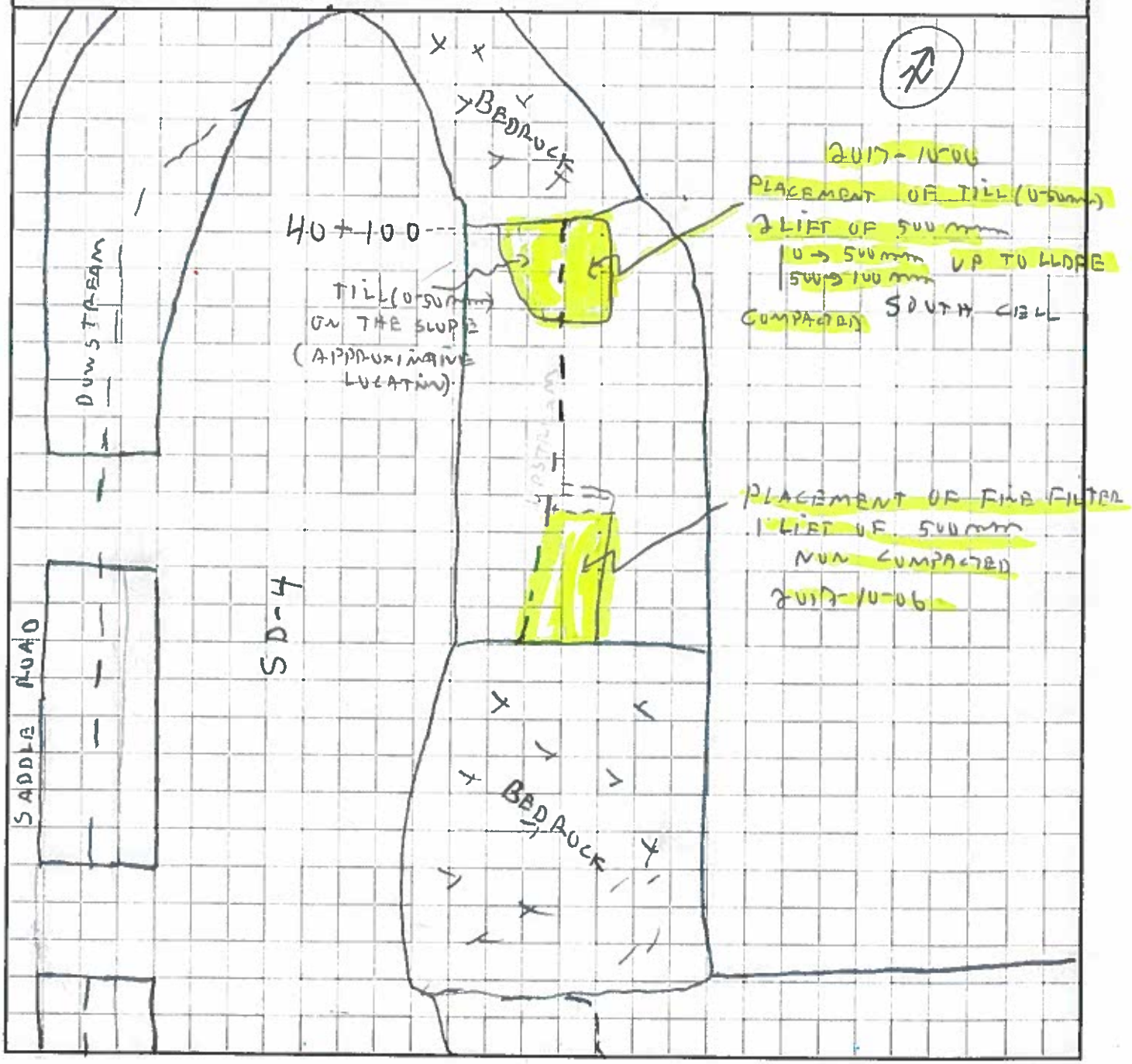
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Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

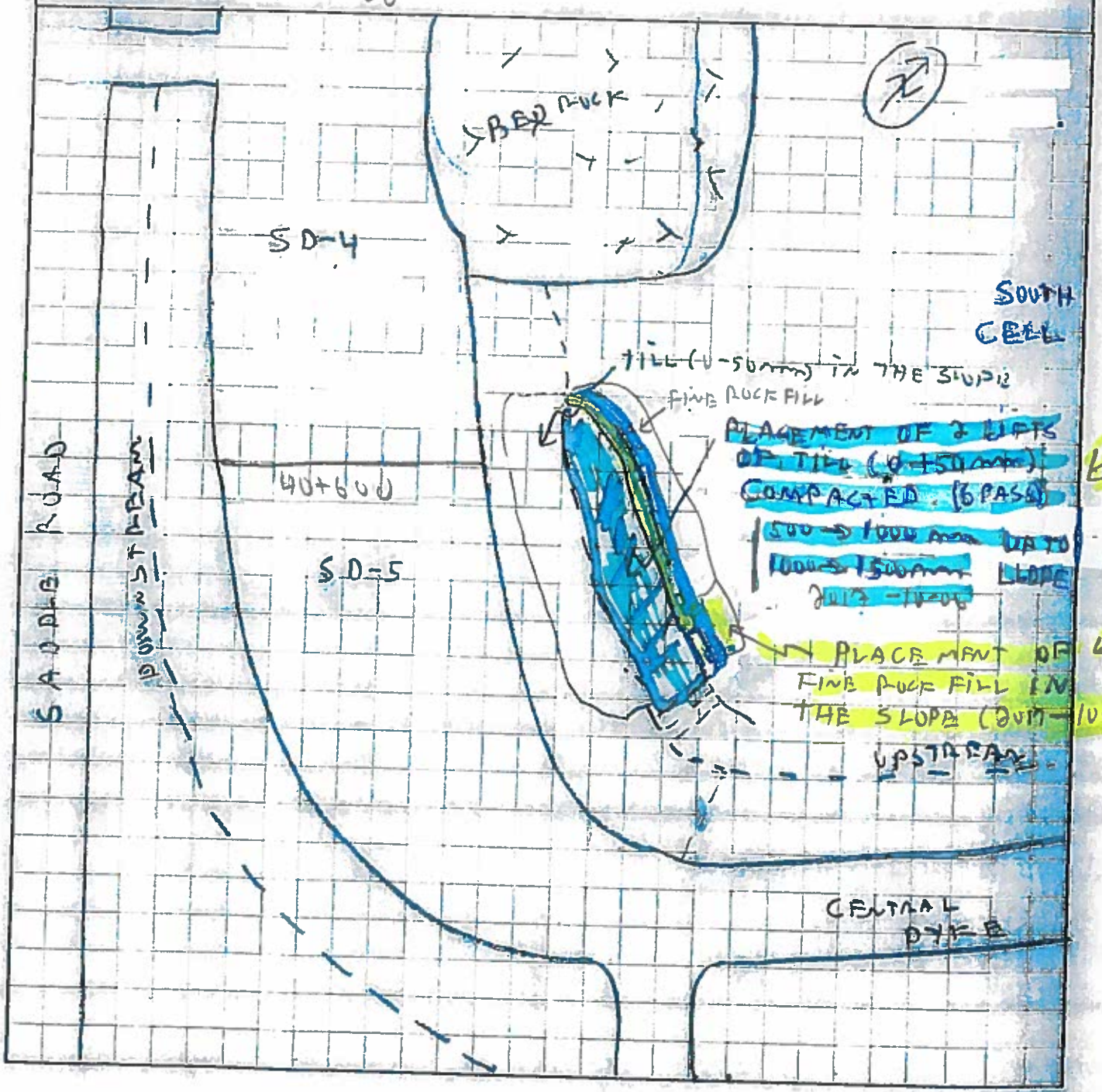
Client: A.E.M.	Projet no.: 11118538-B1
Projet: SADDLE DAM 3-4-5	Page 1 de 2
Date d'inspection: 2017-10-06	



Préparé par: Hugues Potvin Vérifié par: _____

Plan/Croquis

Client: A. E. M.	Projet no.: 1118538-B1
Projet: SADDLE DAM 3-4-5	Page 2 de 2
Date d'inspection: 2017-10-06	



Préparé par: HUGUES POTVIN Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 7 Oct-17 **Inspector - Day/Night:** Hugues Potvin, Day shift

Weather : Cloudy + snow

Project: SD3-4-5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Placement of till, fine and coarse filter

General Activities: see work in progress

Soft Sediment Excavation	☐	Key Excavation	☐	Coarse Filter	☒	Drilling/Blasting	☐
Foundation Preparation	☐	LLDPE/Geotextile	☐	Till	☒	Sump Excavation	☐
Water Control	☐	Fine Filter	☒	Rockfill	☐		

Description:

-Placement of fine filter and coarse filter at SD5 and compaction (4 pass) (see sketch page 1).

-Scarification of till in place,placement of till (0-50mm) and fine filter in the NW part of SD4, The till was compacted (6 pass) (sketch page 2).

-Placement of fine filter on the flat surface and the slope (to finish the lift of yesterday) in the SE portion of SD-4 and compaction (4 pass) (sketch page 2).

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Komatsu PC450, trucks, loader

Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

Plan/Croquis

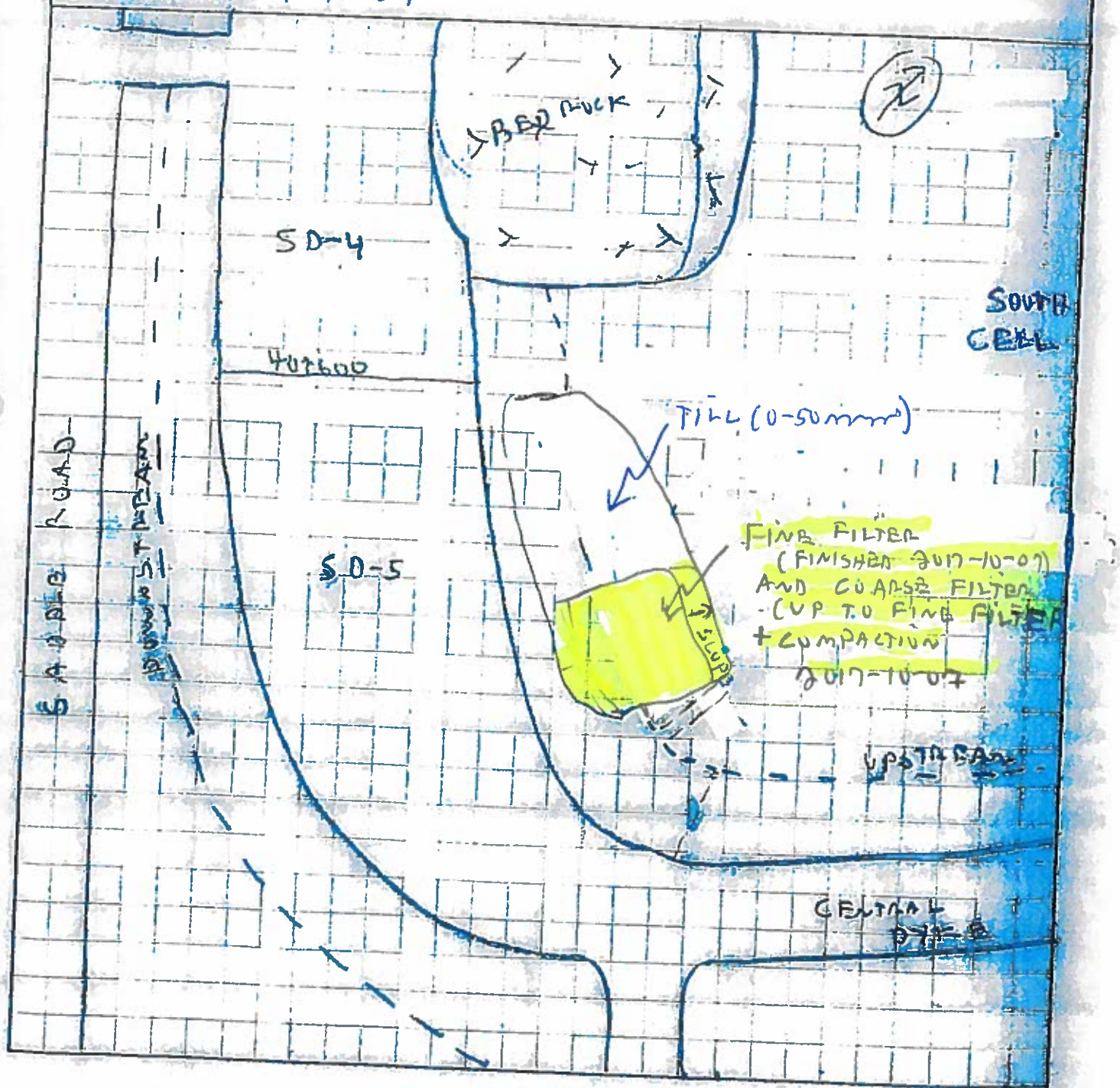
Client: A. E. M.

Projet no.: 11118538-B1

Projet: SADDLE DAM 3-4-5

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Date d'inspection: 2017-10-07

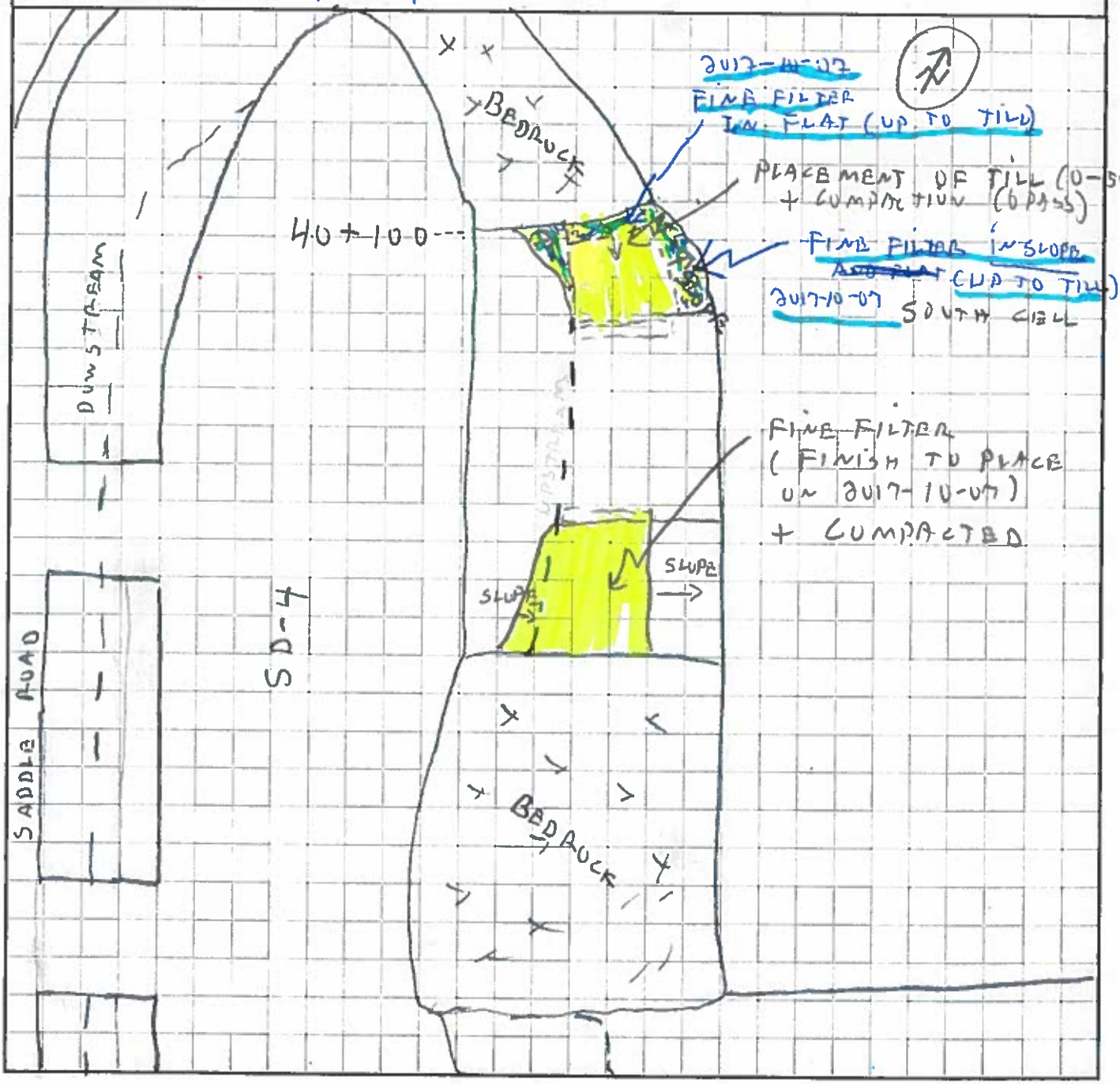


Préparé par: HUGUES PORTIN

Vérifié par:

Plan/Croquis

Client: A.E.M.	Projet no.: 11118538-B1
Projet: SADDLE DAM 3-4-5	Page 2 de 2
Date d'inspection: 2017-10-07	



Préparé par: HUGUES PUTVIN Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 8-Oct-17 **Inspector - Day/Night:** Hugues Potvin, Day shift

Weather : Cloudy

Project: SD3-4-5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Placement of till, fine and coarse filter

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☒	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☒	**Sump Excavation**	☐
Water Control	☐	**Fine Filter**	☒	**Rockfill**	☒		

Description:

-Placement of fine filter and coarse filter at SD4 and compaction (4 pass) in the SE portion (see sketch page 1).

-Placement of fine filter (compacted) and coarse filter at Central Dyke (sketch page 2).

-Placement of till (0-40mm), fine filter, coarse filter and rockfill at SD3, Till, fine and coarse filter were compacted by the excavator's bucket (see sketch page 3).

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Komatsu PC450, trucks, loader

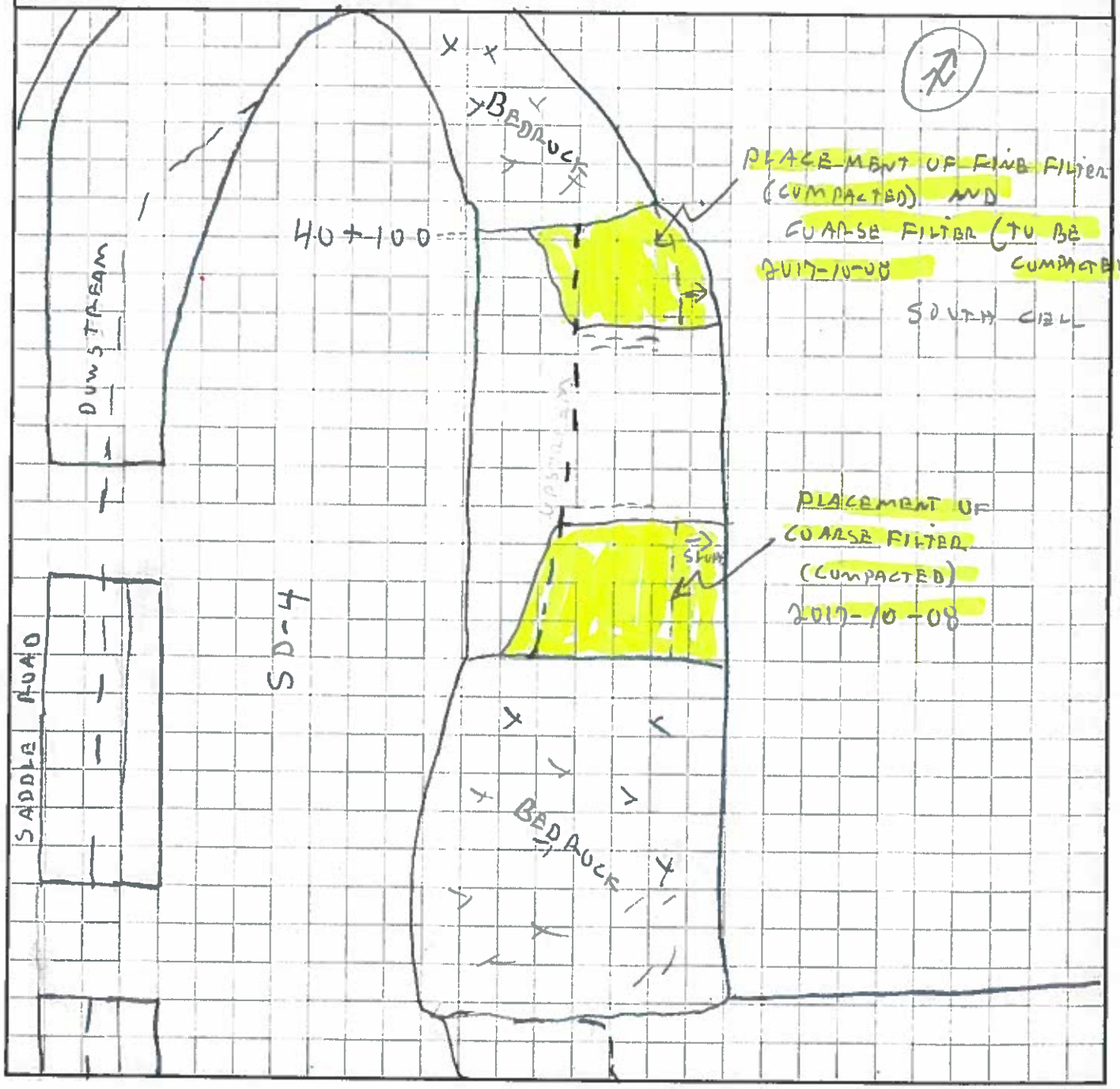
Manpower:

Photos Location:

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Plan/Croquis

Client: A.E.M.	Projet no.: 11118538-B1
Projet: SADDLE DAM 3-4-5	Page 1 de 3
Date d'inspection: 2017-10-08	



Préparé par: HUGUES PUTVIN Vérifié par: _____

Plan/Croquis

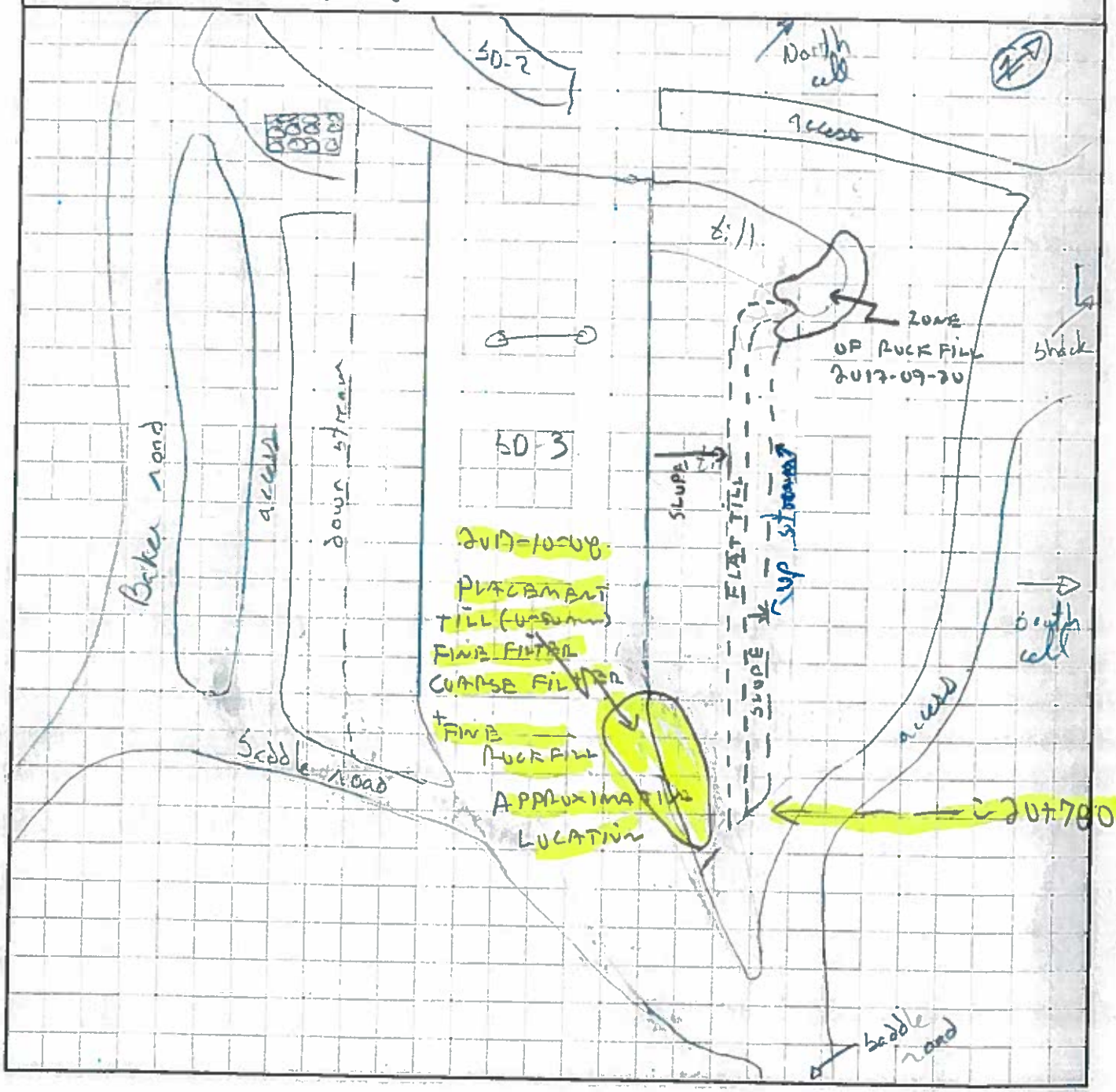
Client: AEM	Projet no.: 1118538-B1
Projet: Saddle dam 3-4-5	Page 2 de 3
Date d'inspection: 2017-10-08	



Préparé par: HUGUES PUTVIN Vérifié par: _____

Plan/Croquis

Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 3 de 3
Date d'inspection: 2017-10-08	



Préparé par: Hugues Putvin Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 9-Oct-17 **Inspector - Day/Night:** Hugues Potvin, Day shift

Weather : Sunny

Project: SD3-4-5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Placement of till, fine and coarse filter

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐	**Sump Excavation**	☐
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☒		

Description:

-Placement of rockfill (0 to 500 mm), lift of 1.0 meter at Central Dyke and SD3, the lift is completed but non compacted.

-Placement of rockfill (0 to 500 mm) in the slope at SD4 and SD5 (see sketch page 1 and 2 for details).

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Komatsu PC450, trucks, loader

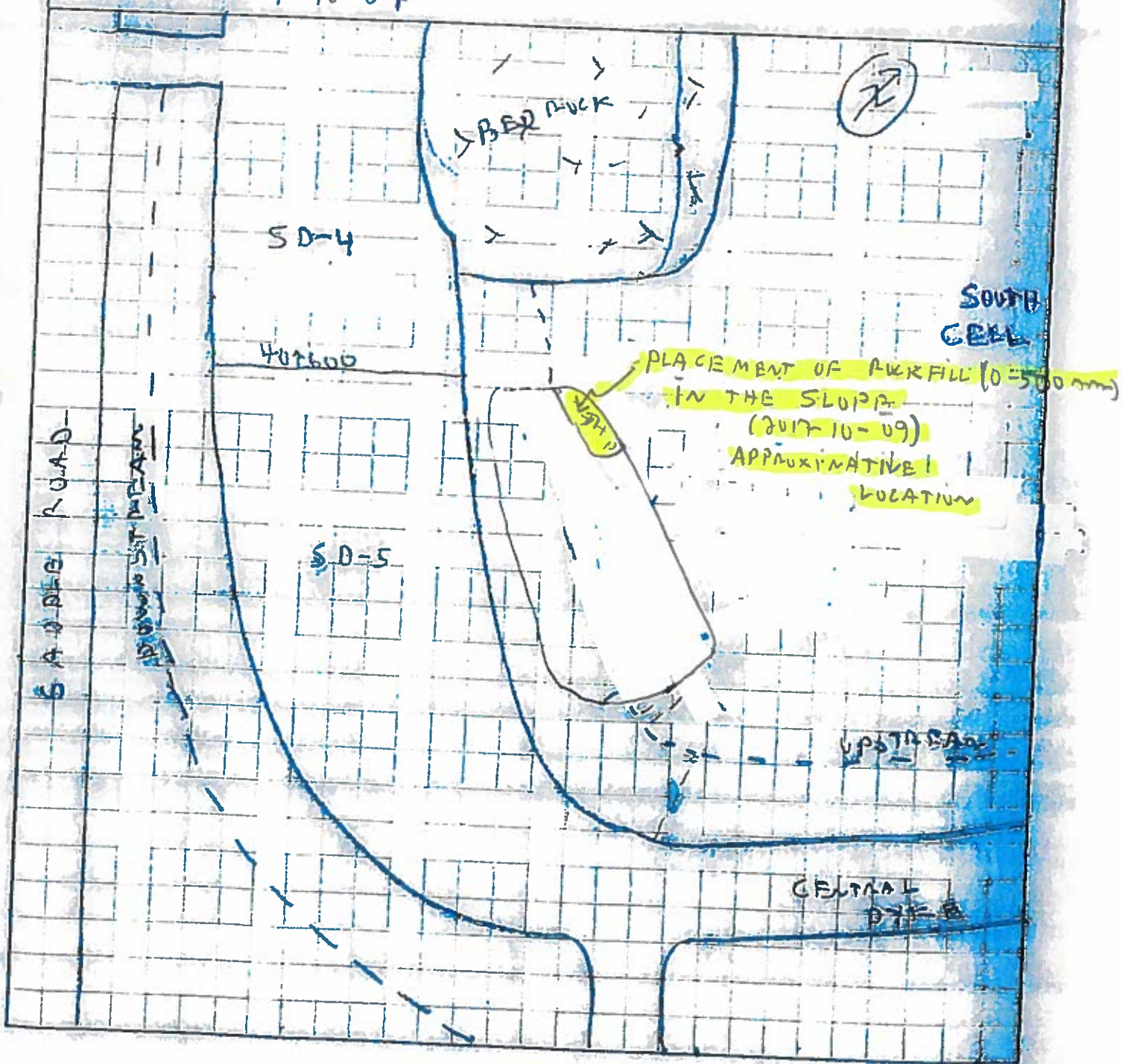
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Plan/Croquis

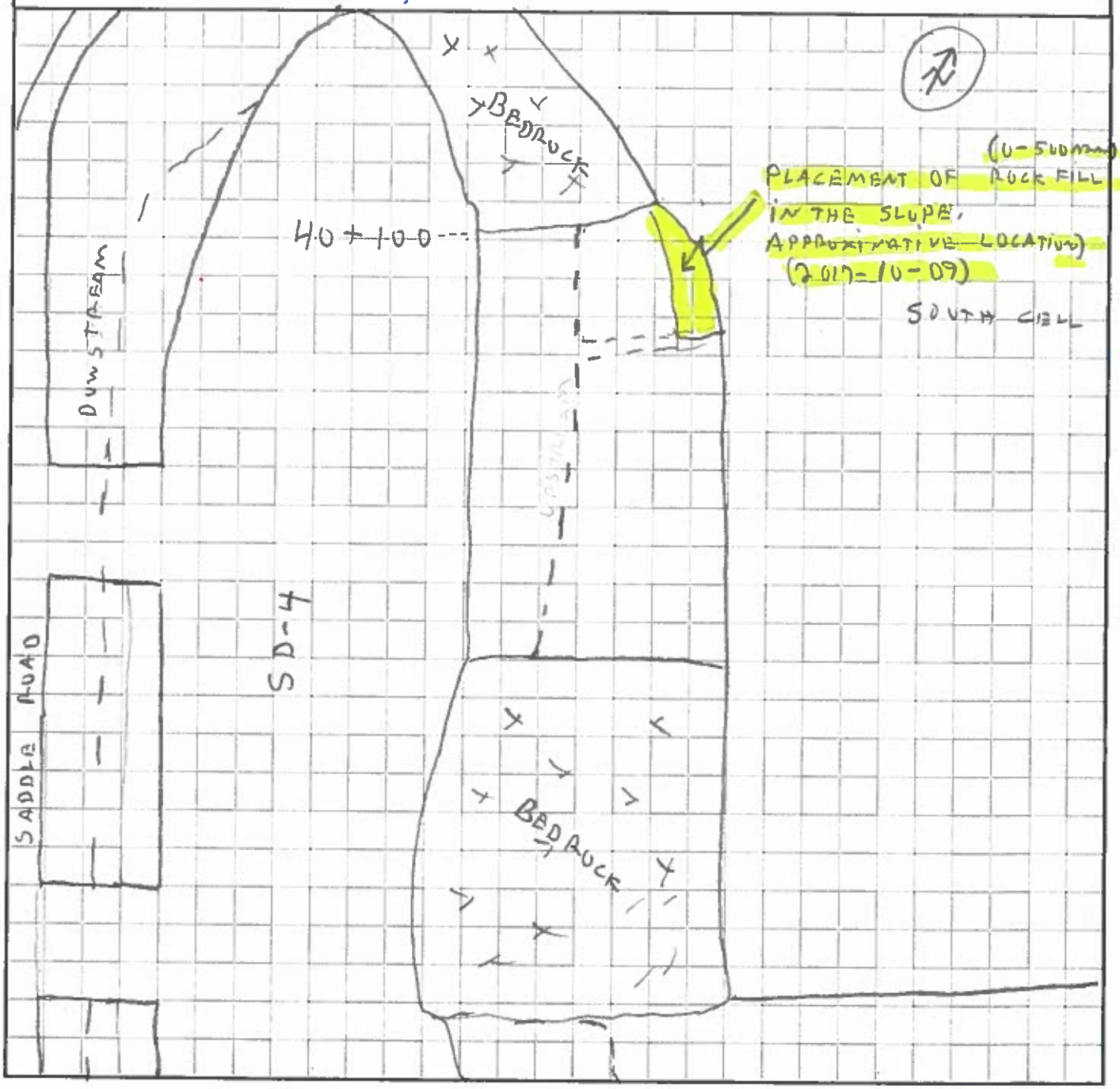
Client: A. E. M.	Projet no.: 1118538-B1
Projet: SADDLE DAM 3-4-5	Page 1 de 2
Date d'inspection: 2017-10-09	



Préparé par: HUGUES PORTIN Vérifié par:

Plan/Croquis

Client: A.E.M.	Projet no.: 11118538-B1
Projet: SADDLE DAM 3-4-5	Page 2 de 2
Date d'inspection: 2017-10-09	



Préparé par: HUGUES PORVIN Vérifié par: _____

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 10-Oct-17 **Inspector - Day/Night:** Hugues Potvin, Day shift

Weather : Cloudy

Project: SD3-4-5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Placement of rockfill

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐	**Sump Excavation**	☐
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☒		

Description:

-Placement of rockfill (0 to 500 mm),in slope and one lift of 1.0 meter at SD4 and SD5. The NW part of SD4 was compacted and the SE part partially compacted.

-Compaction of rockfill at SD3 (8 pass), rockfill placed in the NE part was frozen and compaction was not fully efficient (see sketch).

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Cat 345D, Komatsu PC450, trucks, packer, loader

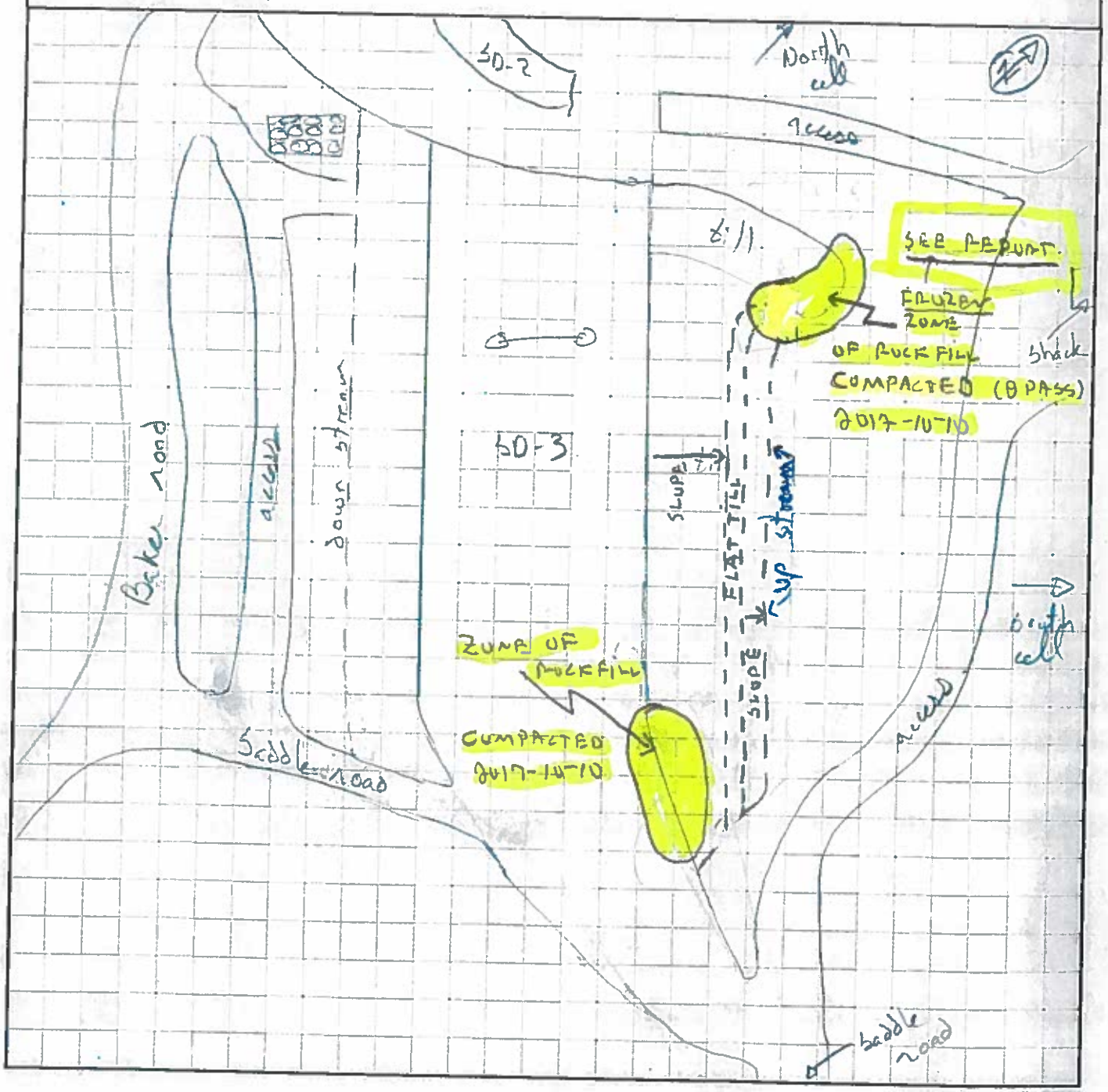
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Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

Plan/Croquis

Client: A.E.M.	Projet no.: 11118538-B1
Projet: Saddle dam 3-4-5	Page 1 de 1
Date d'inspection: 2017-10-10	



Préparé par: HUGUES PUTVIN Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE
MEADOWBANK

Date: 11-Oct-17 **Inspector - Day/Night:** Hugues Potvin, Day shift

Weather : Cloudy

Project: SD3-4-5 **Contractor:** Fernand Gilbert

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Compaction of rockfill

General Activities: see work in progress

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐	**Sump Excavation**	☐
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☐		

Description:

- Compaction of rockfill at the SE part of SD4, at SD5 and Central Dyke.

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Packer

Manpower:

Photos Location:

*** Photos must be stored in appropriate location as indicated by the Owner Representative**

APPENDIX G - FOUNDATION AND GEOSYNTHETICS INSTALLATION APPROVAL FORMS

APPENDIX G1 - CENTRAL DIKE NORTH ABUTMENT PREPARATION APPROVAL FORMS

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - CD

Acceptance No.: FND-CD-135 **Date:** 12/Aug/17

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, incl. Station and Offset (according to Central Dike Stations);

3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative	Name:	Alexandre Lavallee
	Position:	AEM- Ower Rep.
QC Representative	Name:	Cédrick Fillon Tremblay
	Position:	GHD
QA Engineer	Name:	Marion Habersetzer
	Position:	Golder-Qa
Surveyor	Name:	Samuel Kiley-Morin
	Position:	AEM-Surveyor

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

Central DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 0+085.95 m Offset −28.30 m | SHIFT: NIGHT ☐ DAY ☑ | DATE: 12/08/2017 | SHEET 2 OF 4

To Sta. 0+110.97 Offset −12.98 m | LOCATION: north abutment of Central Dike (upstream)

EQUIPMENT: 450 excavator (SANA)

DESCRIPTION rock foundation

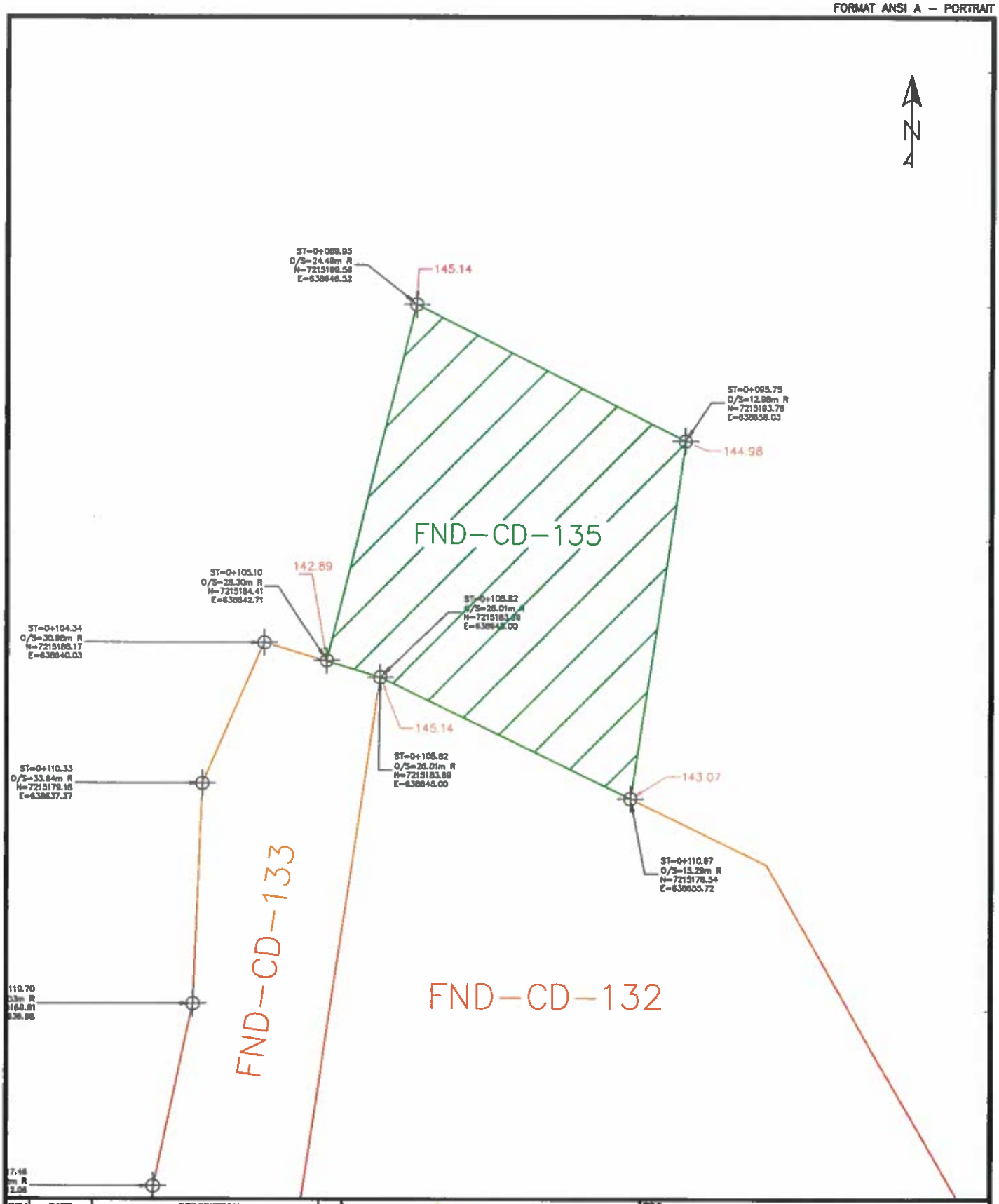
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	AL	MH
2.	Storage areas planned for disposal of removed materials	AL	MH
3.	Occurrence of snow and ice removal method in place	AL	MH
4.	Occurrence of boulders and removal method in place	AL	MH
5.	Occurrence of hummocks and scalping method in place	AL	MH
6.	Occurrence of surface and ground water and its impact mitigation in place	AL	MH
7.	Presence of other unsuitable materials and removal method in place	AL	MH
8.	Soil frozen or thawed and measures taken	AL	MH
9.	Blasting requirement to remove unsuitable material and safety measure checked	AL	MH
	Preparation of surface for LLDPE geomembrane placement	—	—
10.	Adjustment made to suit design in field	AL	MH
11.	Final walkover inspection before re-sloping or fill placement	AL	MH
	Rough grading of foundation	AL	MH
12.	"As-excavated" survey conducted	AL	MH
	Bedrock cleaning	AL	MH
13.	Bedrock Mapping	—	—

REMARKS :
Ice lenses (less than 15 cm) are present on the bedrock and do not impact the quality of the bedrock foundation.

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Samuel Kiley-Marion	NAME: Marion Haberstroh	NAME: Alexandre Lavallée
SIGNATURE: Samuel Kiley-Marion	SIGNATURE: MH	SIGNATURE:
DATE: 2017-08-13	DATE: 12/08/2017	DATE: 13/08/2017



REV	DATE	DESCRIPTION	BY

REVISIONS

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AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FND–CD–135

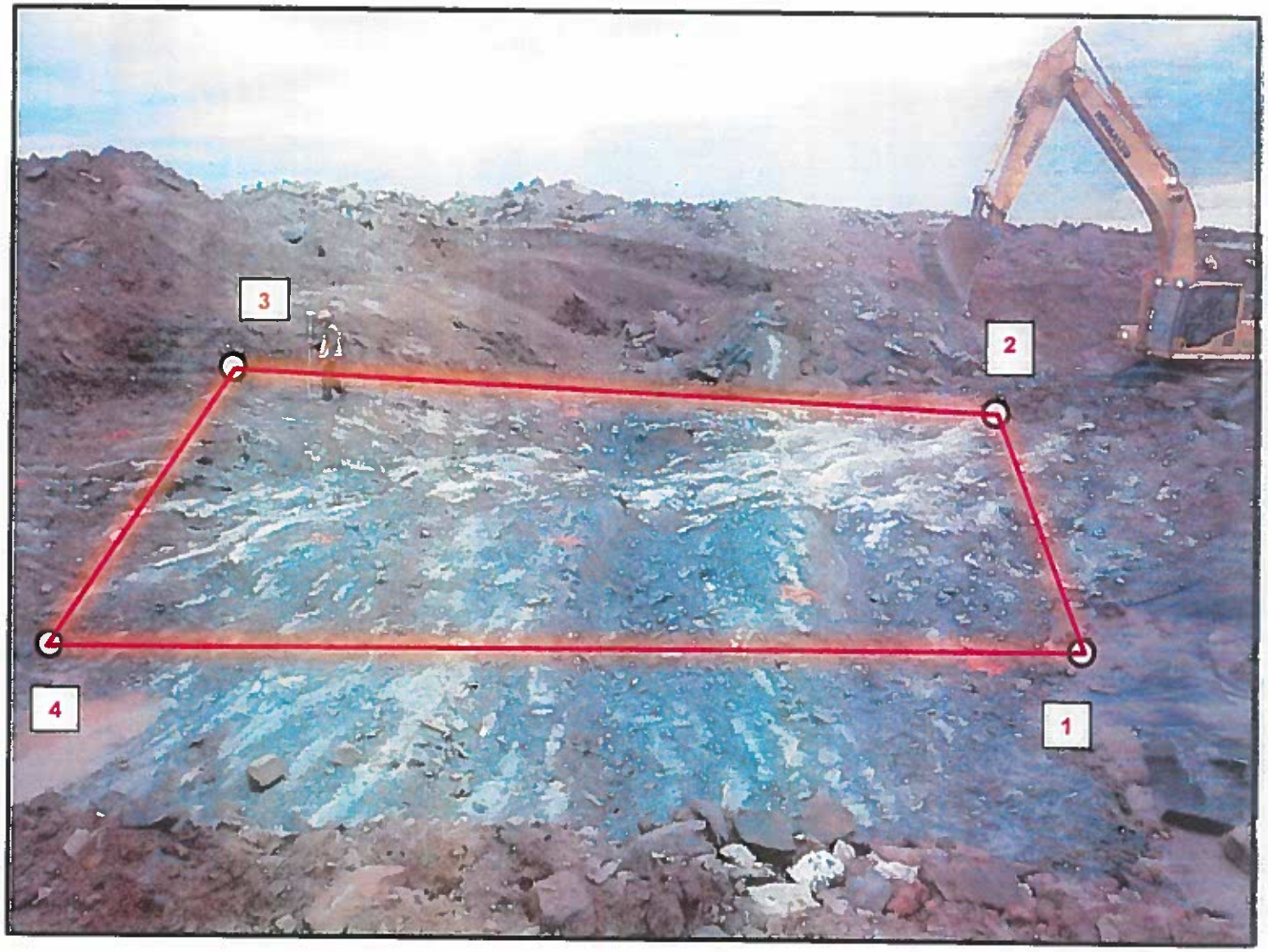
PROJECT No.	DATE 2017–08–12
DRAWN BY SAMUEL KILEY–MORIN	SHEET 1 / 1
APPROVED BY	
DRAWING NO.	REVISION

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N = 7215184.41
St = 0+105.10
Offset = 28.30m - R
Elev = 142.89

2:
E = 638655.72
N = 7215178.54
St = 0+110.97
Offset = 15.29m - R
Elev = 143.07

3:
E = 638658.03
N = 7215193.76
St = 0+095.75
Offset = 12.98m - R
Elev = 144.98

4:
E = 638646.52
N = 7215199.56
St = 0+089.95
Offset = 24.49m - L
Elev = 145.14



Picture 1- Approximate approved foundation area

Date: 2017-08-12

Photo by (Initial): C.F.T

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - CD

Acceptance No.:	FND-CD-136	Date:	13/Aug/17

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, incl. Station and Offset (according to Central Dike Stations);

3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative	Name:	Alexandre Lavallee
	Position:	AEM- Ower Rep.
QC Representative	Name:	Cédrick Fillon Tremblay
	Position:	GHD
QA Engineer	Name:	Marion Habersetzer
	Position:	Golder-Qa
Surveyor	Name:	Samuel Kiley-Morin
	Position:	AEM-Surveyor

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

CENTRAL DIKE -TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 0+085.75 Offset -15.29 m	SHIFT: NIGHT ☐ DAY ☑	DATE: 13/08/2017	SHEET 2 OF 4
To Sta. 0+131.60 m Offset 4.65m	LOCATION: Central Dike north abutment		
EQUIPMENT: 450 excavator (SANA)			
DESCRIPTION rock foundation			

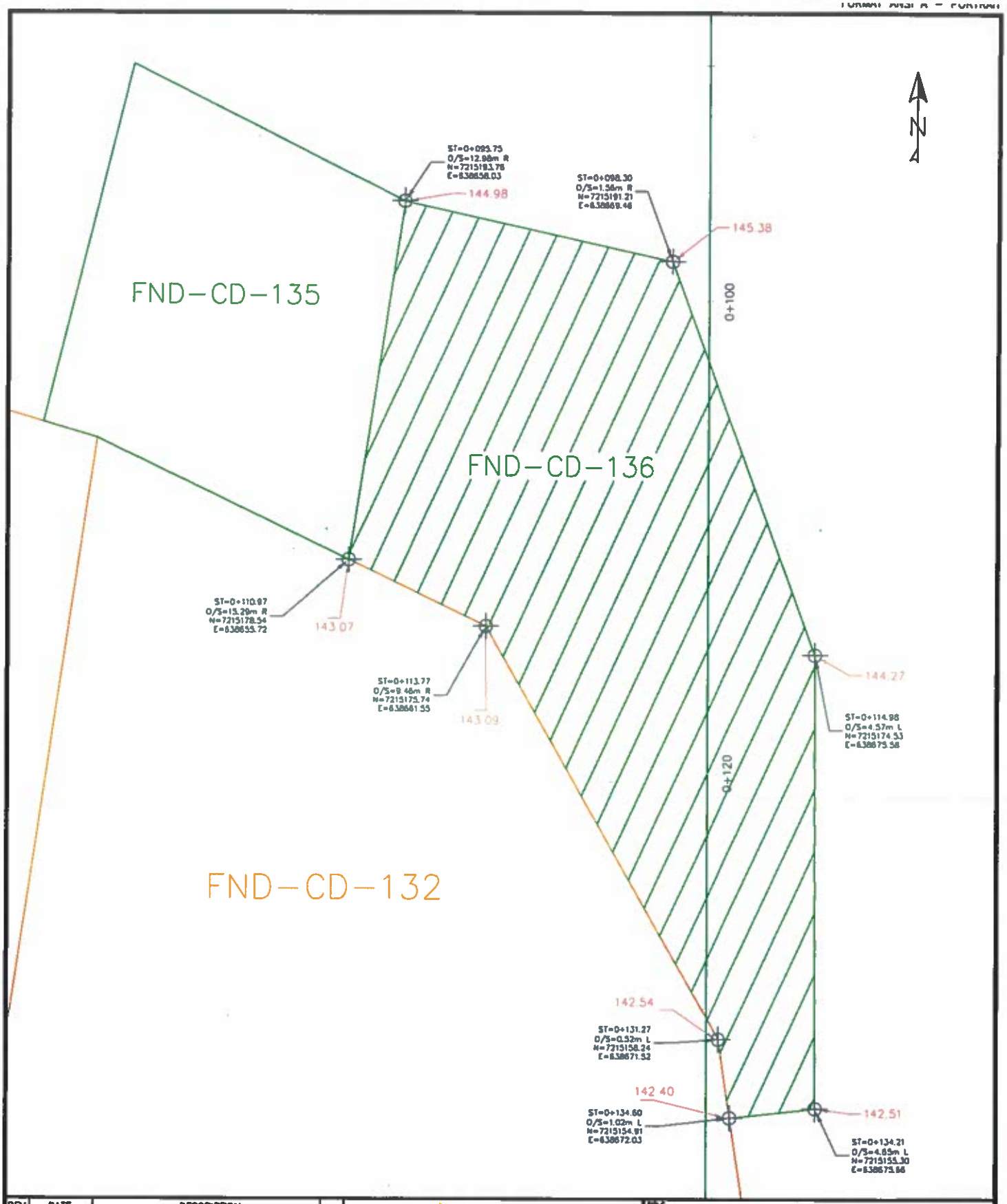
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	AL	MH
2.	Storage areas planned for disposal of removed materials	AL	MH
3.	Occurrence of snow and ice removal method in place	AL	MH
4.	Occurrence of boulders and removal method in place	AL	MH
5.	Occurrence of hummocks and scalping method in place	AL	MH
6.	Occurrence of surface and ground water and its impact mitigation in place	AL	MH
7.	Presence of other unsuitable materials and removal method in place	AL	MH
8.	Soil frozen or thawed and measures taken	AL	MH
9.	Blasting requirement to remove unsuitable material and safety measure checked	AL	MH
	Preparation of surface for LLDPE geomembrane placement	–	–
10.	Adjustment made to suit design in field	AL	MH
11.	Final walkover inspection before re-sloping or fill placement	AL	MH
	Rough grading of foundation	AL	MH
12.	"As-excavated" survey conducted	AL	MH
	Bedrock cleaning	AL	MH
13.	Bedrock Mapping	–	–

REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Samuel Kilay-Morin	NAME: Marion Haberseltzer	NAME: Alexandre Lavoie
SIGNATURE: Samuel Kilay-Morin	SIGNATURE:	SIGNATURE:
DATE: 2017-08-14	DATE: 13/08/2017	DATE: 14/08/2017



REV	DATE	DESCRIPTION	BY

REVISIONS

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AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO-EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FND-CD-136

PROJECT No.	DATE 2017-08-13
DRAWN BY SAMUEL KILEY-MORIN	SHEET 1 / 1
APPROVED BY	
DRAWING NO.	REVISION

C:\Meadowbank\DIKE 2017\FOUNDATION APPROVALS\FOUNDATION APPROVAL_20170812.dwg, 13 Aug 2017

FILE NO. .DWG

Foundation Approval, FND-CD-136

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Elev = 142.4

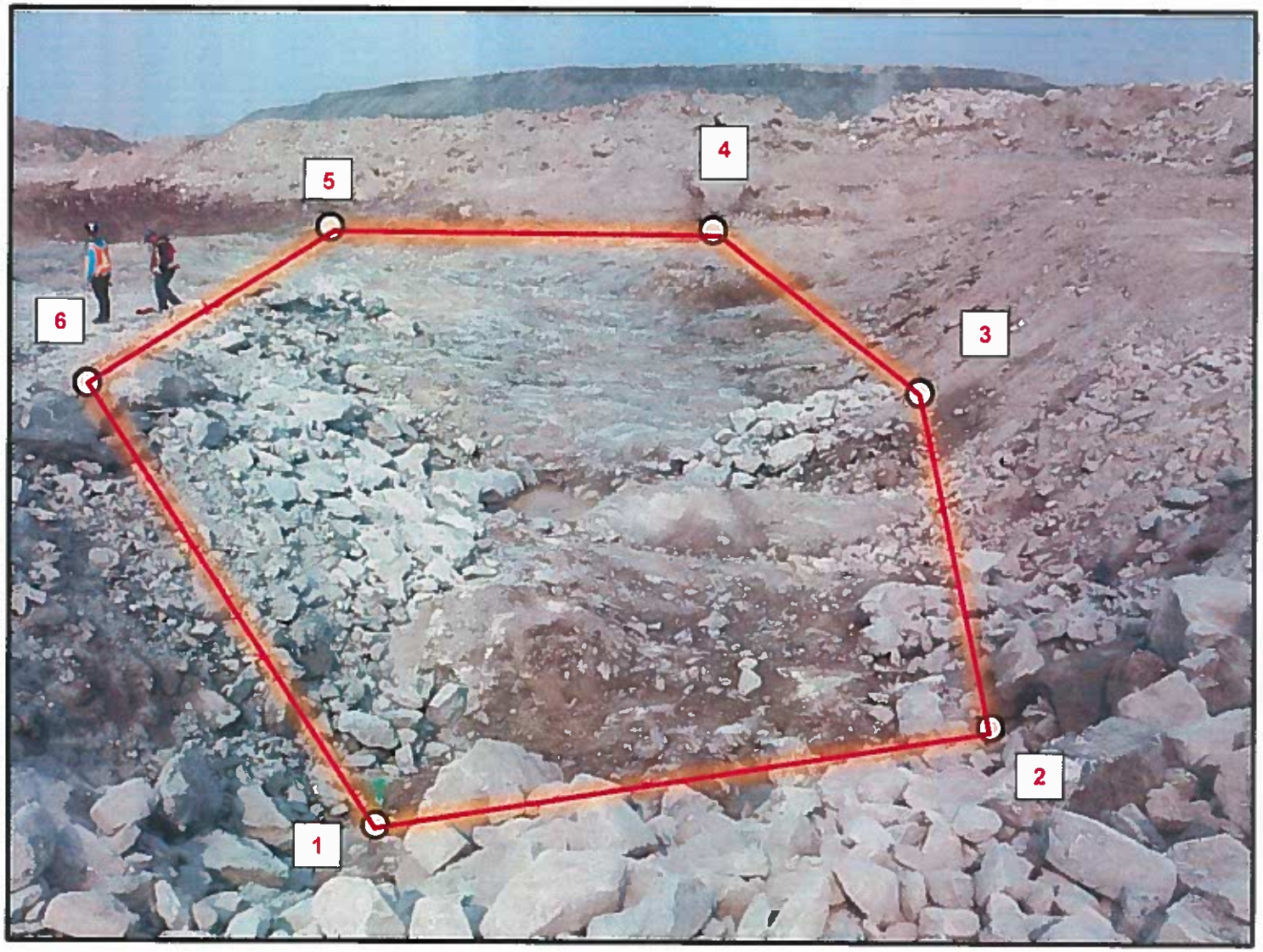
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Elev = 144.98

6: E = 638661.55
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St = 0+113.77
Offset = 9.46m - R
Elev = 143.09



Picture 1- Approximate approved foundation area

Date: 2017-08-13

Photo by (Initial): C.F.T

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - CD (Key Trench)

Acceptance No.:	FND-CD-137	Date:	16/Sep/17

This Certificate of Acceptance includes the following items, reviewed and accepted by the under signed:

1) Foundation and Key Tr ench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, incl. Station and Offset (according to Central Dike Stations);

3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the under signed surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained pr ior to and during fill placement.

Owner Representative	Name:	~~Alexandre Lavallée~~ Patrice Cagnon
	Position:	AEM- Ower Rep.
QC Representative	Name:	Cédrick Fillon Tremblay
	Position:	GHD
QA Engineer	Name:	Michael Nadon
	Position:	Golder-Qa
Surveyor	Name:	~~Francis Pepin~~ MARC ANDRE BLACKBURN
	Position:	FGL-Surveyor

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

Central Dike -TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 0+088.6 Offset – 36.2 m	SHIFT: NIGHT ☐ DAY ☒	DATE :	SHEET 2 OF 5
To Sta. 0+117.5 Offset – 23.6 m	LOCATION: : Central Dike north abutment toe liner tie-in		
EQUIPMENT: pressurized air stream			
DESCRIPTION rock foundation			

NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	PG	MW
2.	Storage areas planned for disposal of removed materials	PG	MW
3.	Occurrence of snow and ice removal method in place	PG	MW
4.	Occurrence of boulders and removal method in place	PG	MW
5.	Occurrence of hummocks and scalping method in place	PG	MW
6.	Occurrence of surface and ground water and its impact mitigation in place	—	—
7.	Presence of other unsuitable materials and removal method in place	PG	MW
8.	Soil frozen or thawed and measures taken	—	—
9.	Blasting requirement to remove unsuitable material and safety measure checked	—	—
	Preparation of surface for LLDPE geomembrane placement	PG	MW
10.	Adjustment made to suit design in field	PG	MW
11.	Final walkover inspection before re-sloping or fill placement	PG	MW
	Rough grading of foundation	PG	MW
12.	"As-excavated" survey conducted	PG	MW
	Bedrock cleaning	PG	MW
13.	Bedrock Mapping	PG	MW

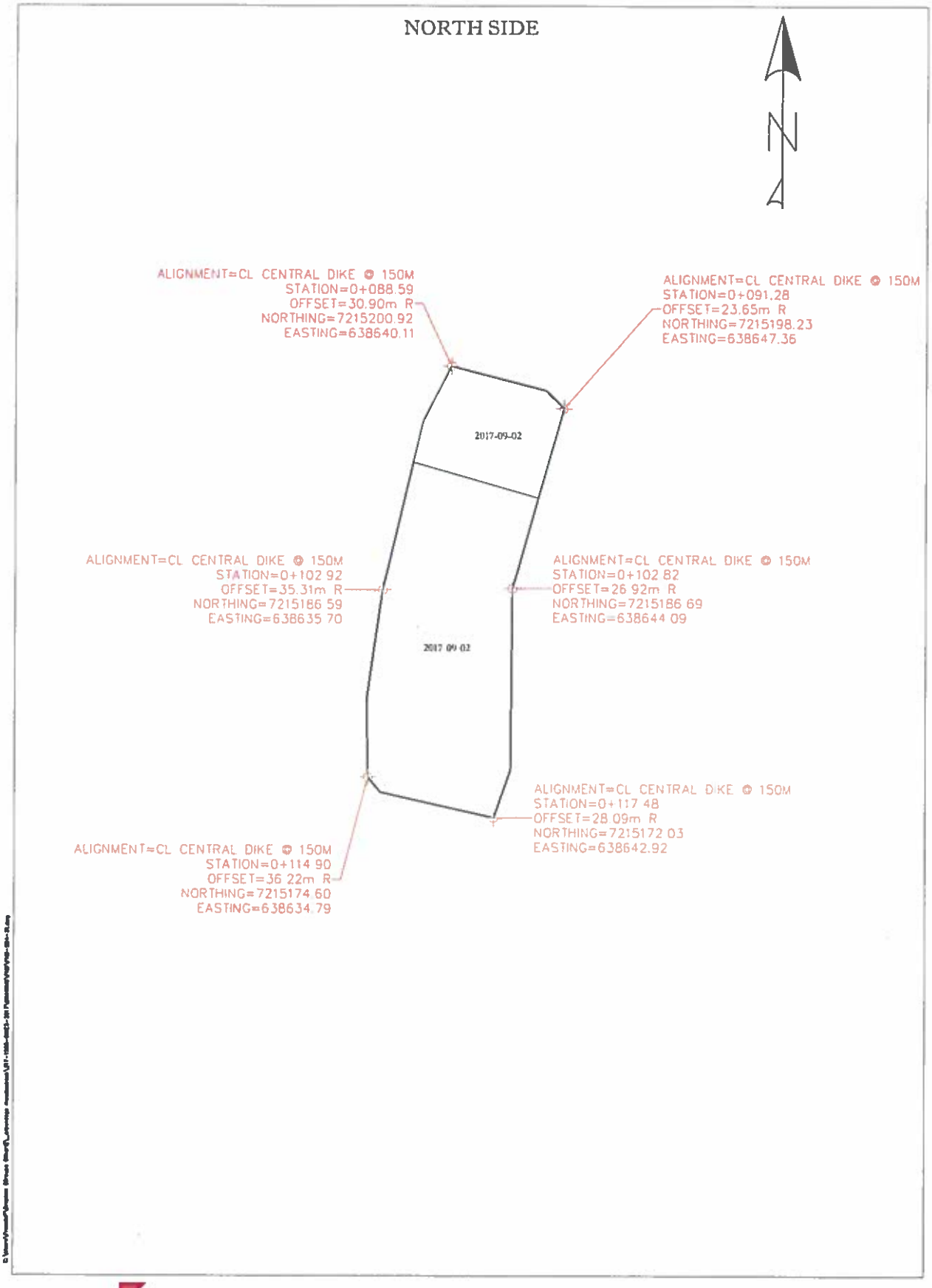
REMARKS :
Approval done after backfilling.

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: MARC AUDREBLACKBURN	NAME: Michael Wadon	NAME: Patrice Vaugeois
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 27/09/2017	DATE: 2009-2017	DATE: 30/09/17

CENTRAL DIKE - KEY FOUNDATION APPROVAL
DIKES CONSTRUCTION
CONTRACT # 11-607

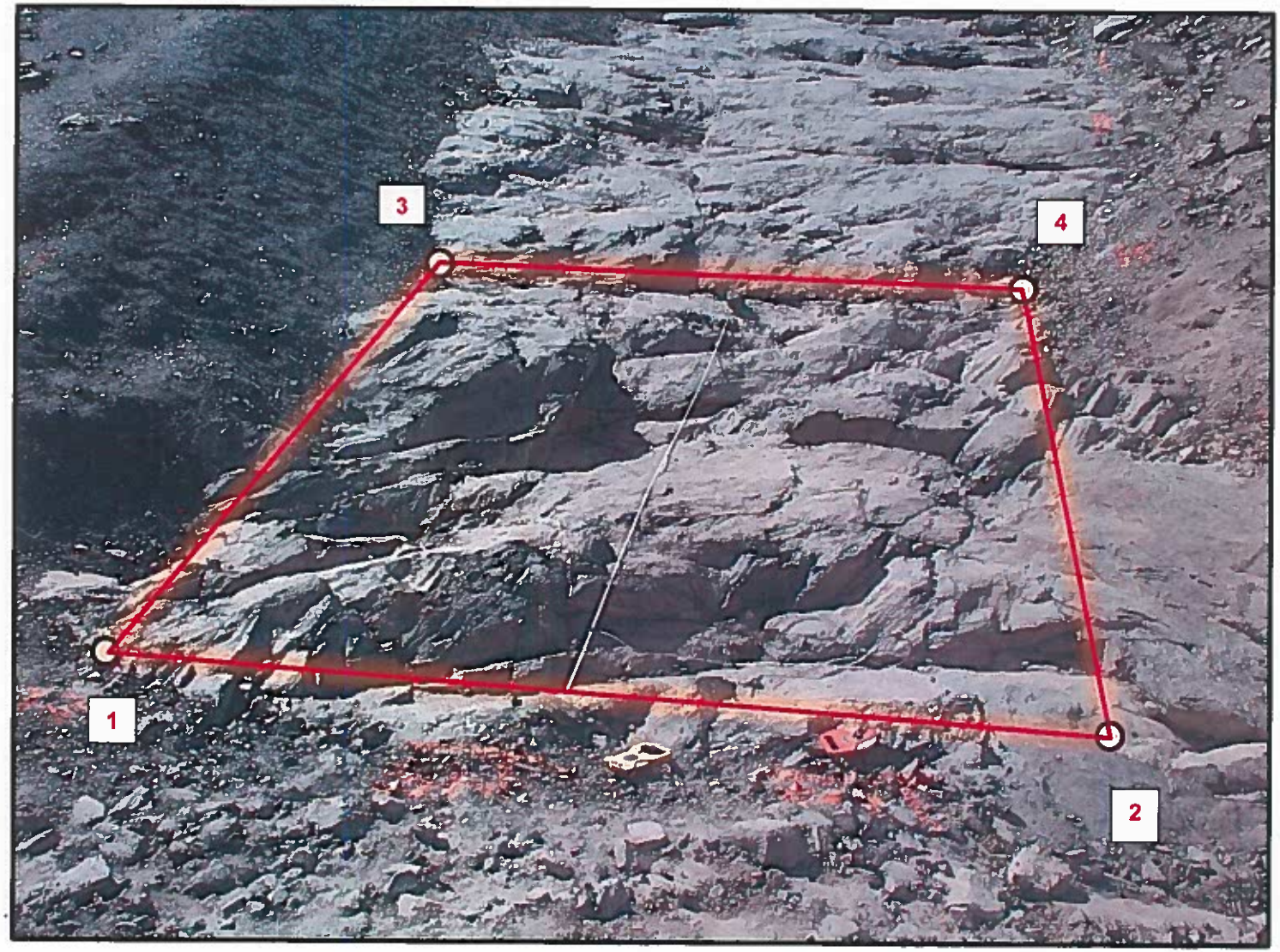


984246 N.W.T. Limited
D/B/A :
Qamanittuaq
SANA

PREPARED BY : FRANCIS PEPIN
DATE : 15-09-2017
FND-CD-137

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E = 638647.36
N = 7215198.23
St = 0+091.28
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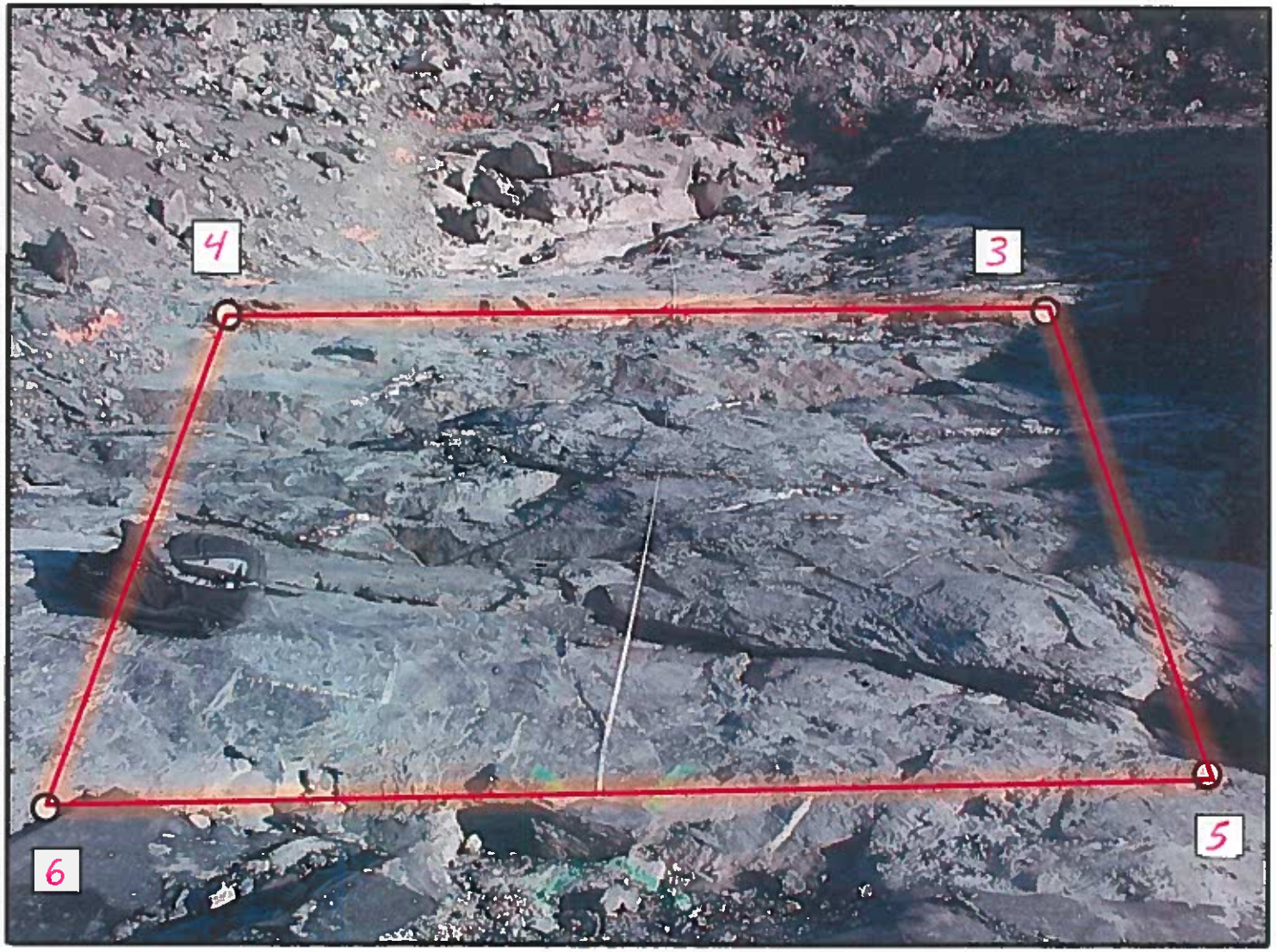
Picture 1- Approximate approved foundation area

Date: 2017-09-16

Photo by (Initial): C.F.T

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Offset = 28.09m - L

6:
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N = 7215174.60
St = 0+114.90
Offset = 36.22m - L



Picture 1- Approximate approved foundation area

Date: 2017-09-16

Photo by (Initial): C.F.T

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - CENTRAL DIKE

Acceptance No.:	FND-CD-138	Date:	19/Sep/17

* IN view of the geosynthetics installation

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, incl. Station and Offset (according to Central Dike Stations);

3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative	Name:	Patrice Gagnon
	Position:	AEM- Ower Rep.
QC Representative	Name:	Hugues Potvin
	Position:	GHD
QA Engineer	Name:	Marlon Habersetzer
	Position:	Golder-Qa
Surveyor	Name:	Marc-André Blackburn
	Position:	FGL-Surveyor

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

Central Dike -TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 0+093 Offset -23.66 | SHIFT: NIGHT ☐ DAY ☒ | DATE: 19/09/2017 | SHEET 2 OF 4

To Sta. 0+161 Offset -27.56 | LOCATION: Central Dike liner bedding (upstream)

EQUIPMENT: —

DESCRIPTION liner bedding

NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	PG	MH
2.	Storage areas planned for disposal of removed materials	PG	MH
3.	Occurrence of snow and ice removal method in place	PG	MH
4.	Occurrence of boulders and removal method in place	PG	MH
5.	Occurrence of hummocks and scalping method in place	PG	MH
6.	Occurrence of surface and ground water and its impact mitigation in place	PG	MH
7.	Presence of other unsuitable materials and removal method in place	PG	MH
8.	Soil frozen or thawed and measures taken	PG	MH
9.	Blasting requirement to remove unsuitable material and safety measure checked	—	—
	Preparation of surface for LLDPE geomembrane placement	PG	MH
10.	Adjustment made to suit design in field	PG	MH
11.	Final walkover inspection before re-sloping or fill placement	PG	MH
	Rough grading of foundation	PG	MH
12.	"As-excavated" survey conducted	PG	MH
	Bedrock cleaning	—	—
13.	Bedrock Mapping	—	—

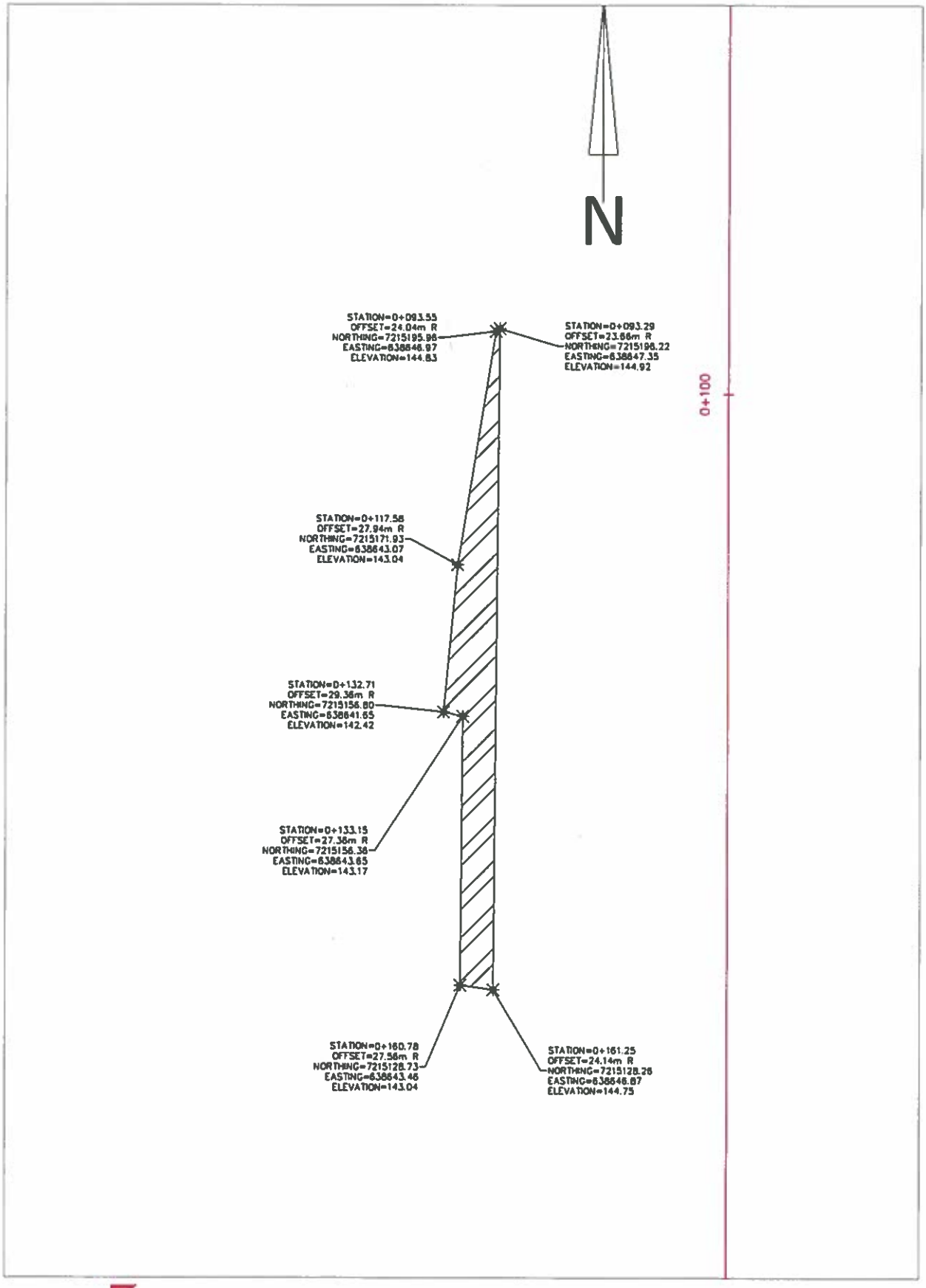
REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE
NAME: MARC ANDRE BLACKBURN	NAME: Marion Habersetzer	NAME: Patrice Lagnon
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 27/09/2017	DATE: 19/09/2017	DATE: 23/09/2017

FOUNDATION APPROVAL FOR CENTRAL DIKE
FND-CD-138
CONTRACT # 11-505



984246 N.W.T. Limited
D/B/A :
Qamanittuaq
SANA

PREPARED BY : MARC-ANDRE BLACKBURN
DATE : 20-09-2017
CON-FD-0009-APPROVAL_CD

Foundation Approval, FDN-CD-138

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St=0+161.25, Offset=24.14m R
El: 144.75

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St=0+160.78, Offset=27.56m R
El: 143.04

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El: 144.92

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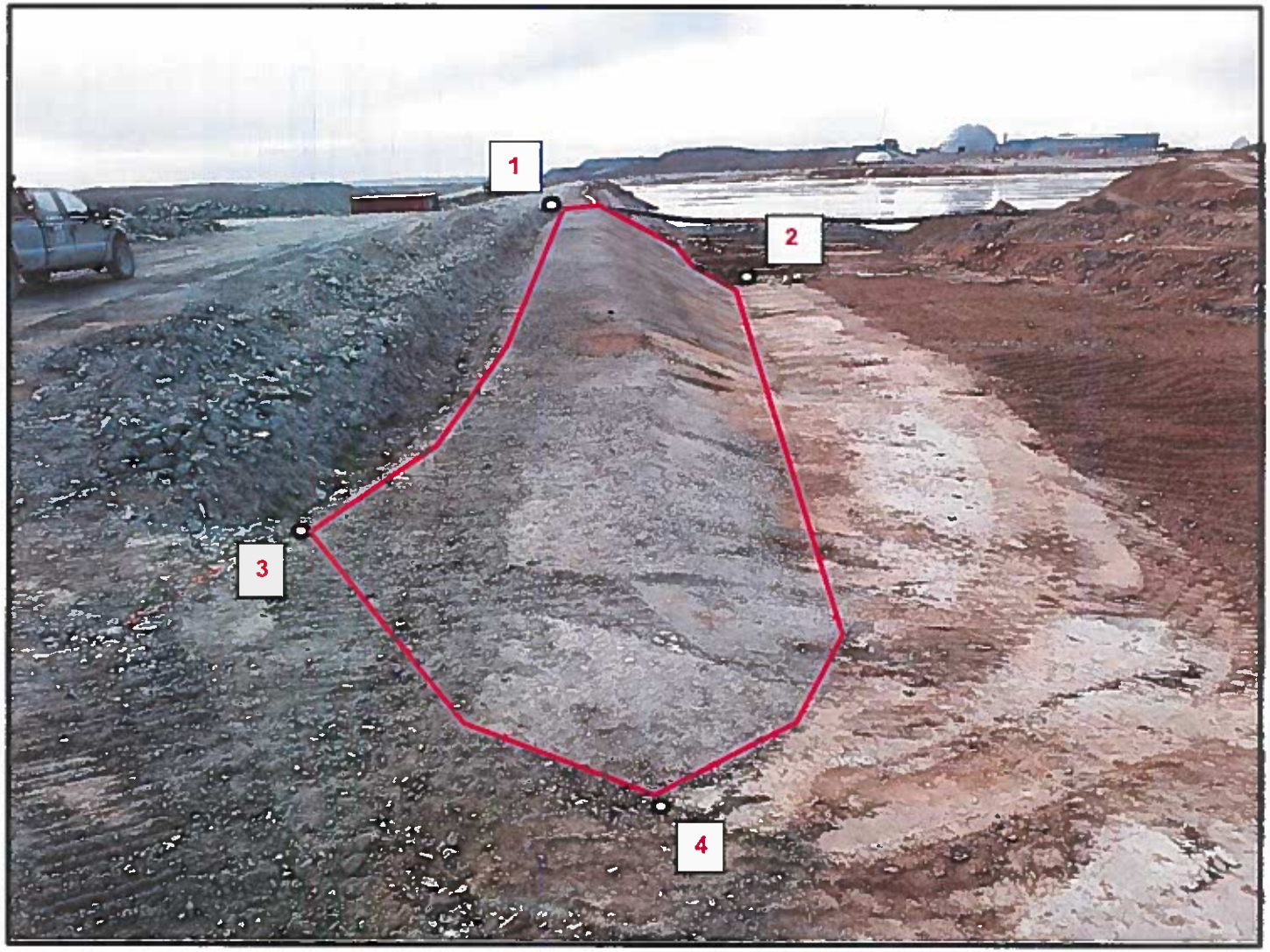


Photo 1- Approximate approved foundation area

Date: 2017-09-19

Photo by (Initial): H.P.

LLDPE GEOMEMBRANE PLACEMENT ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF LLDPE GEOMEMBRANE PLACEMENT - CENTRAL DIKE

Acceptance No.:	LLDPE-CD-30	Date:	02/Oct/17

This Certificate of Acceptance for LLDPE Geomembrane Placement includes the following items, reviewed and accepted by the undersigned:

1) Sketch of the approximate accepted area;

2) Photo of the accepted area, at the moment of the acceptance;

3) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing ZTG Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved aera has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the geomembrane conditions at the time of the inspection and the condition of the geomembrane is required to be maintained prior to and during geotextile and fill placement.

Owner Representative	Name:	Frérérick Bolduc
	Position:	AEM- Ower Rep.
QC Representative	Name:	Hugues Potvin
	Position:	GHD
QA Engineer	Name:	Michael Nadon
	Position:	Golder-Qa
Surveyor	Name:	Francis Pépin
	Position:	FGL-Surveyor

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

LLDPE Geomembrane Installation

Central Dike – TSF DIKE CONSTRUCTION CHECKLIST – geotextile and liner INSTALLATION

From Sta. 0+096 m Offset 20.64 m	SHIFT: NIGHT: ☐ DAY: ☒	DATE:	SHEET 3 OF 5
To Sta. 0+157 m Offset 28.12 m	LOCATION: Central Dike LLDPE membrane (upstream)		
EQUIPMENT: ✓			
DESCRIPTION: LLDPE membrane			

NO.	ITEMS TO BE INSPECTED	INSPECTED BY LINER INSTALLER	INSPECTED BY QA ENGINEER
1.	Liner material received has Manufacturer's certification and meets the specification	FLB	MV
2.	Visual inspection of liner performed to determine physical damages during handling	FLB	MV
3	Deficiencies reported before installation	FLB	MV
4	Inspection of LINER storage facilities	FLB	MV *
5	Final bedding surface condition meets the Specification and Approved by Liner Installer	FLB	MV
6	Visual inspection during liner installation performed	FLB	MV
7	Weather conditions meet the requirements during installation	FLB	MV
8	Welding carried out in accordance with manufacturer's specification	FLB	MV
9	Liner (routine destructive and non-destructive) testing and sampling performed as required	FLB	MV
10	Floor and upstream wall surfaces of anchor trench are smooth	FLB	MV
11	Damages during installation repaired in accordance with Specification	FLB	MV
12	Site cleaned up	FLB	MV
13	As-built survey conducted and approved	FLB	MV
14	Check for overheating of seams and holes, punctures, folding, wrinkling, visible lumps or protrusions	FLB	MV

REMARKS: * The LLDPE geomembrane does not meet the specifications by being stored outside without any shelter. The risk regarding the use of the unsheltered LLDPE geomembrane is low.

DEVIATIONS: (Attach list if necessary)

DATE OF RECTIFICATION:

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER:	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Francis Pepin	NAME: Michael Nadon	NAME: Frederick C. Goldie
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 2017/10/05	DATE: 02-10-2017	DATE: 03-10-2017

Geotextile Installation

Central Dike ___- TSF DIKE CONSTRUCTION CHECKLIST – GEOTEXTILE INSTALLATION

From Sta. 0+096 m Offset 20.84 m	SHIFT: NIGHT :☐ DAY :☒	DATE :	SHEET 2 OF 4
To Sta. 0+157 m Offset 28.12 m	LOCATION: Central Dike geotextile (upstream)		
EQUIPMENT :			
DESCRIPTION : geotextile			

NO.	ITEMS TO BE INSPECTED	INSPECTED BY LINER INSTALLER/OWNER'S REPRESENTATIVE	INSPECTED BY QA QA ENGINEER
1	Geotextile material received has Manufacturer's certification and meets the Specifications		MV
2	Visual inspection of geotextile rolls or factory panels to determine physical damage and defects		MV
3	Deficiencies reported before installation		MV
4	Inspection of geotextile storage facilities performed		MV
5	Final bedding surface condition meets the Specification and Approved by Liner Installer		MV
6	Visual inspection during geotextile installation performed		MV
7	Damages during installation repaired in accordance with Specifications		MV

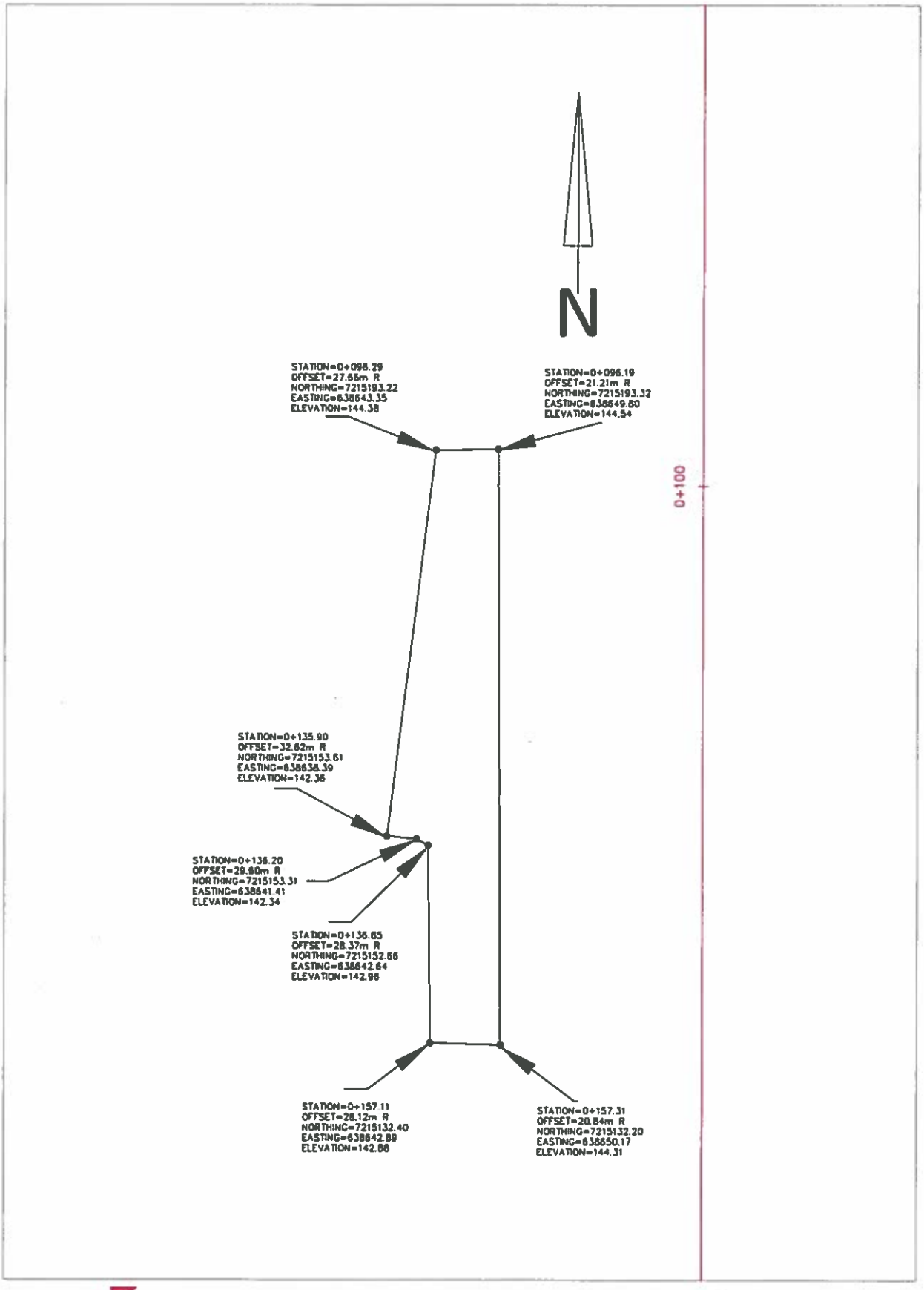
REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Francis Pelsin	NAME: Michael Nadon	NAME: Frédérick L. Boldue
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 2017-10-04	DATE: 02-10-2017	DATE: 05-10-2017

LLDPE APPROVAL FOR CENTRAL DIKE
LLDPE-CD-00030
CONTRACT # 11-505



984246 N.W.T. Limited
D/B/A :
Qamanittuaq
SANA

PREPARED BY : MARC-ANDRE BLACKBURN
DATE : 01-10-2017
CON-FD-0027-LLDPE-APPROVAL_CD

Foundation Approval, LLDPE-CD-30

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El: 144.31

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St=0+157.11, Offset=28.12m R
El: 142.88

3:
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St=0+096.29, Offset=27.66m R
El: 144.38

4:
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St=0+096.19, Offset=21.21m R
El: 144.54

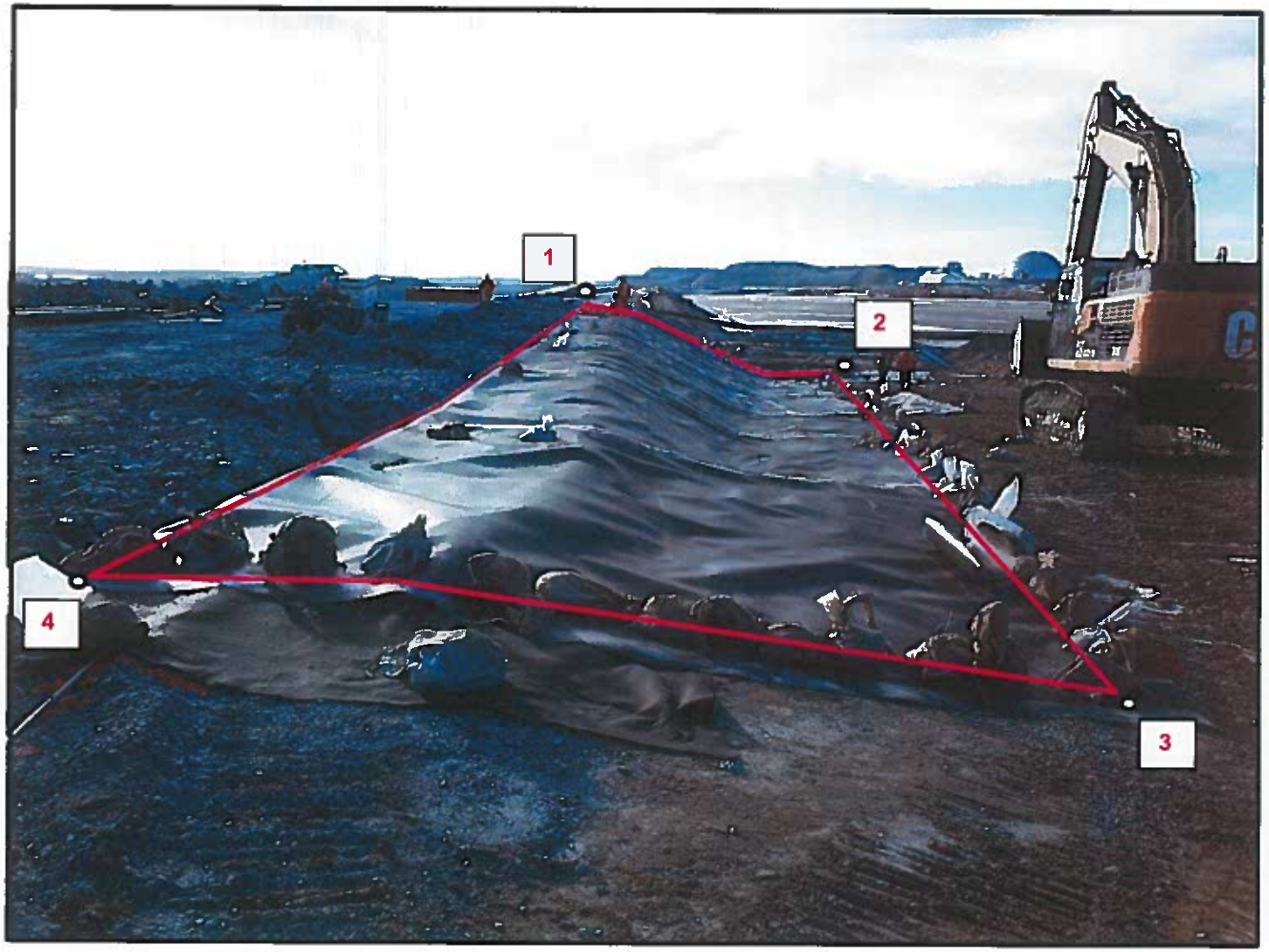


Photo 1- Approximate approved foundation area

Date: 2017-10-01

Photo by (Initial): H.P.

APPENDIX G2 - SADDLE DAM 3 STAGE 3 APPROVAL FORMS

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SD-3

Acceptance No.:	FND-SD3-22	Date:	27/07/2017

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, incl. Station and Offset (according to Central Dike Stations);

3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative	Name:	Patrice Gagnon
	Position:	AEM- Ower Rep.
QC Representative	Name:	Sebastien Blackburn
	Position:	GHD
QA Engineer	Name:	Marion Habersetzer
	Position:	Golder-Qa
Surveyor	Name:	François Gravel
	Position:	AEM-Surveyor

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

SADDLE DAM 3 -TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 20+733.55 Offset - 12.06 m	SHIFT: NIGHT ☐ DAY ☒	DATE: 27/07/2017	SHEET 2 OF 4
To Sta. 20+785.02 Offset 27.33 m	LOCATION: SDB bedrock foundation (downstream)		
EQUIPMENT: Excavator 345D (SANA)			
DESCRIPTION Rock foundation			

NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	PG	MH
2.	Storage areas planned for disposal of removed materials	PG	MH
3.	Occurrence of snow and ice removal method in place	PG	MH
4.	Occurrence of boulders and removal method in place	PG	MH
5.	Occurrence of hummocks and scalping method in place	PG	MH
6.	Occurrence of surface and ground water and its impact mitigation in place	PG	MH
7.	Presence of other unsuitable materials and removal method in place	PG	MH
8.	Soil frozen or thawed and measures taken	PG	MH
9.	Blasting requirement to remove unsuitable material and safety measure checked	PG	MH
	Preparation of surface for LLDPE geomembrane placement	—	—
10.	Adjustment made to suit design in field	PG	MH
11.	Final walkover inspection before re-sloping or fill placement	PG	MH
	Rough grading of foundation	PG	MH
12.	"As-excavated" survey conducted	PG	MH
	Bedrock cleaning	PG	MH
13.	Bedrock Mapping	—	—

REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: François Gravel-Grenier	NAME: Marion Haberseltzer	NAME: Patrice Lagrenon
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 2017-07-29	DATE: 27/07/2017	DATE: 28/07/2017

Foundation Approval, FND-SD3-22

1:
E=637536.91, N=7215052.82
St=20+785.02, Offset=9.38m L
Elev=142.83

2:
E=637518.72, N=7215100.98
St=20+733.59, Offset=7.23m L
Elev=138.46

3:
E=637508.50, N=7215049.89
St=20+778.88, Offset=18.52m R
Elev=143.57

4:
E=637489.32, N=7215079.43
St=20+744.43, Offset=27.33m R
Elev=142.13

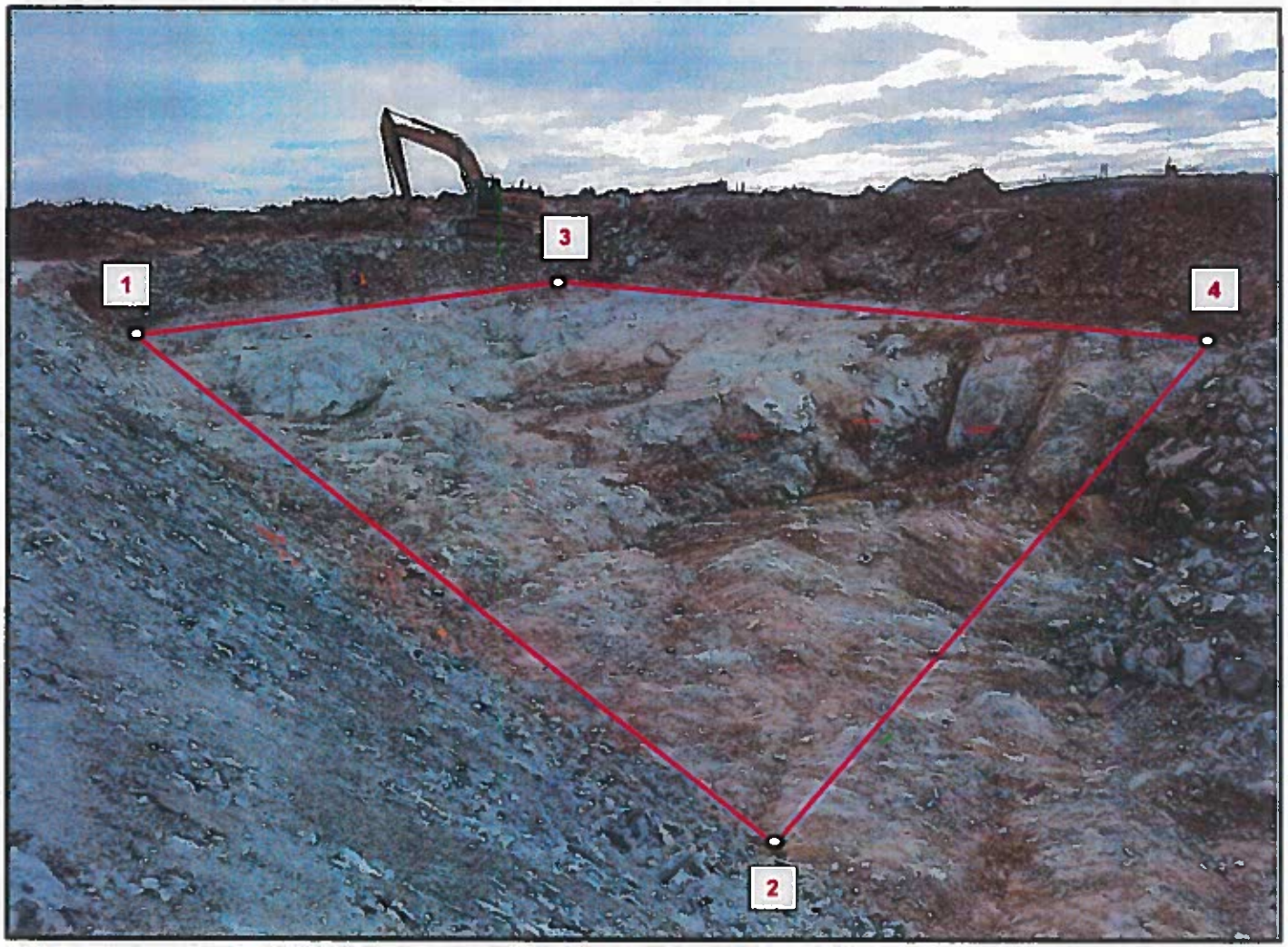
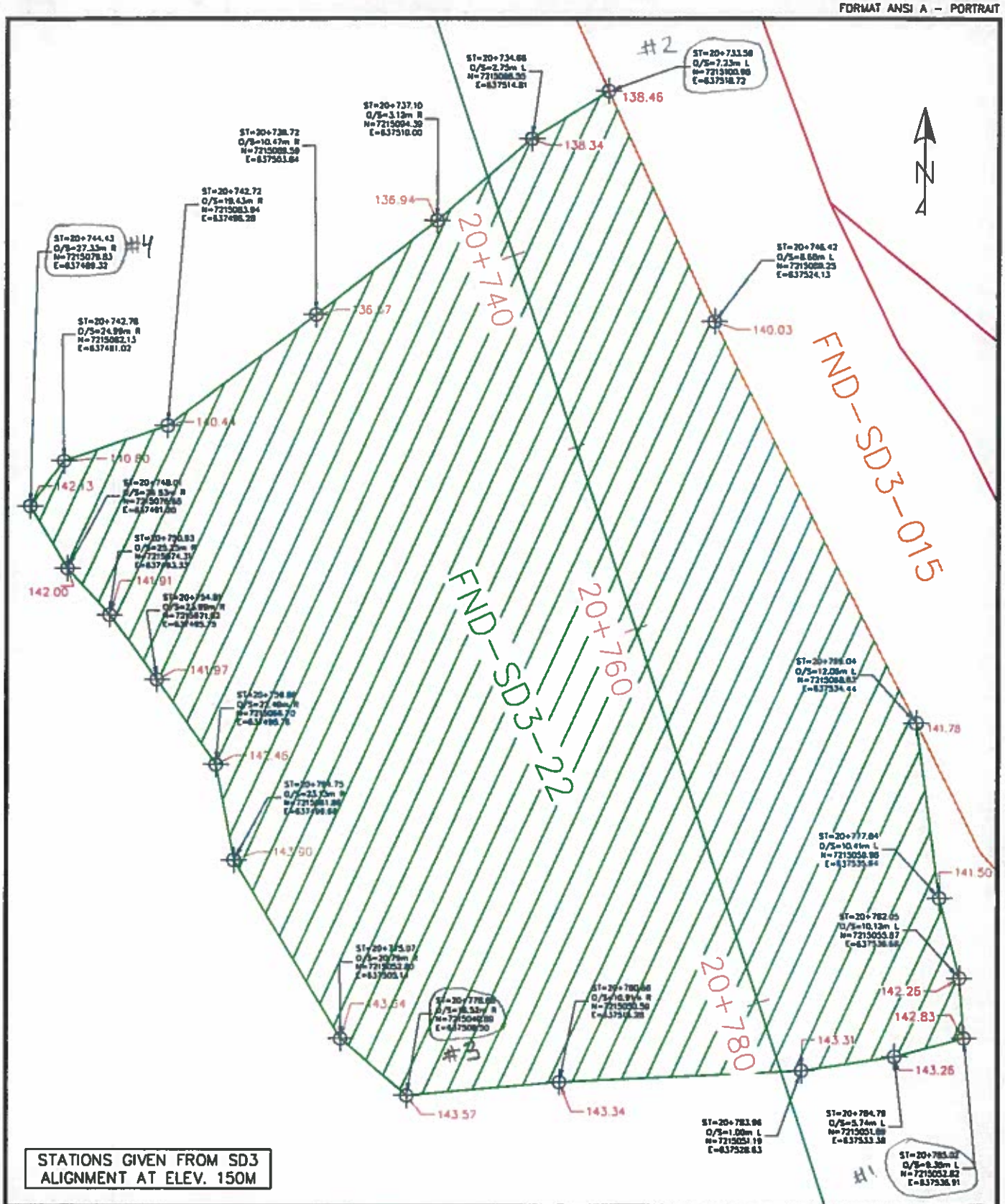


Photo 1- Approximate approved foundation area

Date: 2017-07-27

Photo by (Initial): S.B.



STATIONS GIVEN FROM SD3 ALIGNMENT AT ELEV. 150M

REV	DATE	DESCRIPTION	BY

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MEADOWBANK

TITLE
AGNICO-EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FND-SD3-22

PROJECT No.	DATE 2017-07-27
DRAWN BY FRANÇOIS GRAVEL-GRENIER	SHEET 1 / 1
APPROVED BY	
DRAWING NO.	REVISION

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SD-3

Acceptance No.:	FND-SD3-23	Date:	28/07/2017

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, incl. Station and Offset (according to Central Dike Stations);

3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative	Name:	Patrice Gagnon
	Position:	AEM- Ower Rep.
QC Representative	Name:	Sebastien Blackburn
	Position:	GHD
QA Engineer	Name:	Marion Habersetzer
	Position:	Golder-Qa
Surveyor	Name:	François Gravel
	Position:	AEM-Surveyor

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

SADDLE DAM 3 -TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 20+595.90 Offset 3.24 m	SHIFT: NIGHT ☐ DAY ☒	DATE : 27/07/2017	SHEET 2 OF 4
To Sta. 20+622.64 Offset 30.62 m	LOCATION: : SD3 bedrock foundation (downstream)		
EQUIPMENT: Excavator 345D (SAM)			
DESCRIPTION Rock foundation			

NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	PC	MH
2.	Storage areas planned for disposal of removed materials	PC	MH
3.	Occurrence of snow and ice removal method in place	PC	MH
4.	Occurrence of boulders and removal method in place	PC	MH
5.	Occurrence of hummocks and scalping method in place	PC	MH
6.	Occurrence of surface and ground water and its impact mitigation in place	PC	MH
7.	Presence of other unsuitable materials and removal method in place	PC	MH
8.	Soil frozen or thawed and measures taken	PC	MH
9.	Blasting requirement to remove unsuitable material and safety measure checked	PC	MH
	Preparation of surface for LLDPE geomembrane placement	—	—
10.	Adjustment made to suit design in field	PC	MH
11.	Final walkover inspection before re-sloping or fill placement	PC	MH
	Rough grading of foundation	PC	MH
12.	"As-excavated" survey conducted	PC	MH
	Bedrock cleaning	PC	MH
13.	Bedrock Mapping	—	—

REMARKS : Frozen foundation. Approved provided the water ponds are pumped out before placing UM rockfill.

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: François Giraud-Grenier	NAME: Marion Haberstock	NAME: Patrice Lagacé
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 2017-07-29	DATE: 28/07/2017	DATE: 26/07/2017

Foundation Approval, FND-SD3-23

1:
E=637452.66, N=7215197.34
St=20+621.35, Offset=25.25m R
Elev=134.57

2:
E=637473.96, N=7215203.02
St=20+622.64, Offset=3.24m R
Elev=134.40

3:
E=637465.49, N=7215223.62
St=20+600.43, Offset=4.82m R
Elev=133.72

4:
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St=20+595.90, Offset=30.62m R
Elev=135.13

5:
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Elev=135.54

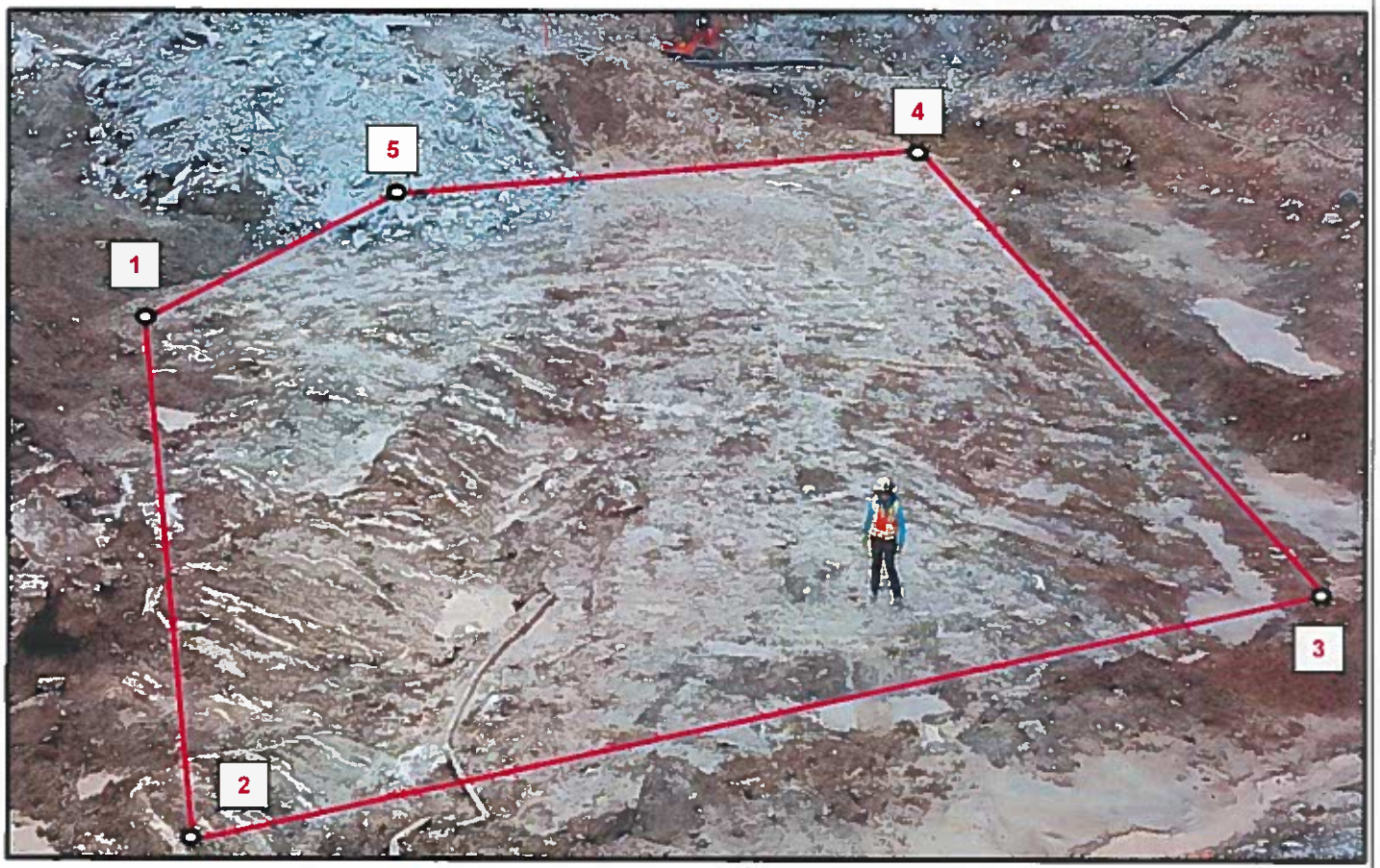
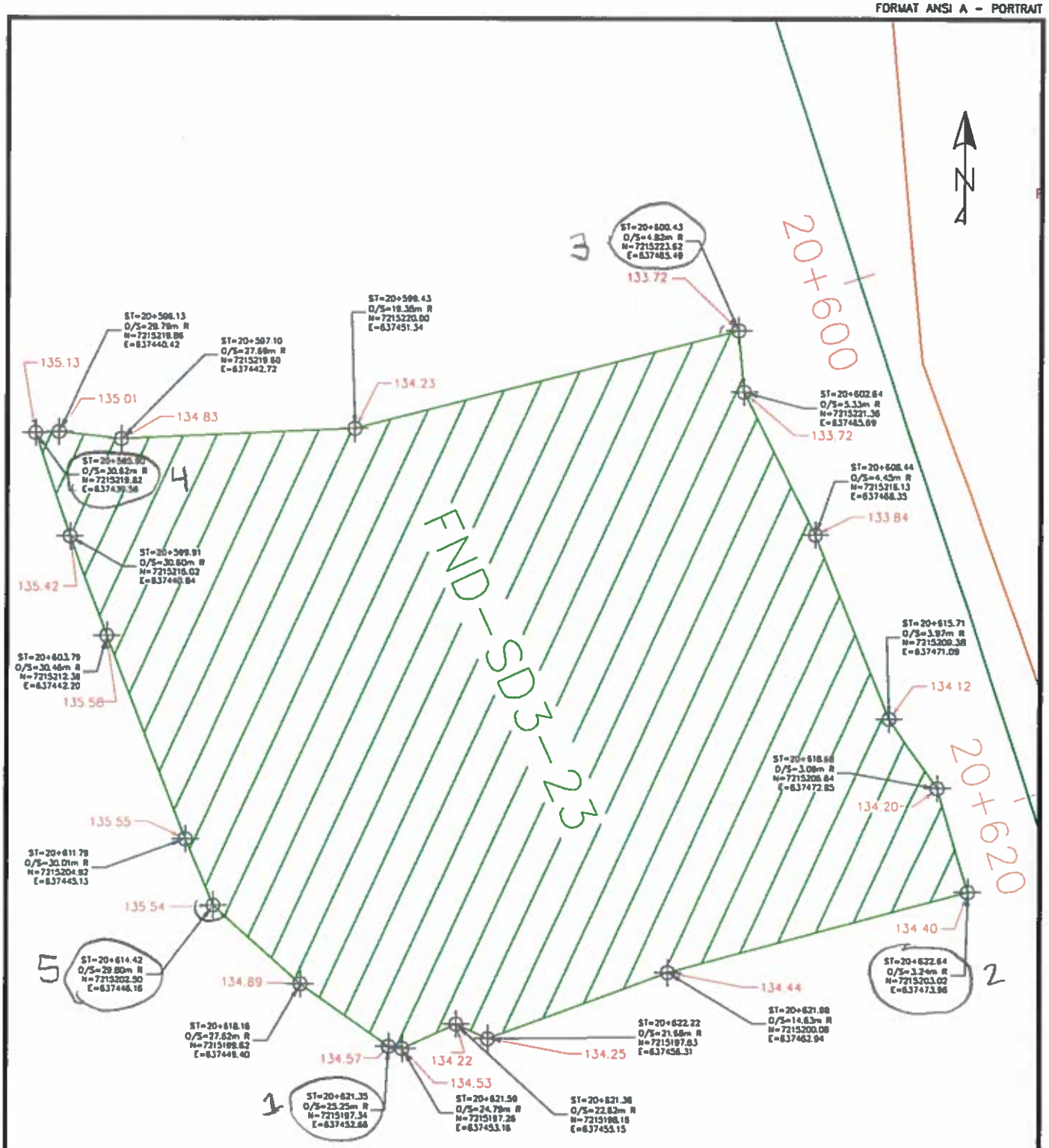


Photo 1- Approximate approved foundation area

Date: 2017-07-28

Photo by (Initial): S.B.



STATIONS GIVEN FROM SD3 ALIGNMENT AT ELEV. 150M

REV	DATE	DESCRIPTION	BY

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MEADOWBANK

TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FND–SD3–23

PROJECT No.	DATE 2017-07-28
DRAWN BY FRANÇOIS GRAVEL–GRENIER	SHEET 1 / 1
APPROVED BY	
DRAWING NO.	REVISION

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SD-3

Acceptance No.:	FND-SD3-24	Date:	29/07/2017

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, incl. Station and Offset (according to Central Dike Stations);

3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative	Name:	Patrice Gagnon
	Position:	AEM- Ower Rep.
QC Representative	Name:	Sebastien Blackburn
	Position:	GHD
QA Engineer	Name:	Marion Habersetzer
	Position:	Golder-Qa
Surveyor	Name:	François Gravel
	Position:	AEM-Surveyor

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

SADDLE DAM 3 -TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 20+577.51 Offset -4.51 m	SHIFT: NIGHT ☐ DAY ☒	DATE: 29/07/2017	SHEET 2 OF 4
To Sta. 20+623.47 Offset 33.83 m	LOCATION: SD3 bedrock foundation (downstream)		
EQUIPMENT: 345D excavator (SANA)			

DESCRIPTION rock foundation

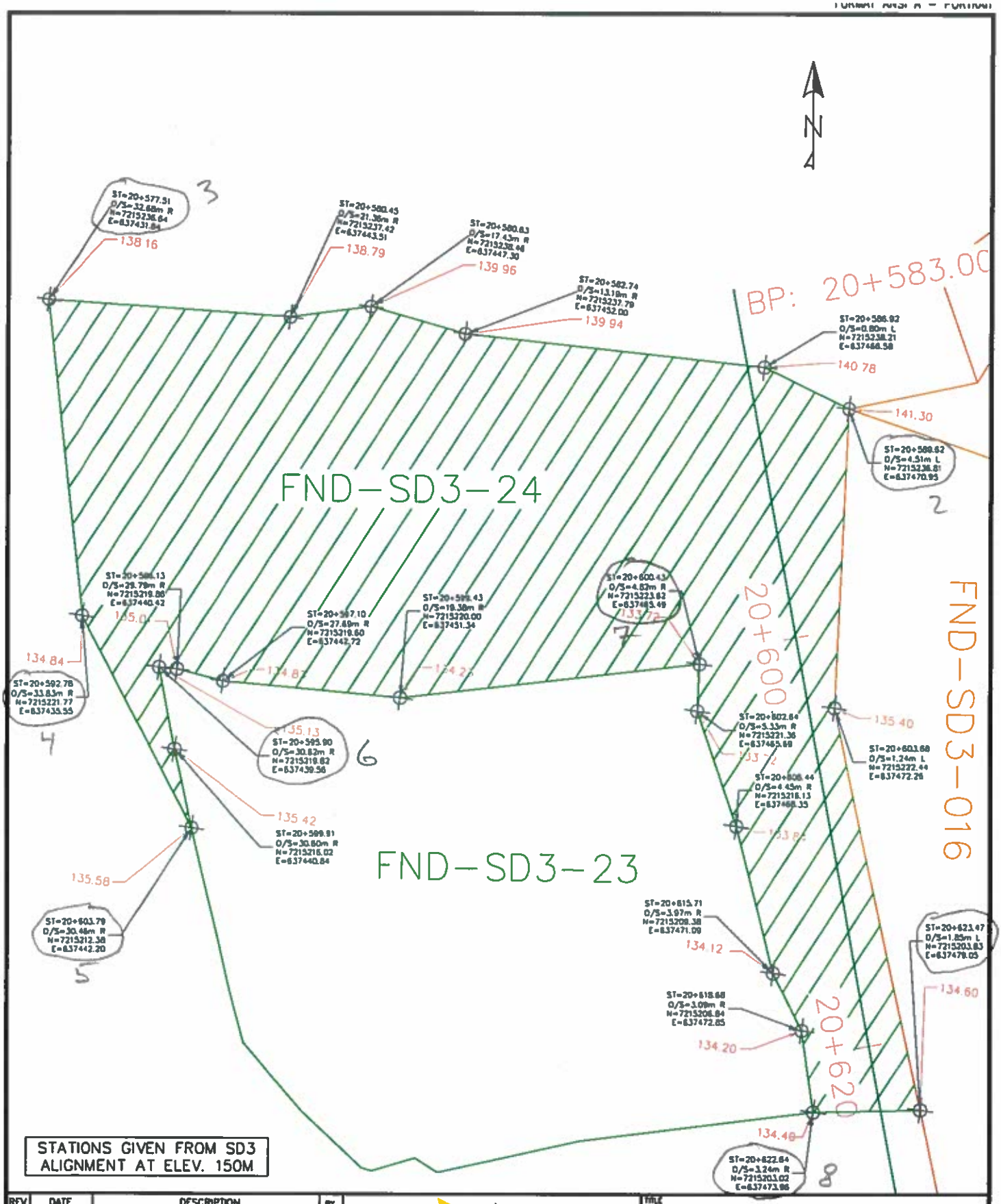
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	PG	MH
2.	Storage areas planned for disposal of removed materials	PG	MH
3.	Occurrence of snow and ice removal method in place	PG	MH
4.	Occurrence of boulders and removal method in place	PG	MH
5.	Occurrence of hummocks and scalping method in place	PG	MH
6.	Occurrence of surface and ground water and its impact mitigation in place	PG	MH
7.	Presence of other unsuitable materials and removal method in place	PG	MH
8.	Soil frozen or thawed and measures taken	PG	MH
9.	Blasting requirement to remove unsuitable material and safety measure checked	PG	MH
	Preparation of surface for LLDPE geomembrane placement	—	—
10.	Adjustment made to suit design in field	PG	MH
11.	Final walkover inspection before re-sloping or fill placement	PG	MH
	Rough grading of foundation	PG	MH
12.	"As-excavated" survey conducted	PG	MH
	Bedrock cleaning	PG	MH
13.	Bedrock Mapping	—	—

REMARKS: Frozen foundation. Approved provided the water ponds are pumped out before placing UM rockfill.

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Patrice Gagnon	NAME: Marion Haberseber	NAME: Francois Gravel-Gr
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 31/07/2017	DATE: 29/07/2017	DATE: 2017-07-31



REV	DATE	DESCRIPTION	BY

REVISIONS

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MEADOWBANK

TITLE
AGNICO-EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FND-SD3-24

PROJECT No.	DATE 2017-07-29
DRAWN BY FRANÇOIS GRAVEL-GRENIER	SHEET 1 / 1
APPROVED BY	
DRAWING NO.	REVISION

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Elev=134.40

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Elev=141.30

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Elev=134.84

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Elev=135.58

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St=20+595.90, Offset=30.62m R
Elev=135.13

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E=637465.49, N=7215223.62
St=20+600.43, Offset=4.82m R
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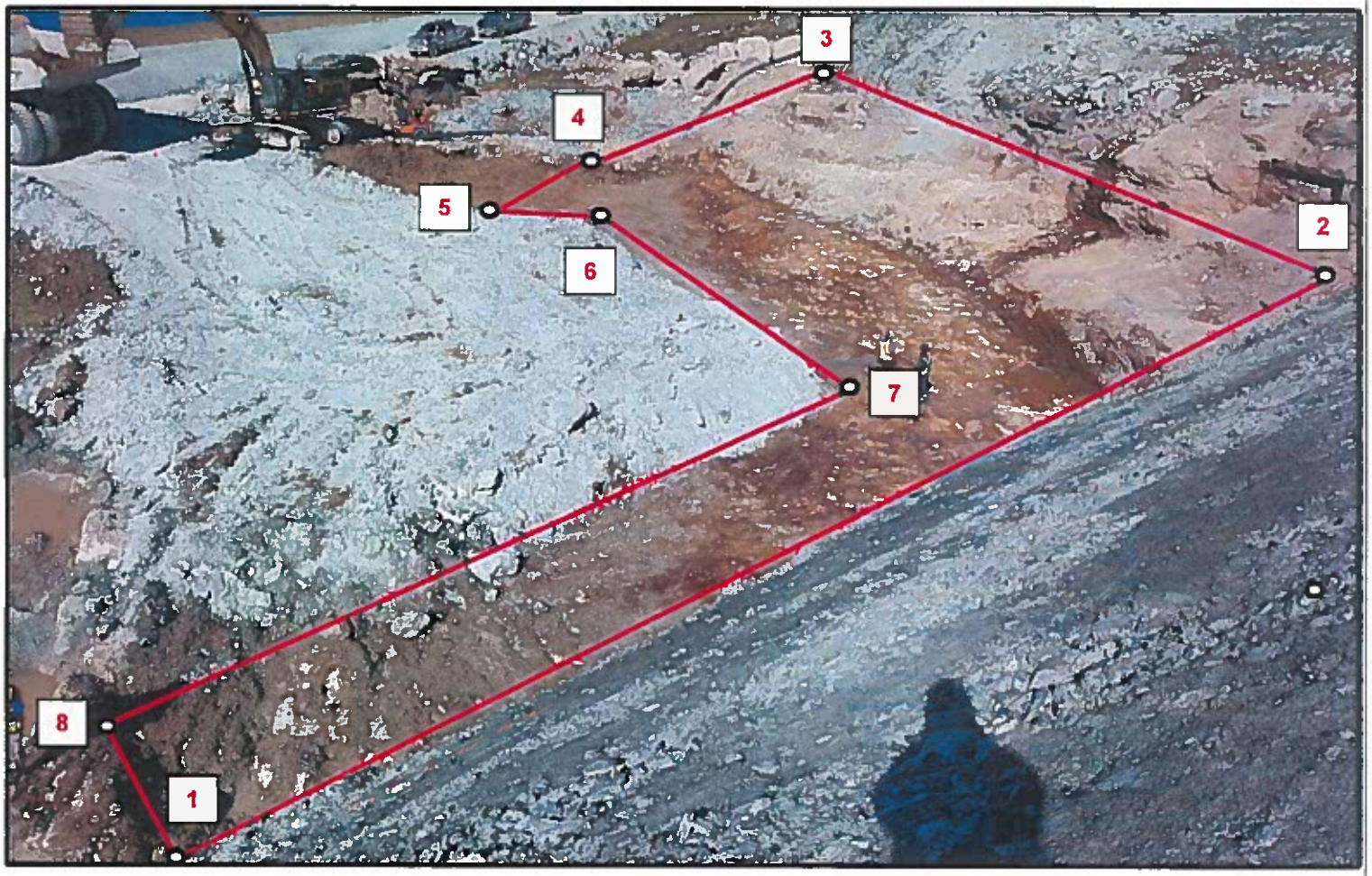


Photo 1- Approximate approved foundation area

Date: 2017-07-29

Photo by (Initial): S.B.

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SD-3

Acceptance No.:	FND-SD3-25	Date:	30/07/2017

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, Incl. Station and Offset (according to Central Dike Stations);

3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative	Name:	Patrice Gagnon	
	Position:	AEM- Ower Rep.	
QC Representative	Name:	Sebastien Blackburn	
	Position:	GHD	
QA Engineer	Name:	Marion Habersetzer	
	Position:	Golder-Qa	
Surveyor	Name:	François Gravel	
	Position:	AEM-Surveyor	

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

SADDLE DAM 3 -TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 20+614.42 Offset -7.23 m	SHIFT: NIGHT :☐ DAY ☒	DATE :30/07/2017	SHEET 2 OF 4
To Sta. 20+744.43 Offset 33.55 m	LOCATION: : SD3 bedrock foundation (downstream)		
EQUIPMENT: 345 excavator (SANA)			
DESCRIPTION rock foundation			

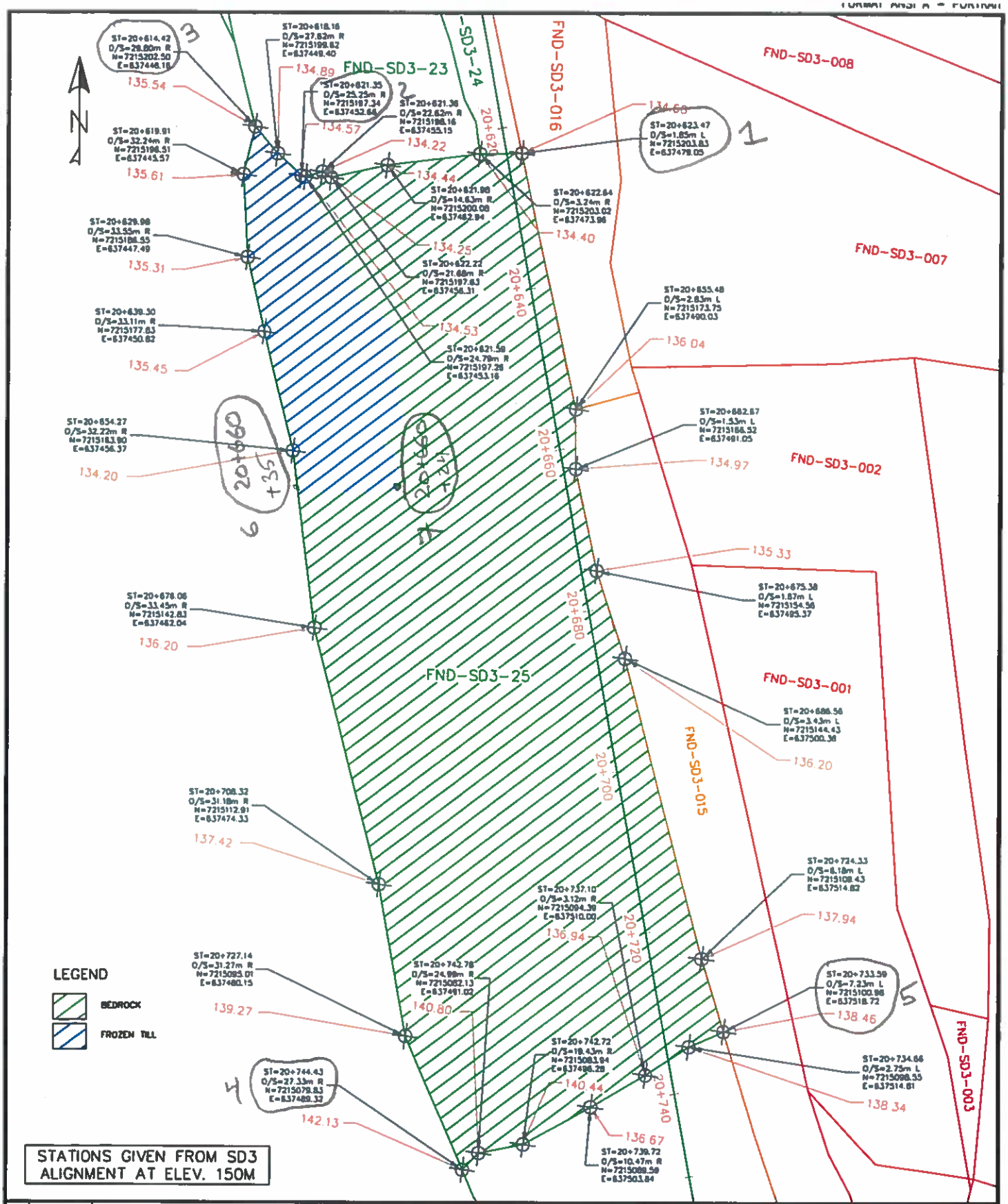
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	PG	MH
2.	Storage areas planned for disposal of removed materials	PG	MH
3.	Occurrence of snow and ice removal method in place	PG	MH
4.	Occurrence of boulders and removal method in place	PG	MH
5.	Occurrence of hummocks and scalping method in place	PG	MH
6.	Occurrence of surface and ground water and its impact mitigation in place	PG	MH
7.	Presence of other unsuitable materials and removal method in place	PG	MH
8.	Soil frozen or thawed and measures taken	PG	MH
9.	Blasting requirement to remove unsuitable material and safety measure checked	PG	MH
	Preparation of surface for LLDPE geomembrane placement	—	—
10.	Adjustment made to suit design in field	PG	MH
11.	Final walkover inspection before re-sloping or fill placement	PG	MH
	Rough grading of foundation	PG	MH
12.	"As-excavated" survey conducted	PG	MH
	Bedrock cleaning		MH
13.	Bedrock Mapping	—	—

REMARKS : Partially frozen foundation. Approved provided the water ponds are pumped out before placing OF7 rockfill.

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Patrice Gagnon	NAME: Marion Haberseltzer	NAME: François Gravel-Gendron
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 31/07/2017	DATE: 30/07/2017	DATE: 2017-07-31



REV	DATE	DESCRIPTION	BY

REVISIONS

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MEADOWBANK

TITLE
AGNICO-EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FND-SD3-25

PROJECT No.	DATE 2017-07-30	
DRAWN BY FRANÇOIS GRAVEL-GRENIER		SHEET 1 / 1
APPROVED BY		
DRAWING NO.		REVISION

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Elev=134.60

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St=20+621.35, Offset=25.25m R
Elev=134.57

3:
E=637446.16, N=7215202.50
St=20+614.42, Offset=29.80m R
Elev=135.54

4:
E=637489.32, N=7215079.83
St=20+744.43, Offset=27.33m R
Elev=142.13

5:
E=637518.72, N=7215100.98
St=20+733.59, Offset=7.23m L
Elev=138.46

6:
St=20+660, Offset=35.00m R

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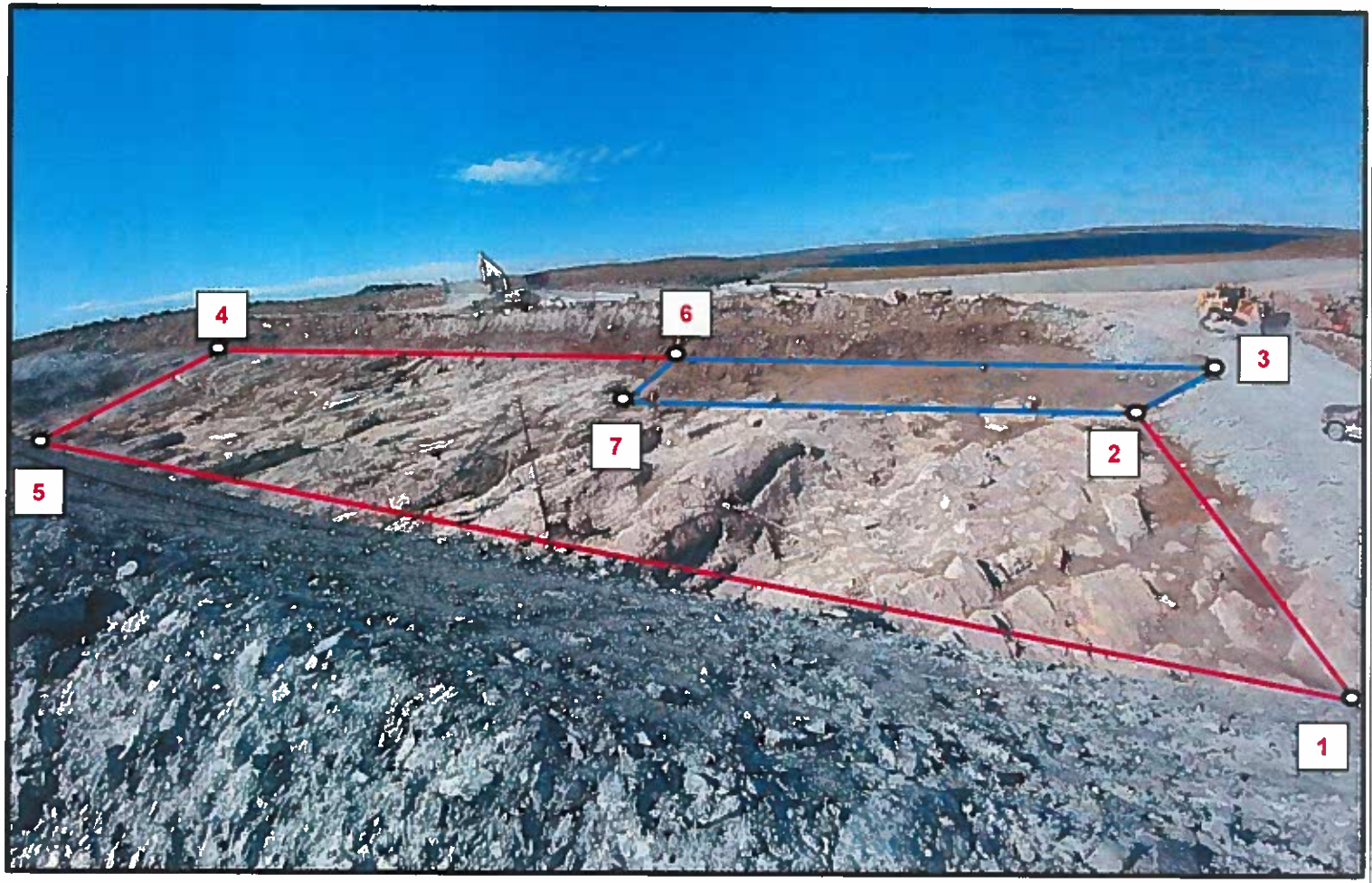


Photo 1- Approximate approved foundation area

Date: 2017-07-30

Photo by (Initial): S.B.

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SD-3

Acceptance No.:	FND-SD3-26	Date:	02/Aug/17

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, incl. Station and Offset (according to Central Dike Stations);

3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative	Name:	Patrice Gagnon
	Position:	AEM- Ower Rep.
QC Representative	Name:	Sebastien Blackburn
	Position:	GHD
QA Engineer	Name:	Marlon Habersetzer
	Position:	Golder-Qa
Surveyor	Name:	François Gravel
	Position:	AEM-Surveyor

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

SADDLE DAM 3 -TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 20+798.71 Offset −16.34 m	SHIFT: NIGHT ☐ DAY ☑	DATE: 02/08/2017	SHEET 2 OF 4
To Sta. 20+903.19 Offset 18.88 m	LOCATION: SD3 bedrock foundation		
EQUIPMENT: 345 excavator (SANA)			
DESCRIPTION rock foundation			

NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	PG	MH
2.	Storage areas planned for disposal of removed materials	PG	MH
3.	Occurrence of snow and ice removal method in place	PG	MH
4.	Occurrence of boulders and removal method in place	PG	MH
5.	Occurrence of hummocks and scalping method in place	PG	MH
6.	Occurrence of surface and ground water and its impact mitigation in place	PG	MH
7.	Presence of other unsuitable materials and removal method in place	PG	MH
8.	Soil frozen or thawed and measures taken	PG	MH
9.	Blasting requirement to remove unsuitable material and safety measure checked	PG	MH
	Preparation of surface for LLDPE geomembrane placement	—	—
10.	Adjustment made to suit design in field	PG	MH
11.	Final walkover inspection before re-sloping or fill placement	PG	MH
	Rough grading of foundation	PG	MH
12.	"As-excavated" survey conducted	PG	MH
	Bedrock cleaning	PG	MH
13.	Bedrock Mapping	—	—

REMARKS: Approved provided the water ponds are pumped out before placing UM rockfill. Ice is present inside fractures in a small zone of the bedrock (approx. Sta. 20+880 m (o.s. 12 m) to Sta. 20+882 m (o.s. −5 m)) and is not problematic.

DEVIATIONS: (Attach list if necessary)

DATE OF RECTIFICATION:

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER:	ACCEPTED BY OWNER'S REPRESENTATIVE
NAME: Francois Gravel-Gravel	NAME: Marion Haberseltzer	NAME: Patrick Gagnon
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 2017-08-04	DATE: 02/08/2017	DATE: 04/08/2017

1:
E=637606.59, N=7214965.59
St=20+902.83, Offset=1.25m R
Elev=150.11

2:
E=637612.62, N=7214973.70
St=20+902.71, Offset=8.86m L
Elev=150.03

3:
E=637570.14, N=7214999.72
St=20+853.16, Offset=3.82m L
Elev=145.21

4:
E=637565.66, N=7215018.76
St=20+837.45, Offset=16.34m L
Elev=145.91

5:
E=637541.24, N=7215026.52
St=20+812.29, Offset=3.05m L
Elev=145.08

6:
E=637517.73, N=7215030.78
St=20+798.71, Offset=15.89m R
Elev=144.98

7:
E=637520.25, N=7215018.89
St=20+808.38, Offset=18.88m R
Elev=144.45

8:
E=637565.10, N=7214977.03
St=20+862.89, Offset=17.28m L
Elev=146.73

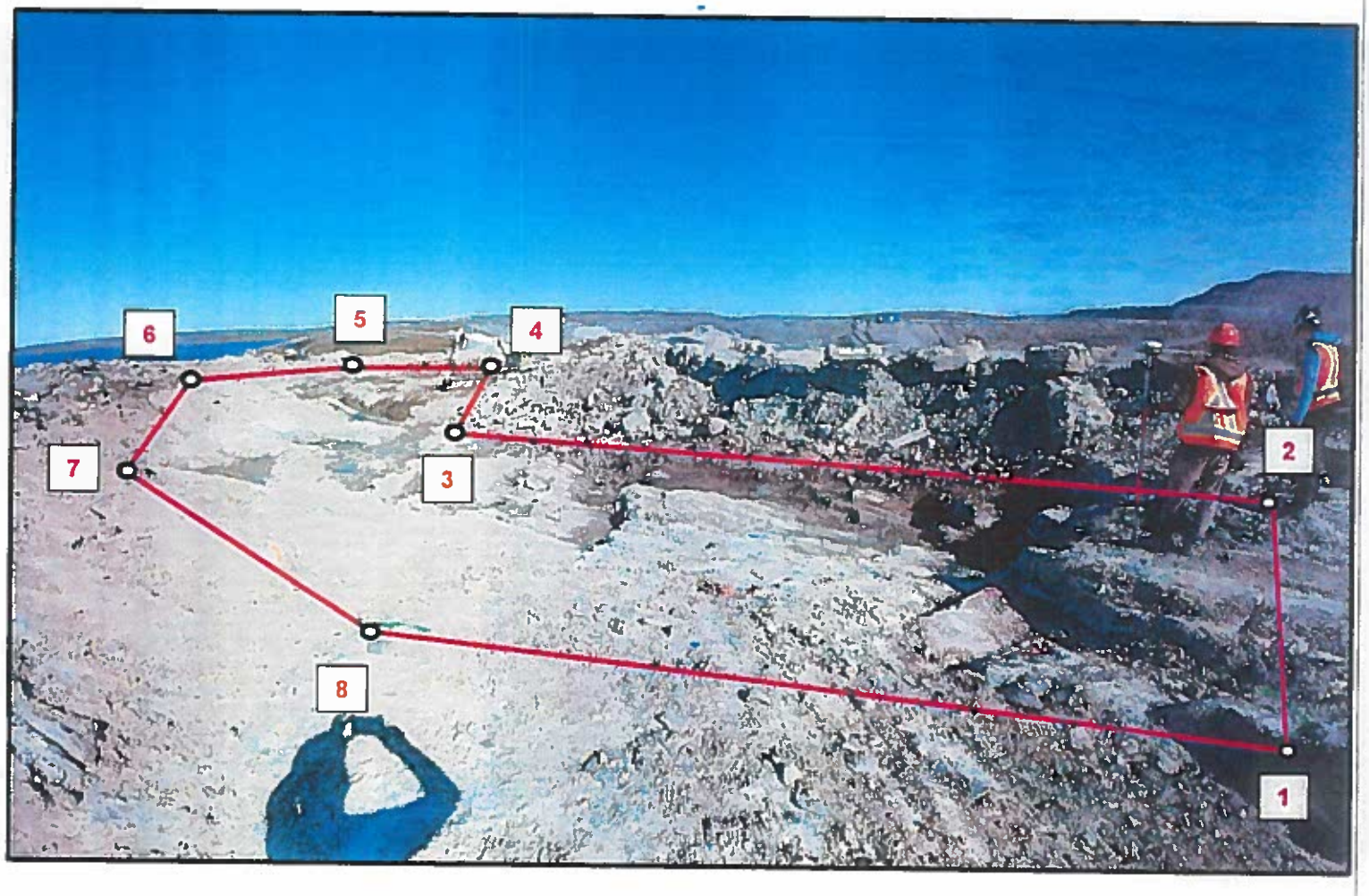
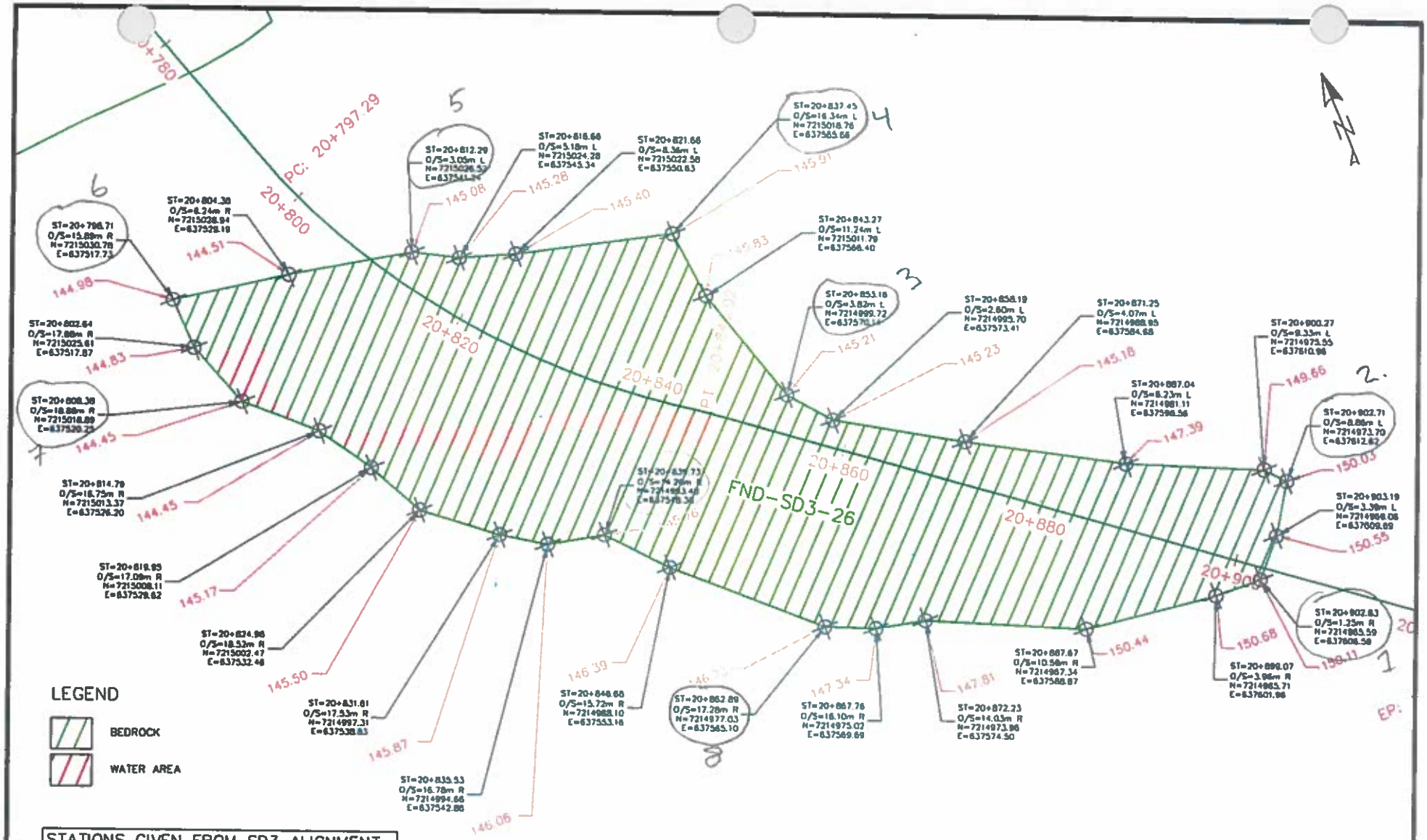


Photo 1- Approximate approved foundation area

Date: 2017-08-02

Photo by (Initial): S.B.



REV	DATE	DESCRIPTION	BY

REVISIONS

AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO-EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FND-SD3-26

PROJECT No.	DATE 2017-08-02
DRAWN BY FRANÇOIS GRAVEL-GRENIER	SHEET 1 / 1
APPROVED BY	
DRAWING NO.	REVISION

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FILE NO. .DWG

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SD-3

Acceptance No.:	FND-SD3-27	Date:	09/Aug/17

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, incl. Station and Offset (according to Central Dike Stations);

3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative	Name:	Alexandre Lavallee	
	Position:	AEM- Ower Rep.	
QC Representative	Name:	Cédrick Fillon Tremblay	
	Position:	GHD	
QA Engineer	Name:	Marion Habersetzer	
	Position:	Golder-Qa	
Surveyor	Name:	Samuel Kiler-Morin	
	Position:	AEM-Surveyor	

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

SADDLE DAM 3 -TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 20+554.81 Offset −29.88 m	SHIFT: NIGHT :☐ DAY ☑	DATE : 9/08/2017	SHEET 2 OF 5
To Sta. 20+589.70 Offset 12.51 m	LOCATION: : SD3 bedrock foundation (north extremity)		
EQUIPMENT: 450 excavator (SANA)			
DESCRIPTION rock foundation			

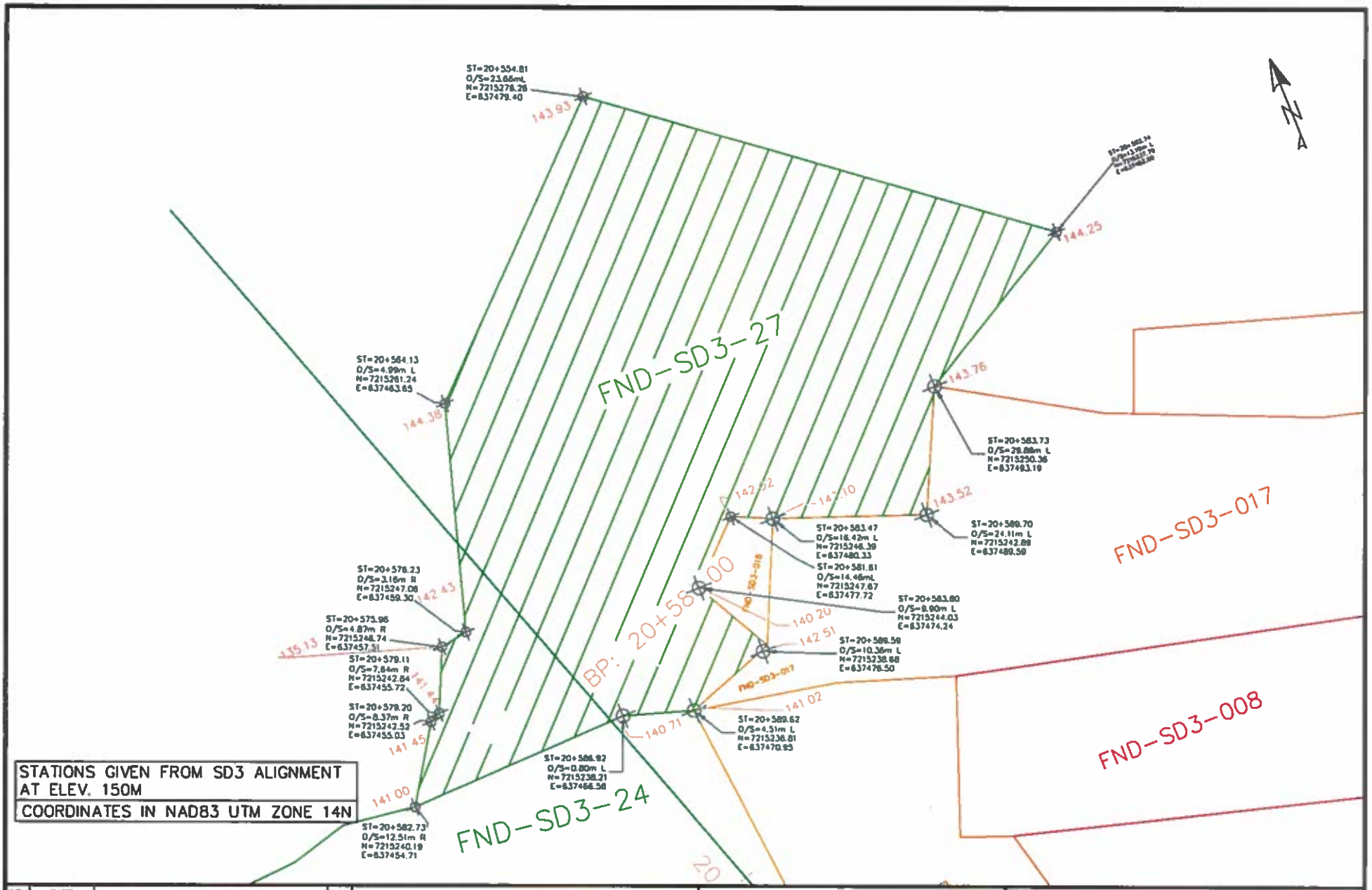
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	AL	MH
2.	Storage areas planned for disposal of removed materials	AL	MH
3.	Occurrence of snow and ice removal method in place	AL	MH
4.	Occurrence of boulders and removal method in place	AL	MH
5.	Occurrence of hummocks and scalping method in place	AL	MH
6.	Occurrence of surface and ground water and its impact mitigation in place	AL	MH
7.	Presence of other unsuitable materials and removal method in place	AL	MH
8.	Soil frozen or thawed and measures taken	AL	MH
9.	Blasting requirement to remove unsuitable material and safety measure checked	AL	MH
	Preparation of surface for LLDPE geomembrane placement	—	—
10.	Adjustment made to suit design in field	AL	MH
11.	Final walkover inspection before re-sloping or fill placement	AL	MH
	Rough grading of foundation	AL	MH
12.	"As-excavated" survey conducted	AL	MH
	Bedrock cleaning	AL	MH
13.	Bedrock Mapping	—	—

REMARKS :
Ice lenses (20 to 40 cm) are present on the bedrock and do not impact the quality of the bedrock foundation.

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Samuel Kiley-Morin	NAME: Marion Haberseltzer	NAME: Alexandre Lavallée
SIGNATURE: Samuel Kiley-Morin	SIGNATURE:	SIGNATURE:
DATE: 9/08/2017	DATE: 9/08/2017	DATE: 10/08/2017



REV	DATE	DESCRIPTION	BY

REVISIONS

AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO-EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FND-SD3-27

PROJECT No.	DATE 2017-08-09	
DRAWN BY SAMUEL KILEY-MORIN		SHEET 1 / 1
APPROVED BY		
DRAWING NO.		REVISION

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FILE NO. .DWG

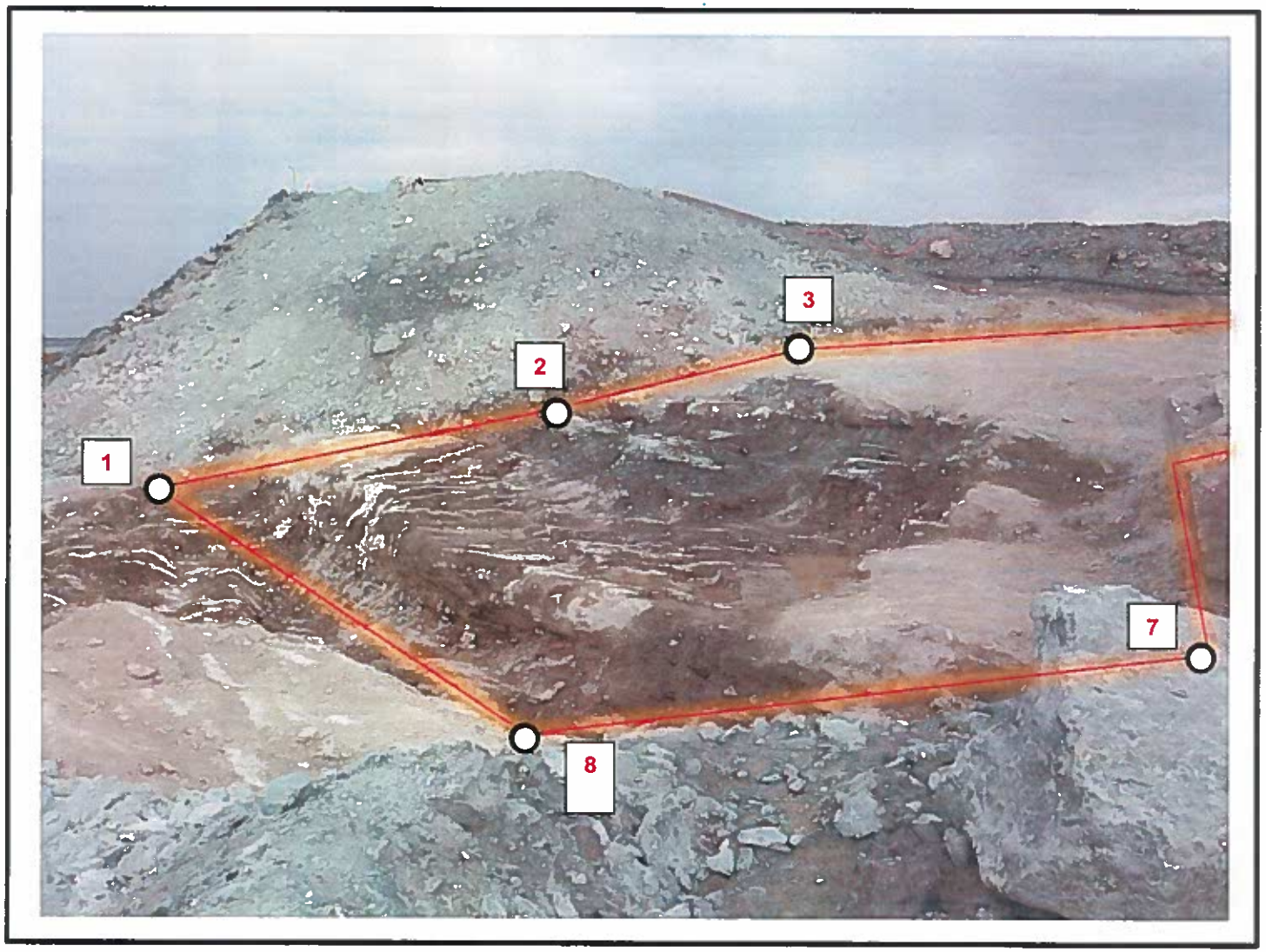
Foundation Approval, FND-SD3-27

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N = 7215240.19
St = 20+582.73
Offset = 12.51m - R
Elev = 141.00

2:
E = 637459.30
N = 7215247.06
St = 20+576.23
Offset = 3.16m - R
Elev = 142.43

7:
E = 637476.50
N = 7215238.68
St = 20+589.59
Offset = 10.36m - L
Elev = 142.51

8:
E = 637466.58
N = 7215238.21
St = 20+586.92
Offset = 0.80m - L
Elev = 140.71



Picture 1- Approximate approved foundation area

Date: 2017-08-09

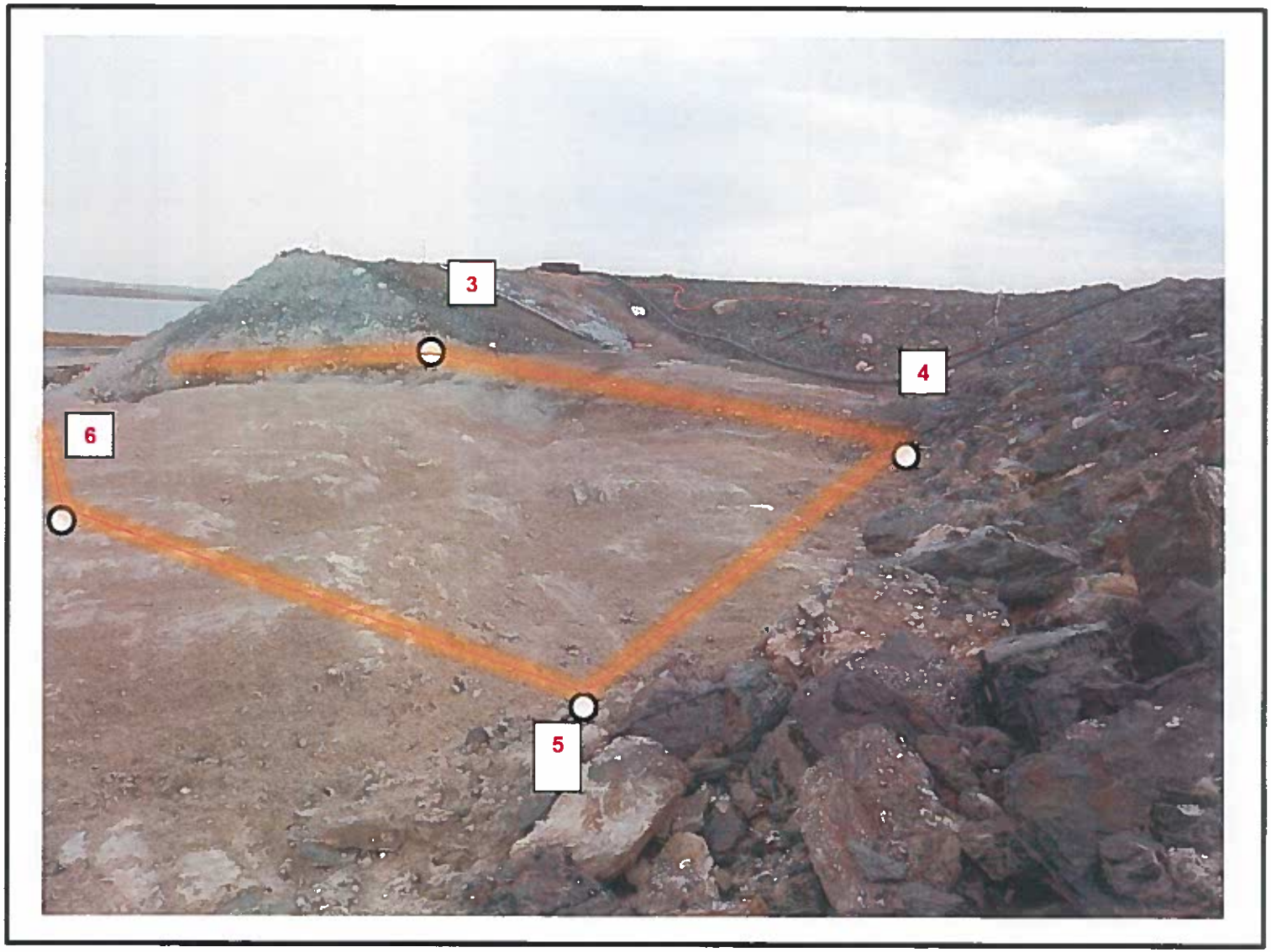
Photo by (Initial): C.F.T

3:
E = 637463.65
N = 7215261.24
St = 20+564.13
Offset = 4.99 - L
Elev = 144.38

4:
E = 637479.40
N = 7215276.26
St = 20+554.81
Offset = 23.66M - L
Elev = 143.93

5:
E = 637452.00
N = 7215237.79
St = 20+582.74
Offset = 13.19 – L
Elev = 144.25

6:
E = 637489.59
N = 7215242.89
St = 20+589.70
Offset = 24.11 - L
Elev = 143.52



Picture 2- Approximate approved foundation area

Date: 2017-08-09

Photo by (Initial): C.F.T

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SD-3

Acceptance No.:	FND-SD3-28	Date:	09/Aug/17

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, incl. Station and Offset (according to Central Dike Stations);

3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative	Name:	Alexandre Lavallee
	Position:	AEM- Ower Rep.
QC Representative	Name:	Cédrick Fillon Tremblay
	Position:	GHD
QA Engineer	Name:	Marion Habersetzer
	Position:	Golder-Qa
Surveyor	Name:	Samuel Kiler-Morin
	Position:	AEM-Surveyor

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

SADDLE DAM 3 -TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 20+769.04 Offset -19.71 m	SHIFT: NIGHT :☐ DAY ☑	DATE : 9/08/2017	SHEET 2 OF 4
To Sta. 20+794.22 Offset -6.30 m	LOCATION: : SD3 bedrock foundation (upstream)		
EQUIPMENT: 450 excavator (SAWA)			
DESCRIPTION rock foundation			

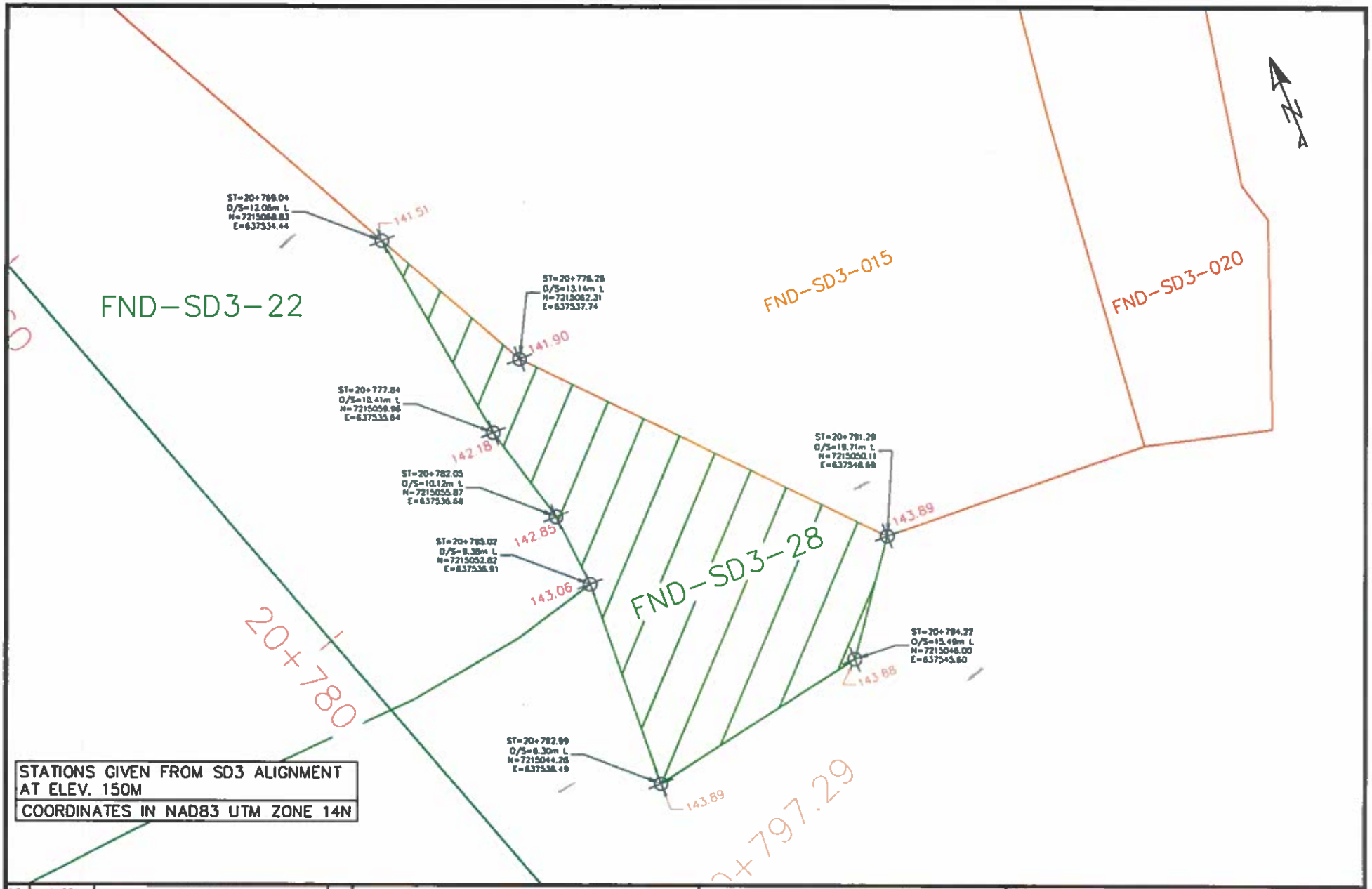
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	AL	MH
2.	Storage areas planned for disposal of removed materials	AL	MH
3.	Occurrence of snow and ice removal method in place	AL	MH
4.	Occurrence of boulders and removal method in place	AL	MH
5.	Occurrence of hummocks and scalping method in place	AL	MH
6.	Occurrence of surface and ground water and its impact mitigation in place	AL	MH
7.	Presence of other unsuitable materials and removal method in place	AL	MH
8.	Soil frozen or thawed and measures taken	AL	MH
9.	Blasting requirement to remove unsuitable material and safety measure checked	AL	MH
	Preparation of surface for LLDPE geomembrane placement	–	–
10.	Adjustment made to suit design in field	AL	MH
11.	Final walkover inspection before re-sloping or fill placement	AL	MH
	Rough grading of foundation	AL	MH
12.	"As-excavated" survey conducted	AL	MH
	Bedrock cleaning	AL	MH
13.	Bedrock Mapping	–	–

REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Samuel Kiky-Marin	NAME: Marion Haberstroh	NAME: Alexandre Lavallée
SIGNATURE: Samuel Kiky-Marin	SIGNATURE:	SIGNATURE:
DATE: 09/08/2017	DATE: 9/08/2017	DATE: 10/08/2017



REV	DATE	DESCRIPTION	BY

REVISIONS

AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO-EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FND-SD3-28

PROJECT No.	DATE 2017-08-09
DRAWN BY SAMUEL KILEY-MORIN	SHEET 1 / 1
APPROVED BY	
DRAWING NO.	REVISION

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FILE NO. .DWG

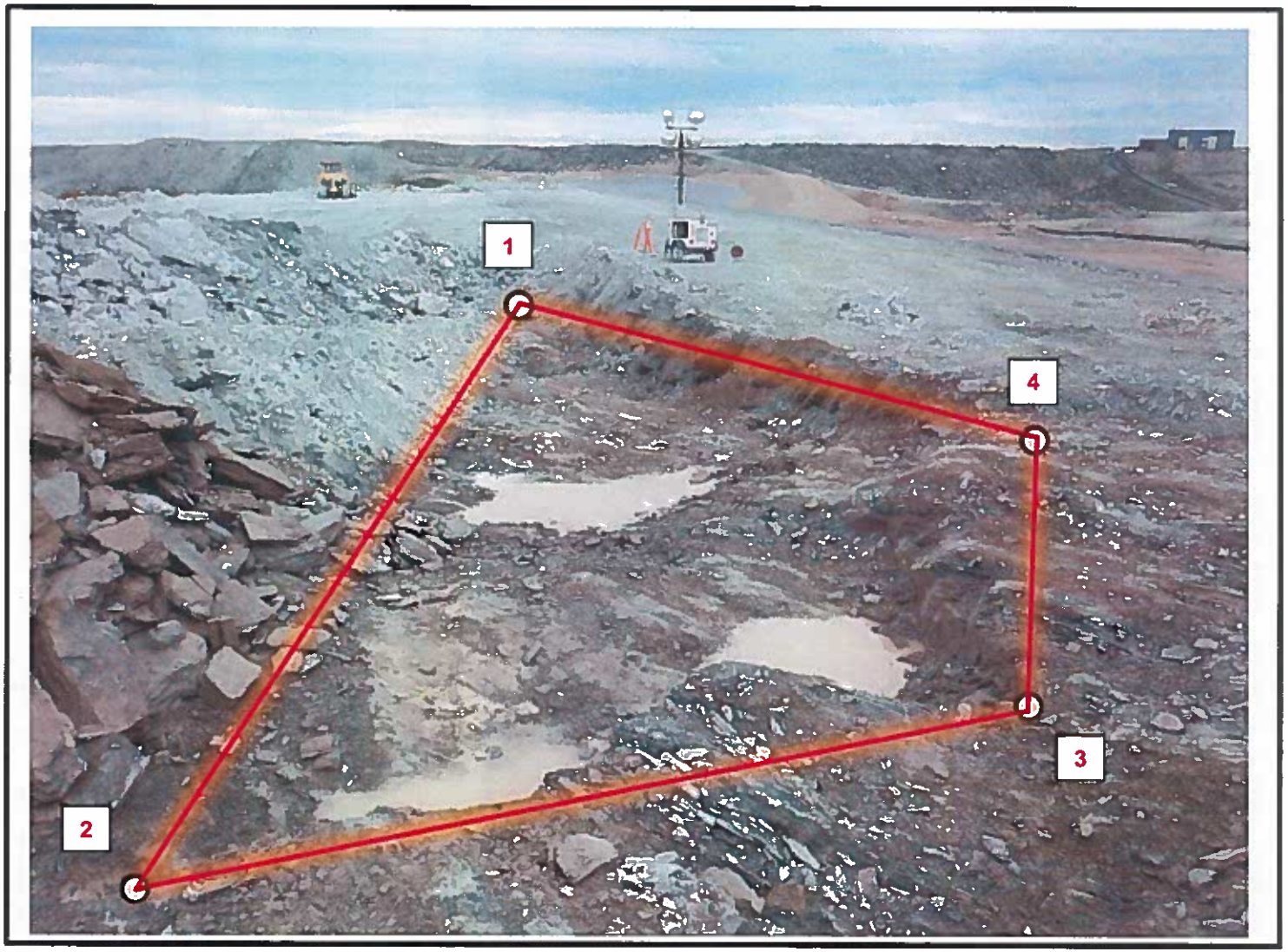
Foundation Approval, FND-SD3-28

1:
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N = 7215068.83
St = 20+769.04
Offset = 12.06m - L
Elev = 141.51

2:
E =
N = 7215044.28
St = 20+792.99
Offset = 6.30m - L
Elev = 143.89

3:
E = 637545.60
N = 7215046.00
St = 20+794.22
Offset = 15.49m - L
Elev = 143.88

4:
E = 637548.69
N = 7215050.11
St = 20+791.29
Offset = 19.71m - L
Elev = 143.89



Picture 1- Approximate approved foundation area

Date: 2017-08-09

Photo by (Initial): C.F.T

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SD-3

Acceptance No.:	FND-SD3-29	Date:	10/Aug/17

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, incl. Station and Offset (according to Central Dike Stations);

3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative	Name:	Alexandre Lavallee
	Position:	AEM- Ower Rep.
QC Representative	Name:	Cédrick Fillon Tremblay
	Position:	GHD
QA Engineer	Name:	Marion Habersetzer
	Position:	Golder-Qa
Surveyor	Name:	Samuel Kiler-Morin
	Position:	AEM-Surveyor

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

SADDLE DAM 3 -TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 20+792.99 Offset -30.42 m	SHIFT: NIGHT :☐ DAY ☑	DATE : 10/08/2017	SHEET 2 OF 4
To Sta. 20+819.38 Offset -0.56	LOCATION: : SD3 bedrock foundation (upstream)		
EQUIPMENT: 450 excavator (SANA)			
DESCRIPTION rock foundation			

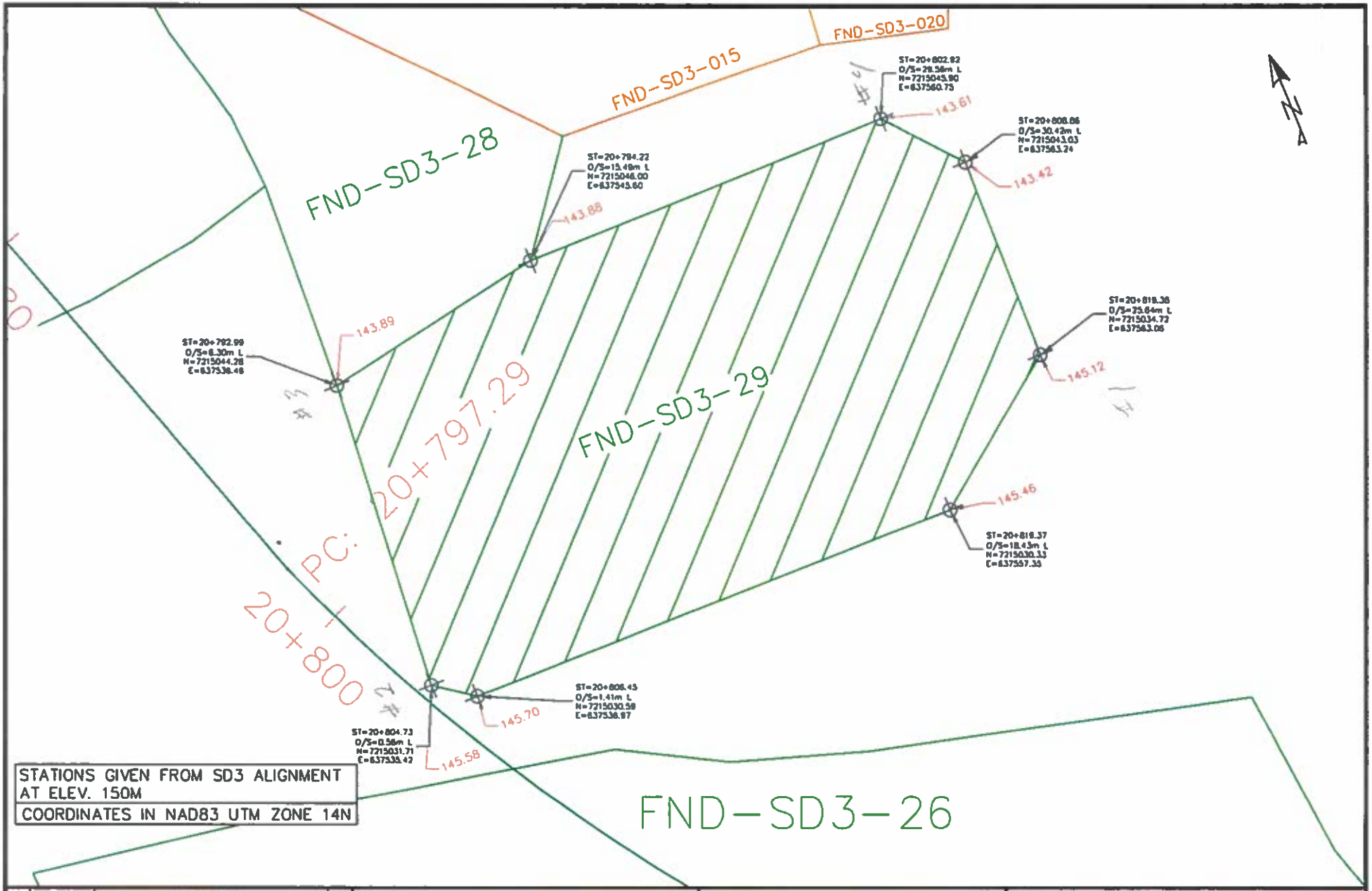
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	AL	MH
2.	Storage areas planned for disposal of removed materials	AL	MH
3.	Occurrence of snow and ice removal method in place	AL	MH
4.	Occurrence of boulders and removal method in place	AL	MH
5.	Occurrence of hummocks and scalping method in place	AL	MH
6.	Occurrence of surface and ground water and its impact mitigation in place	AL	MH
7.	Presence of other unsuitable materials and removal method in place	AL	MH
8.	Soil frozen or thawed and measures taken	AL	MH
9.	Blasting requirement to remove unsuitable material and safety measure checked	AL	MH
	Preparation of surface for LLDPE geomembrane placement	–	–
10.	Adjustment made to suit design in field	AL	MH
11.	Final walkover inspection before re-sloping or fill placement	AL	MH
	Rough grading of foundation	AL	MH
12.	"As-excavated" survey conducted	AL	MH
	Bedrock cleaning	AL	MH
13.	Bedrock Mapping	–	–

REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Samuel Kiley-Morin	NAME: Marion Haberebrer	NAME: Alexandre Lavallée
SIGNATURE: Samuel Kiley-Morin	SIGNATURE:	SIGNATURE:
DATE: 2017/09/11	DATE: 10/08/2017	DATE: 11/08/2017



REV	DATE	DESCRIPTION	BY

REVISIONS

AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO-EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FND-SD3-29

PROJECT No.	DATE 2017-08-10
DRAWN BY SAMUEL KILEY-MORIN	SHEET 1 / 1
APPROVED BY	
DRAWING NO.	REVISION

C:\Meadowbank\DWG 2017\FOUNDATION APPROVALS\FOUNDATION APPROVAL_20170810.dwg, 10 Aug 2017

FILE NO. .DWG

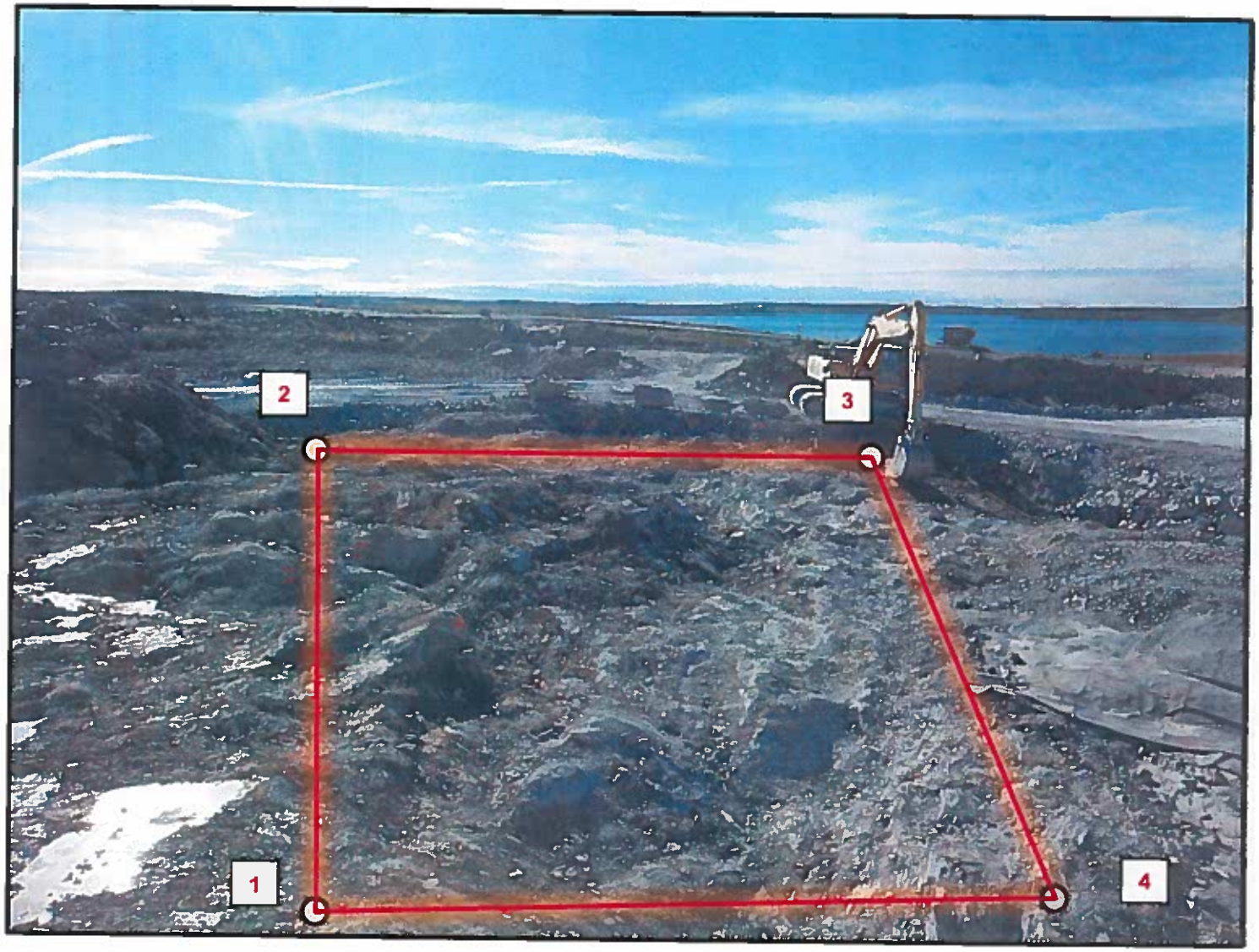
Foundation Approval, FND-SD3-29

1:
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N = 7215034.72
St = 20+819.38
Offset = 25.64m - L
Elev = 145.12

2:
E = 637535.42
N = 7215031.71
St = 20+804.73
Offset = 0.56m - L
Elev = 145.58

3:
E = 637536.49
N = 7215044.28
St = 20+792.99
Offset = 6.30m - L
Elev = 143.89

4:
E = 637560.75
N = 7215045.90
St = 20+802.92
Offset = 29.56m - L
Elev = 143.61



Picture 1- Approximate approved foundation area

Date: 2017-08-10

Photo by (Initial): C.F.T

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SD-3

Acceptance No.:	FND-SD3-30	Date:	11/Aug/17

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, incl. Station and Offset (according to Central Dike Stations);

3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative	Name:	Alexandre Lavallee	
	Position:	AEM- Ower Rep.	
QC Representative	Name:	Cédrick Fillon Tremblay	
	Position:	GHD	
QA Engineer	Name:	Marion Habersetzer	
	Position:	Golder-Qa	
Surveyor	Name:	Samuel Kiley Morin	
	Position:	AEM-Surveyor	

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

SADDLE DAM 3 -TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 20+778.88 Offset -9.38	SHIFT: NIGHT ☐ DAY ☑	DATE: 11/08/2017	SHEET 2 OF 4
To Sta. 20+807.75 Offset 18.52	LOCATION: : SD3 bedrock foundation		
EQUIPMENT: 450 excavator (SAM)			
DESCRIPTION rock foundation			

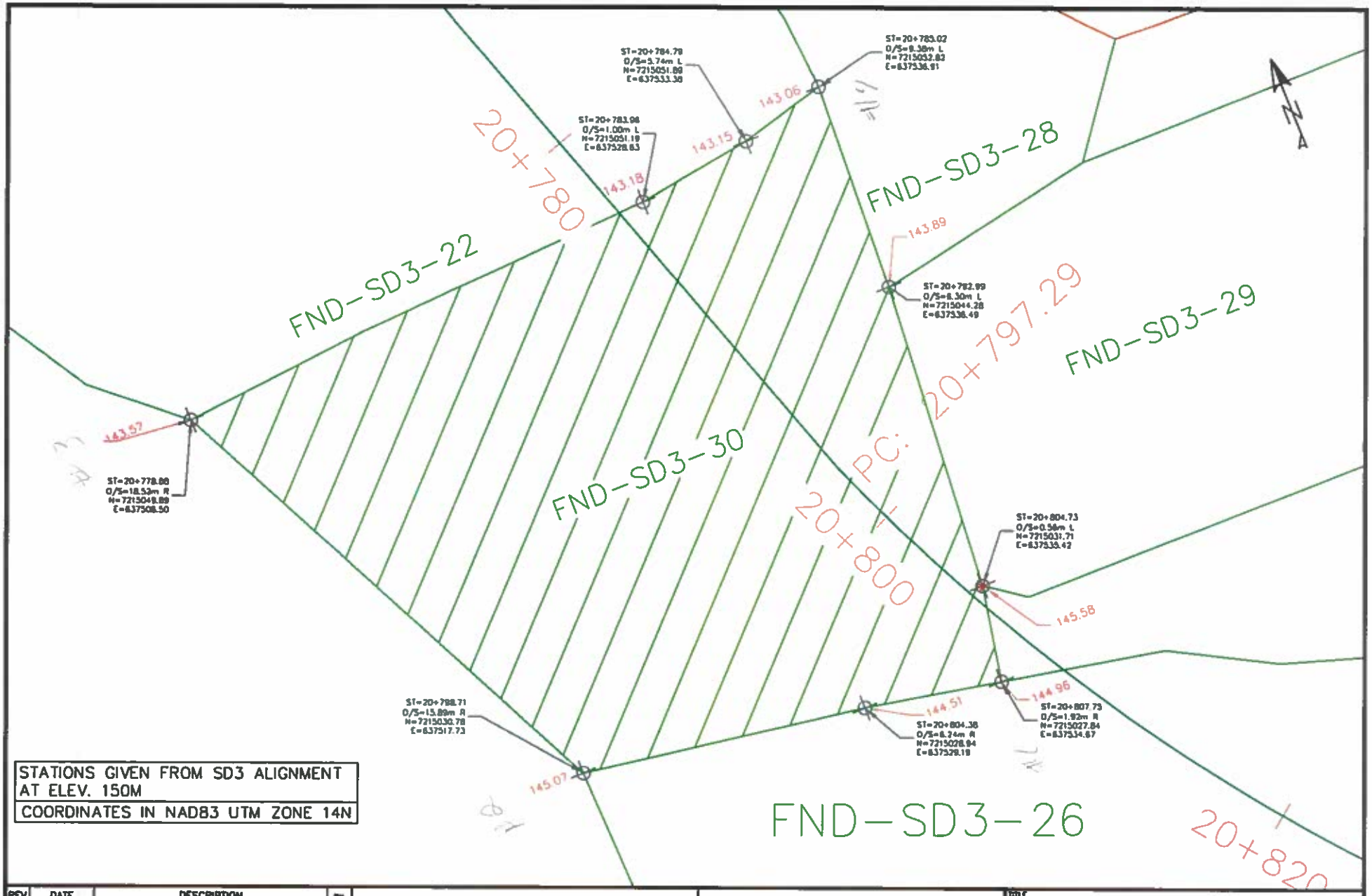
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	AL	MH
2.	Storage areas planned for disposal of removed materials	AL	MH
3.	Occurrence of snow and ice removal method in place	AL	MH
4.	Occurrence of boulders and removal method in place	AL	MH
5.	Occurrence of hummocks and scalping method in place	AL	MH
6.	Occurrence of surface and ground water and its impact mitigation in place	AL	MH
7.	Presence of other unsuitable materials and removal method in place	AL	MH
8.	Soil frozen or thawed and measures taken	AL	MH
9.	Blasting requirement to remove unsuitable material and safety measure checked	AL	MH
	Preparation of surface for LLDPE geomembrane placement	—	—
10.	Adjustment made to suit design in field	AL	MH
11.	Final walkover inspection before re-sloping or fill placement	AL	MH
	Rough grading of foundation	AL	MH
12.	"As-excavated" survey conducted	AL	MH
	Bedrock cleaning	AL	MH
13.	Bedrock Mapping	—	—

REMARKS : Ice lenses are present on the bedrock (20 to 30 cm) and do not impact the quality of the bedrock foundation. Approved provided the water pond is pumped out before rockfill placement.

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Samuel Kiley-Morin	NAME: Marion Habersetzer	NAME: Alexandre Lavallée
SIGNATURE: Samuel Kiley-Morin	SIGNATURE:	SIGNATURE:
DATE: 2017-08-12	DATE: 11/08/2017	DATE: 12/08/2017



REV	DATE	DESCRIPTION	BY

REVISIONS

AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO-EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FND-SD3-30

PROJECT No.	DATE 2017-08-11
DRAWN BY SAMUEL KILEY-MORIN	SHEET 1 / 1
APPROVED BY	
DRAWING NO.	REVISION

C:\!Meadowbank\DIKE 2017\FOUNDATION APPROVALS\FOUNDATION APPROVAL_20170810.dwg, 11 Aug 2017

FILE NO. .DWG

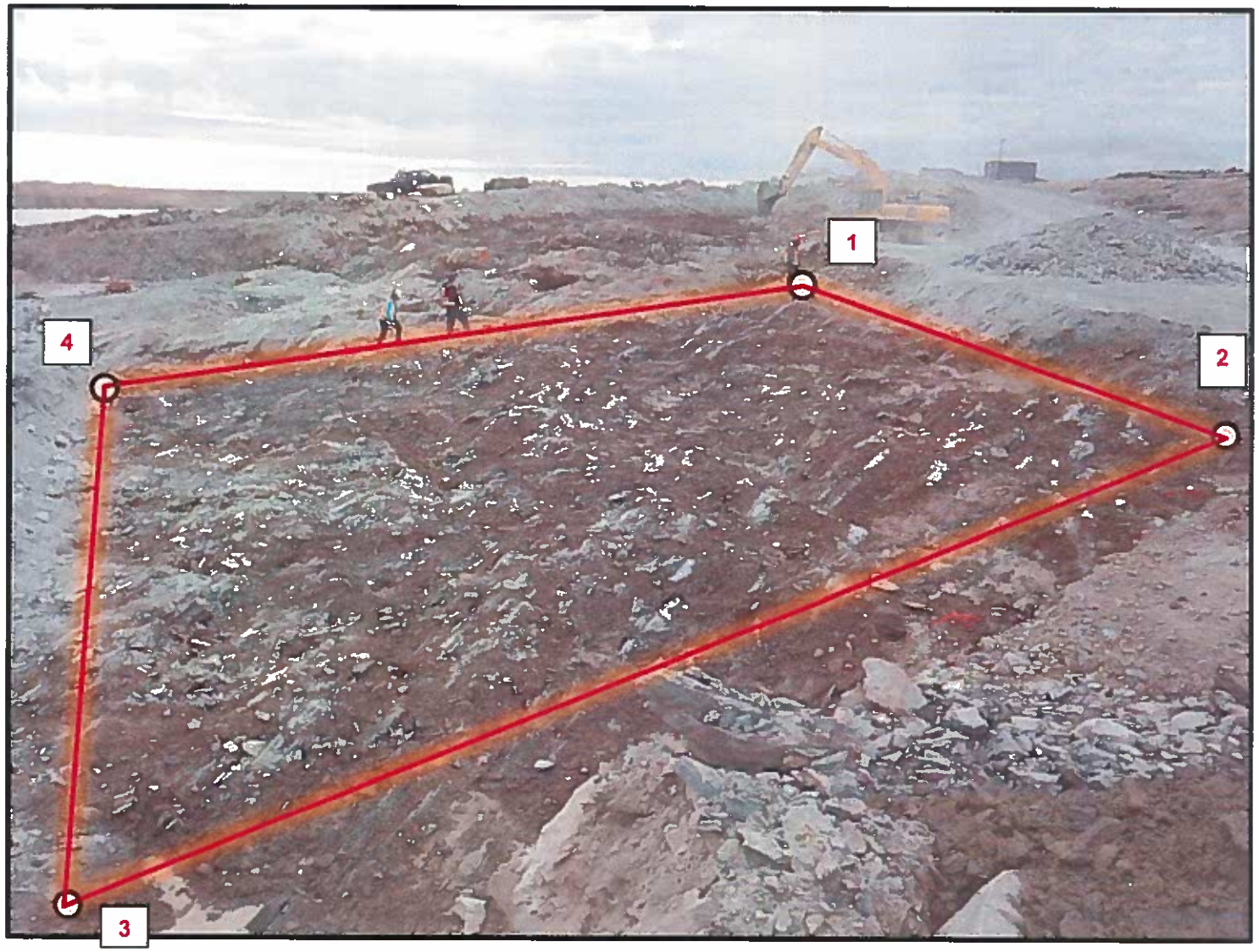
Foundation Approval, FND-SD3-30

1:
E = 637534.67
N = 7215027.84
St = 20+807.75
Offset = 1.92m - R
Elev = 144.96

2:
E = 637529.19
N = 7215030.78
St = 20+798.71
Offset = 15.89m - R
Elev = 145.07

3:
E = 637508.50
N = 7215049.89
St = 20+778.88
Offset = 18.52m - R
Elev = 143.57

4:
E = 637536.91
N = 7215052.82
St = 20+785.02
Offset = 9.38m - L
Elev = 143.06



Picture 1- Approximate approved foundation area

Date: 2017-08-11

Photo by (Initial): C.F.T

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - CENTRAL DIKE

Acceptance No.:	FND-SD-3 – 31	Date:	10/Sep/14

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, incl. Station and Offset (according to Central Dike Stations);

3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative	Name:	Alexandre Lavallee	
	Position:	AEM- Ower Rep.	
QC Representative	Name:	Cedrick Filion Tremblay	
	Position:	GHD	
QA Engineer	Name:	Marion Habersetzer	
	Position:	Golder-Qa	
Surveyor	Name:	Samuel Kiley-Morin	
	Position:	AEM-Surveyor	

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

SADDLE DAM 3 -TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 20+589,4 Offset – 42.5 m	SHIFT: NIGHT :☐ DAY ☒	DATE 10/09/2017	SHEET 2 OF 4
To Sta. 20+594.5 Offset – 32.8 m	LOCATION: : SD3 upstream toe liner tie-in (north)		
EQUIPMENT: pressurized air stream			
DESCRIPTION rock foundation			

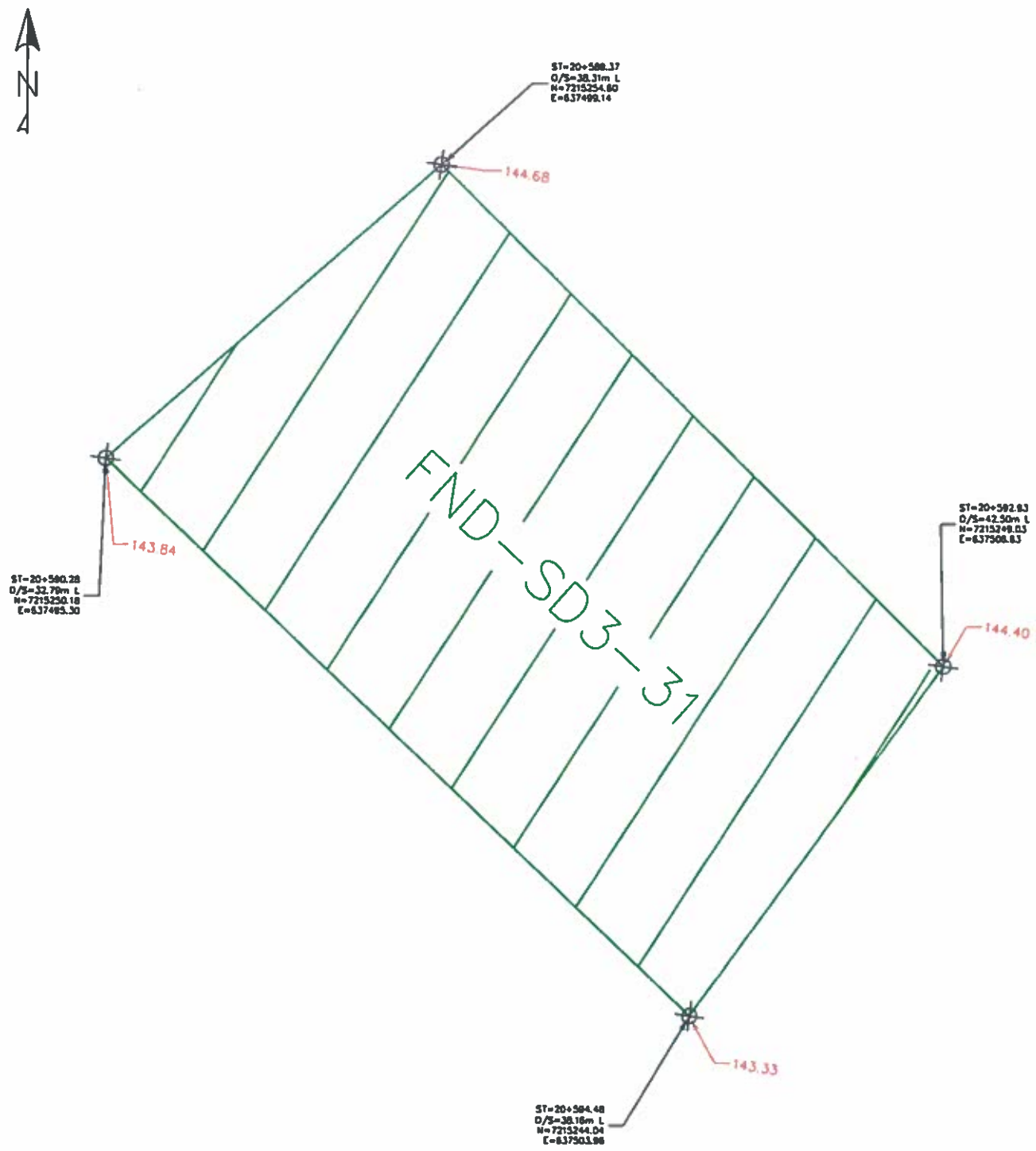
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	AL	MH
2.	Storage areas planned for disposal of removed materials	AL	MH
3.	Occurrence of snow and ice removal method in place	AL	MH
4.	Occurrence of boulders and removal method in place	AL	MH
5.	Occurrence of hummocks and scalping method in place	AL	MH
6.	Occurrence of surface and ground water and its impact mitigation in place	AL	MH
7.	Presence of other unsuitable materials and removal method in place	AL	MH
8.	Soil frozen or thawed and measures taken	AL	MH
9.	Blasting requirement to remove unsuitable material and safety measure checked	–	–
	Preparation of surface for LLDPE geomembrane placement	–	–
10.	Adjustment made to suit design in field	AL	MH
11.	Final walkover inspection before re-sloping or fill placement	AL	MH
	Rough grading of foundation	AL	MH
12.	"As-excavated" survey conducted	AL	MH
	Bedrock cleaning	AL	MH
13.	Bedrock Mapping	AL	MH

REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Samuel Kiley-Morin	NAME: Marion Habersetzer	NAME: Alexandre Lavallée
SIGNATURE: Samuel Kiley-Morin	SIGNATURE:	SIGNATURE:
DATE: 2017-09-10	DATE: 2017-09-10	DATE: 2017-09-14



STATIONS GIVEN FROM SD3
ALIGNMENT AT ELEV. 150M

REV	DATE	DESCRIPTION	BY

REVISIONS

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AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO-EAGLE - MEADOWBANK DIVISION
FOUNDATION APPROVAL FOR KEYTRENCH
FND-SD3-31

PROJECT No.		DATE 2017-09-08	
DRAWN BY	SAMUEL KILEY-MORIN		SHEET 1 / 1
APPROVED BY			
DRAWING NO.			REVISION

C:\Meadowbank\DIKE 2017\FOUNDATION APPROVALS KEYTRENCH\FOUNDATION APPROVAL_20170813.dwg, 08 Sep 2017

FILE NO. .DWG

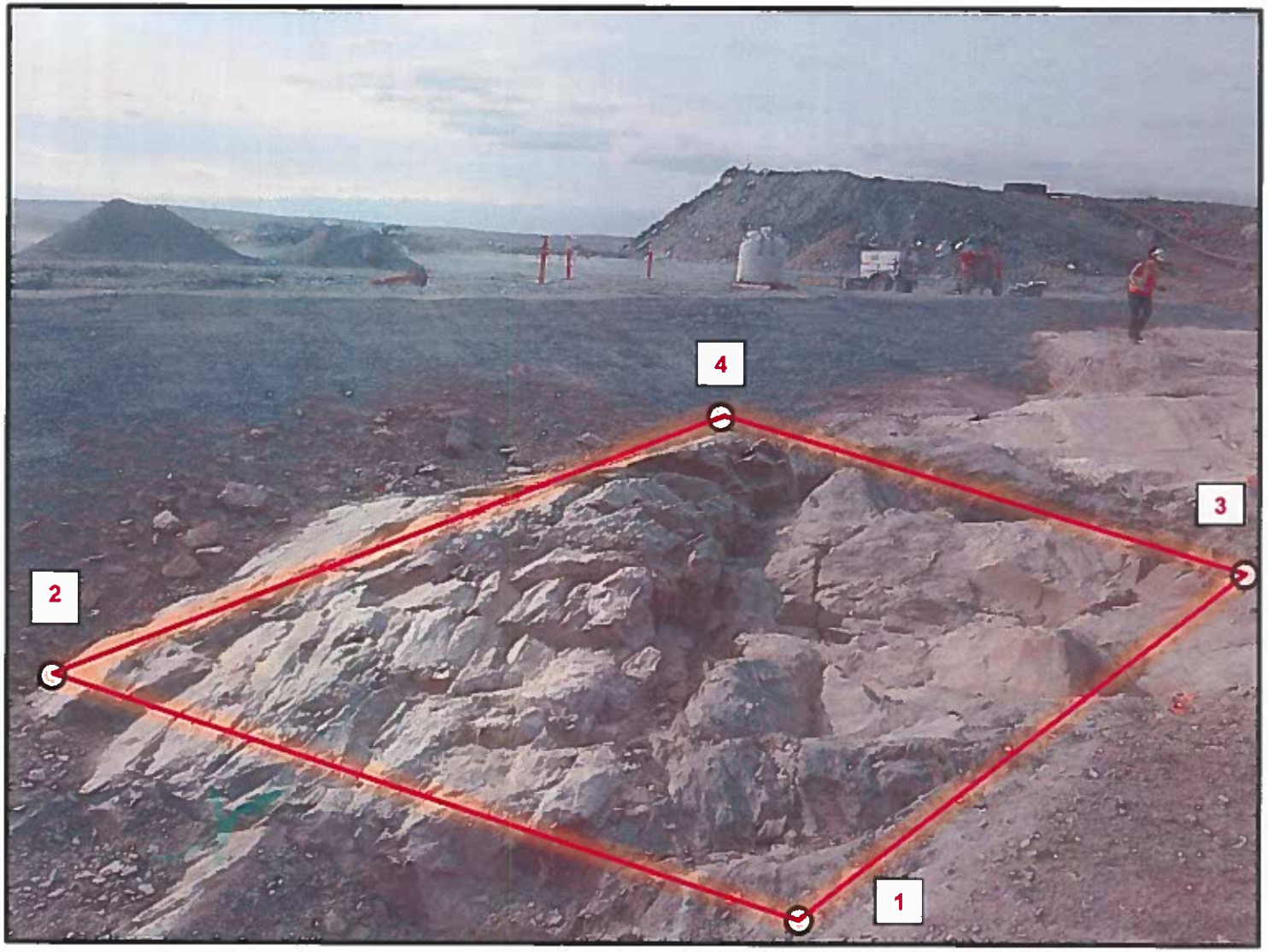
Foundation Approval, FND-SD3-31

1:
E = 637506.93
N = 7215249.03
St = 20+592.93
Offset = 42.5m - L
Elev = 144.0

2:
E = 637503.96
N = 7215244.04
St = 20+594.48
Offset = 38.16m - L
Elev = 143.33

3:
E = 637499.14
N = 7215254.6
St = 20+589.37
Offset = 38.31m - L
Elev = 144.68

4:
E = 637495.30
N = 7215250.18
St = 20+590.28
Offset = 32.79 - L
Elev = 143.84



Picture 1- Approximate approved foundation area

Date: 2017-09-08

Photo by (Initial): C.F.T

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - CENTRAL DIKE

Acceptance No.:	FND-SD-3 – 32	Date:	10/Sep/14

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, Incl. Station and Offset (according to Central Dike Stations);

3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative	Name:	Alexandre Lavallee	
	Position:	AEM- Ower Rep.	
QC Representative	Name:	Cedrick Fillon Tremblay	
	Position:	GHD	
QA Engineer	Name:	Marion Habersetzer	
	Position:	Golder-Qa	
Surveyor	Name:	Samuel Kiley-Morin	
	Position:	AEM-Surveyor	

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

SADDLE DAM 3 -TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 20+585.2 Offset – 38.3 m	SHIFT: NIGHT :☐ DAY ☒	DATE : 10/09/2017	SHEET 2 OF 4
To Sta. 20+590.3 Offset – 29.0 m	LOCATION: : SD3 upstream tee liner tie-in (north)		
EQUIPMENT: pressurized air stream			
DESCRIPTION rock foundation			

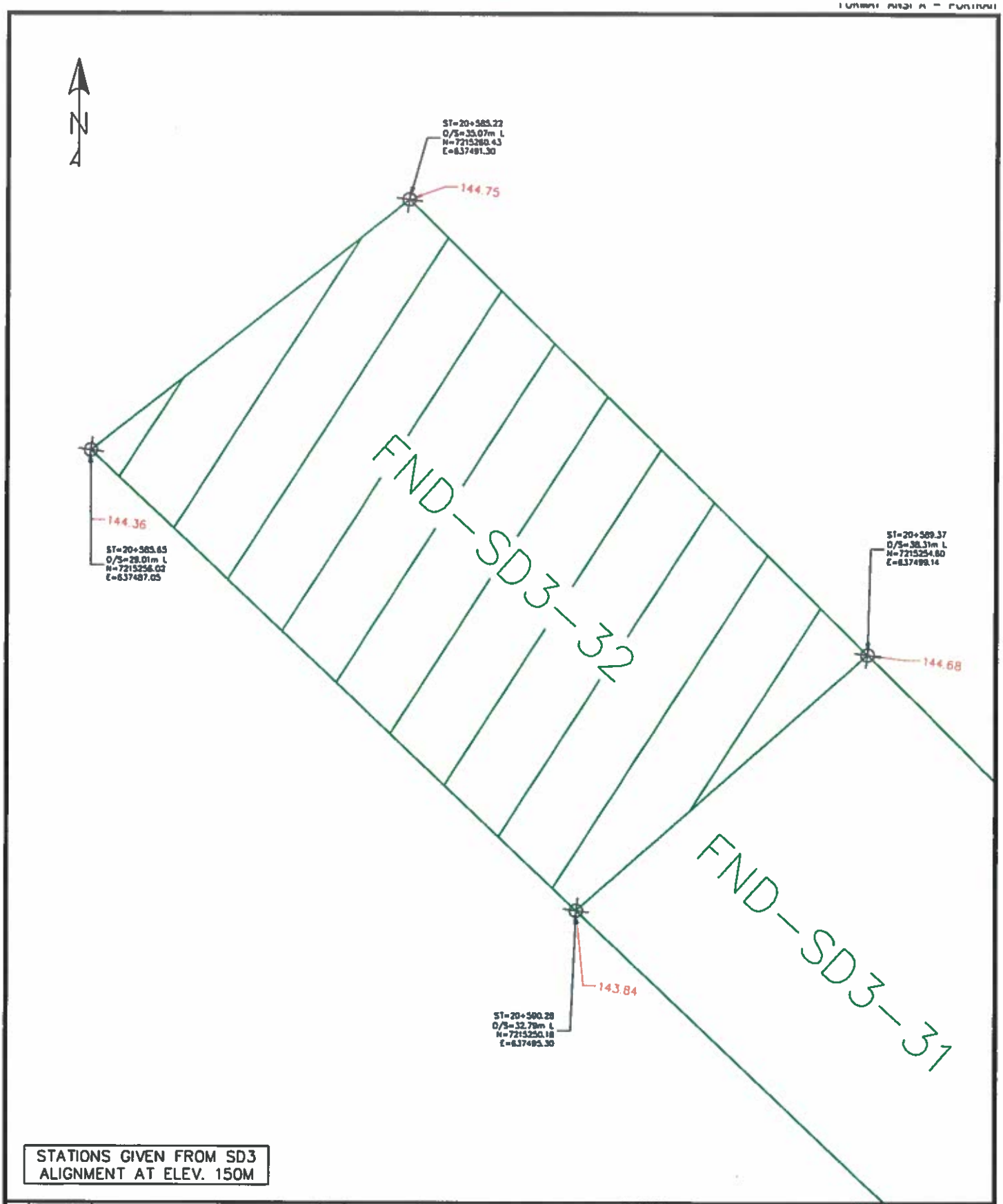
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	ML	MH
2.	Storage areas planned for disposal of removed materials	ML	MH
3.	Occurrence of snow and ice removal method in place	ML	MH
4.	Occurrence of boulders and removal method in place	ML	MH
5.	Occurrence of hummocks and scalping method in place	ML	MH
6.	Occurrence of surface and ground water and its impact mitigation in place	ML	MH
7.	Presence of other unsuitable materials and removal method in place	ML	MH
8.	Soil frozen or thawed and measures taken	ML	MH
9.	Blasting requirement to remove unsuitable material and safety measure checked	–	—
	Preparation of surface for LLDPE geomembrane placement	–	—
10.	Adjustment made to suit design in field	ML	MH
11.	Final walkover inspection before re-sloping or fill placement	ML	MH
	Rough grading of foundation	ML	MH
12.	"As-excavated" survey conducted	ML	MH
	Bedrock cleaning	ML	MH
13.	Bedrock Mapping	ML	MH

REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Samuel Riley-Morin	NAME: Marion Haberseteer	NAME: Alexandre Lavallée
SIGNATURE: Samuel R-M	SIGNATURE: ML	SIGNATURE:
DATE: 2017-09-10	DATE: 2017-09-10	DATE: 2017-09-14



STATIONS GIVEN FROM SD3 ALIGNMENT AT ELEV. 150M

REV	DATE	DESCRIPTION	BY

REVISIONS

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AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO-EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL FOR KEYTRENCH
FND-SD3-32

PROJECT No.	DATE 2017-09-08
DRAWN BY SAMUEL KILEY-MORIN	SHEET 1 / 1
APPROVED BY	
DRAWING NO.	REVISION

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FILE NO. .DWG

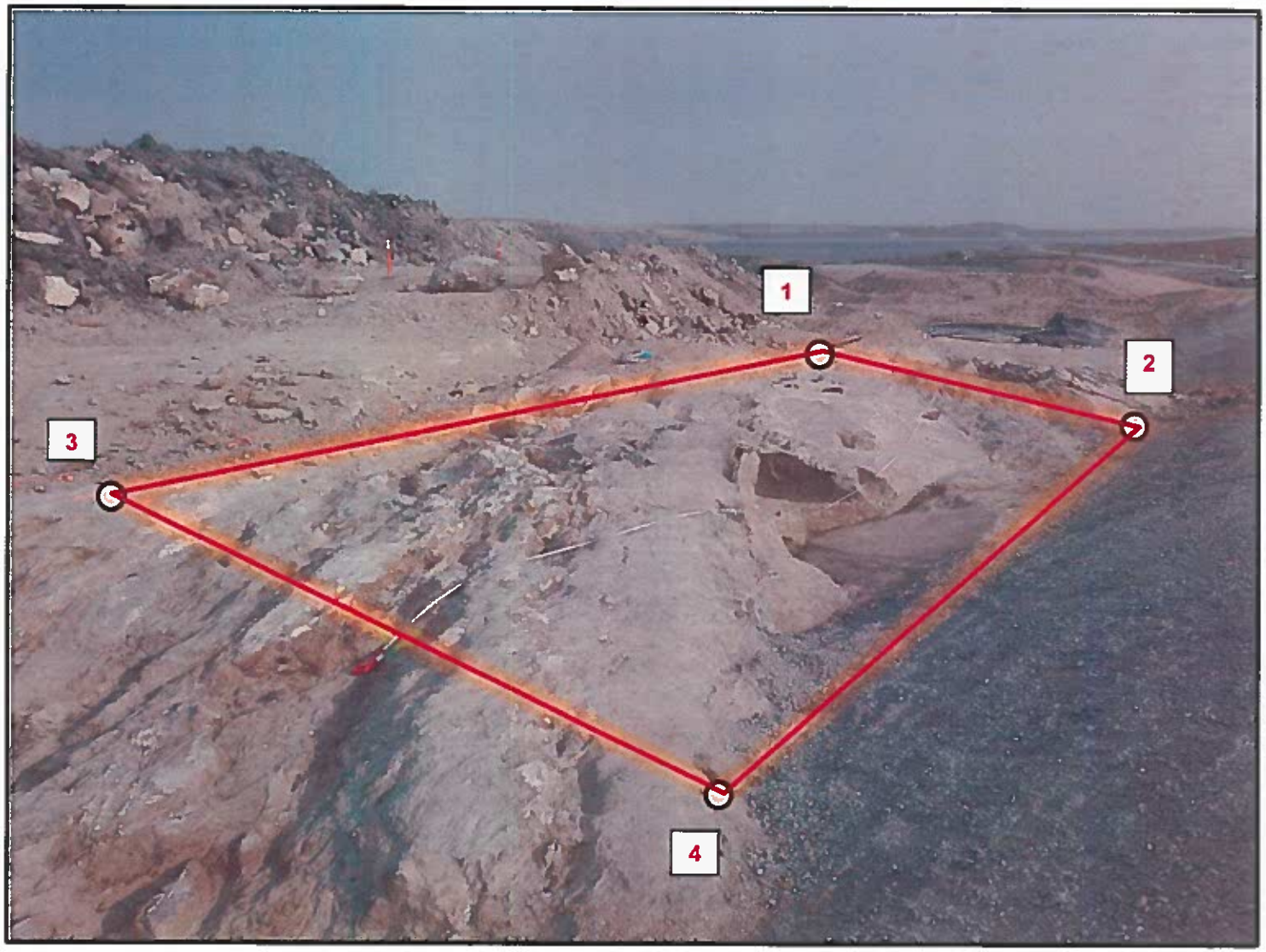
Foundation Approval, FND-SD3-32

1:
E = 637499.14
N = 7215254.6
St = 20+589.37
Offset = 38.31m - L
Elev = 144.68

2:
E = 637495.30
N = 7215250.18
St = 20+590.28
Offset = 32.79 - L
Elev = 143.84

3:
E = 637491.30
N = 7215260.43
St = 20+585.22
Offset = 35.07m - L
Elev = 144.75

4:
E = 6374487.05
N = 7215256.02
St = 20+585.65
Offset = 29.01m - L
Elev = 144.36



Picture 1- Approximate approved foundation area

Date: 2017-09-08

Photo by (Initial): C.F.T

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - CENTRAL DIKE

Acceptance No.:	FND-SD-3 – 33	Date:	10/Sep/14

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, incl. Station and Offset (according to Central Dike Stations);

3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative	Name:	Alexandre Lavallee	
	Position:	AEM- Ower Rep.	
QC Representative	Name:	Cedrick Fillon Tremblay	
	Position:	GHD	
QA Engineer	Name:	Marion Habersetzer	
	Position:	Golder-Qa	
Surveyor	Name:	Samuel Kiley-Morin	
	Position:	AEM-Surveyor	

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

SADDLE DAM 3 -TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 20+580.5 Offset - 35.1 m	SHIFT: NIGHT :☐ DAY ☒	DATE : 10/09/2017	SHEET 2 OF 4
To Sta. 20+585.6 Offset - 28.1 m	LOCATION: : SD3 upstream tee liner tie-in (north)		
EQUIPMENT: pressurized air stream			
DESCRIPTION rock foundation			

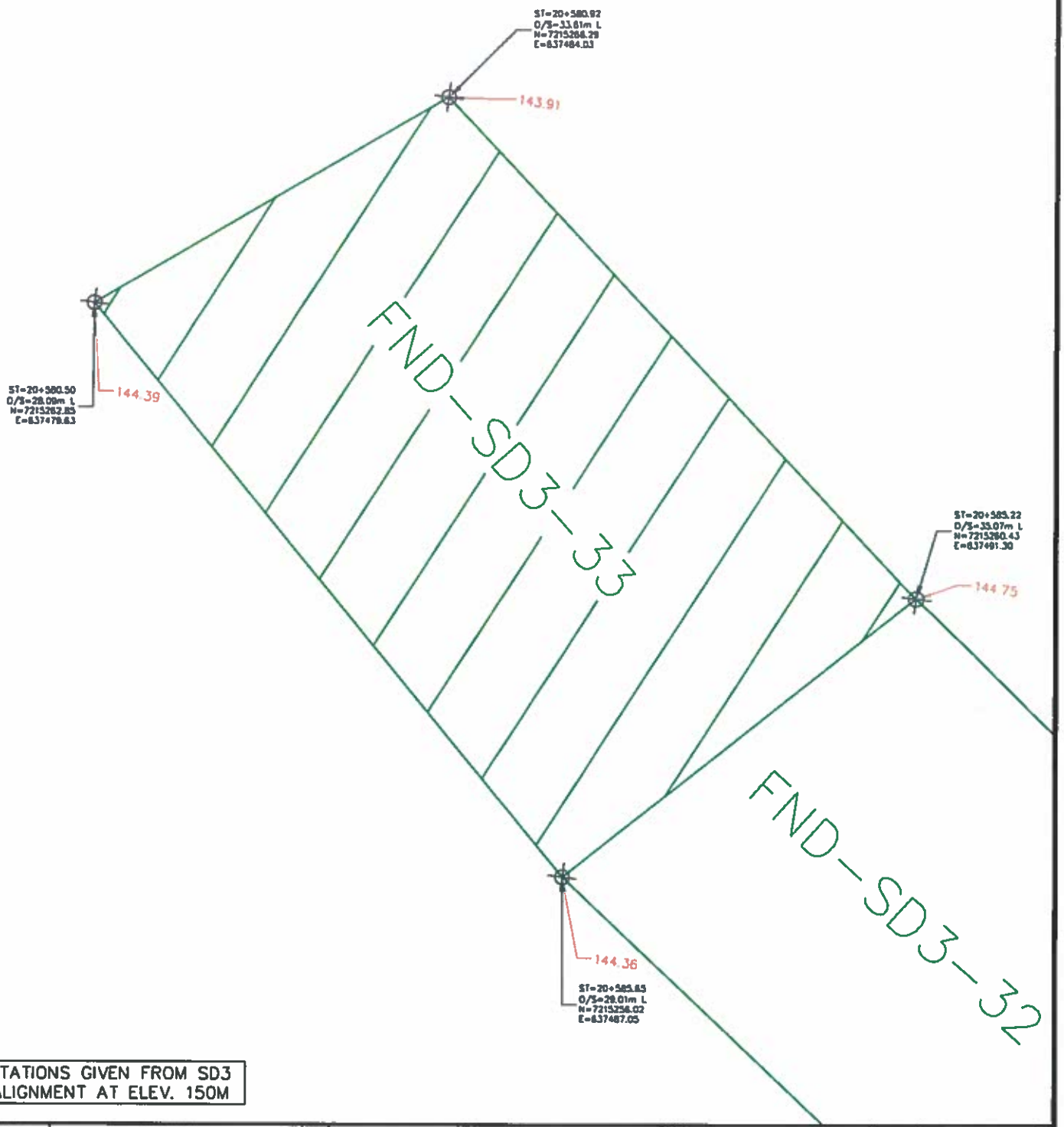
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	MH	MH
2.	Storage areas planned for disposal of removed materials	MH	MH
3.	Occurrence of snow and ice removal method in place	MH	MH
4.	Occurrence of boulders and removal method in place	MH	MH
5.	Occurrence of hummocks and scalping method in place	MH	MH
6.	Occurrence of surface and ground water and its impact mitigation in place	MH	MH
7.	Presence of other unsuitable materials and removal method in place	MH	MH
8.	Soil frozen or thawed and measures taken	MH	MH
9.	Blasting requirement to remove unsuitable material and safety measure checked	-	—
	Preparation of surface for LLDPE geomembrane placement	-	—
10.	Adjustment made to suit design in field	MH	MH
11.	Final walkover inspection before re-sloping or fill placement	MH	MH
	Rough grading of foundation	MH	MH
12.	"As-excavated" survey conducted	MH	MH
	Bedrock cleaning	MH	MH
13.	Bedrock Mapping	MH	MH

REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Samuel Kilez-Morin	NAME: Marion Habersetzer	NAME: Alexandre Lavallée
SIGNATURE: Samuel Kilez-Morin	SIGNATURE:	SIGNATURE:
DATE: 2017-09-11	DATE: 2017-09-10	DATE: 2017-09-14



STATIONS GIVEN FROM SD3 ALIGNMENT AT ELEV. 150M

REV	DATE	DESCRIPTION	BY

REVISIONS

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MEADOWBANK

TITLE
AGNICO-EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL FOR KEYTRENCH
FND-SD3-33

PROJECT No.	DATE 2017-09-08
DRAWN BY SAMUEL KILEY-MORIN	SHEET 1 / 1
APPROVED BY	
DRAWING NO.	REVISION

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FILE NO. .DWG

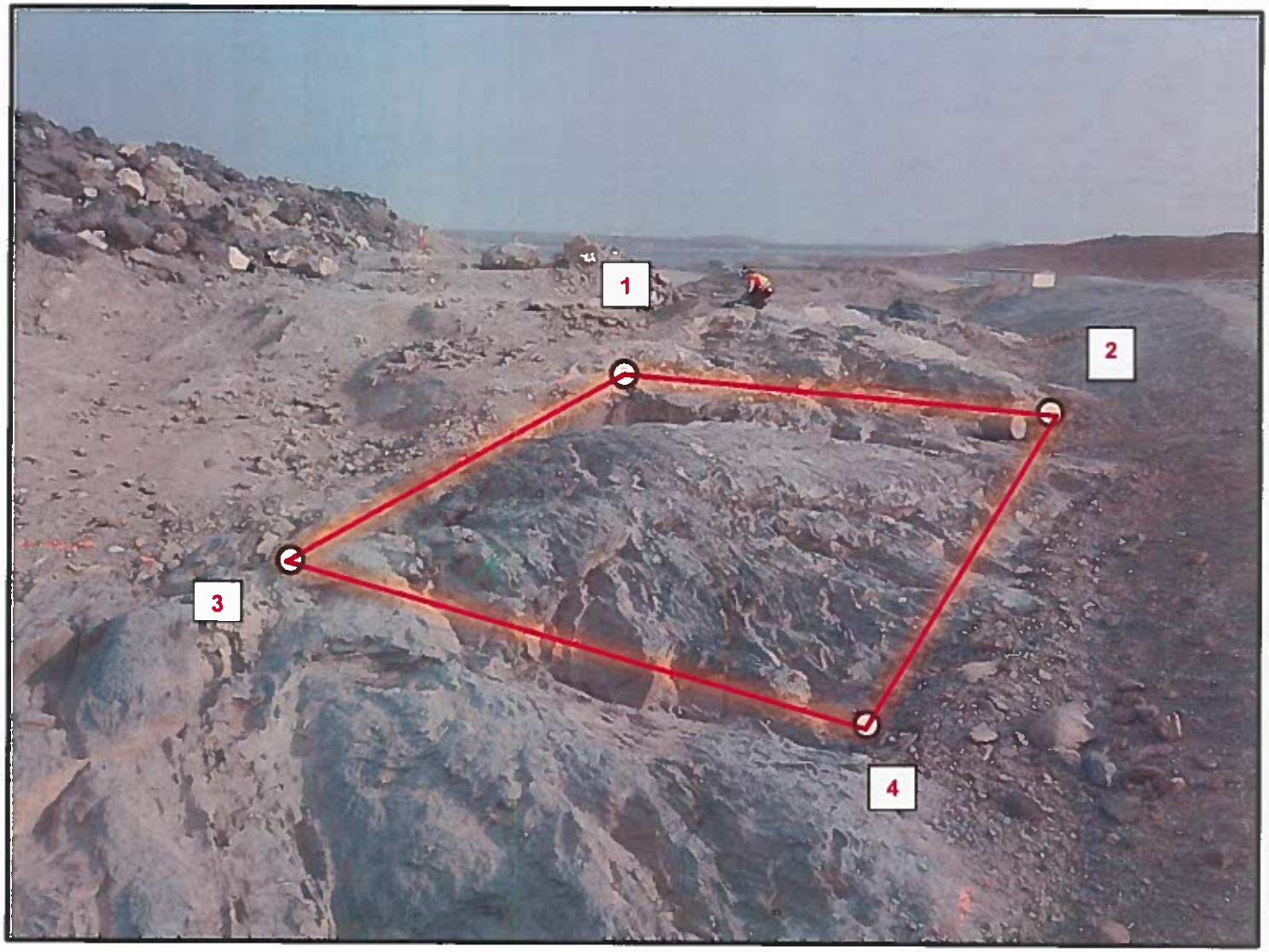
Foundation Approval, FND-SD3-33

1:
E = 637491.30
N = 7215260.43
St = 20+585.22
Offset = 35.07m - L
Elev = 144.75

2:
E = 6374487.05
N = 7215256.02
St = 20+585.65
Offset = 29.01m - L
Elev = 144.36

3:
E = 637484.03
N = 7215266.29
St = 20+580.92
Offset = 33.61m - L
Elev = 143.91

4:
E = 637479.63
N = 7215262.85
St = 20+580.50
Offset = 28.09m - L
Elev = 144.39



Picture 1- Approximate approved foundation area

Date: 2017-09-08

Photo by (Initial): C.F.T

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - CENTRAL DIKE

Acceptance No.:	FND-SD-3 – 34	Date:	10/Sep/14

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, Incl. Station and Offset (according to Central Dike Stations);

3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative	Name:	Alexandre Lavallee	
	Position:	AEM- Ower Rep.	
QC Representative	Name:	Cedrick Fillon Tremblay	
	Position:	GHD	
QA Engineer	Name:	Marion Habersetzer	
	Position:	Golder-Qa	
Surveyor	Name:	Samuel Kiley-Morin	
	Position:	AEM-Surveyor	

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

SADDLE DAM 3 -TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 20+571.6 Offset – 38.2 m	SHIFT: NIGHT :☐ DAY ☒	DATE : 10/09/2017	SHEET 2 OF 4
To Sta. 20+580.9 Offset – 28.1 m	LOCATION: : SD3 upstream toe liner tie-in (north)		
EQUIPMENT: pressurized air stream			
DESCRIPTION rock foundation			

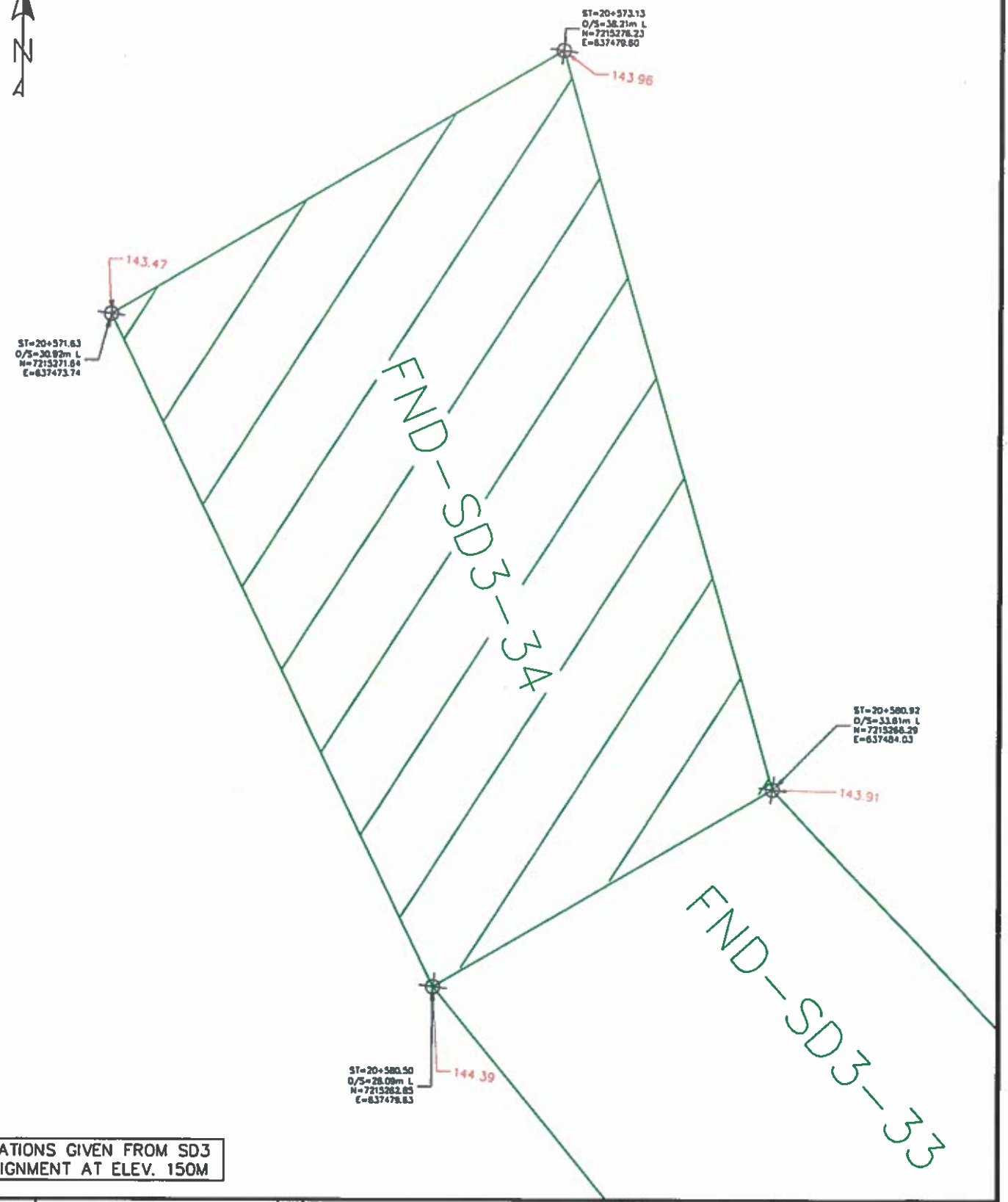
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	✓	MH
2.	Storage areas planned for disposal of removed materials	✓	MH
3.	Occurrence of snow and ice removal method in place	✓	MH
4.	Occurrence of boulders and removal method in place	✓	MH
5.	Occurrence of hummocks and scalping method in place	✓	MH
6.	Occurrence of surface and ground water and its impact mitigation in place	✓	MH
7.	Presence of other unsuitable materials and removal method in place	✓	MH
8.	Soil frozen or thawed and measures taken	✓	MH
9.	Blasting requirement to remove unsuitable material and safety measure checked	–	—
	Preparation of surface for LLDPE geomembrane placement	–	—
10.	Adjustment made to suit design in field	✓	MH
11.	Final walkover inspection before re-sloping or fill placement	✓	MH
	Rough grading of foundation	✓	MH
12.	"As-excavated" survey conducted	✓	MH
	Bedrock cleaning	✓	MH
13.	Bedrock Mapping	✓	MH

REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Samuel Kilaq-morin	NAME: Marion Haberseteer	NAME: Alexandre Lauzière
SIGNATURE: Samuel Kilaq-morin	SIGNATURE:	SIGNATURE:
DATE: 2017-09-16	DATE: 2017-09-10	DATE: 2017-09-14



STATIONS GIVEN FROM SD3 ALIGNMENT AT ELEV. 150M

REV	DATE	DESCRIPTION	BY

REVISIONS

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AGNICO EAGLE
MEADOWBANK

TITLE: AGNICO-EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL FOR KEYTRENCH
FND-SD3-34

PROJECT No.	DATE: 2017-09-08
DRAWN BY: SAMUEL KILEY-MORIN	SHEET: 1 / 1
APPROVED BY	
DRAWING NO.	REVISION

C:\Meadowbank\DIKE 2017\FOUNDATION APPROVALS KEYTRENCH\FOUNDATION APPROVAL_20170813.dwg, 08 Sep 2017

FILE NO. .DWG

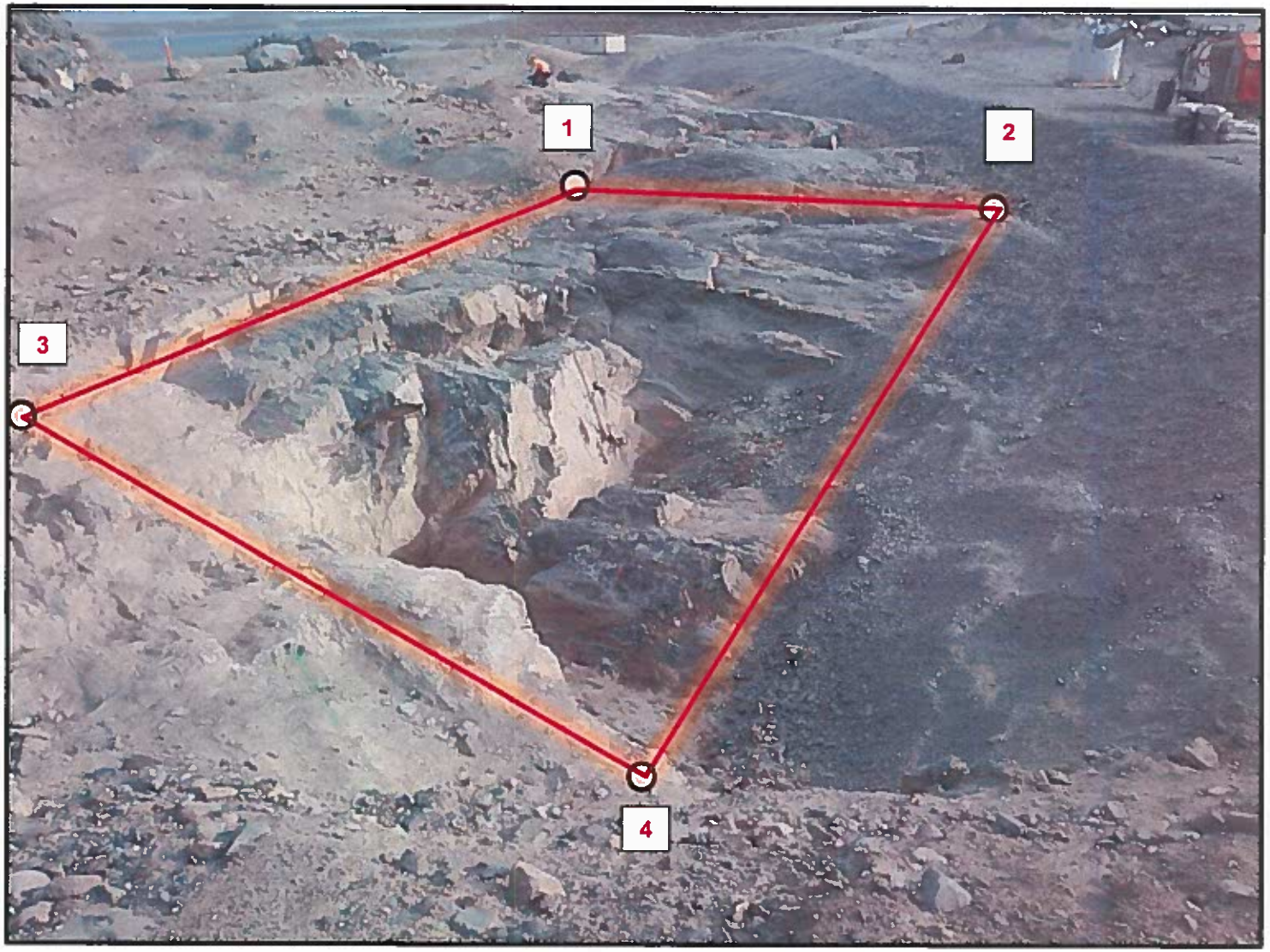
Foundation Approval, FND-SD3-34

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St = 20+580.92
Offset = 33.61m - L
Elev = 143.91

2:
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N = 7215262.85
St = 20+580.50
Offset = 28.09m - L
Elev = 144.39

3:
E = 637479.60
N = 7215276.23
St = 20+573.13
Offset = 38.21m - L
Elev = 143.96

4:
E = 637473.74
N = 7215271.64
St = 20+571.63
Offset = 30.92m - L
Elev = 143.47



Picture 1- Approximate approved foundation area

Date: 2017-09-08

Photo by (Initial): C.F.T

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - CENTRAL DIKE

Acceptance No.:	FND-SD-3 – 35	Date:	10/Sep/14

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, incl. Station and Offset (according to Central Dike Stations);

3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative	Name:	Alexandre Lavallee
	Position:	AEM- Ower Rep.
QC Representative	Name:	Cedrick Fillon Tremblay
	Position:	GHD
QA Engineer	Name:	Marion Habersetzer
	Position:	Golder-Qa
Surveyor	Name:	Samuel Kiley-Morin
	Position:	AEM-Surveyor

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

SADDLE DAM 3 -TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 20+795.9 Offset – 37.1 m	SHIFT: NIGHT :☐ DAY ☒	DATE : 10/09/2017	SHEET 2 OF 4
To Sta. 20+819.1 Offset – 27.7 m	LOCATION: : SD3 upstream toe liner tie-in (south)		
EQUIPMENT: pressurized air stream			
DESCRIPTION rock foundation			

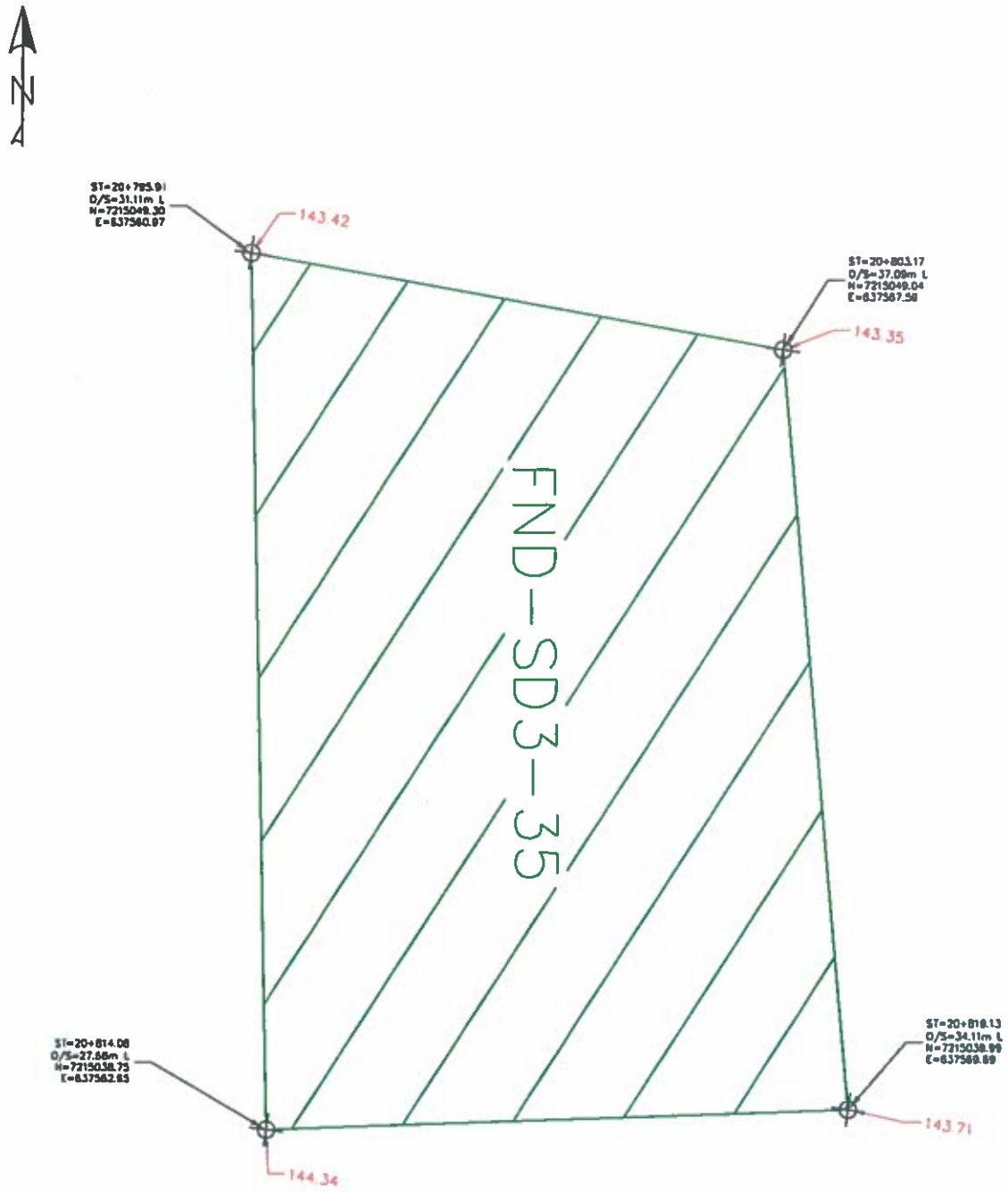
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	AL	MH
2.	Storage areas planned for disposal of removed materials	AL	MH
3.	Occurrence of snow and ice removal method in place	AL	MH
4.	Occurrence of boulders and removal method in place	AL	MH
5.	Occurrence of hummocks and scalping method in place	AL	MH
6.	Occurrence of surface and ground water and its impact mitigation in place	AL	MH
7.	Presence of other unsuitable materials and removal method in place	AL	MH
8.	Soil frozen or thawed and measures taken	AL	MH
9.	Blasting requirement to remove unsuitable material and safety measure checked	–	—
	Preparation of surface for LLDPE geomembrane placement	–	—
10.	Adjustment made to suit design in field	AL	MH
11.	Final walkover inspection before re-sloping or fill placement	AL	MH
	Rough grading of foundation	AL	MH
12.	"As-excavated" survey conducted	AL	MH
	Bedrock cleaning	AL	MH
13.	Bedrock Mapping	AL	MH

REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Samuel Kilagamarin	NAME: Marion Haberzettzer	NAME: Alexandre Lavallée
SIGNATURE: Samuel Kilagamarin	SIGNATURE:	SIGNATURE:
DATE: 2017-09-10	DATE: 2017-09-10	DATE: 2017-09-14



STATIONS GIVEN FROM SD3 ALIGNMENT AT ELEV. 150M

REV	DATE	DESCRIPTION	BY

REVISIONS

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MEADOWBANK

TITLE: AGNICO–EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL FOR KEYTRENCH
FND–SD3–35

PROJECT No.	DATE: 2017-09-09	
DRAWN BY: SAMUEL KILEY-MORIN		SHEET: 1 / 1
APPROVED BY		
DRAWING NO.		REVISION

C:\Meadowbank\DIKE 2017\FOUNDATION APPROVALS KEYTRENCH\FOUNDATION APPROVAL_20170813.dwg, 09 Sep 2017

FILE NO. .DWG

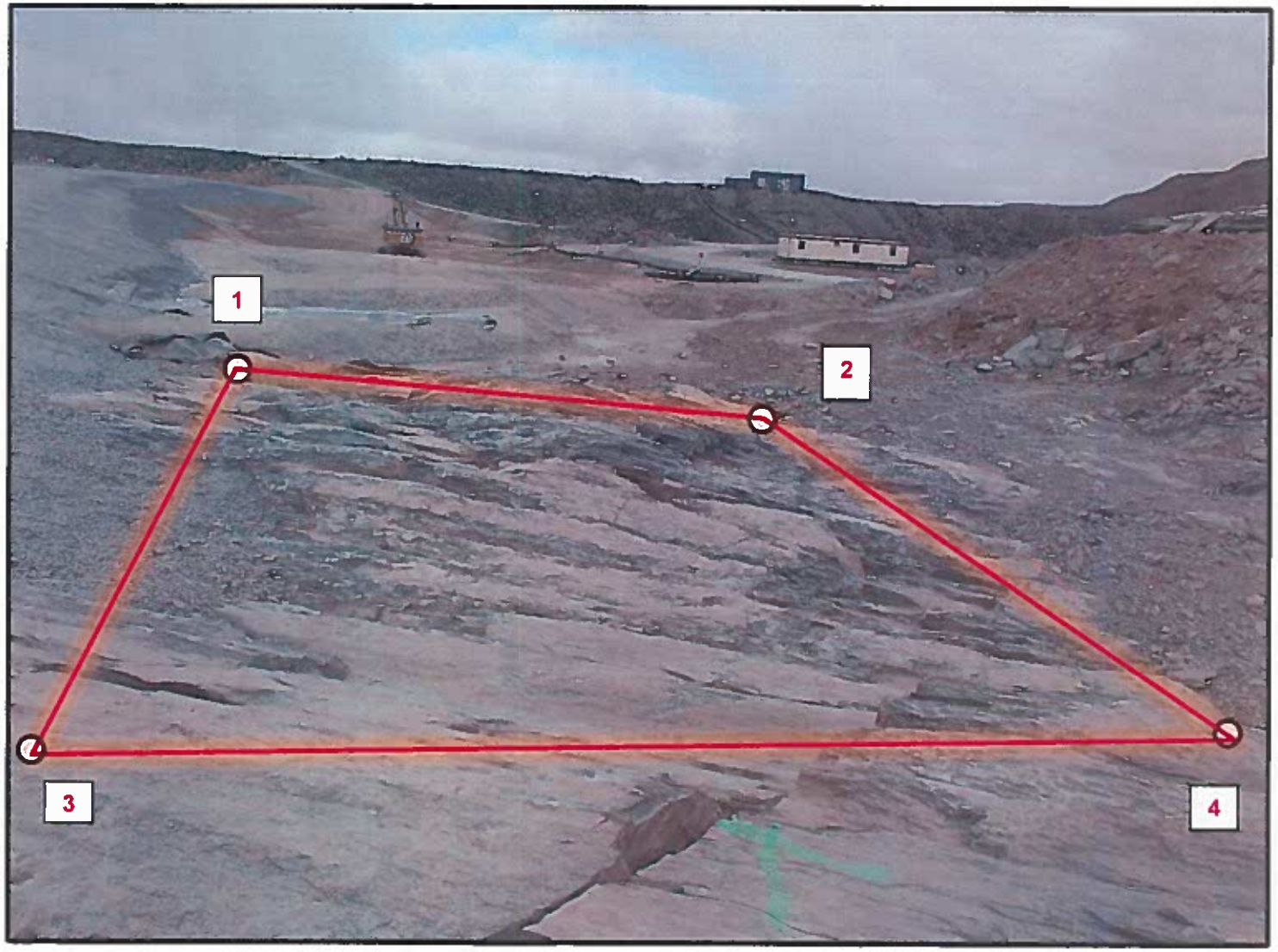
Foundation Approval, FND-SD3-35

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St = 20+795.91
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Elev = 143.42

2:
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N = 7215049.04
St = 20+803.17
Offset = 37.09m - L
Elev = 143.35

3:
E = 637562.65
N = 7215038.75
St = 20+814.08
Offset = 27.66m - L
Elev = 144.34

4:
E = 637569.69
N = 7215039.99
St = 20+819.13
Offset = 34.11m - L
Elev = 143.71



Picture 1- Approximate approved foundation area

Date: 2017-09-10

Photo by (Initial): C.F.T

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - CENTRAL DIKE

Acceptance No.:	FND-SD-3 – 36	Date:	10/Sep/14

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, incl. Station and Offset (according to Central Dike Stations);

3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative	Name:	Alexandre Lavallee	
	Position:	AEM- Ower Rep.	
QC Representative	Name:	Cedrick Fillon Tremblay	
	Position:	GHD	
QA Engineer	Name:	Marion Habersetzer	
	Position:	Golder-Qa	
Surveyor	Name:	Samuel Kiley-Morin	Samuel
	Position:	AEM-Surveyor	

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

SADDLE DAM 3 -TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 20+814.1 Offset – 34.1 m	SHIFT: NIGHT ☐ DAY ☒	DATE: 10/09/2017	SHEET 2 OF 4
To Sta. 20+828.4 Offset – 23.1 m	LOCATION: : SD3 upstream toe liner tie-in (south)		
EQUIPMENT: pressurized air stream			
DESCRIPTION rock foundation			

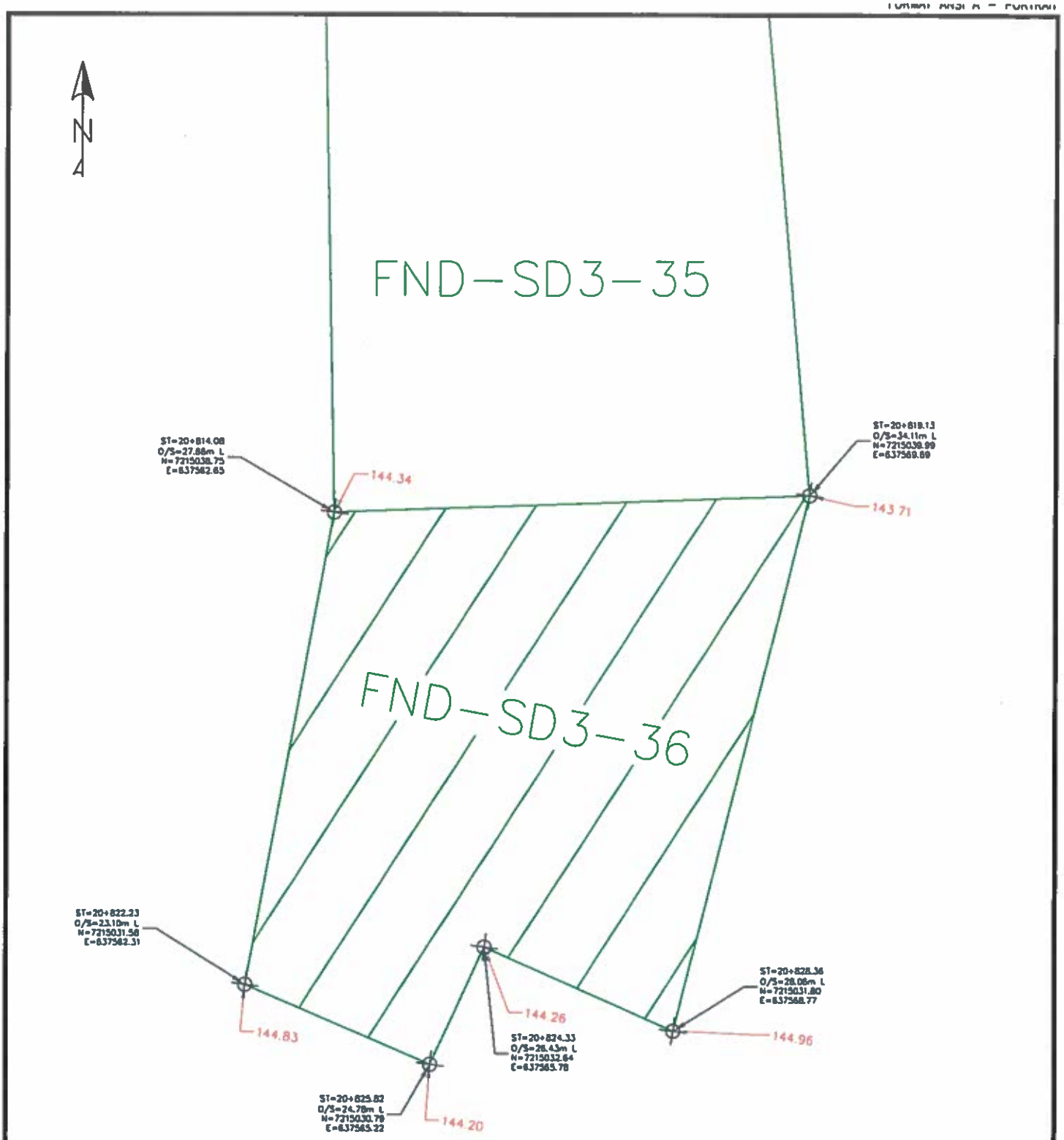
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	AL	MH
2.	Storage areas planned for disposal of removed materials	AL	MH
3.	Occurrence of snow and ice removal method in place	AL	MH
4.	Occurrence of boulders and removal method in place	AL	MH
5.	Occurrence of hummocks and scalping method in place	AL	MH
6.	Occurrence of surface and ground water and its impact mitigation in place	AL	MH
7.	Presence of other unsuitable materials and removal method in place	AL	MH
8.	Soil frozen or thawed and measures taken	AL	MH
9.	Blasting requirement to remove unsuitable material and safety measure checked	–	–
	Preparation of surface for LLDPE geomembrane placement	–	–
10.	Adjustment made to suit design in field	AL	MH
11.	Final walkover inspection before re-sloping or fill placement	AL	MH
	Rough grading of foundation	AL	MH
12.	"As-excavated" survey conducted	AL	MH
	Bedrock cleaning	AL	MH
13.	Bedrock Mapping	AL	MH

REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Samuel Kiley-Morin	NAME: Marion Haberseltzer	NAME: Alexandre Lavallée
SIGNATURE: Samuel Kiley-Morin	SIGNATURE:	SIGNATURE:
DATE: 2017-09-10	DATE: 2017-09-10	DATE: 2017-09-14



STATIONS GIVEN FROM SD3 ALIGNMENT AT ELEV. 150M

REV	DATE	DESCRIPTION	BY

REVISIONS

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AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO-EAGLE - MEADOWBANK DIVISION
FOUNDATION APPROVAL FOR KEYTRENCH
FND-SD3-36

PROJECT No.	DATE 2017-09-09
DRAWN BY SAMUEL KILEY-MORIN	SHEET 1 / 1
APPROVED BY	
DRAWING NO.	REVISION

C:\Meadowbank\DIKE 2017\FOUNDATION APPROVALS KEYTRENCH\FOUNDATION APPROVAL_20170813.dwg, 09 Sep 2017

FILE NO. .DWG

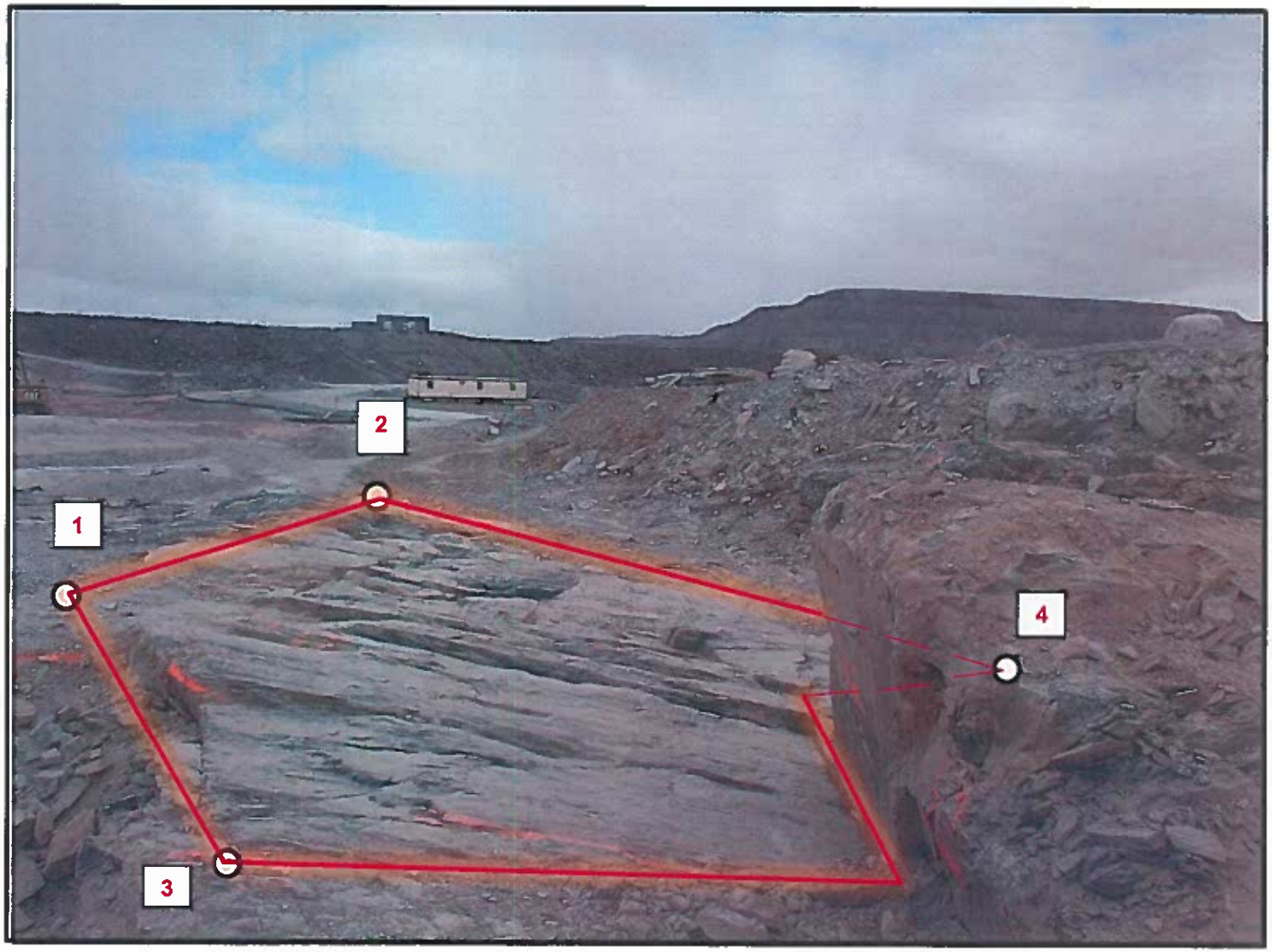
Foundation Approval, FND-SD3-36

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N = 7215038.75
St = 20+814.08
Offset = 27.66m - L
Elev = 144.34

2:
E = 637569.69
N = 7215039.99
St = 20+819.13
Offset = 34.11m - L
Elev = 143.71

3:
E = 637562.31
N = 7215031.58
St = 20+822.23
Offset = 23.10m - L
Elev = 144.83

4:
E = 637568.77
N = 7215031.80
St = 20+828.36
Offset = 28.06m - L
Elev = 144.96



Picture 1- Approximate approved foundation area

Date: 2017-09-10

Photo by (Initial): C.F.T

APPENDIX G3 - SADDLE DAM 4 STAGE 3 APPROVAL FORMS

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SD-4

Acceptance No.:	FND-SD4-26	Date:	06/Jul/17

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, incl. Station and Offset (according to Central Dike Stations);

3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative	Name:	Patrice Gagnon
	Position:	AEM- Ower Rep.
QC Representative	Name:	Hugues Potvin
	Position:	GHD
QA Engineer	Name:	Michael Nadon
	Position:	Golder-Qa
Surveyor	Name:	François Gravel
	Position:	AEM-Surveyor

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

SADDLE DAM 4 -TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 40+289 Offset -3.8 m	SHIFT: NIGHT ☐ DAY ☑ DATE: 0607-2017 SHEET 2 OF 4
To Sta. 40+419 Offset 25,3 m	LOCATION: SD4 Downstream
EQUIPMENT: Excavator 345	
DESCRIPTION ROCK FOUNDATION	

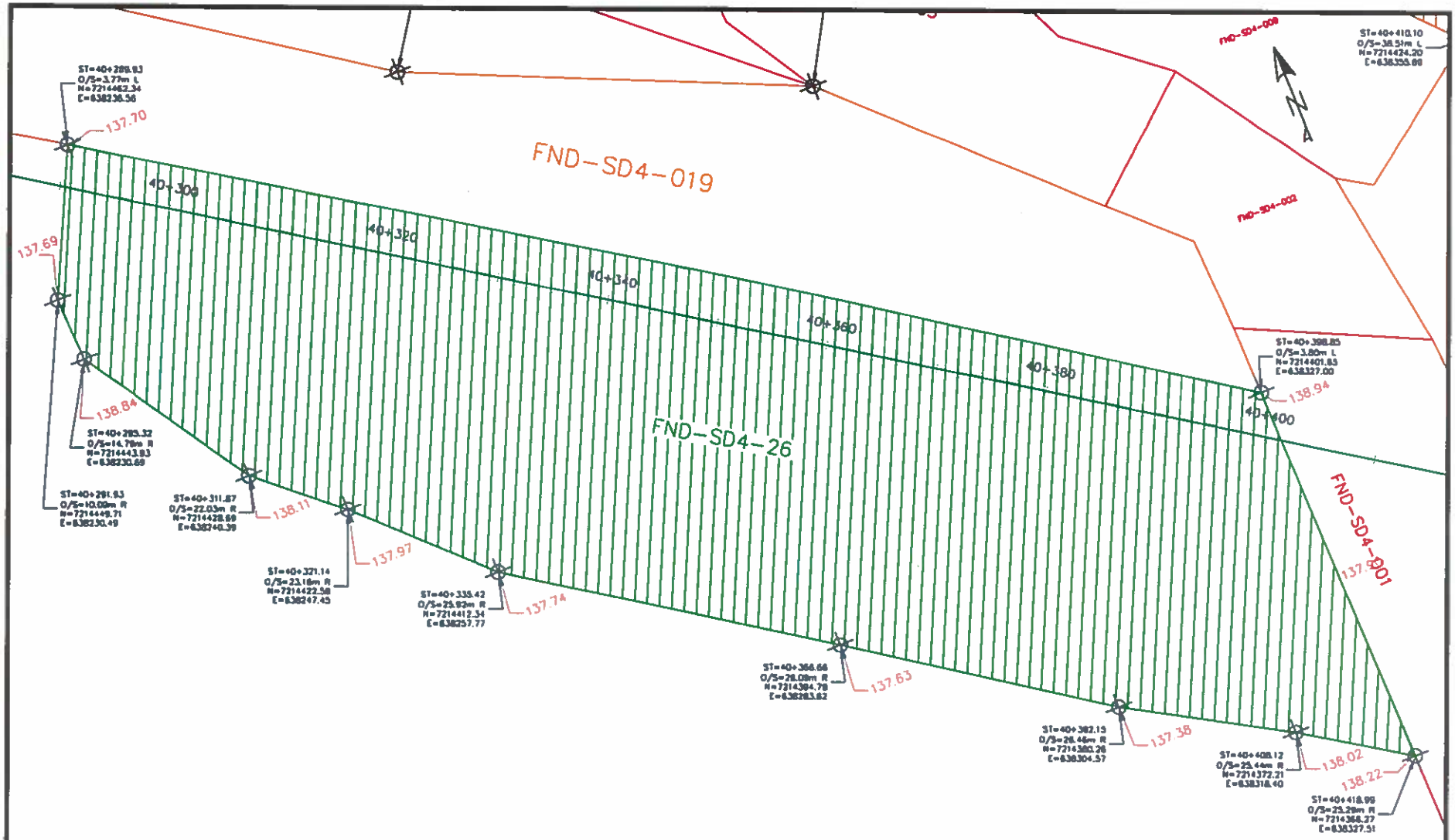
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	PG	MN
2.	Storage areas planned for disposal of removed materials	PG	MN
3.	Occurrence of snow and ice removal method in place	—	MN
4.	Occurrence of boulders and removal method in place	~~PG~~ OK	MN
5.	Occurrence of hummocks and scalping method in place	PG	MN
6.	Occurrence of surface and ground water and its impact mitigation in place	PG	MN
7.	Presence of other unsuitable materials and removal method in place	PG	MN
8.	Soil frozen or thawed and measures taken	PG	MN
9.	Blasting requirement to remove unsuitable material and safety measure checked	PG	MN
	Preparation of surface for LLDPE geomembrane placement	—	—
10.	Adjustment made to suit design in field	PG	M.N.
11.	Final walkover inspection before re-sloping or fill placement	PG	MN
	Rough grading of foundation	PG	MN
12.	"As-excavated" survey conducted	PG	MN
	Bedrock cleaning	PG	MN
13.	Bedrock Mapping	—	—

REMARKS :
Approved provided the water ponds are pumped out before rockfill placement.

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: François Gravel-Grenier	NAME: Michael Nadon	NAME: PATRICK GAGNON
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 2017-07-08	DATE: 07-07-2017	DATE: 07/07/17



STATIONS GIVEN FROM SD4 ALIGNMENT AT ELEV. 150M

COORDINATES IN NAD83 UTM ZONE 14N

REV	DATE	DESCRIPTION	BY
A	2018-08-21	FOUNDATION AREA MODIF	AD

REVISIONS

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MEADOWBANK

TITLE
AGNICO-EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FDN-SD4-26

PROJECT No.	DATE 2017-07-06
DRAWN BY FRANÇOIS GRAVEL-GRENIER	SHEET 1 / 1
APPROVED BY	
DRAWING NO.	REVISION

C:\!Meadowbank\DIKE 2017\FOUNDATION APPROVALS\FOUNDATION APPROVAL_20170706.dwg, 06 Jul 2017

FILE NO. .DWG

Foundation Approval, FDN-SD4-26

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St=40+398.85, Offset=3.80m L
El. 138.94

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St=40+418.99, Offset=25.29m R
El. 138.22

3:
E=638230.49, N=7214449.71
St=40+291.93, Offset=10.09m R
El. 137.69

4:
E=638236.56, N=7214462.34
St=40+289.93, Offset=3.77m L
El. 137.70

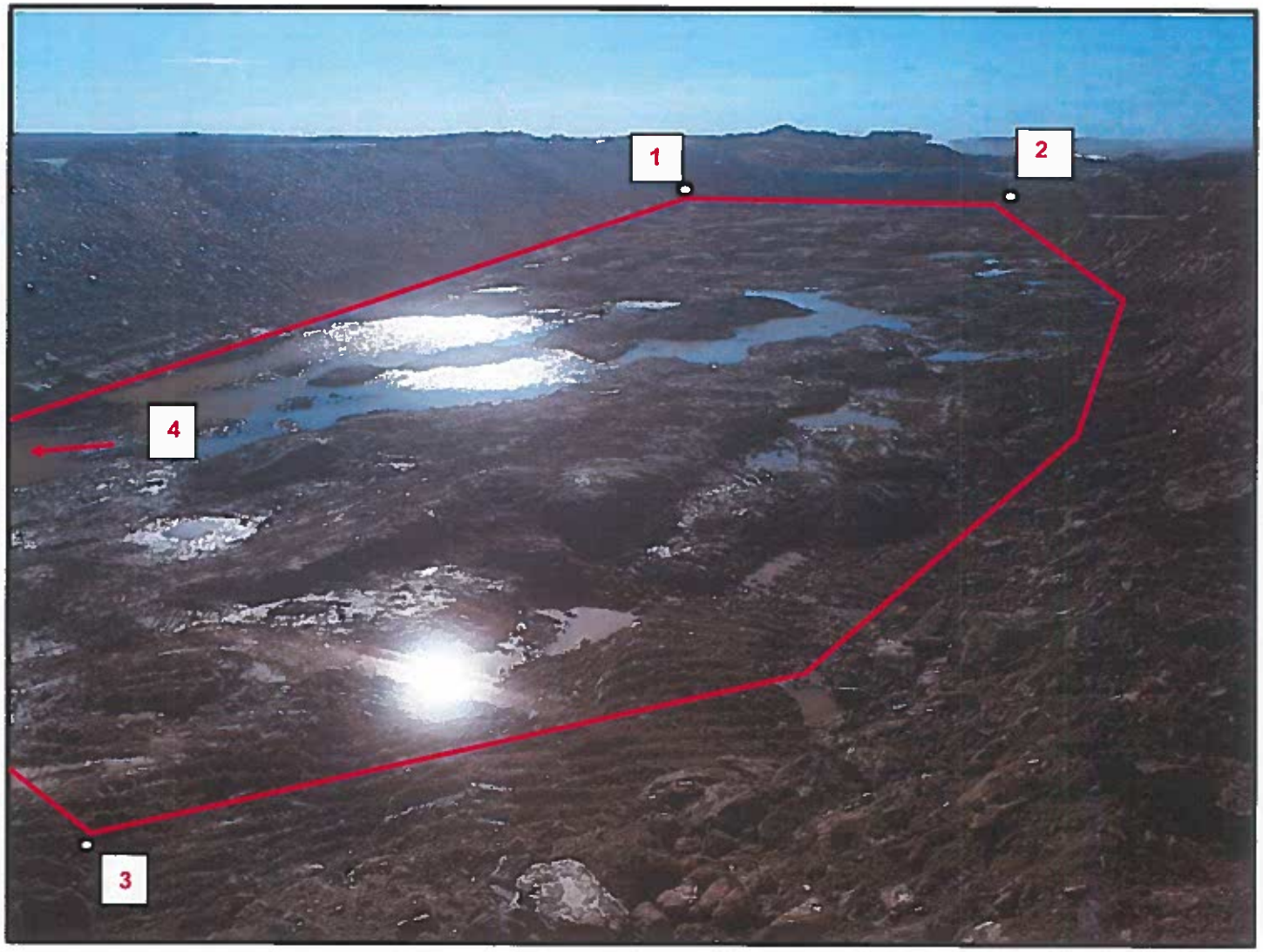


Photo 1- Approximate approved foundation area

Date: 2017-07-06

Photo by (Initial): H.P.

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SD-4

Acceptance No.:	FND-SD4-27	Date:	06/Jul/17

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, incl. Station and Offset (according to Central Dike Stations);

3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative	Name:	Patrice Gagnon	
	Position:	AEM- Ower Rep.	
QC Representative	Name:	Hugues Potvin	
	Position:	GHD	
QA Engineer	Name:	Michael Nadon	
	Position:	Golder-Qa	
Surveyor	Name:	François Gravel	
	Position:	AEM-Surveyor	

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

SADDLE DAM 4 -TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 40+540.5 Offset 24.9	SHIFT: NIGHT ☐ DAY ☒	DATE : 06/07/07	SHEET 2 OF 5
To Sta. 40+636.6 Offset 16.9	LOCATION: : SD4 Downstream		
EQUIPMENT: Excavator 345			
DESCRIPTION Rock foundation			

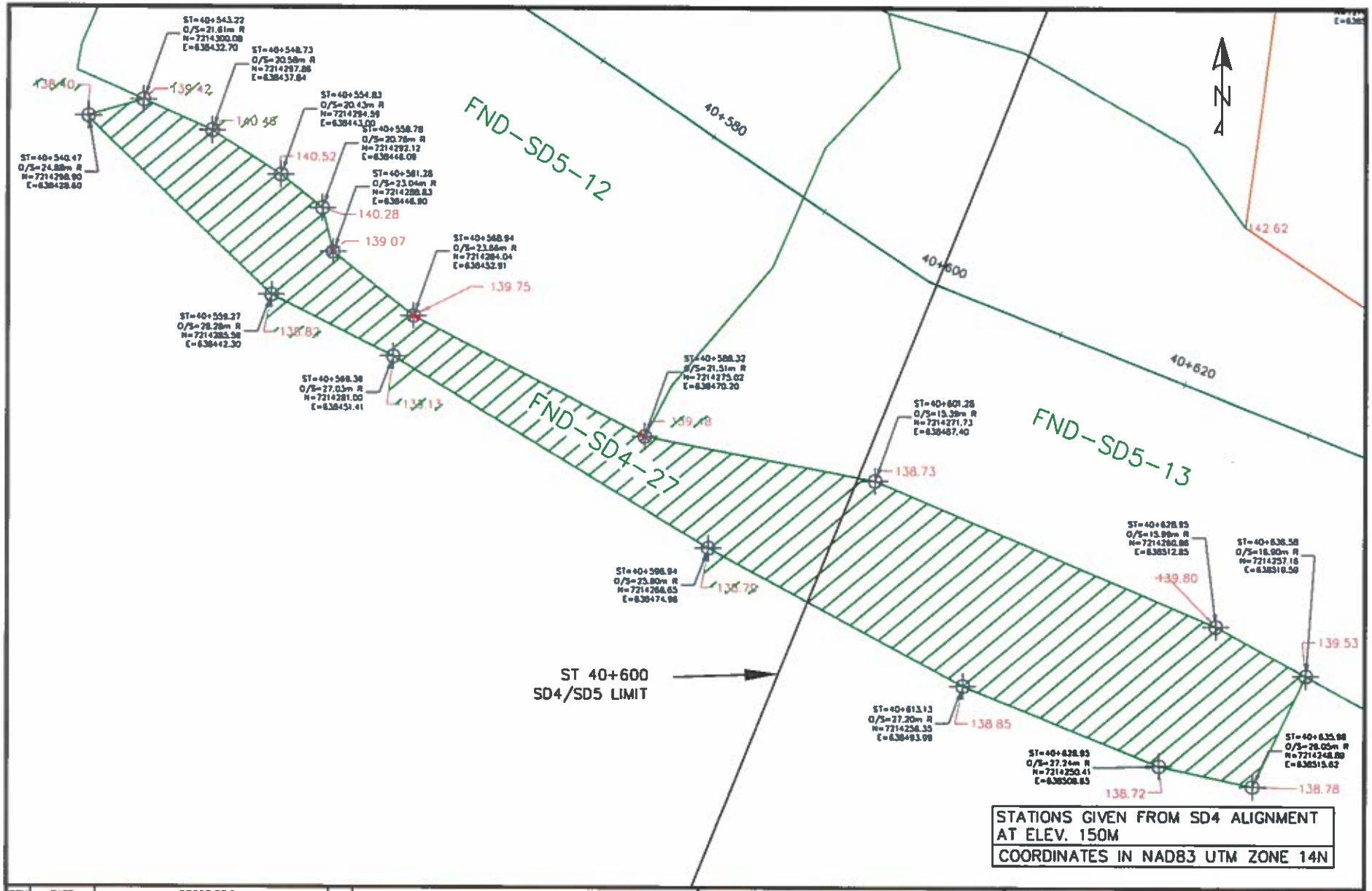
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	PG	MN
2.	Storage areas planned for disposal of removed materials	PG	MN
3.	Occurrence of snow and ice removal method in place	—	MN
4.	Occurrence of boulders and removal method in place	PG	MN
5.	Occurrence of hummocks and scalping method in place	PG	MN
6.	Occurrence of surface and ground water and its impact mitigation in place	PG	MN
7.	Presence of other unsuitable materials and removal method in place	PG	MN
8.	Soil frozen or thawed and measures taken	PG	MN
9.	Blasting requirement to remove unsuitable material and safety measure checked	PG	MN
	Preparation of surface for LLDPE geomembrane placement	—	—
10.	Adjustment made to suit design in field	PG	MN
11.	Final walkover inspection before re-sloping or fill placement	PG	MN
	Rough grading of foundation	PG	MN
12.	"As-excavated" survey conducted	PG	MN
	Bedrock cleaning	PG	MN
13.	Bedrock Mapping	—	—

REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Francois Gravel-Grenier	NAME: Michael Nadon	NAME: PATRICE GAGNON
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 2017-07-08	DATE: 07-07-2017	DATE: 07/07/17



REV	DATE	DESCRIPTION	BY
A	2016-08-21	FOUNDATION AREA MODIF	AD

REVISIONS

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AGNICO EAGLE
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TITLE
AGNICO-EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FDN-SD4-27

PROJECT No.	
DATE	2017-07-06
DRAWN BY	FRANÇOIS GRAVEL-GRENIER
APPROVED BY	
DRAWING NO.	
SHEET	1 / 1
REVISION	

C:\Meadowbank\DIKE 2017\FOUNDATION APPROVALS\SD4\2017-07-06\FDN-SD4-25.dwg, 06 Jul 2017

FILE NO. .DWG

Foundation Approval, FDN-SD4-27

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El. 139.42

2:
E=638428.60, N=7214298.90
St=40+540.47, Offset=24.88m R
El. 138.40

3:
E=638474.96, N=7214266.65
St=40+596.94, Offset=25.80m R
El. 138.79

4:
E=638470.20, N=7214275.02
St=40+588.32, Offset=21.51m R
El. 139.48

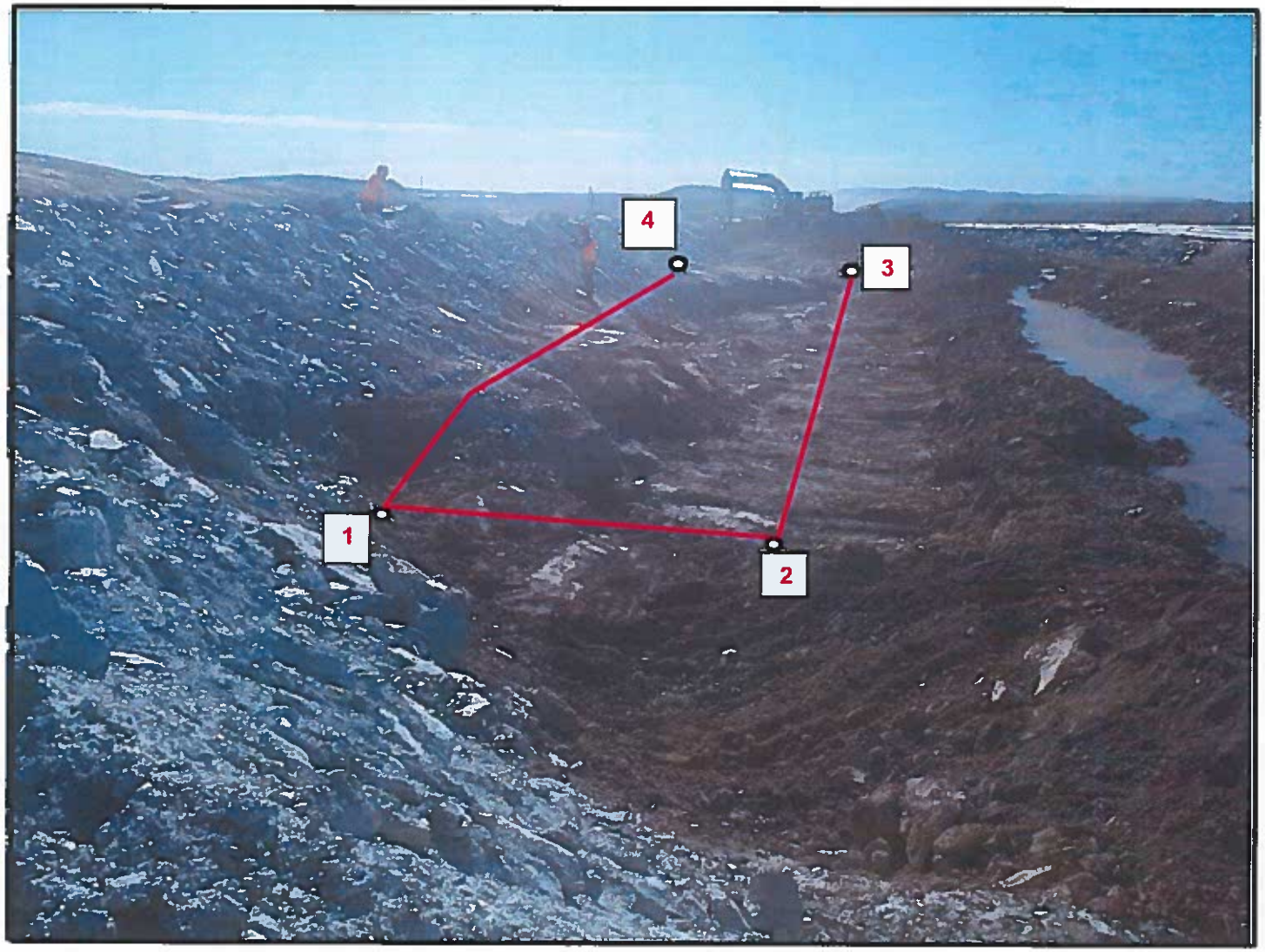


Photo 1- Approximate approved foundation area

Date: 2017-07-06

Photo by (Initial): H.P.

3:
E=638474.96, N=7214266.65
St=40+596.94, Offset=25.80m R
El. 138.79

4:
E=638470.20, N=7214275.02
St=40+588.32, Offset=21.51m R
El. 139.48

5:
E=638519.59, N=7214257.16
St=40+636.58, Offset=16.90m R
El. 139.53

6:
E=638515.62, N=7214248.89
St=40+635.98, Offset=28.05m R
El. 138.78

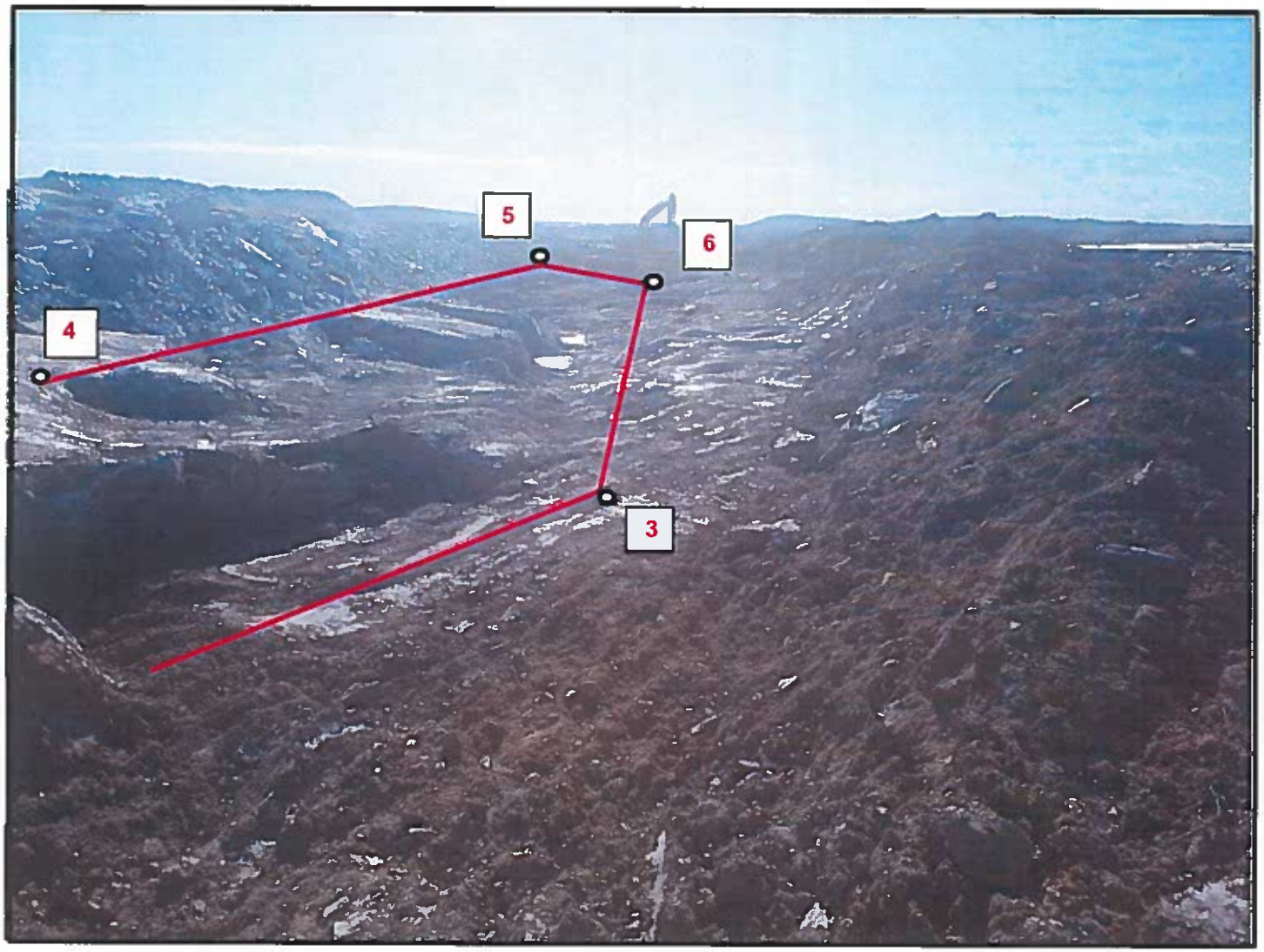


Photo 2- Approximate approved foundation area

Date: 2017-07-06

Photo by (Initial): H.P.

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SD-4

Acceptance No.:	FND-SD4-28	Date:	15/Jul/17

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, incl. Station and Offset (according to Central Dike Stations);

3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative	Name:	Alexandre Lavallee	
	Position:	AEM- Ower Rep.	
QC Representative	Name:	Pierrick Trecasse	
	Position:	GHD	
QA Engineer	Name:	Marion Habersetzer	
	Position:	Golder-Qa	
Surveyor	Name:	Samuel Kiley-Morin	
	Position:	AEM-Surveyor	

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

SADDLE DAM 4 -TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 40+47.8 Offset −24.13	SHIFT: NIGHT :☐ DAY ☑	DATE : 2017/07/15	SHEET 2 OF 4
To Sta. 40+543.22 Offset 30.82	LOCATION: : SD4 downstream		
EQUIPMENT: 345 excavator			
DESCRIPTION rock foundation			

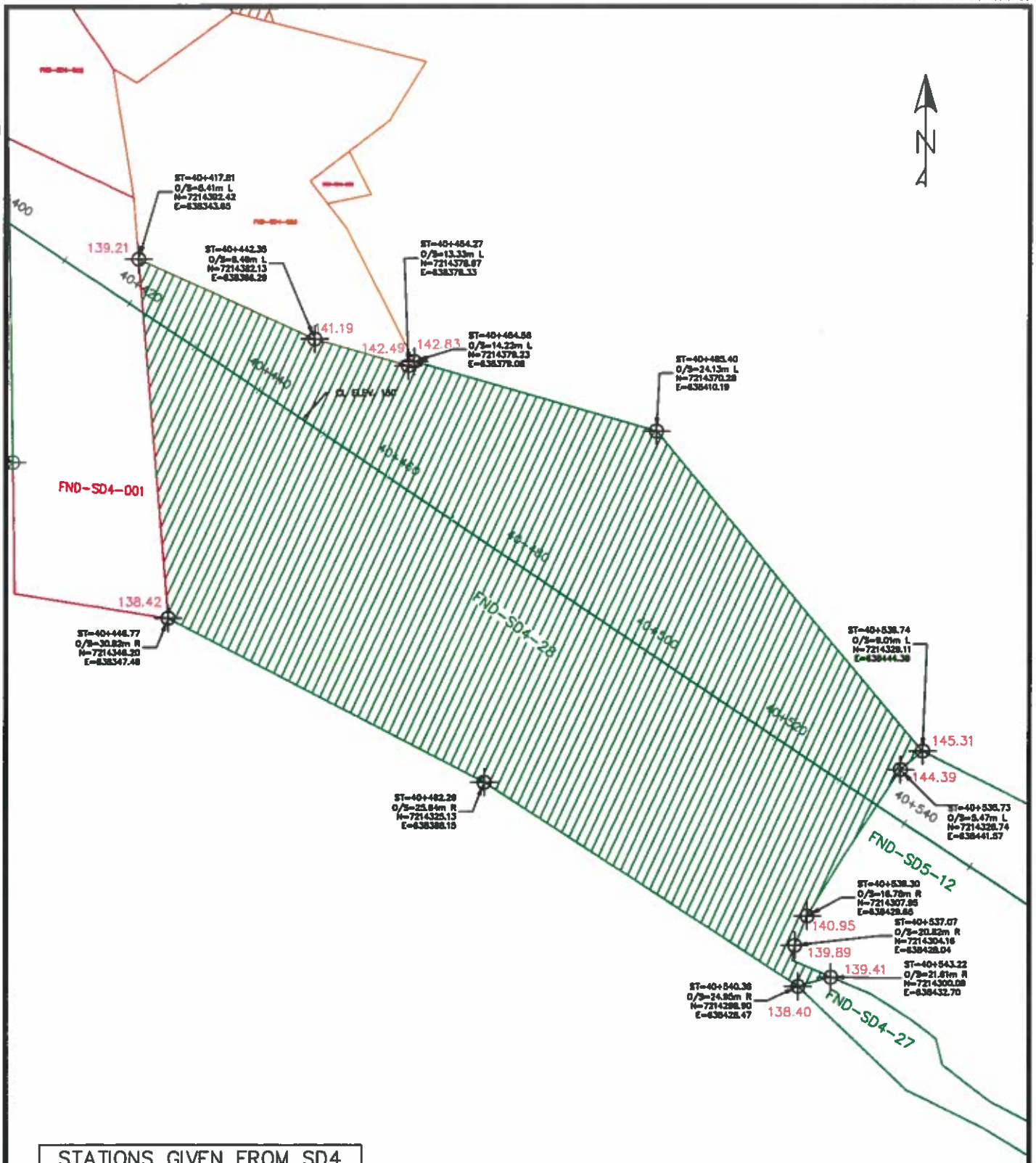
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	✓	MH
2.	Storage areas planned for disposal of removed materials	✓	MH
3.	Occurrence of snow and ice removal method in place	✓	MH
4.	Occurrence of boulders and removal method in place	✓	MH
5.	Occurrence of hummocks and scalping method in place	✓	MH
6.	Occurrence of surface and ground water and its impact mitigation in place	✓	MH
7.	Presence of other unsuitable materials and removal method in place	✓	MH
8.	Soil frozen or thawed and measures taken	✓	MH
9.	Blasting requirement to remove unsuitable material and safety measure checked	✓	MH
	Preparation of surface for LLDPE geomembrane placement	—	—
10.	Adjustment made to suit design in field	✓	MH
11.	Final walkover inspection before re-sloping or fill placement	✓	MH
	Rough grading of foundation	✓	MH
12.	"As-excavated" survey conducted	✓	MH
	Bedrock cleaning	✓	MH
13.	Bedrock Mapping	—	—

REMARKS : Approved provided that the water ponds are pumped out before rockfill placement

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Samuel Kiley-Morin	NAME: Marion Haberzettl	NAME: Alexandre Lemelin
SIGNATURE: Samuel Kiley-Morin	SIGNATURE:	SIGNATURE:
DATE: 2017/07/17	DATE: 2017/07/15	DATE: 2017-07-17



STATIONS GIVEN FROM SD4 ALIGNMENT AT ELEV. 150M

REV	DATE	DESCRIPTION	BY

REVISIONS

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AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FND–SD4–28

PROJECT No.	DATE 2017–07–15	
DRAWN BY SAMUEL KILEY–MORIN		SHEET 1 / 1
APPROVED BY		
DRAWING NO.		REVISION

C:\IMeadowbank\DIKE 2017\FOUNDATION APPROVALS\SD4\2017–07–15\FONDATION_APPROVAL_20170715.dwg, 16 Jul 2017

FILE NO. .DWG

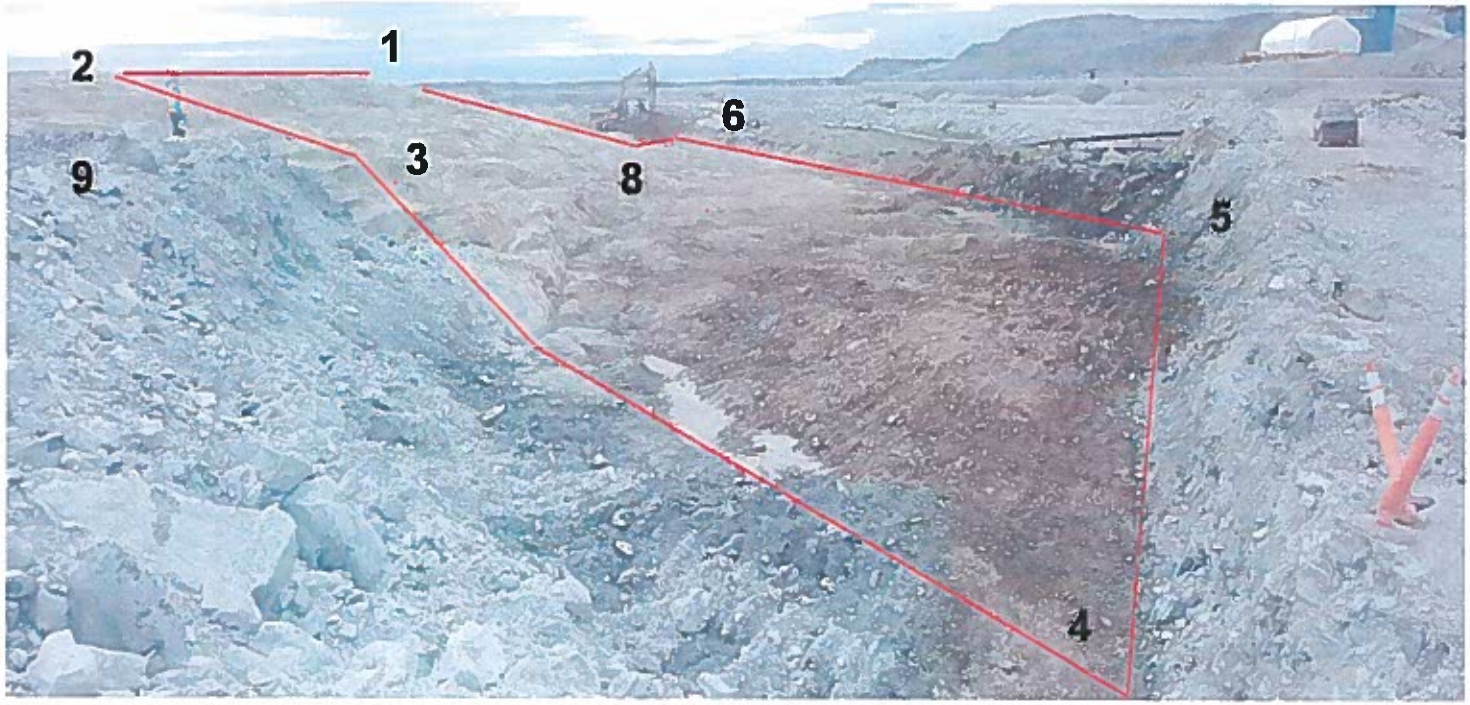
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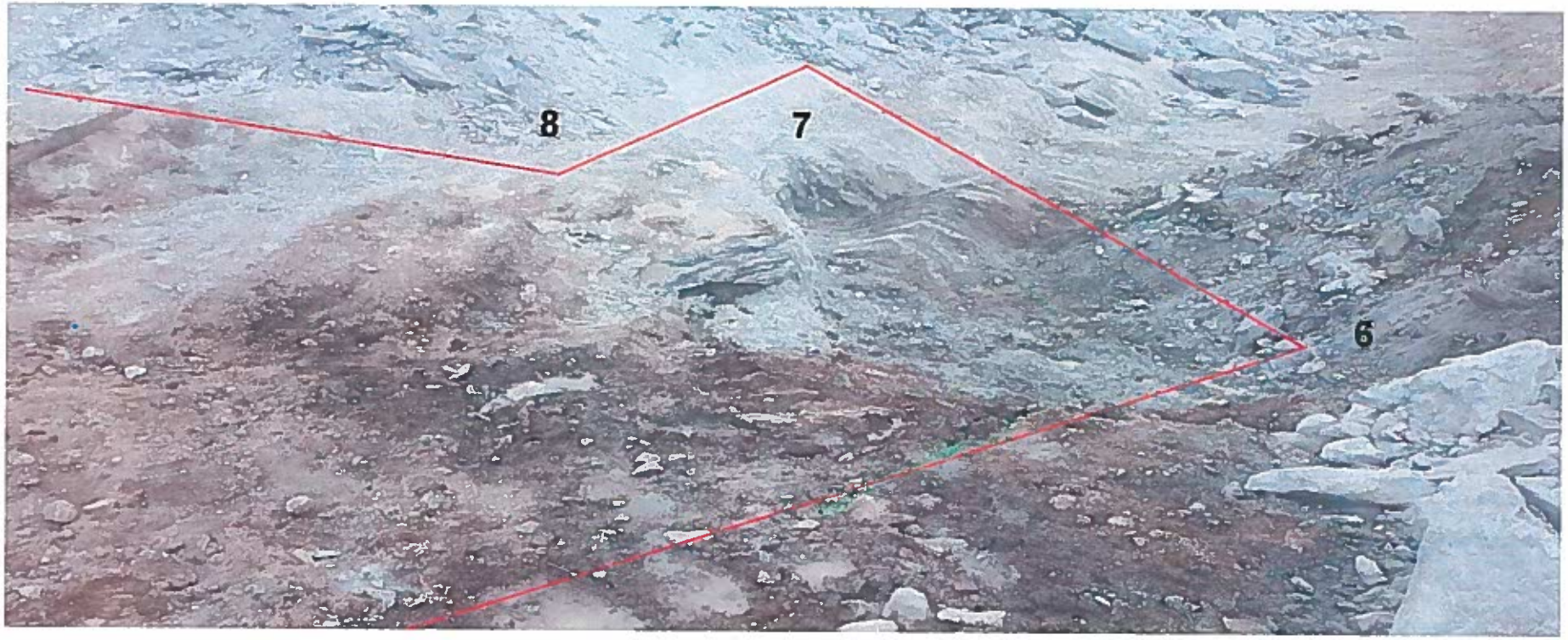
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El. 139.89

Photo 1- Approximate approved foundation area

Date: 2017-07-11

Photo by (Initial): P.T



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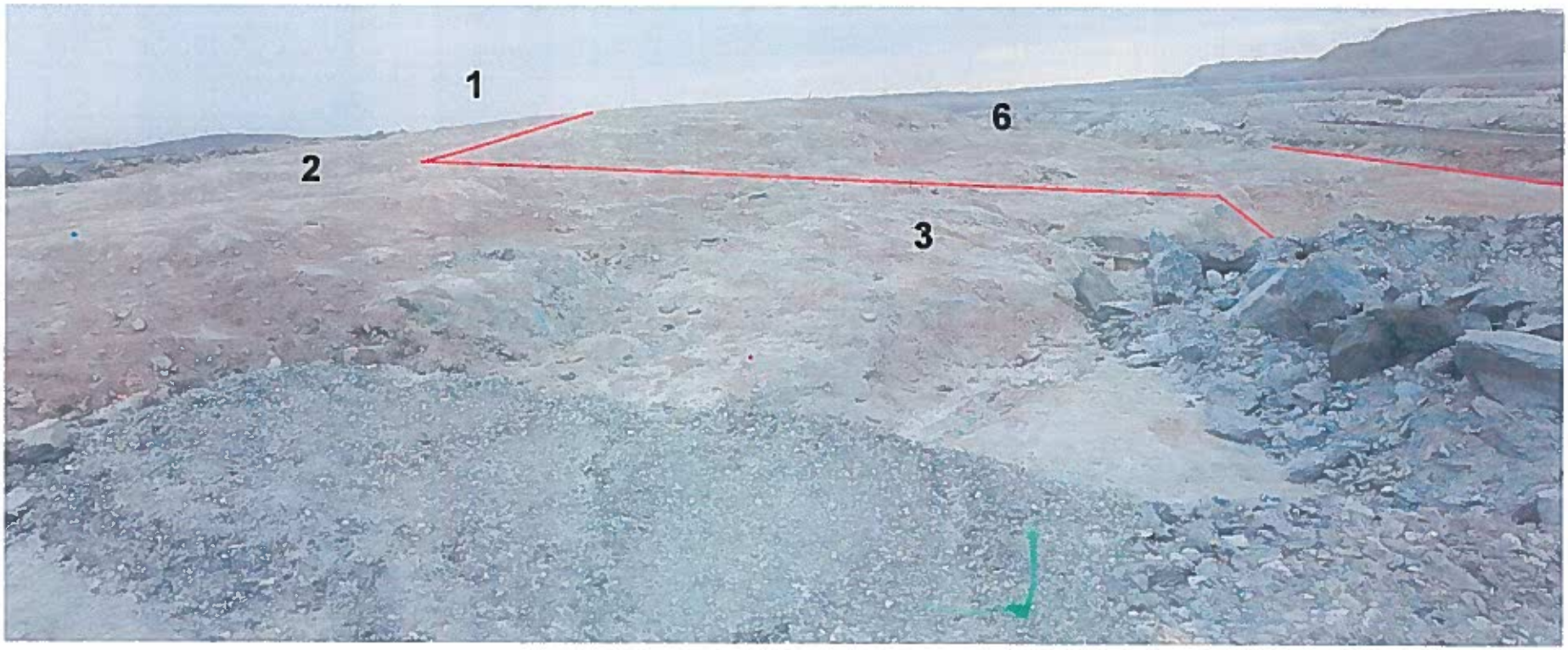
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El. 139.89

Photo 1- Approximate approved foundation area

Date: 2017-07-15

Photo by (Initial): P.T



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6:
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El. 138.40

Photo 1- Approximate approved foundation area

Date: 2017-07-15

Photo by (Initial): P.T

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SD-4

Acceptance No.:	FND-SD4-29	Date:	15/Jul/17

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, incl. Station and Offset (according to Central Dike Stations);

3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative	Name:	Alexandre Lavallee	
	Position:	AEM- Ower Rep.	
QC Representative	Name:	Pierrick Trecasse	
	Position:	GHD	
QA Engineer	Name:	Marion Habersetzer	
	Position:	Golder-Qa	
Surveyor	Name:	Samuel Kiley-Morin	
	Position:	AEM-Surveyor	

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

SADDLE DAM 4 -TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 40+020.13 Offset -25.75	SHIFT: NIGHT ☐ DAY ☑	DATE: 2017/07/15	SHEET 2 OF 4
To Sta. 40+311.87 Offset 25.02	LOCATION: : SD4 downstream		
EQUIPMENT: 345 excavator			
DESCRIPTION rock foundation			

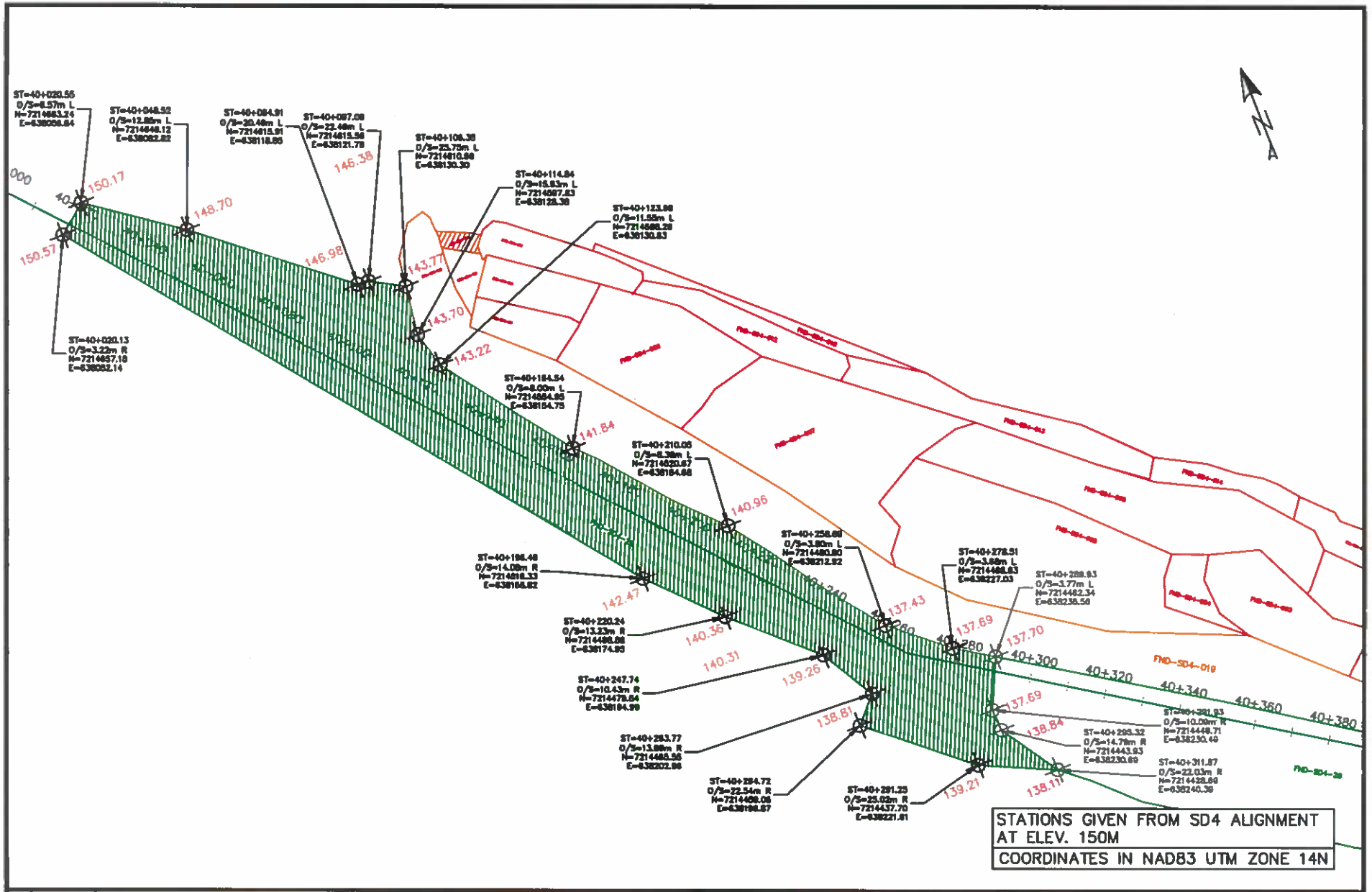
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	AL	MH
2.	Storage areas planned for disposal of removed materials	AL	MH
3.	Occurrence of snow and ice removal method in place	AL	MH
4.	Occurrence of boulders and removal method in place	AL	MH
5.	Occurrence of hummocks and scalping method in place	AL	MH
6.	Occurrence of surface and ground water and its impact mitigation in place	AL	MH
7.	Presence of other unsuitable materials and removal method in place	AL	MH
8.	Soil frozen or thawed and measures taken	AL	MH
9.	Blasting requirement to remove unsuitable material and safety measure checked	AL	MH
	Preparation of surface for LLDPE geomembrane placement	—	—
10.	Adjustment made to suit design in field	AL	MH
11.	Final walkover inspection before re-sloping or fill placement	AL	MH
	Rough grading of foundation	AL	MH
12.	"As-excavated" survey conducted	AL	MH
	Bedrock cleaning	AL	MH
13.	Bedrock Mapping	—	—

REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Samuel Riley-Morin	NAME: Marion Haberzetzer	NAME: Alexandre Lemaître
SIGNATURE: Samuel Riley-Morin	SIGNATURE:	SIGNATURE:
DATE: 2017-07-17	DATE: 2017/07/15	DATE: 2017/07/17



REV	DATE	DESCRIPTION	BY
A	2016-08-21	FOUNDATION AREA MODIF	AD

REVISIONS

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AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO-EAGLE - MEADOWBANK DIVISION
FOUNDATION APPROVAL
FND-SD4-29

PROJECT No.	DATE 2017-07-15
DRAWN BY SAMUEL KILEY-MORIN	SHEET 1 / 1
APPROVED BY	
DRAWING NO.	REVISION

C:\Meadowbank\DIKE 2017\FOUNDATION APPROVALS\SD4\2017-07-15\FOUNDATION APPROVAL_20170715.dwg, 16 Jul 2017

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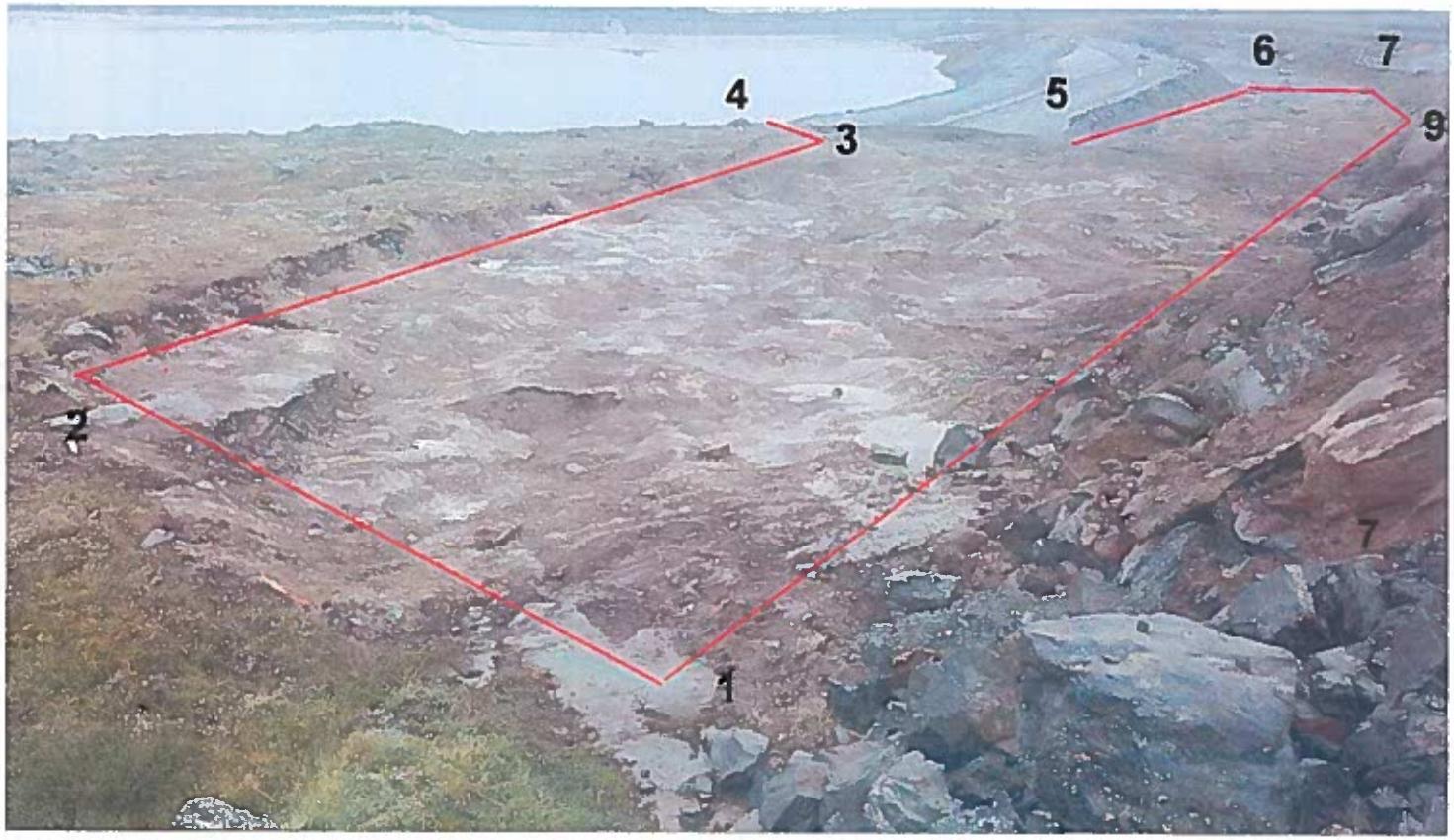
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Photo 1- Approximate approved foundation area

Date: 2017-07-15

Photo by (Initial): P.T

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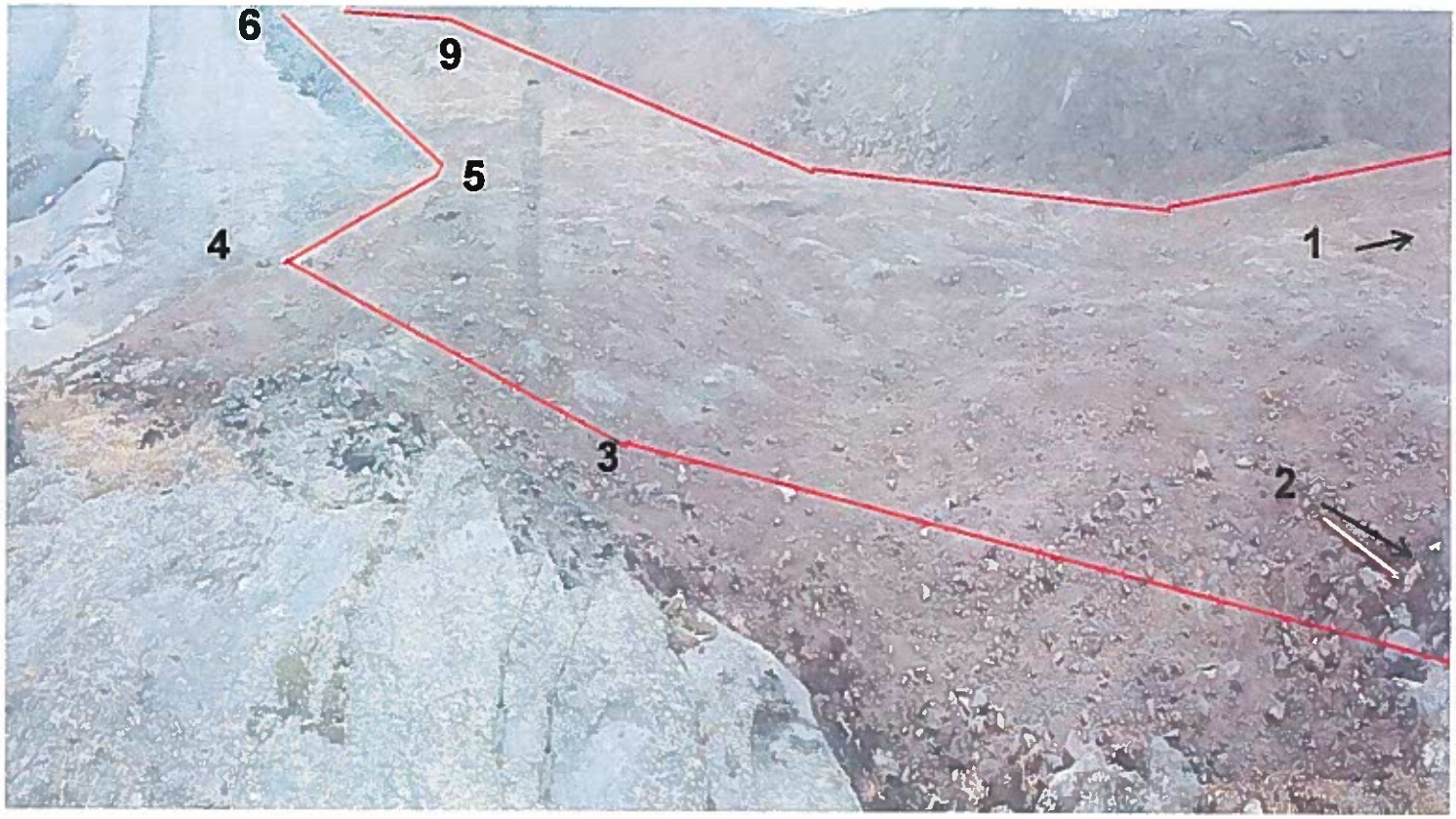


Photo 1- Approximate approved foundation area

Date: 2017-07-15

Photo by (Initial): P.T

Foundation Approval, FDN-SD4-29

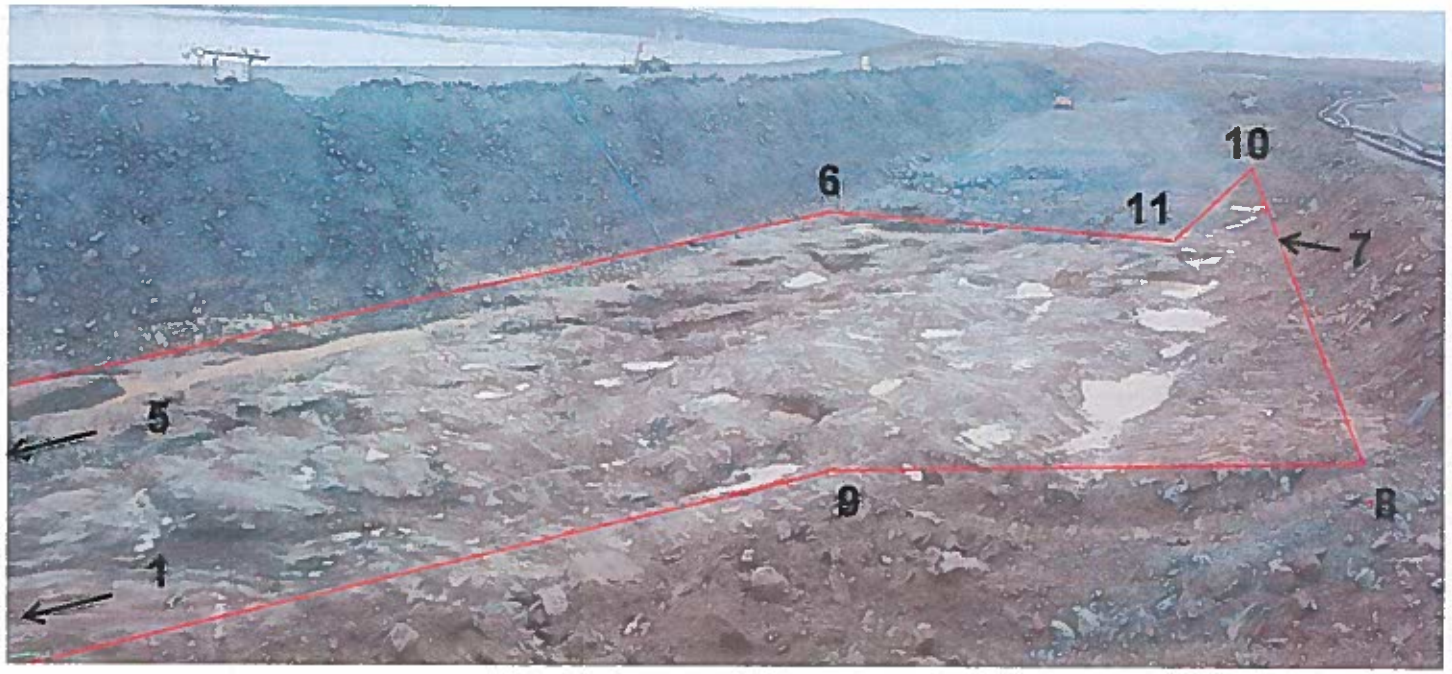
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El. 143.22

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El. 137.70

11:
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El. 138.11



7:
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El. 139.21

8:
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St=40+254.72, Offset=22.54m R
El. 138.81

9:
E=638202.96 N=7214465.55
St=40+263.77, Offset=13.69m R
El. 139.26

Photo 1- Approximate approved foundation area

Date: 2017-07-15

Photo by (Initial): P.T

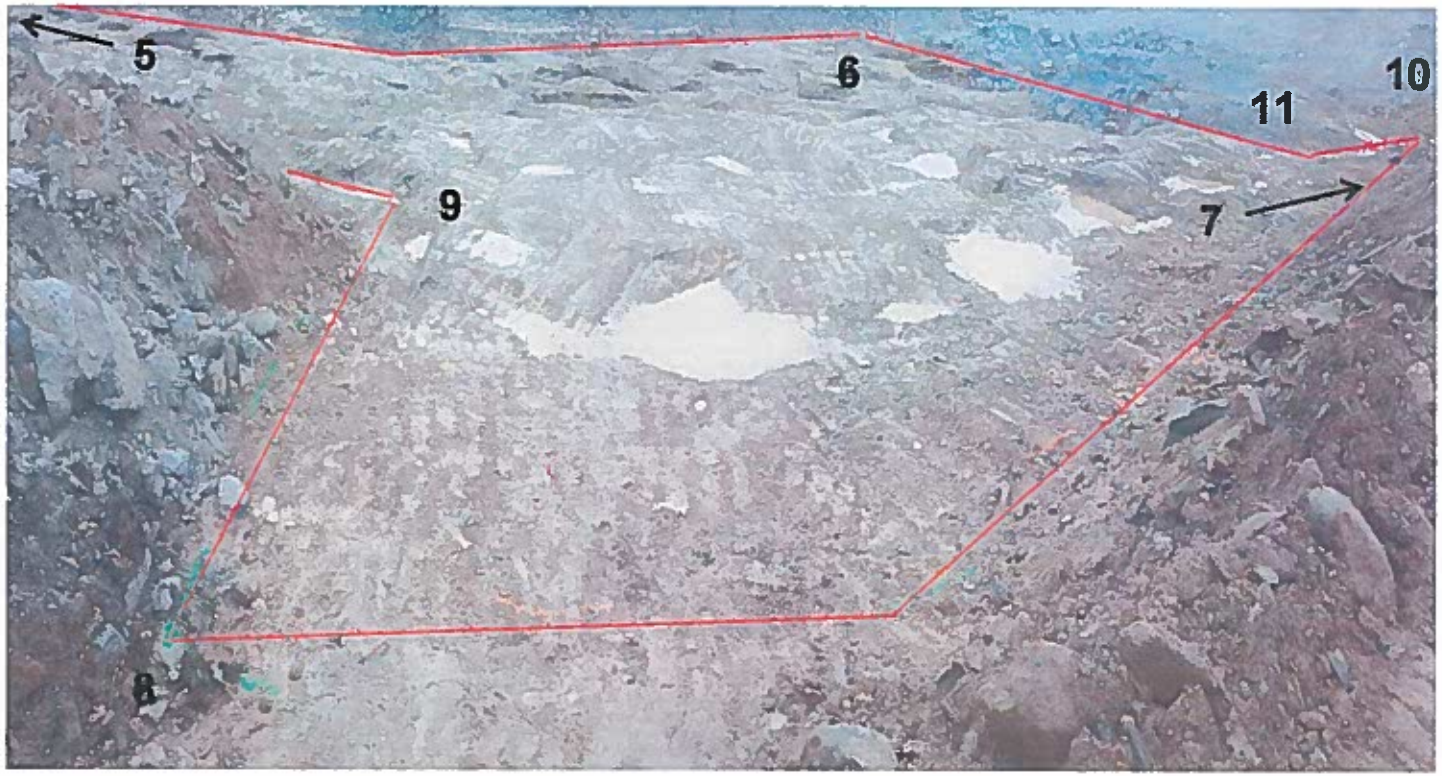
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Photo 1- Approximate approved foundation area

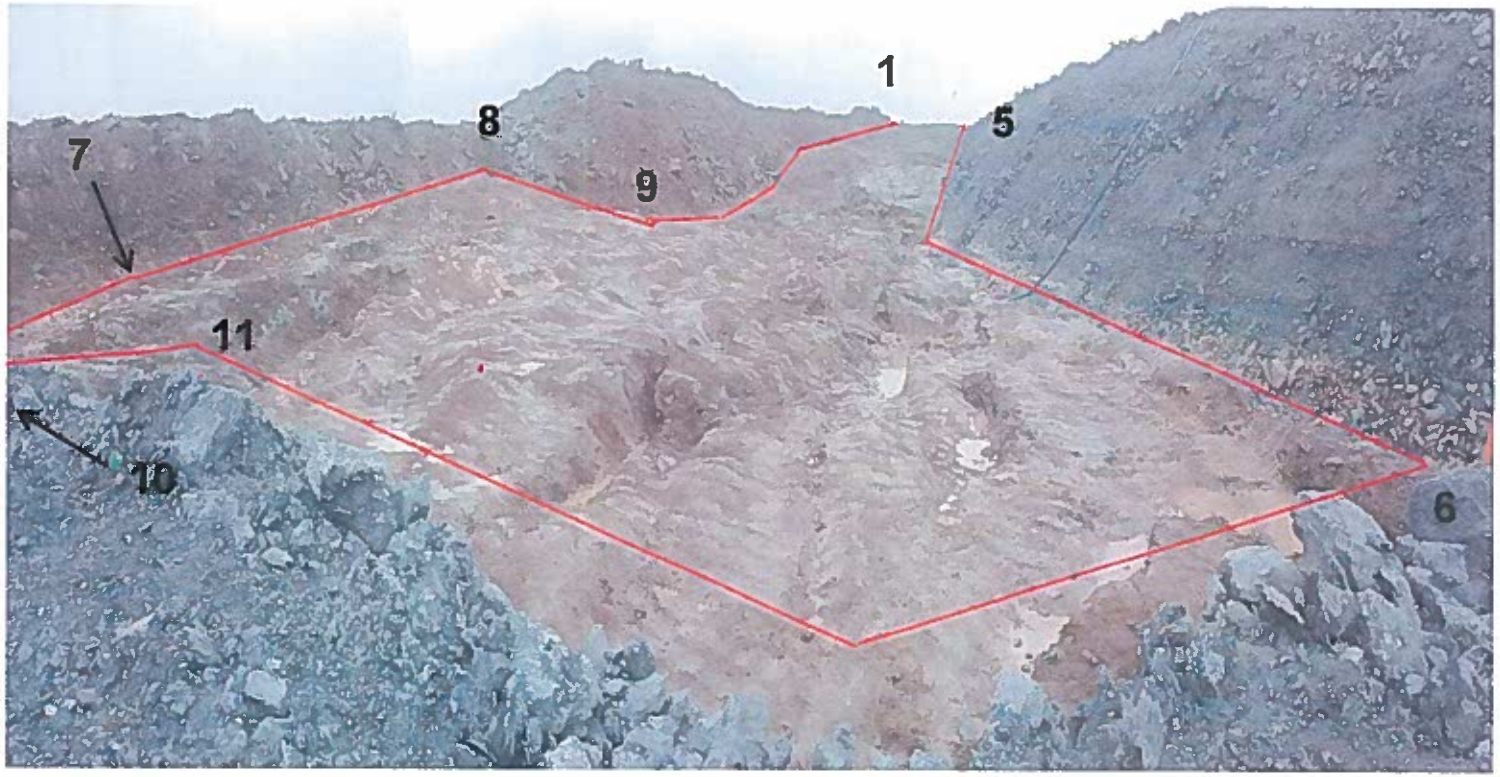
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El. 138.81

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El. 150.57

Photo 1- Approximate approved foundation area

Date: 2017-07-15

Photo by (Initial): P.T

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SD-4

Acceptance No.:	FND-SD4-30	Date:	23/Jul/17

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, incl. Station and Offset (according to Central Dike Stations);

3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative	Name:	Alexandre Lavallee	
	Position:	AEM- Ower Rep.	
QC Representative	Name:	Pierrick Trecasse	
	Position:	GHD	
QA Engineer	Name:	Mickael Nadon	
	Position:	Golder-Qa	
Surveyor	Name:	Samuel Kiley-Morin	
	Position:	AEM-Surveyor	

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

SADDLE DAM 4 -TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 40+620 Offset 3,22 m	SHIFT: NIGHT :☐ DAY ☑	DATE :	SHEET 2 OF 7
To Sta. 40+264 m Offset 22,54 to 13.69m	LOCATION: : Downstream of SD4 (North)		
EQUIPMENT: Excavator 345			

DESCRIPTION Bedrock cleaning of the dike's fondation

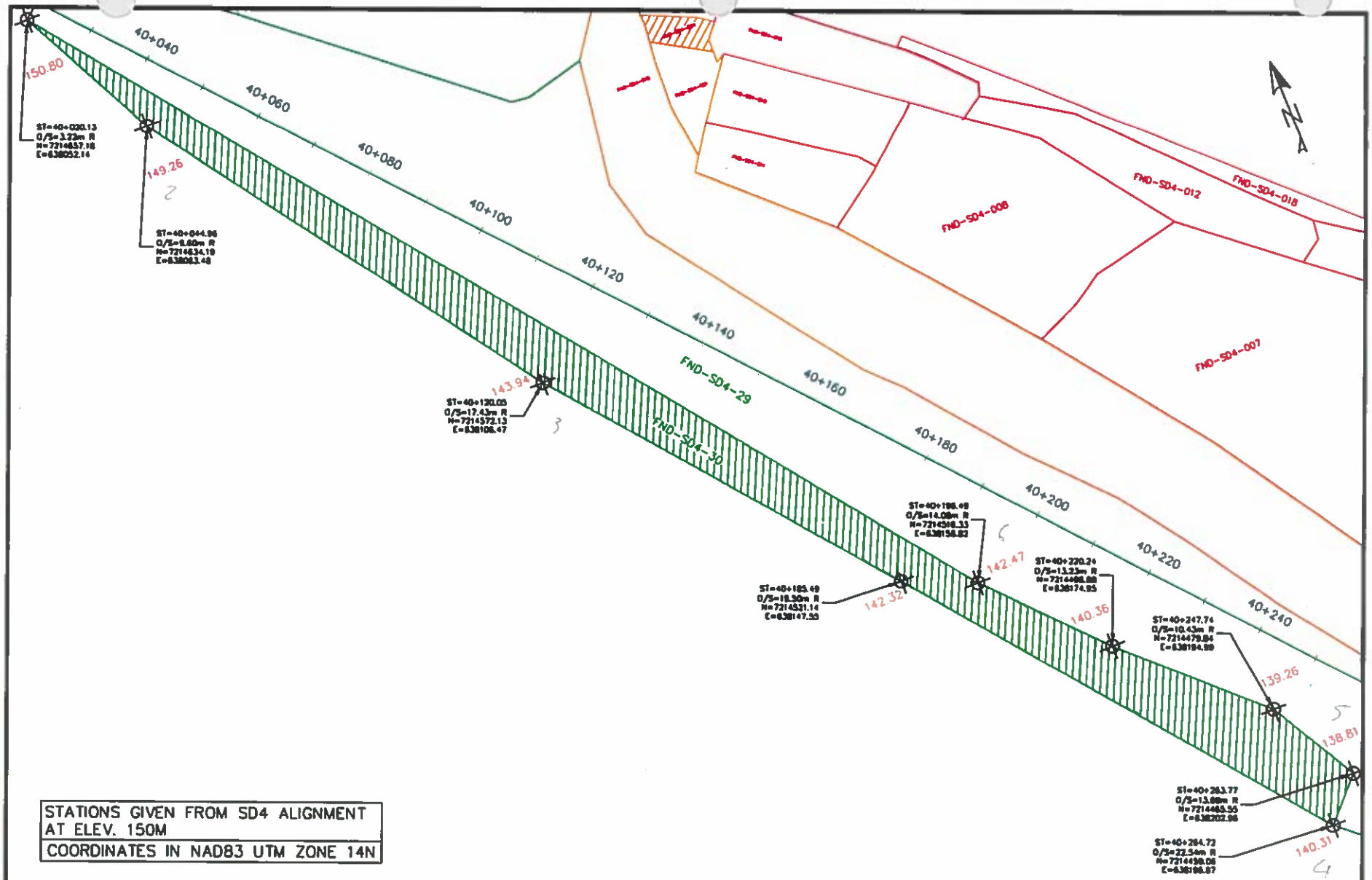
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	AC	MN
2.	Storage areas planned for disposal of removed materials	AC	MN
3.	Occurrence of snow and ice removal method in place	AC	MN
4.	Occurrence of boulders and removal method in place	AC	MN
5.	Occurrence of hummocks and scalping method in place	AC	MN
6.	Occurrence of surface and ground water and its impact mitigation in place	AC	MN
7.	Presence of other unsuitable materials and removal method in place	AC	MN
8.	Soil frozen or thawed and measures taken	AC	MN
9.	Blasting requirement to remove unsuitable material and safety measure checked	AC	MN
	Preparation of surface for LLDPE geomembrane placement	—	—
10.	Adjustment made to suit design in field	AC	MN
11.	Final walkover inspection before re-sloping or fill placement	AC	MN
	Rough grading of foundation	AC	MN
12.	"As-excavated" survey conducted	AC	MN
	Bedrock cleaning	AC	MN
13.	Bedrock Mapping	—	—

REMARKS : Approved provided the water ponds are pumped out before placing UM rockfill

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Samuel Kiley-Morin	NAME: Michael Nadon	NAME: Alexandre Lavallée
SIGNATURE: Samuel Kiley-Morin	SIGNATURE:	SIGNATURE:
DATE: 2017-07-24	DATE: 24-07-2017	DATE: 24-07-2017



STATIONS GIVEN FROM SD4 ALIGNMENT AT ELEV. 150M

COORDINATES IN NAD83 UTM ZONE 14N

REV	DATE	DESCRIPTION	BY
A	2018-08-21	FOUNDATION AREA MODIF	AD

REVISIONS

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AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO-EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FND-SD4-30

PROJECT No.	DATE 2017-07-23
DRAWN BY SAMUEL KILEY-MORIN	SHEET 1 / 1
APPROVED BY	
DRAWING NO.	REVISION

C:\Meadowbank\DIKE 2017\FOUNDATION APPROVALS\SD4\2017-07-23\FOUNDATION APPROVAL_20170715.dwg, 23 Jul 2017

FILE NO. .DWG

Foundation Approval, FDN-SD4-30

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El. 150.80

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El. 149.26

3:
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4:
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El. 142.47

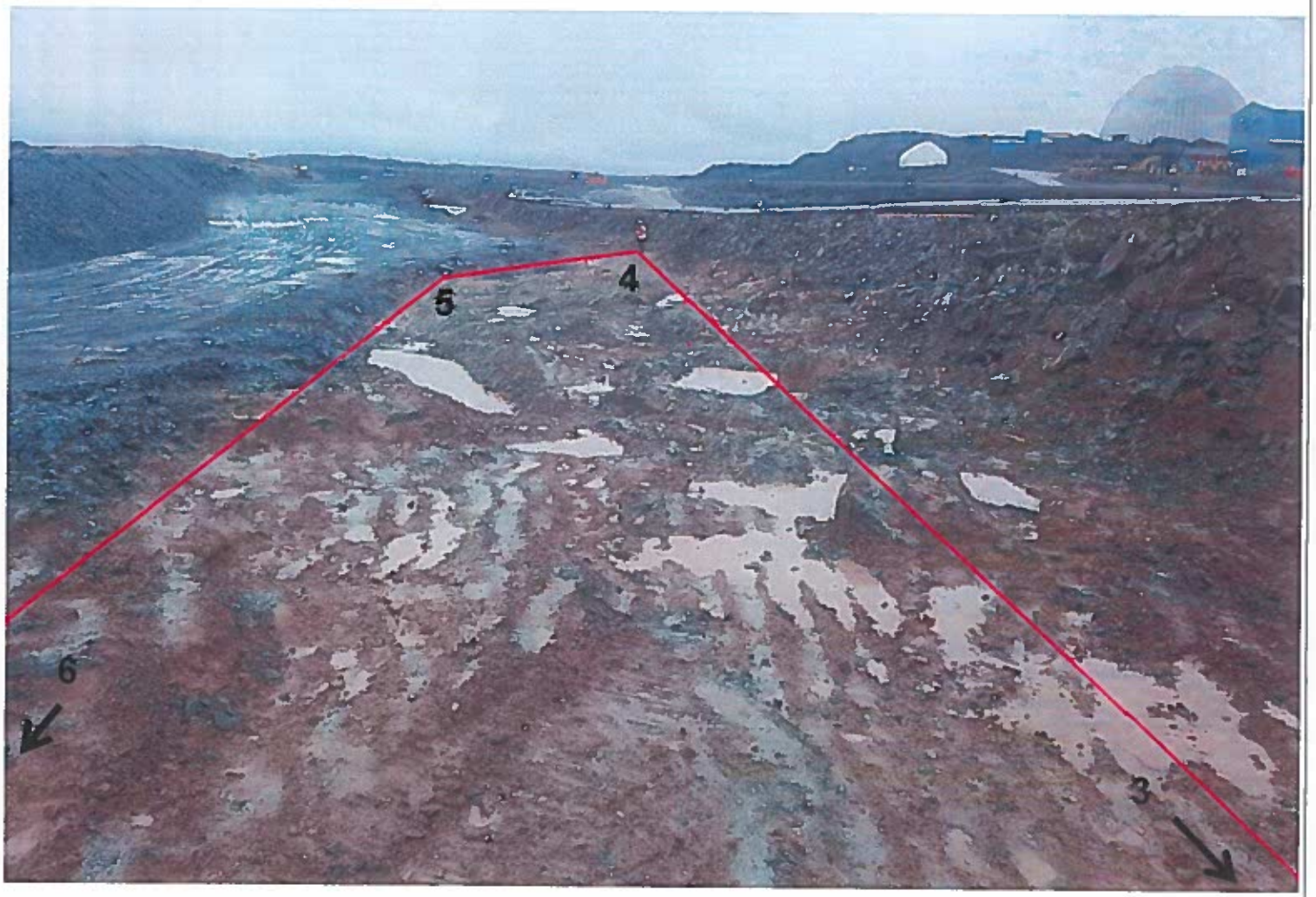


Photo 1- Approximate approved foundation area

Date: 2017-07-23

Photo by (Initial): P.T

Foundation Approval, FDN-SD4-30

1:
E=638052.14, N=7214657.18
St=40+020.13, Offset=3.22m R
El. 150.80

2:
E=638063.48, N=7214634.19
St=40+044.96, Offset=9.60m R
El. 149.26

6:
E=638158.82 N=7214516.33
St=40+196.49, Offset=14.08m R
El. 142.47



Photo 1- Approximate approved foundation area

Date: 2017-07-23

Photo by (Initial): P.T

Foundation Approval, FDN-SD4-30

1:
E=638052.14, N=7214657.18
St=40+020.13, Offset=3.22m R
El. 150.80

3:
E=638106.47, N=7214572.13
St=40+120.05, Offset=17.43m R
El. 143.94

4:
E=638196.87, N=7214459.06
St=40+264.72, Offset=22.54m R
El. 140.31

5:
E=638202.96, N=7214465.55
St=40+263.77, Offset=13.69m R
El. 138.81

6:
E=638158.82 N=7214516.33
St=40+196.49, Offset=14.08m R
El. 142.47



Photo 1- Approximate approved foundation area

Date: 2017-07-23

Photo by (Initial): P.T

Foundation Approval, FDN-SD4-30

1:
E=638052.14, N=7214657.18
St=40+020.13, Offset=3.22m R
El. 150.80

2:
E=638063.48, N=7214634.19
St=40+044.96, Offset=9.60m R
El. 149.26

3:
E=638106.47, N=7214572.13
St=40+120.05, Offset=17.43m R
El. 143.94

4:
E=638196.87, N=7214459.06
St=40+264.72, Offset=22.54m R
El. 140.31

5:
E=638202.96, N=7214465.55
St=40+263.77, Offset=13.69m R
El. 138.81

6:
E=638158.82 N=7214516.33
St=40+196.49, Offset=14.08m R
El. 142.47

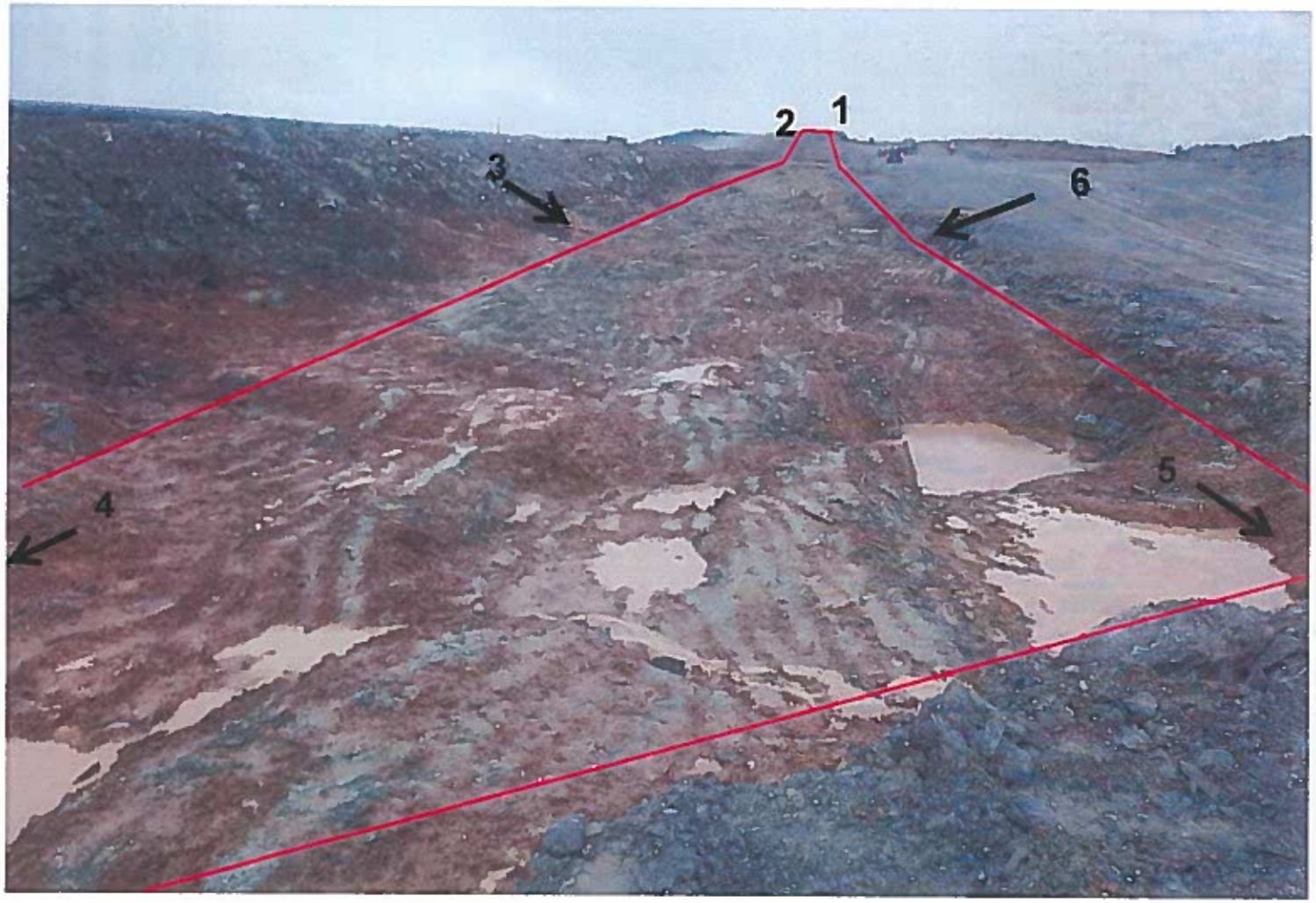


Photo 1- Approximate approved foundation area

Date: 2017-07-23

Photo by (Initial): P.T

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SD-4 (Key Trench)

Acceptance No.:	FND-SD4-31	Date:	16/Sep/17

This Certificate of Acceptance includes the following items, reviewed and accepted by the under signed:

1) Foundation and Key Tr ench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, incl. Station and Offset (according to Central Dike Stations);

3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the under signed surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained pr ior to and during fill placement.

Owner Representative	Name:	~~Alexandre Lavallée~~ Patrice Gagné
	Position:	AEM- Ower Rep.
QC Representative	Name:	Cédrick Fillon Tremblay
	Position:	GHD
QA Engineer	Name:	Michael Nadon
	Position:	Golder-Qa
Surveyor	Name:	~~Francis Pe~~pin MARC-ANDRE BLACKBURN
	Position:	FGL-Surveyor

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

SADDLE DAM 4 -TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 40+096.8 Offset – 36.8 m	SHIFT: NIGHT ☐ DAY ☒	DATE :	SHEET 2 OF 4
To Sta. 40 + 110.1 Offset – 28.2 m	LOCATION: : SD4 upstream toe liner tie-in		
EQUIPMENT: pressurized air stream			
DESCRIPTION rock foundation			

NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	PG	MV
2.	Storage areas planned for disposal of removed materials	PG	MV
3.	Occurrence of snow and ice removal method in place	—	MV
4.	Occurrence of boulders and removal method in place	PG	MV
5.	Occurrence of hummocks and scalping method in place	PG	MV
6.	Occurrence of surface and ground water and its impact mitigation in place	PG	MV
7.	Presence of other unsuitable materials and removal method in place	PG	MV
8.	Soil frozen or thawed and measures taken	PG	MV
9.	Blasting requirement to remove unsuitable material and safety measure checked	—	—
	Preparation of surface for LLDPE geomembrane placement	—	—
10.	Adjustment made to suit design in field	PG	MV
11.	Final walkover inspection before re-sloping or fill placement	PG	MV
	Rough grading of foundation	PG	MV
12.	"As-excavated" survey conducted	PG	MV
	Bedrock cleaning	PG	MV
13.	Bedrock Mapping	PG	MV

REMARKS :
Approval done after backfilling.

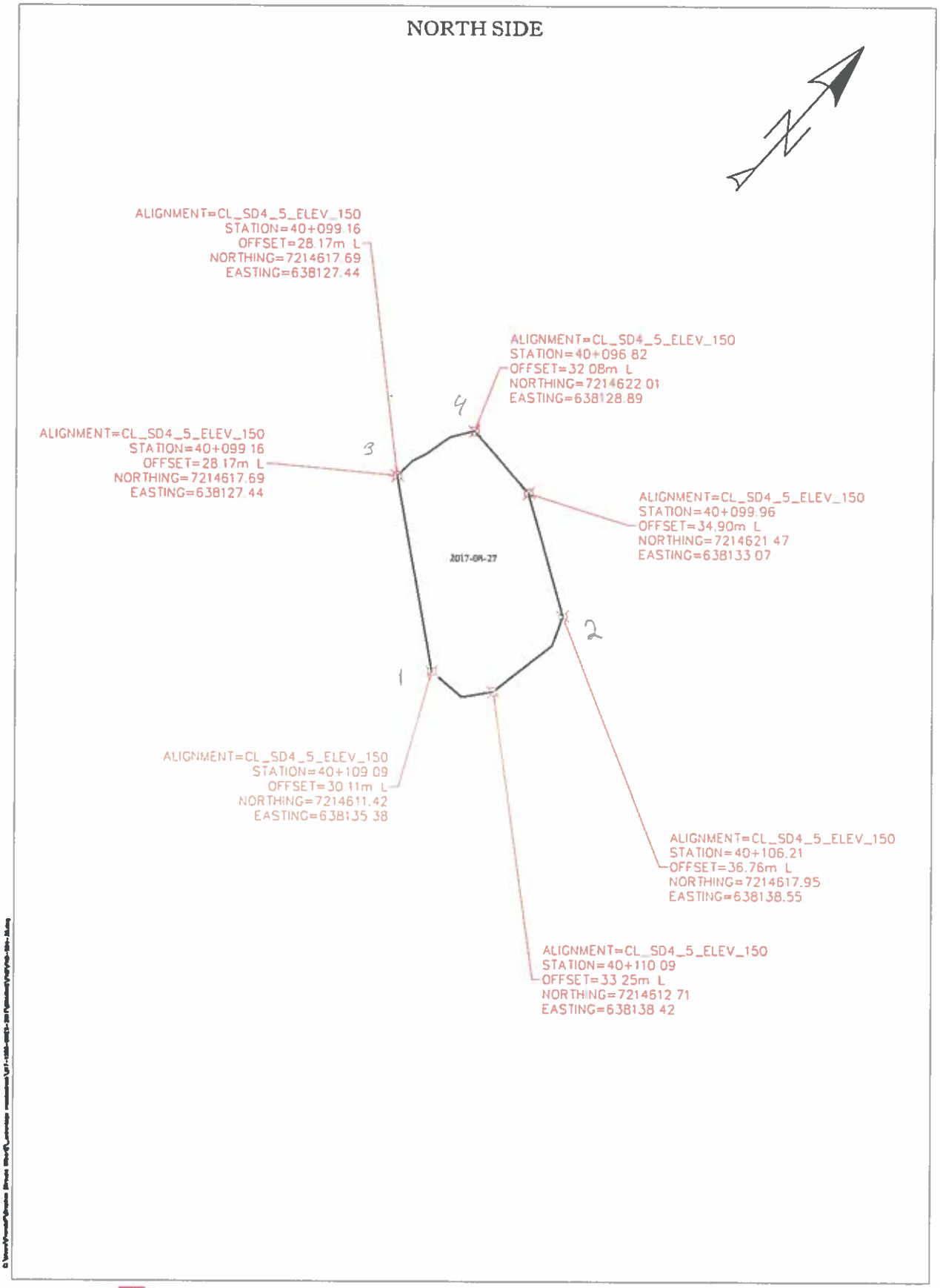
DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: MARC-ANDRE BLAGOUROV	NAME: Michael Wadon	NAME: Patrice Cayer
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 27/09/2017	DATE: 20-09-2017	DATE: 20/09/17

SADDLE DAM 4 - KEY FOUNDATION APPROVAL
DIKES CONSTRUCTION
CONTRACT # 11-607

NORTH SIDE



984246 N.W.T. Limited
D/B/A :
Qamanittuaq
SANA

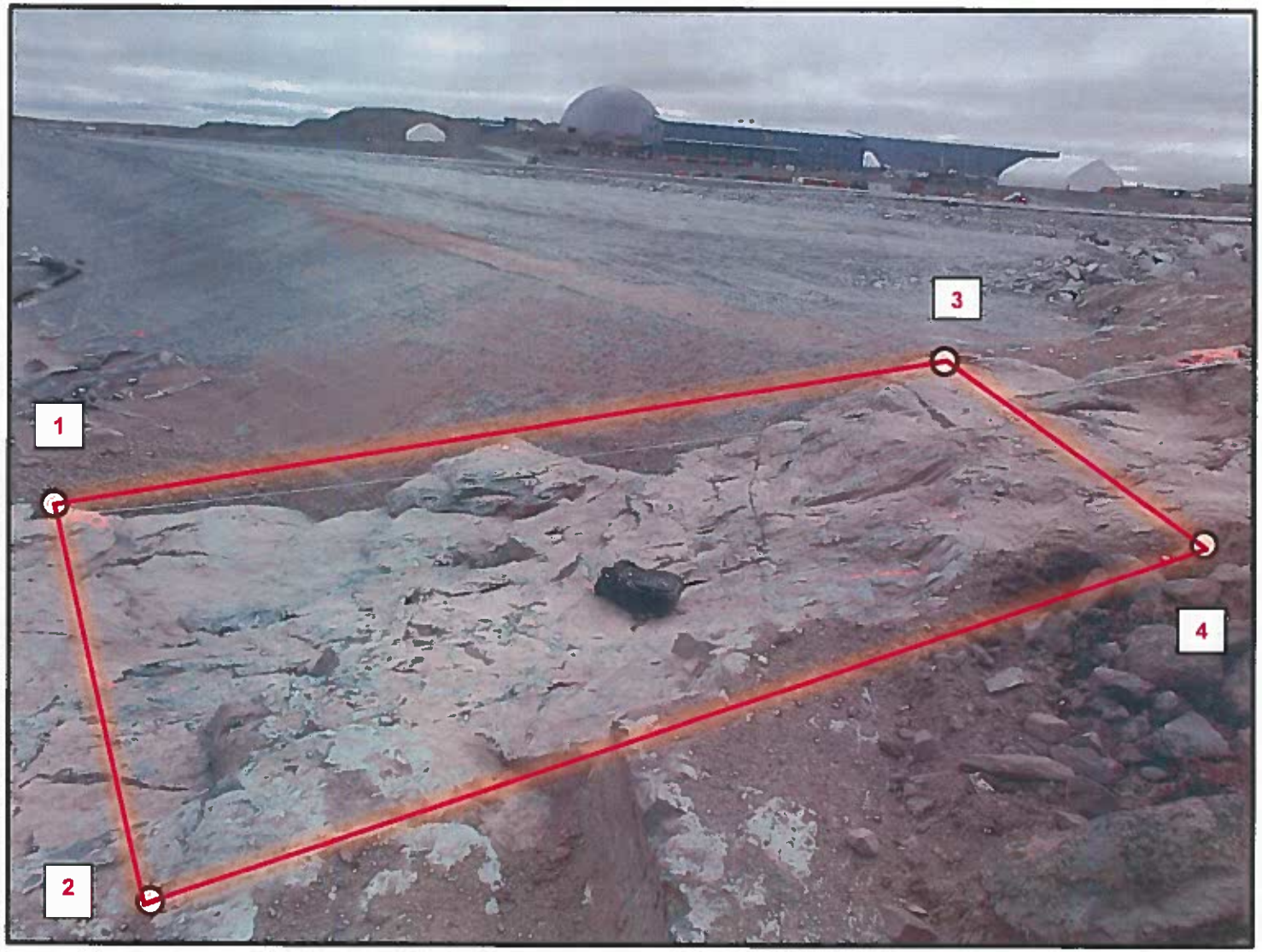
PREPARED BY : FRANCIS PEPIN
DATE : 15-09-2017
FND-SD4-3

1:
E = 638135.38
N = 7214611.42
St = 40+109.09
Offset = 30.11m - L

2:
E = 638138.55
N = 7214617.95
St = 40+106.21
Offset = 36.76m - L

3:
E = 638127.44
N = 7214617.69
St = 40+099.16
Offset = 28.17m - L

4:
E = 638128.89
N = 7214622.01
St = 40+096.82
Offset = 32.08m - L



Picture 1- Approximate approved foundation area

Date: 2017-09-16

Photo by (Initial): C.F.T

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SD-4 (Key Trench)

Acceptance No.:	FND-SD4-32	Date:	16/Sep/17

This Certificate of Acceptance includes the following items, reviewed and accepted by the under signed:

1) Foundation and Key Tr ench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, incl. Station and Offset (according to Central Dike Stations);

3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as -built purposes, as confirmed by the under signed surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained pr ior to and during fill placement.

Owner Representative	Name:	~~Alexandre Lavallée~~ Patrice Gagnon
	Position:	AEM- Ower Rep.
QC Representative	Name:	Cédrick Filion Tremblay
	Position:	GHD
QA Engineer	Name:	Michael Nadon
	Position:	Golder-Qa
Surveyor	Name:	~~Francis Pepin~~ MARC-ANDRE BLACKBURN
	Position:	FGL-Surveyor

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

SADDLE DAM 4 -TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 40+414.5 Offset – 38.9 m	SHIFT: NIGHT ☐ DAY ☒	DATE :	SHEET 2 OF 8
To Sta. 40+463.3 Offset – 26.2 m	LOCATION: : SD4 upstream toe liner tie-in		
EQUIPMENT: pressurized air stream			
DESCRIPTION rock foundation			

NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	PG	MW
2.	Storage areas planned for disposal of removed materials	PG	MW
3.	Occurrence of snow and ice removal method in place	PG	MW
4.	Occurrence of boulders and removal method in place	PG	MW
5.	Occurrence of hummocks and scalping method in place	PG	MW
6.	Occurrence of surface and ground water and its impact mitigation in place	—	—
7.	Presence of other unsuitable materials and removal method in place	PG	MW
8.	Soil frozen or thawed and measures taken	PG	MW
9.	Blasting requirement to remove unsuitable material and safety measure checked	—	—
	Preparation of surface for LLDPE geomembrane placement	PG	MW
10.	Adjustment made to suit design in field	PG	MW
11.	Final walkover inspection before re-sloping or fill placement	PG	MW
	Rough grading of foundation	PG	MW
12.	"As-excavated" survey conducted	PG	MW
	Bedrock cleaning	PG	MW
13.	Bedrock Mapping	PG	MW

REMARKS :
Approval done after backfilling.

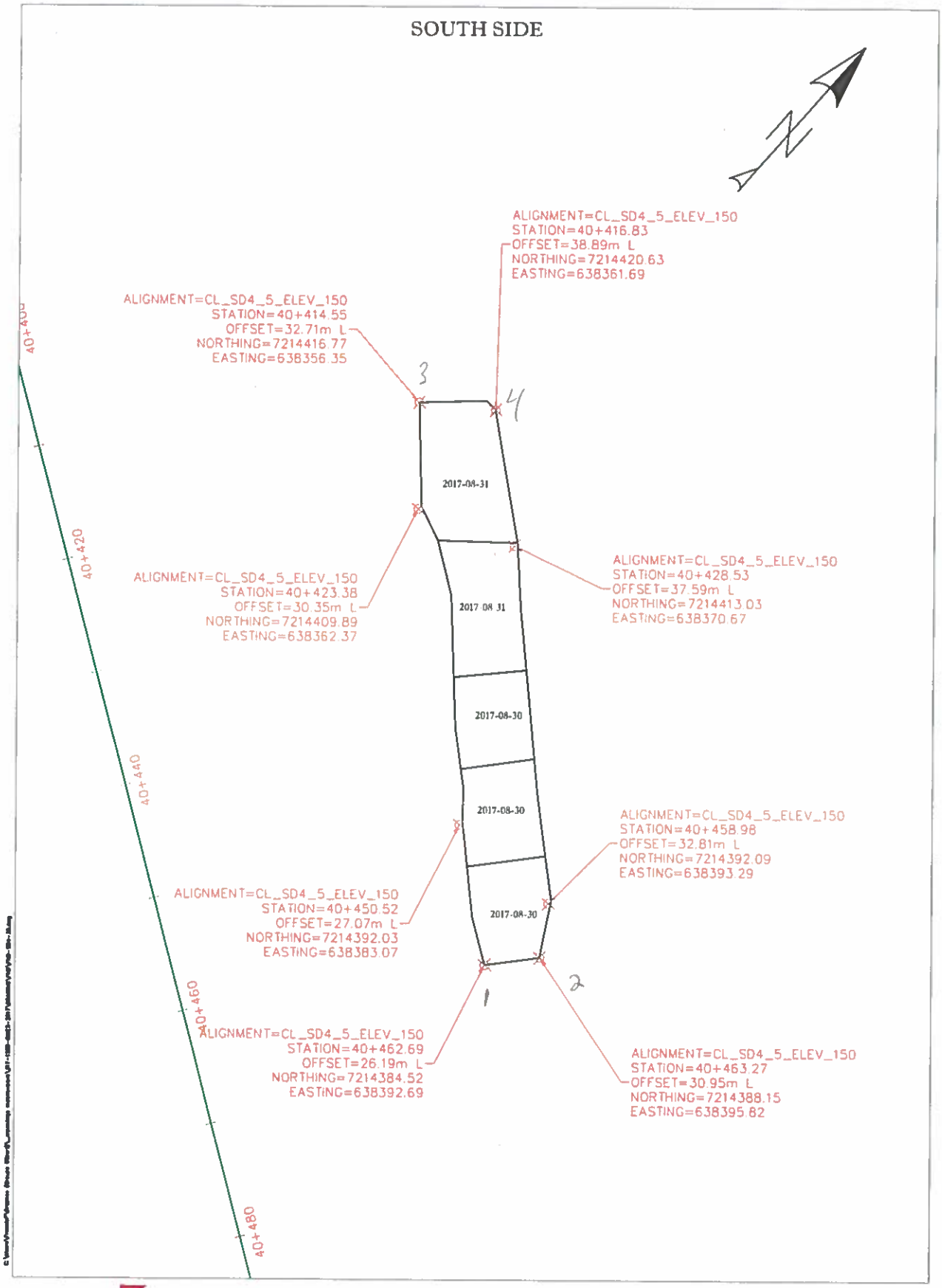
DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: MARC ANDRE BLACKBURN	NAME: Michael Wadsworth	NAME: Patrice Cayouette
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 27/09/2017	DATE: 27-09-2017	DATE: 28/09/17

SADDLE DAM 4 - KEY FOUNDATION APPROVAL
DIKES CONSTRUCTION
CONTRACT # 11-607

SOUTH SIDE



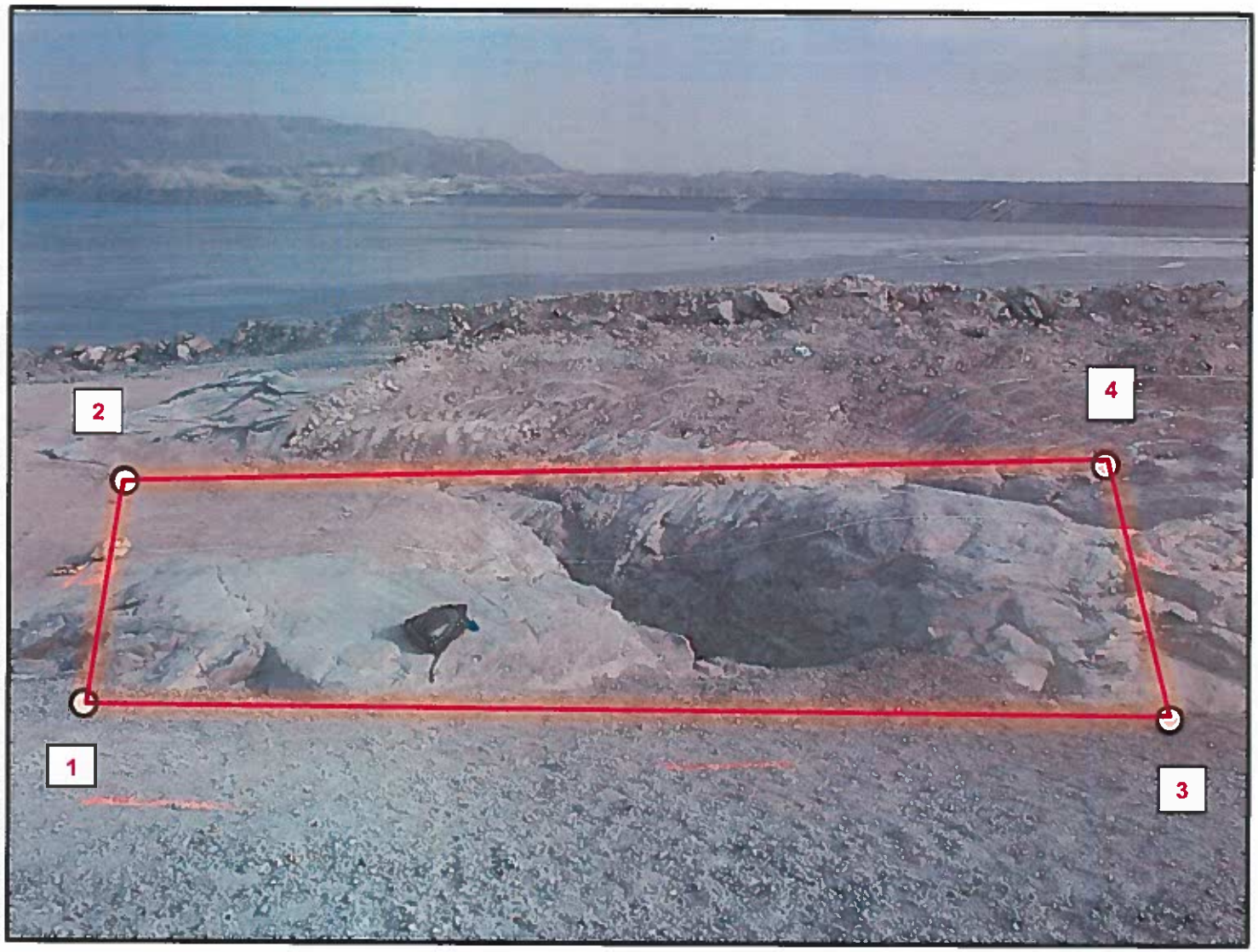
984246 N.W.T. Limited
D/B/A :
Qamanittuaq
SANA

PREPARED BY : FRANCIS PEPIN
DATE : 15-09-2017
FND-SD4-3

Foundation Approval, FND-SD4-370

1:
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N = 7214416.77
St = 40+414.55
Offset = 32.71m - L

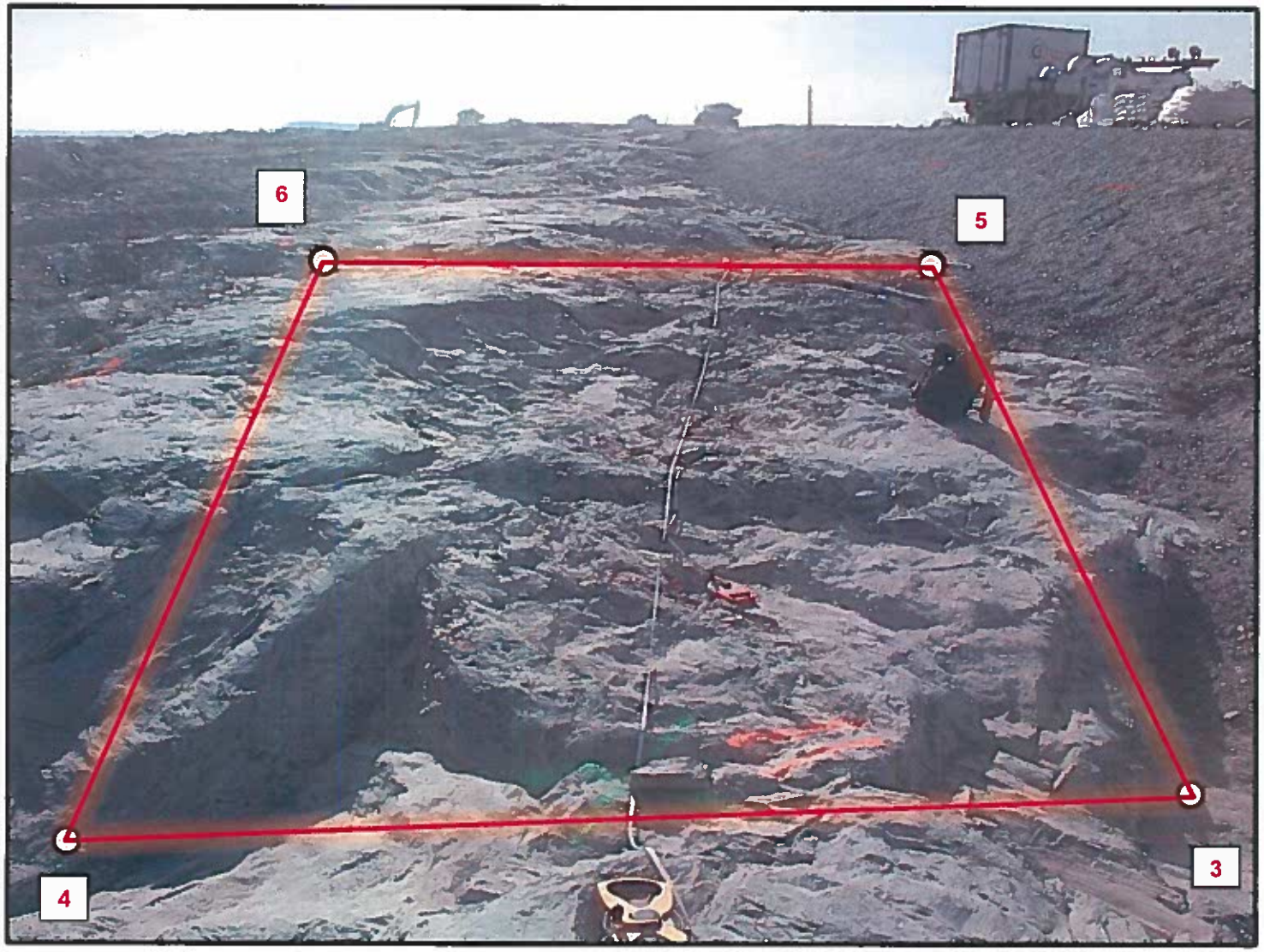
2:
E = 638361.69
N = 7214420.63
St = 40+416.83
Offset = 38.89m - L



Picture 1- Approximate approved foundation area

Date: 2017-09-16

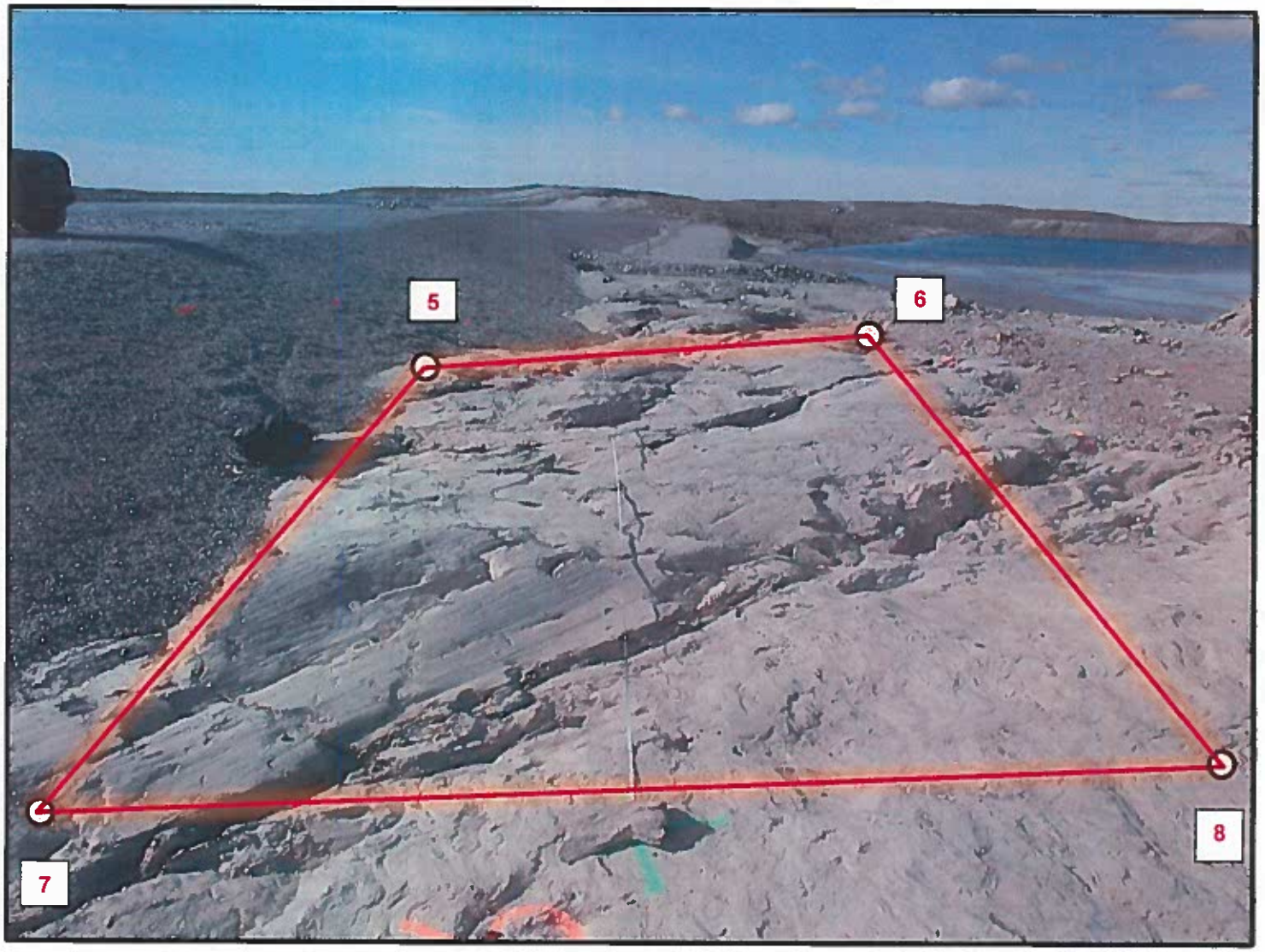
Photo by (Initial): C.F.T



Picture 1- Approximate approved foundation area

Date: 2017-09-16

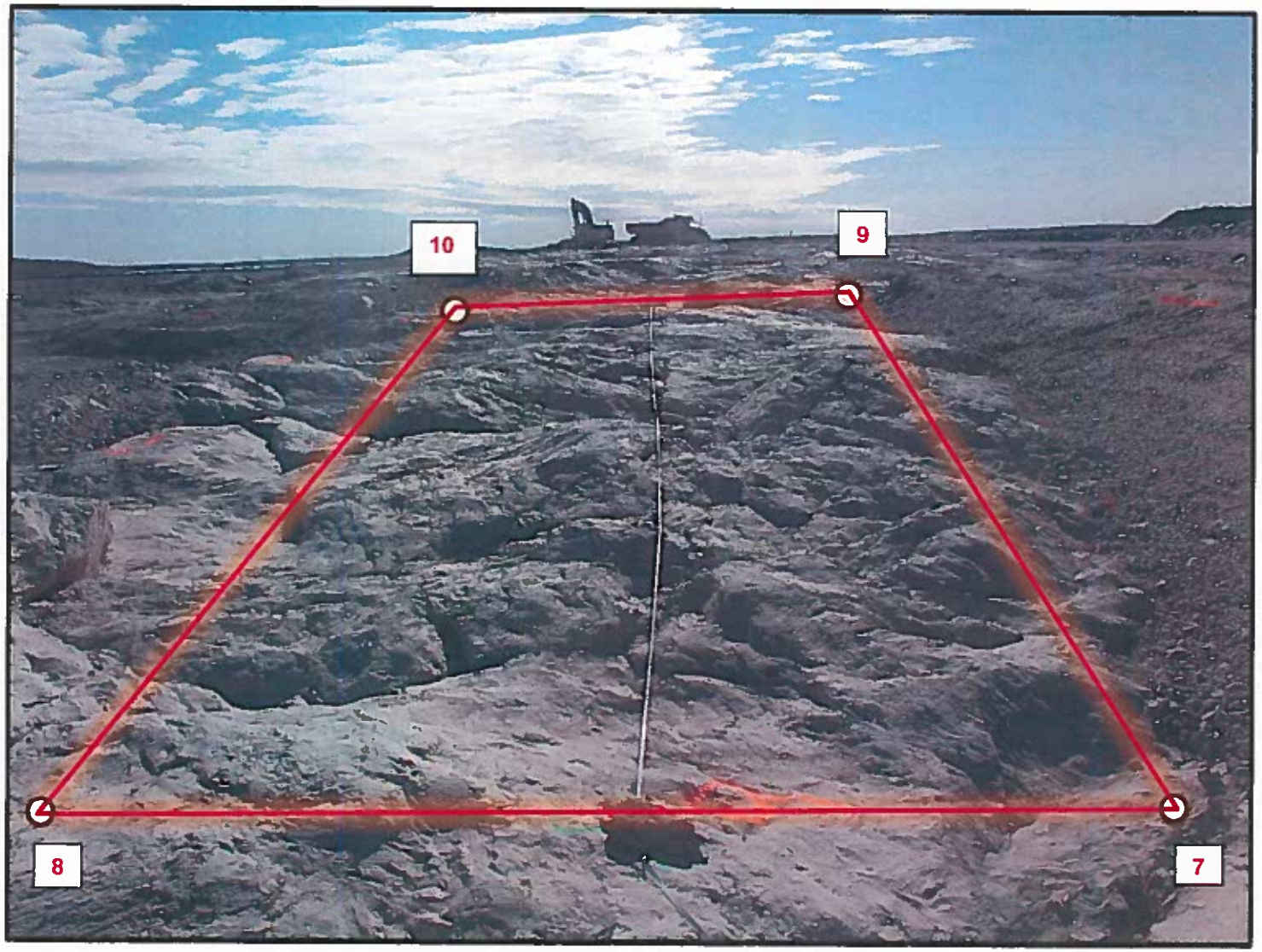
Photo by (Initial): C.F.T



Picture 1- Approximate approved foundation area

Date: 2017-09-16

Photo by (Initial): C.F.T



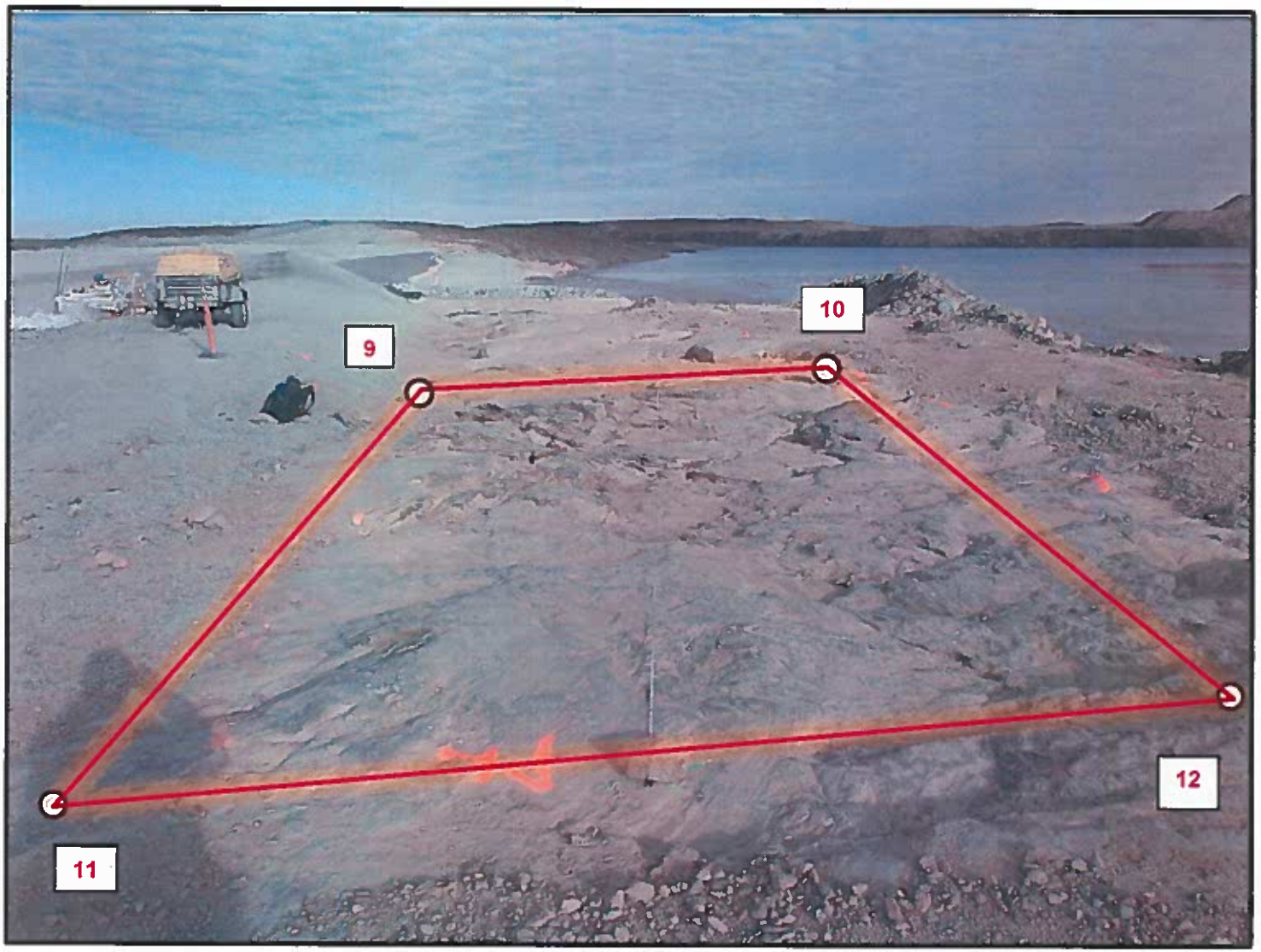
Picture 1- Approximate approved foundation area

Date: 2017-09-16

Photo by (Initial): C.F.T

11:
E = 638392.69
N = 7214384.52
St = 40+450.52
Offset = 27.07m - L

12:
E = 638395.82
N = 7214388.15
St = 40+463.27
Offset = 30.95m - L



Picture 1- Approximate approved foundation area

Date: 2017-09-16

Photo by (Initial): C.F.T

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SD-4 (Key Trench)

Acceptance No.:	FND-SD4-33	Date:	16/Sep/17

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, incl. Station and Offset (according to Central Dike Stations);

3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative	Name:	~~Alexandre Lavallée~~ Patrice Gagnon
	Position:	AEM- Ower Rep.
QC Representative	Name:	Cédrick Fillon Tremblay
	Position:	GHD
QA Engineer	Name:	Michael Nadon
	Position:	Golder-Qa
Surveyor	Name:	~~Francis Pepin~~ MARC ANDRE BLACKBURN
	Position:	FGL-Surveyor

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

SADDLE DAM 4 -TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 40+549.8 Offset – 40.4 m	SHIFT: NIGHT ☐ DAY ☒	DATE :	SHEET 2 OF 7
To Sta. 40+600 Offset – 24.1 m	LOCATION: : SD4 upstream toe liner tie-in		
EQUIPMENT: pressurized air stream			

DESCRIPTION rock foundation

NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	DC	MN
2.	Storage areas planned for disposal of removed materials	DG	MN
3.	Occurrence of snow and ice removal method in place	DG	MN
4.	Occurrence of boulders and removal method in place	DG	MN
5.	Occurrence of hummocks and scalping method in place	DG	MN
6.	Occurrence of surface and ground water and its impact mitigation in place	DG	MN
7.	Presence of other unsuitable materials and removal method in place	DG	MN
8.	Soil frozen or thawed and measures taken	—	—
9.	Blasting requirement to remove unsuitable material and safety measure checked	—	—
	Preparation of surface for LLDPE geomembrane placement	DG	MN
10.	Adjustment made to suit design in field	DG	MN
11.	Final walkover inspection before re-sloping or fill placement	DG	MN
	Rough grading of foundation	DG	MN
12.	"As-excavated" survey conducted	DG	MN
	Bedrock cleaning	DG	MN
13.	Bedrock Mapping	DC	MN

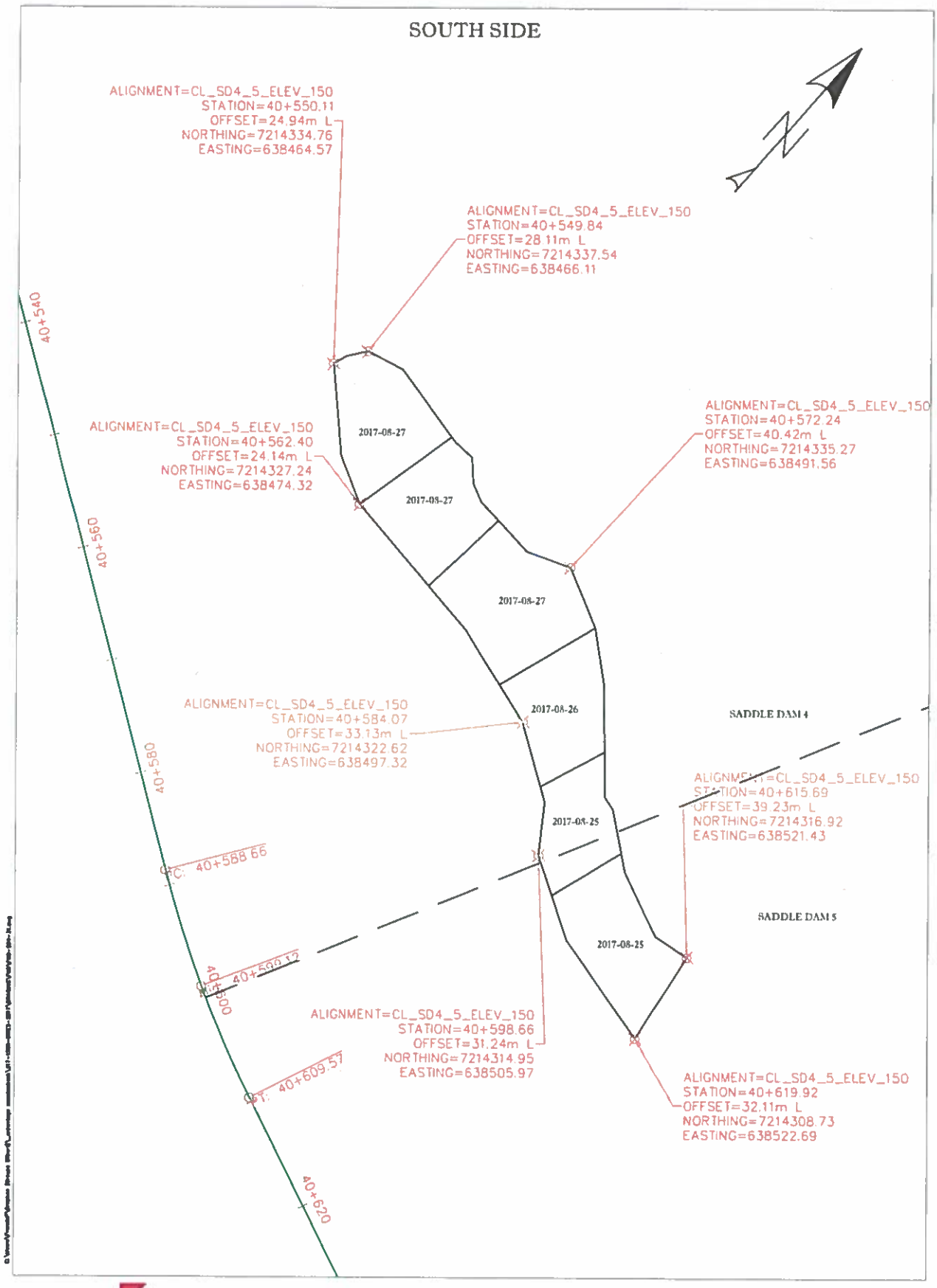
REMARKS :
Approval done after backfilling.

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: MARC-ANDRE BLANCHET	NAME: Michael Nadon	NAME: Patrice Caya
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 27/09/2017	DATE: 20-09-2017	DATE: 26/09/17

SADDLE DAM 4 - KEY FOUNDATION APPROVAL
DIKES CONSTRUCTION
CONTRACT # 11-607

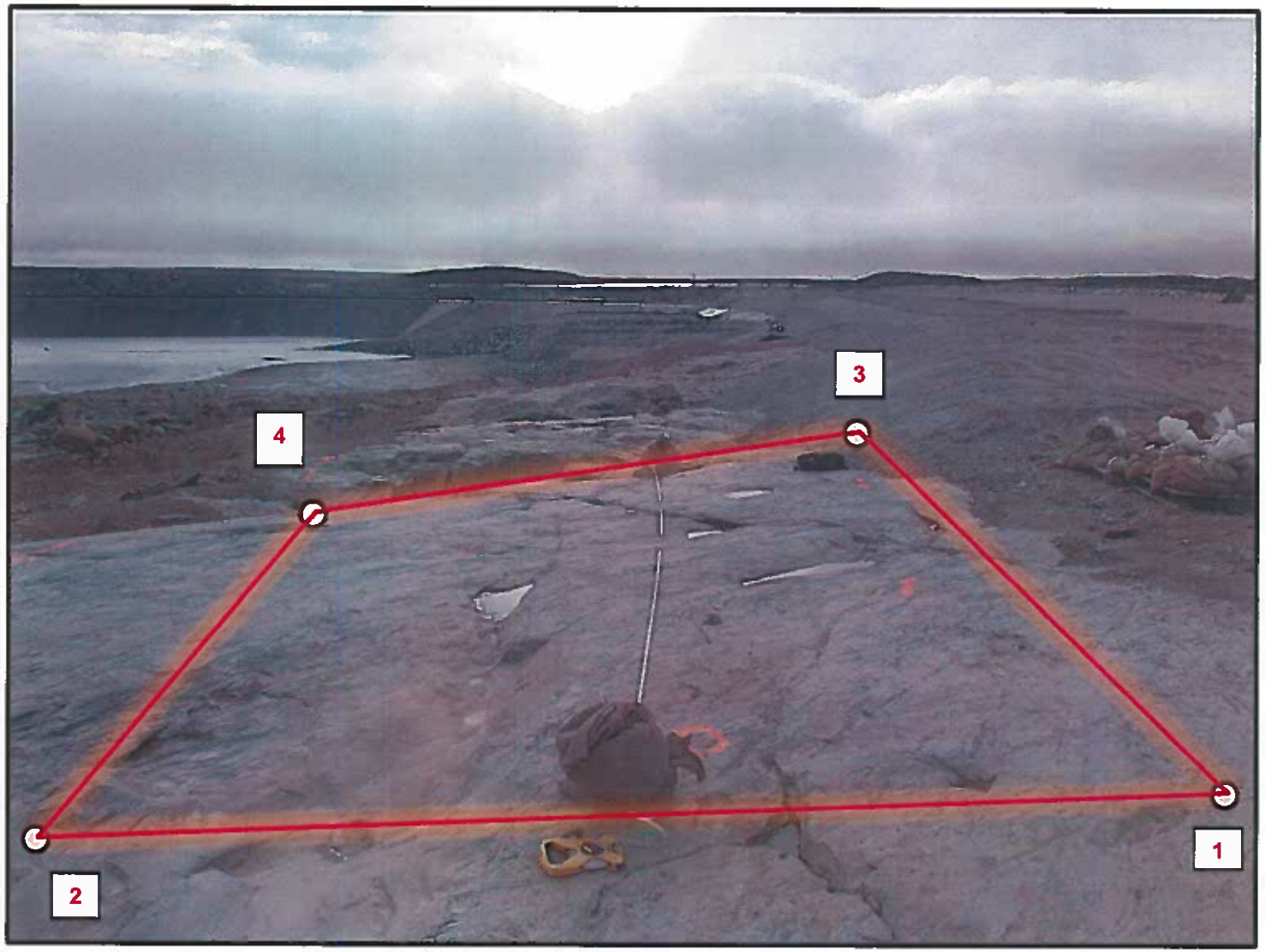


984246 N.W.T. Limited
D/B/A :
Qamanittuaq
SANA

PREPARED BY : FRANCIS PEPIN
DATE : 15-09-2017
FND-SD4-33

1:
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N = 7214334.76
St = 40+550.11
Offset = 24.94m - L

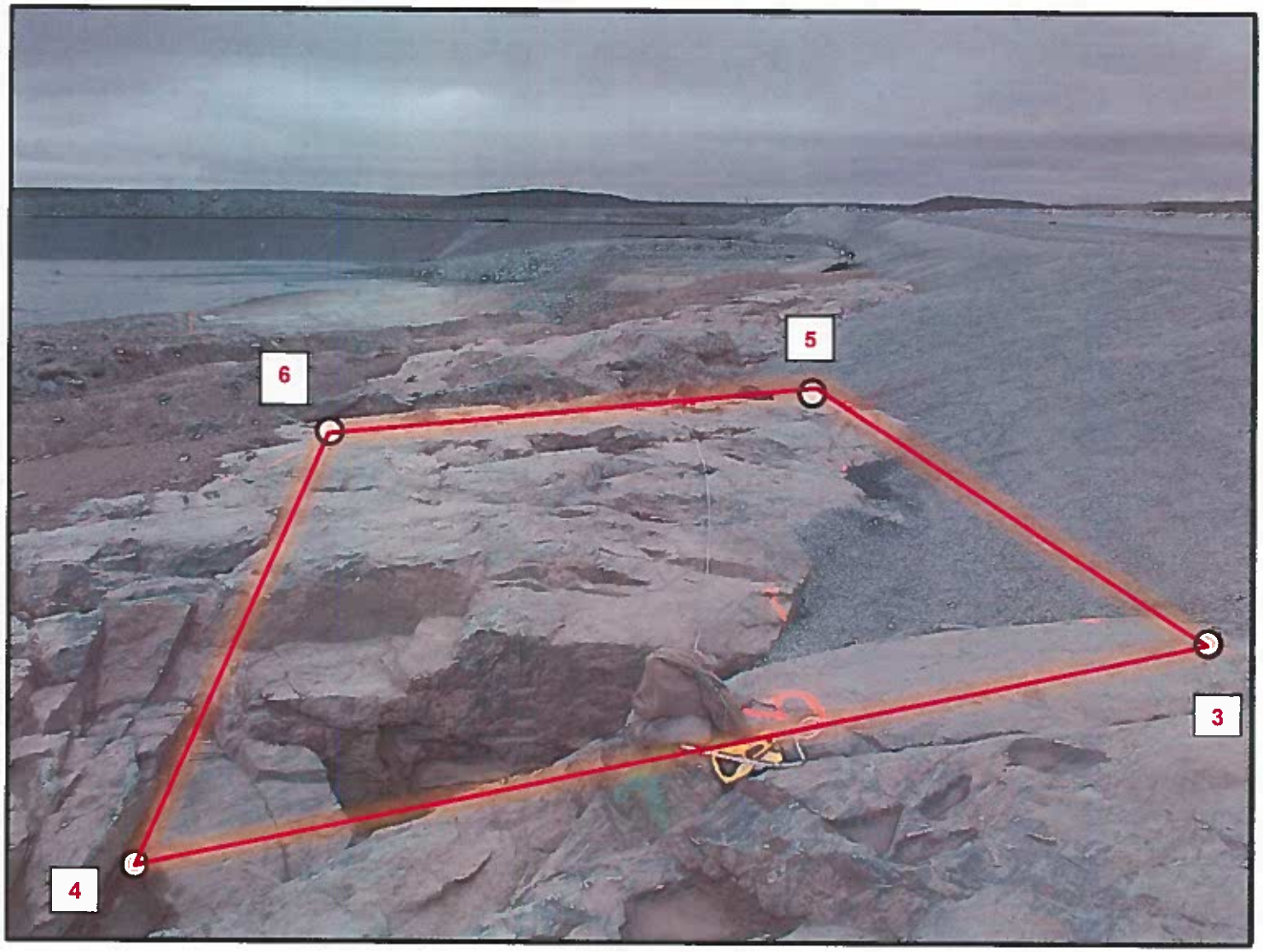
2:
E = 638466.11
N = 7214337.54
St = 40+549.84
Offset = 28.11m - L



Picture 1- Approximate approved foundation area

Date: 2017-09-16

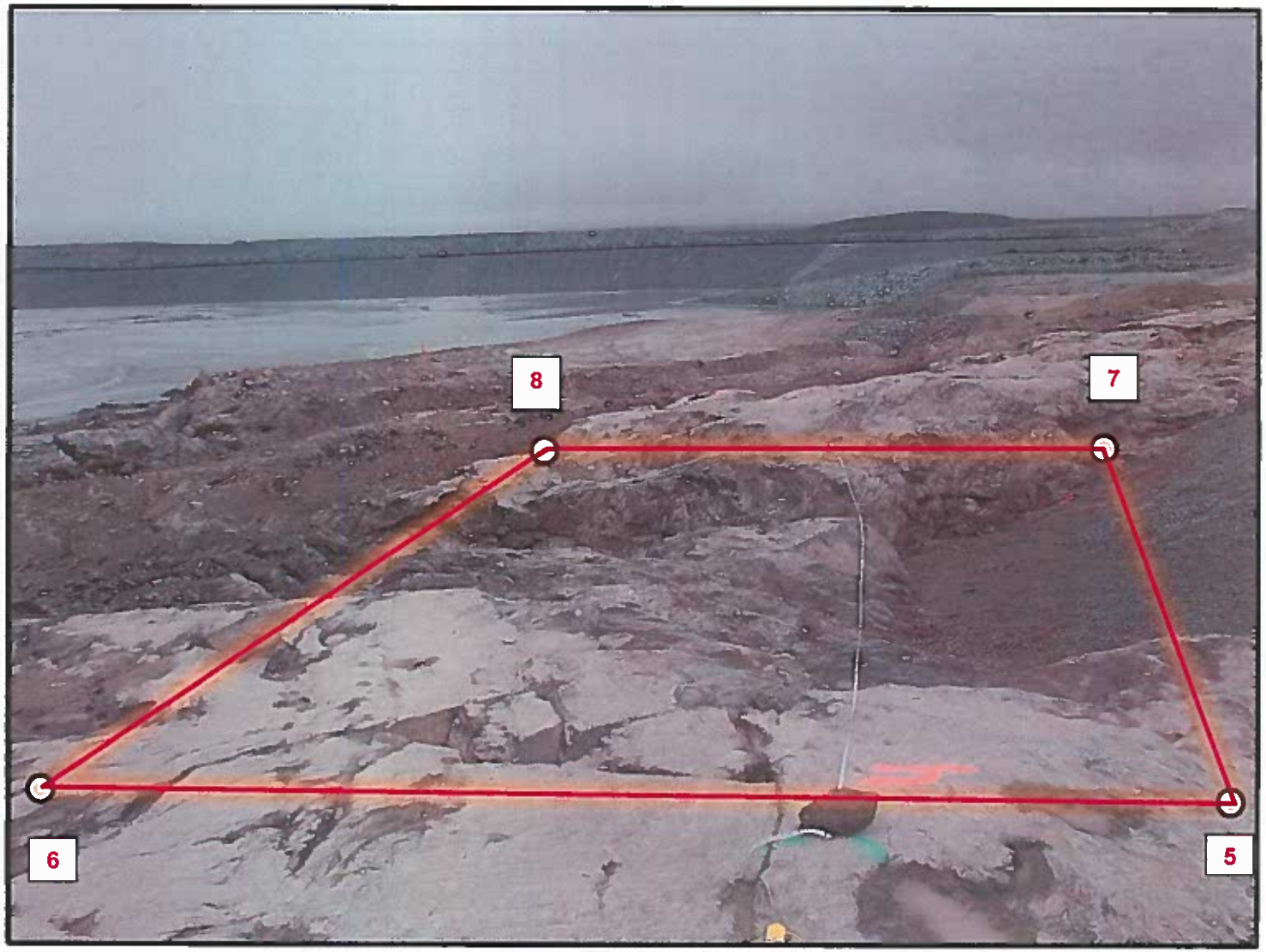
Photo by (Initial): C.F.T



Picture 1- Approximate approved foundation area

Date: 2017-09-16

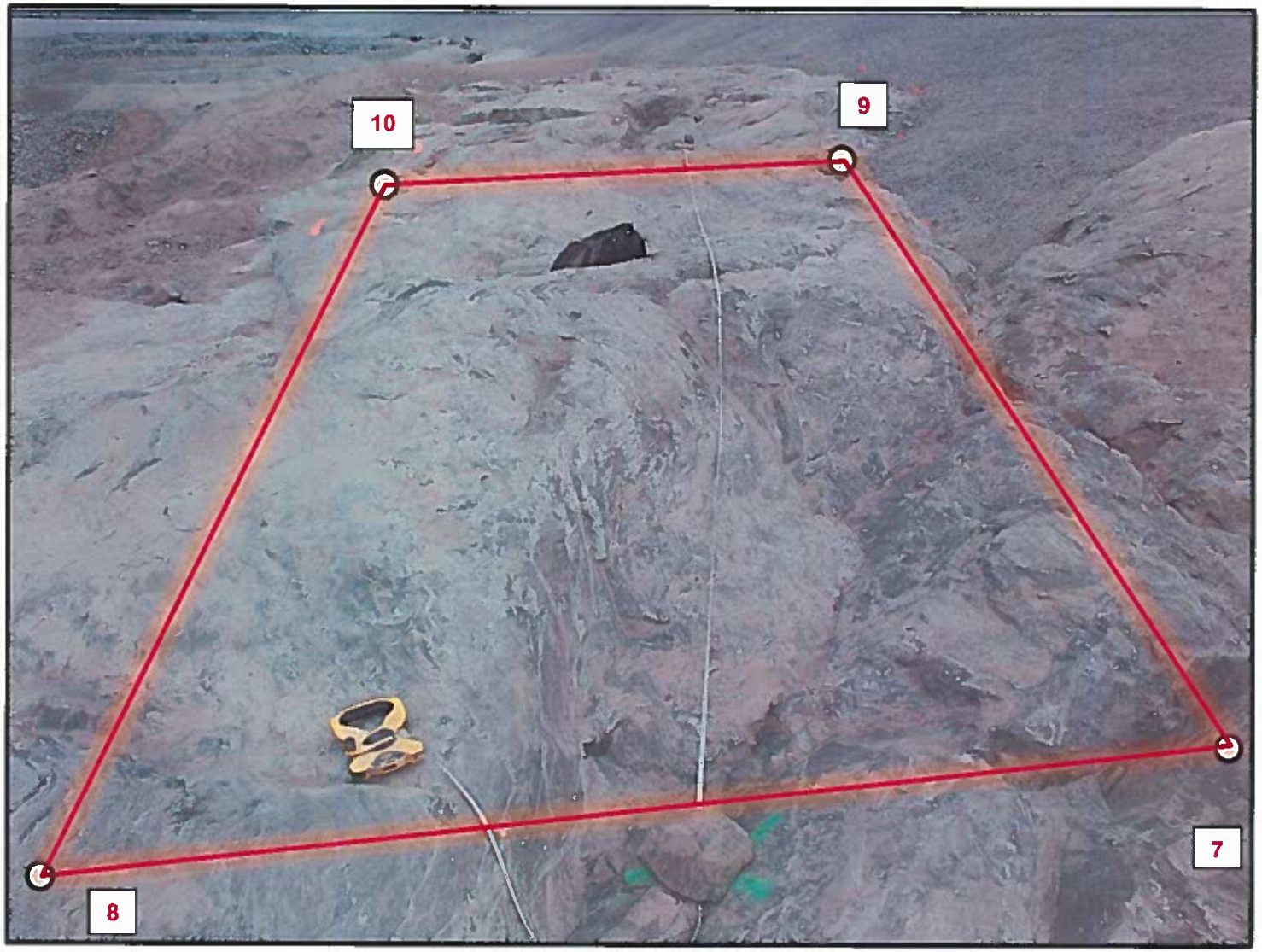
Photo by (Initial): C.F.T



Picture 1- Approximate approved foundation area

Date: 2017-09-16

Photo by (Initial): C.F.T



Picture 1- Approximate approved foundation area

Date: 2017-09-16

Photo by (Initial): C.F.T

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SD4

Acceptance No.:	FND-SD4-34	Date:	19/Sep/17

* IN view of the geosynthetics installation

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, incl. Station and Offset ;

3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative	Name:	Patrice Gagnon	
	Position:	AEM- Ower Rep.	
QC Representative	Name:	Hugues Potvin	
	Position:	GHD	
QA Engineer	Name:	Marion Habersetzer	
	Position:	Golder-Qa	
Surveyor	Name:	Marc-André Blackburn	
	Position:	FGL-Surveyor	

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

SADDLE DAM 4 -TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 40+105 Offset -23,94	SHIFT: NIGHT ☐ DAY ☒	DATE : 19/09/2017	SHEET 2 OF 4
To Sta. 40+449 Offset -32,91	LOCATION: : SD4 liner bedding (upstream)		
EQUIPMENT: —			
DESCRIPTION liner bedding			

NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	PG	MH
2.	Storage areas planned for disposal of removed materials	PG	MH
3.	Occurrence of snow and ice removal method in place	PG	MH
4.	Occurrence of boulders and removal method in place	PG	MH
5.	Occurrence of hummocks and scalping method in place	PG	MH
6.	Occurrence of surface and ground water and its impact mitigation in place	PG	MH
7.	Presence of other unsuitable materials and removal method in place	PG	MH
8.	Soil frozen or thawed and measures taken	PG	MH
9.	Blasting requirement to remove unsuitable material and safety measure checked	—	—
	Preparation of surface for LLDPE geomembrane placement	PG	MH
10.	Adjustment made to suit design in field	PG	MH
11.	Final walkover inspection before re-sloping or fill placement	PG	MH
	Rough grading of foundation	PG	MH
12.	"As-excavated" survey conducted	PG	MH
	Bedrock cleaning	—	—
13.	Bedrock Mapping	—	—

REMARKS :
Some larger rock particles to be removed from the side of the crest tie-in trench before tie-in of the liner.

DEVIATIONS : (Attach list if necessary)

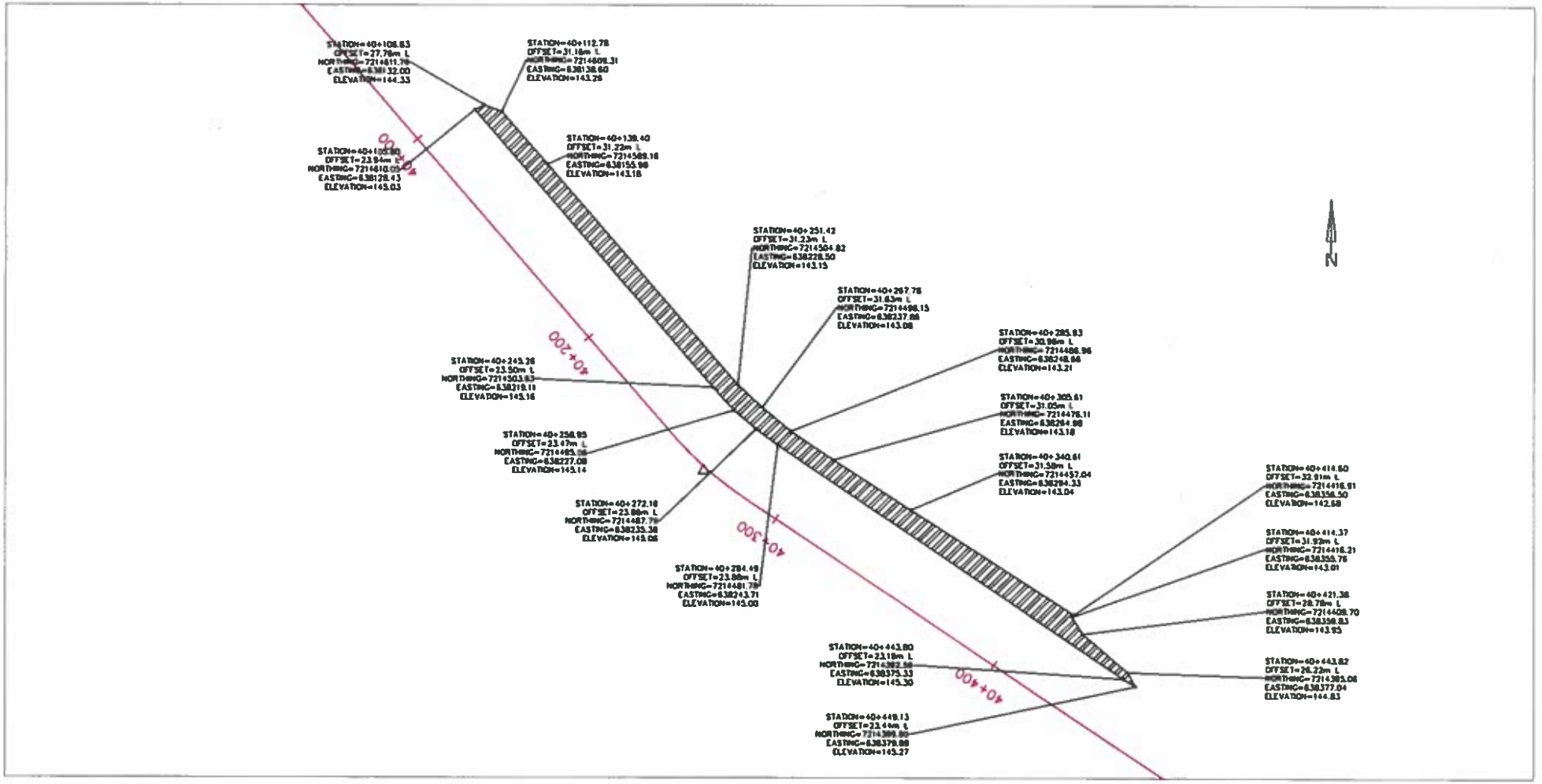
DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: MARC ANDRE BLACKBURN	NAME: Marion Haberstroh	NAME: Patrice Gagnon
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 23/09/2017	DATE: 19/09/2017	DATE: 22/09/17

FOUNDATION APPROVAL FOR SD4

FND-SD4-3[illegible]4

CONTRACT # 11-505



984246 N.W.T. Limited
D/B/A :
Qamanittuaq
SANA

PREPARED BY : MARC-ANDRE BLACKBURN
DATE : 20-09-2017
CON-FD-0008-APPROVAL_SD4

1:
E=638128.43, N=7214610.05
St=40+105.60, Offset=23.94m L
El: 145.03

2:
E=638132.00, N=7214611.76
St=40+106.63, Offset=27.76m L
El: 144.33

3:
E=638377.04, N=7214395.06
St=40+443.82, Offset=26.22m L
El: 144.83

4:
E=638375.33, N=7214392.56
St=40+443.80, Offset=23.19m L
El: 145.30

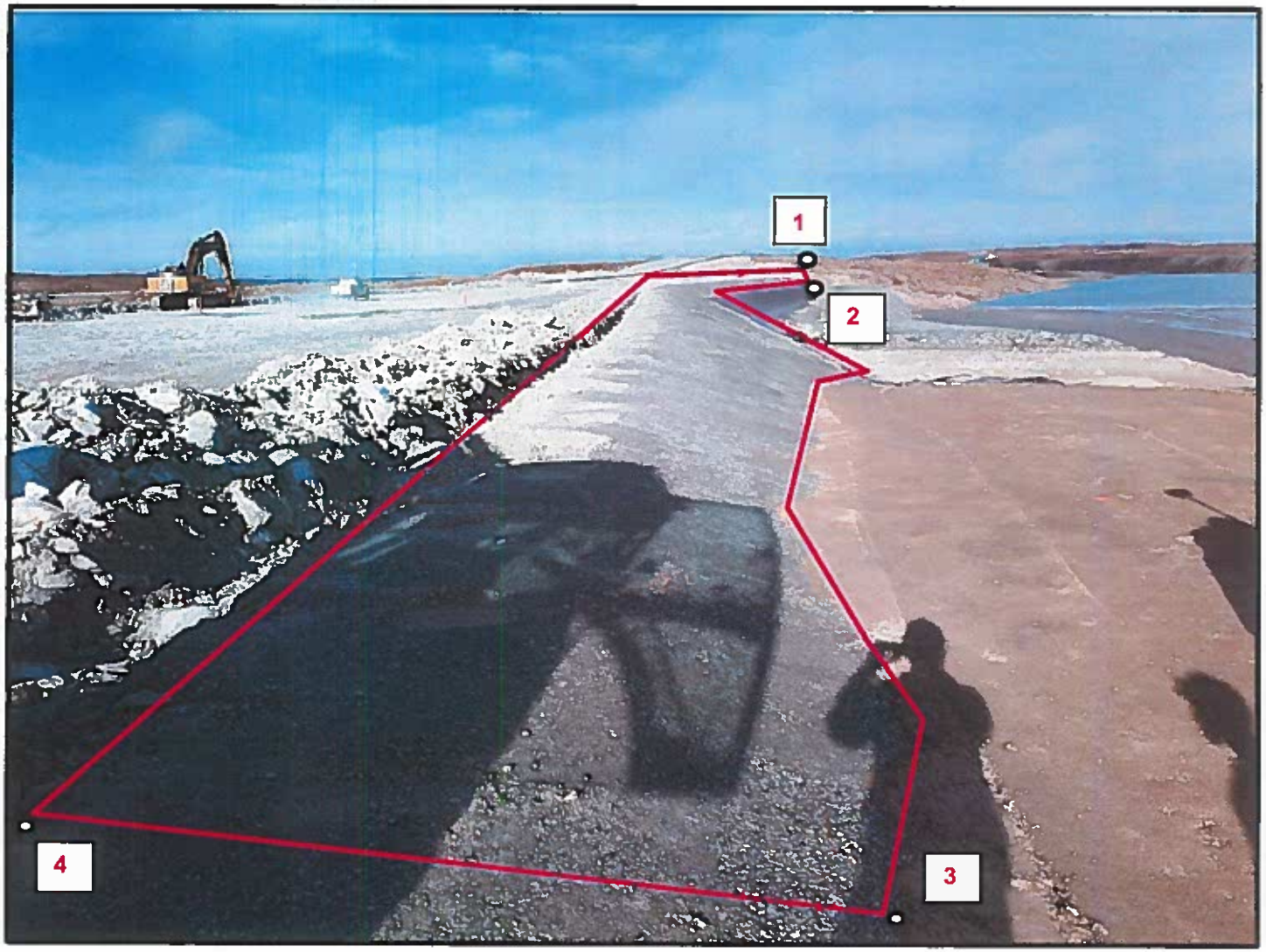


Photo 1- Approximate approved foundation area

Date: 2017-09-19

Photo by (Initial): H.P.

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SD-4

Acceptance No.:	FND-SD4-35	Date:	30/Sep/17

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, incl. Station and Offset (according to Central Dike Stations);

3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative	Name:	Frédérick L. Bilduc ~~Patrice Gagnon~~ Frédérick C. Bilduc
	Position:	AEM- Ower Rep.
QC Representative	Name:	Hugues Potvin Hugues Potvin
	Position:	GHD
QA Engineer	Name:	Michael Nadon
	Position:	Golder-Qa
Surveyor	Name:	Marc-André Blackburn
	Position:	FGL-Surveyor

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

SADDLE DAM 4 -TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 40+094 m Offset -33,56 m	SHIFT: NIGHT ☐ DAY ☑	DATE: 2017-09-30	SHEET 1 OF 4
To Sta. 40+117 m Offset -54,50 m	LOCATION: SD4 West		
EQUIPMENT: Excavator 345			

DESCRIPTION Foundation Approval in view of the 2nd class fill + Granular Protection

NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	FCD	MN
2.	Storage areas planned for disposal of removed materials	FCD	MN
3.	Occurrence of snow and ice removal method in place	FCD	MN
4.	Occurrence of boulders and removal method in place	FCD	MN
5.	Occurrence of hummocks and scalping method in place	FCD	MN
6.	Occurrence of surface and ground water and its impact mitigation in place	FCD	MN
7.	Presence of other unsuitable materials and removal method in place	FCD	MN
8.	Soil frozen or thawed and measures taken	FCD	MN
9.	Blasting requirement to remove unsuitable material and safety measure checked	—	—
	Preparation of surface for LLDPE geomembrane placement	—	—
10.	Adjustment made to suit design in field	FCD	MN
11.	Final walkover inspection before re-sloping or fill placement	FCD	MN
	Rough grading of foundation	FCD	MN
12.	"As-excavated" survey conducted	FCD	MN
	Bedrock cleaning	FCD	MN
13.	Bedrock Mapping	—	—

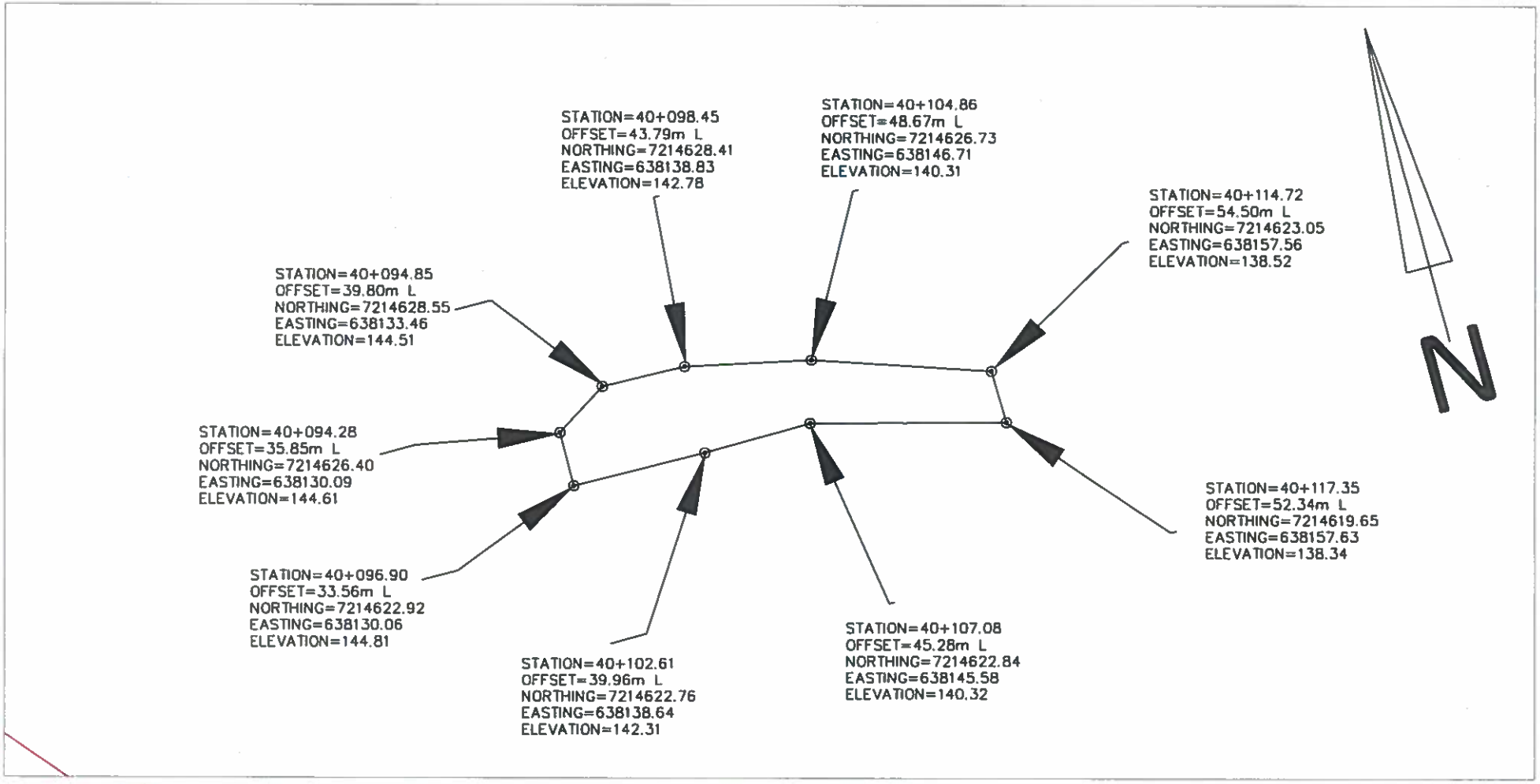
REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: MARCANDRE BLACKBURN	NAME: Michael Nadeau	NAME: Frédérick Gaudy
SIGNATURE: MAB	SIGNATURE: MN	SIGNATURE: Frédérick Gaudy
DATE: 01-10-2017	DATE: 2017-09-30	DATE: 2017-09-30

FONDATION APPROVAL FOR SD4
FND-SD4-0035
CONTRACT # 11-505



984246 N.W.T. Limited
D/B/A :
Qamanittuaq
SANA

PREPARED BY : MARC-ANDRE BLACKBURN
DATE : 29-09-2017
CON-FD-0021-FONDATION-APPROVAL_SD4

Foundation Approval, FDN-SD4-35

1:
E=638130.06, N=7214622.92
St=40+096.90, Offset=33.56m L
El. 144.81

2:
E=638130.09, N=7214626.40
St=40+094.28, Offset=35.85m L
El. 144.61

3:
E=638157.56, N=7214623.05
St=40+114.72, Offset=54.50m L
El. 138.52

4:
E=638157.63, N=7214619.65
St=40+117.35, Offset=52.34m L
El. 138.34

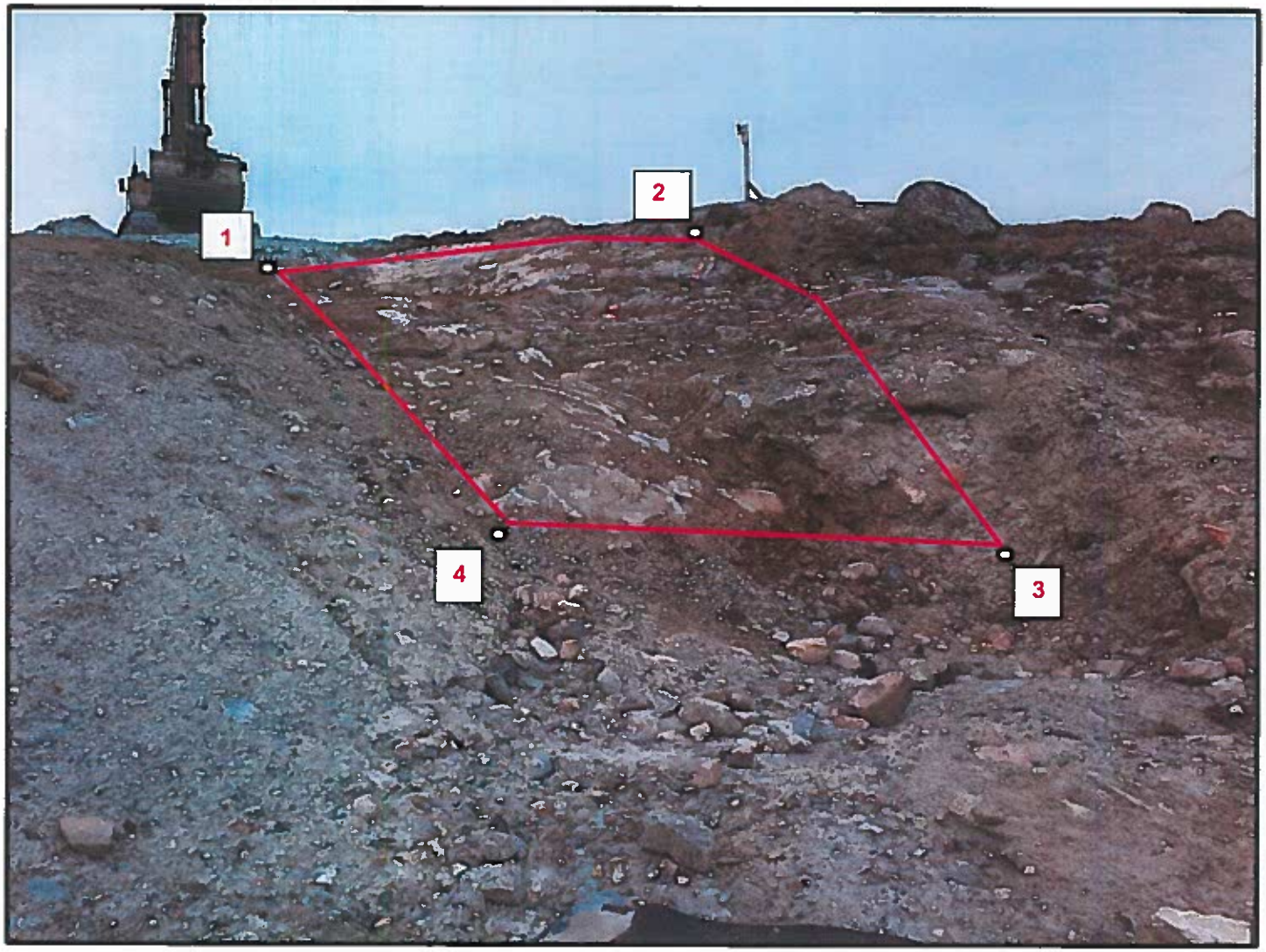


Photo 1- Approximate approved foundation area

Date: 201709-30

Photo by (Initial): H.P.

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SD-4

Acceptance No.:	**FND-SD4-36**	**Date:**	**30/Sep/17**

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, incl. Station and Offset (according to Central Dike Stations);

3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative	Name:	Frédérick Bolduc ~~Patrice Gagnon~~ Frédérick C. Bolduc
	Position:	AEM- Ower Rep.
QC Representative	Name:	Hugues Potvin Hugues Potvin
	Position:	GHD
QA Engineer	Name:	Michael Nadon
	Position:	Golder-Qa
Surveyor	Name:	Marc-André Blackburn
	Position:	FGL-Surveyor

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

SADDLE DAM 4 -TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 40+389 m Offset -34.41m	SHIFT: NIGHT ☐ DAY ☑	DATE: 30/09/2017	SHEET 2 OF 5
To Sta. 40+448 m Offset -59.77m	LOCATION: SD4 East		
EQUIPMENT: 450 Excavator			

DESCRIPTION Foundation Approval in view of the 2nd dam till + Granular Protection

NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	FLB	M.W.
2.	Storage areas planned for disposal of removed materials	FLB	M.W.
3.	Occurrence of snow and ice removal method in place	FLB	M.W.
4.	Occurrence of boulders and removal method in place	FLB	M.W.
5.	Occurrence of hummocks and scalping method in place	FLB	M.W.
6.	Occurrence of surface and ground water and its impact mitigation in place	FLB	M.W.
7.	Presence of other unsuitable materials and removal method in place	FLB	M.W.
8.	Soil frozen or thawed and measures taken	FLB	M.W.
9.	Blasting requirement to remove unsuitable material and safety measure checked	—	—
	Preparation of surface for LLDPE geomembrane placement	—	—
10.	Adjustment made to suit design in field	FLB	M.W.
11.	Final walkover inspection before re-sloping or fill placement	FLB	M.W.
	Rough grading of foundation	FLB	M.W.
12.	"As-excavated" survey conducted	FLB	M.W.
	Bedrock cleaning	FLB	M.W.
13.	Bedrock Mapping	—	—

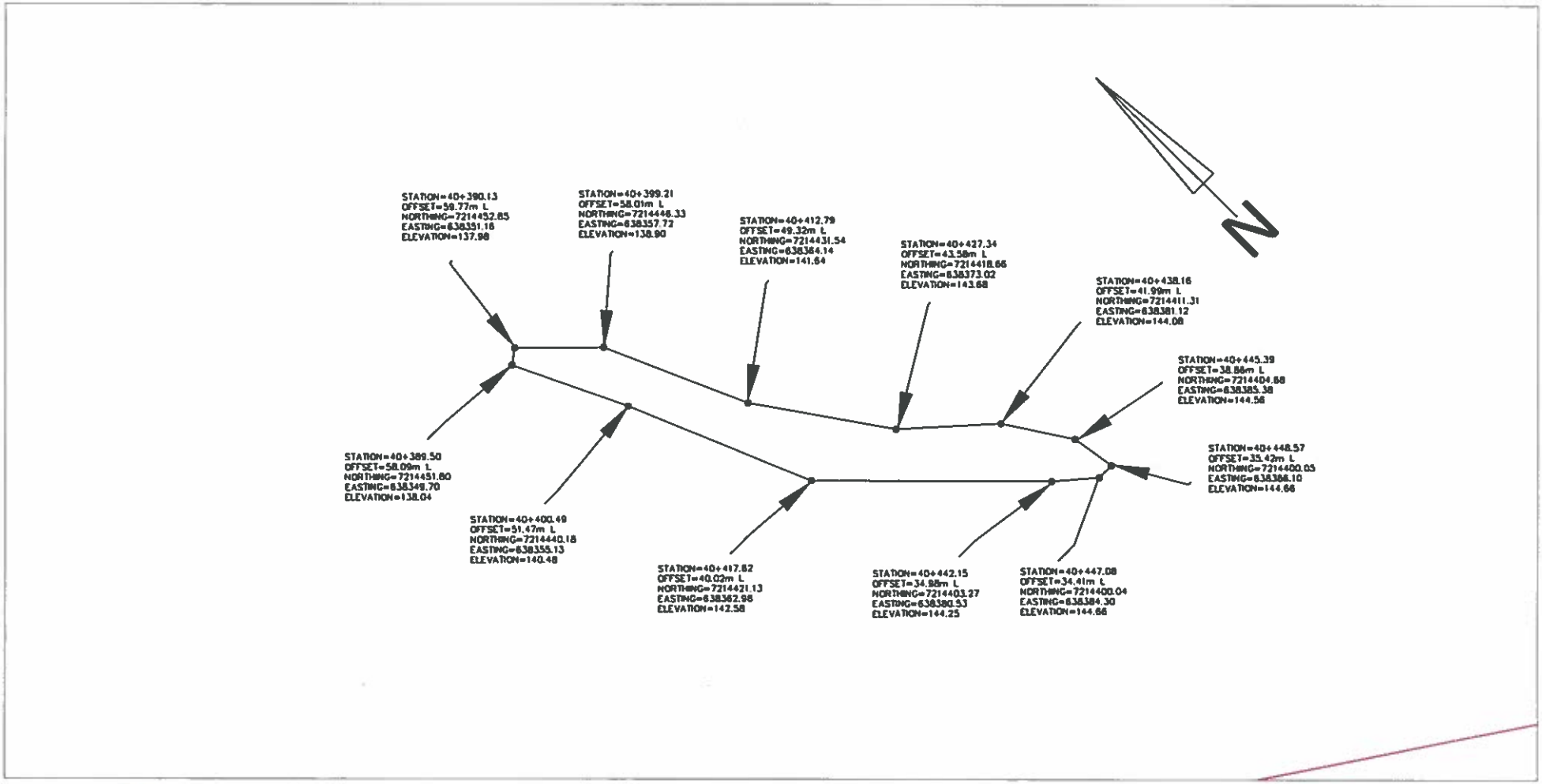
REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: MARC-ANDRE BLACKBURN	NAME: Michael Warden	NAME: Frederick L. Boldue
SIGNATURE: MAB	SIGNATURE: MW	SIGNATURE: Frederick L. Boldue
DATE: 01-10-2017	DATE: 01-10-2017	DATE: 01-10-2017

FONDATION APPROVAL FOR SD4
FND-SD4-0036
CONTRACT # 11-505



984246 N.W.T. Limited
D/B/A:
Qamanittuaq
SANA

PREPARED BY : MARC-ANDRE BLACKBURN
DATE : 29-09-2017
CON-FD-0022-FONDATION-APPROVAL_SD4

Foundation Approval, FDN-SD4-36-1

1:
E=638384.30, N=7214400.04
St=40+447.08, Offset=34.41m L
El. 144.66

2:
E=638386.10, N=7214400.05
St=40+448.57, Offset=35.42m L
El. 144.66

3:
E=638351.16, N=7214452.85
St=40+390.13, Offset=59.77m L
El. 137.98

4:
E=638349.70, N=7214451.80
St=40+389.50, Offset=58.09m L
El. 138.04

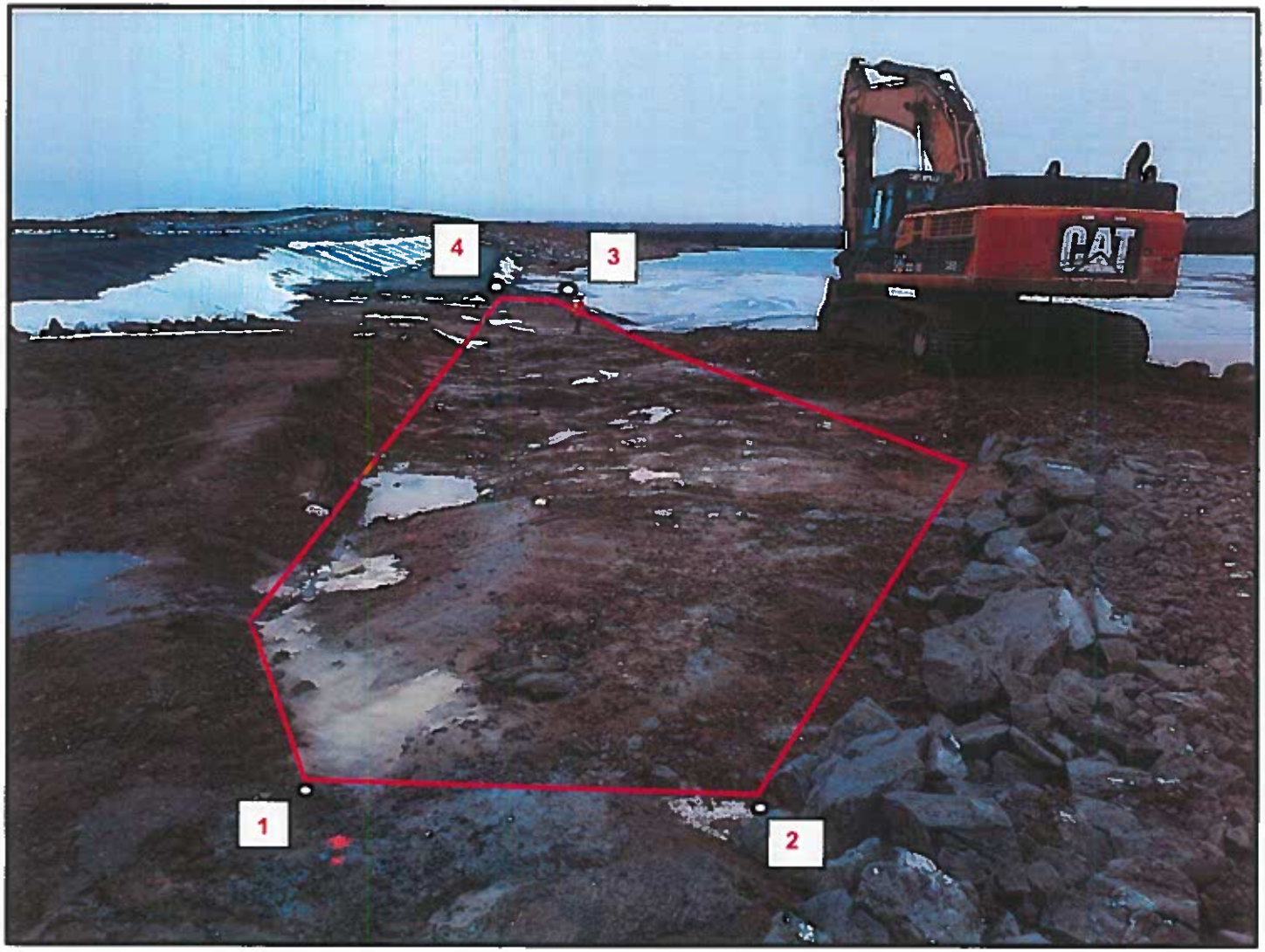


Photo 1- Approximate approved foundation area

Date: 2017-09-30

Photo by (Initial): H.P.

3:
E=638351.16, N=7214452.85
St=40+390.13, Offset=59.77m L
El. 137.98

4:
E=638349.70, N=7214451.80
St=40+389.50, Offset=58.09m L
El. 138.04

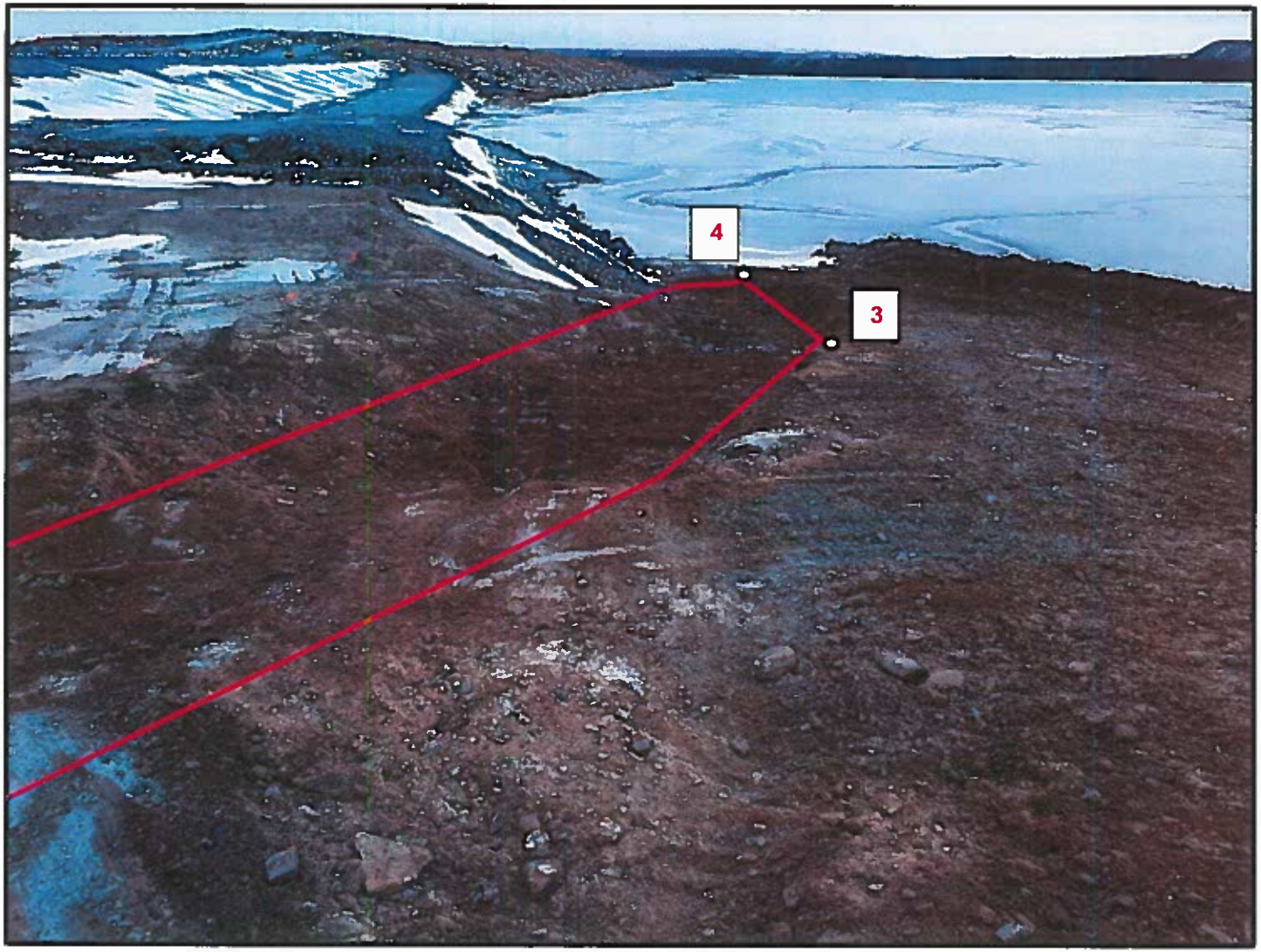


Photo 1- Approximate approved foundation area

Date: 2017-09-30

Photo by (Initial): H.P.

LLDPE GEOMEMBRANE PLACEMENT ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF LLDPE GEOMEMBRANE PLACEMENT - CENTRAL DIKE

Acceptance No.: LLDPE-SD4-003 **Date:** 26/Sep/17

This Certificate of Acceptance for LLDPE Geomembrane Placement includes the following items, reviewed and accepted by the undersigned:

1) Sketch of the approximate accepted area;

2) Photo of the accepted area, at the moment of the acceptance;

3) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing ZTG Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved aera has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the geomembrane conditions at the time of the inspection and the condition of the geomembrane is required to be maintained prior to and during geotextile and fill placement.

Owner Representative	Name:	Patrice Gagnon	
	Position:	AEM- Ower Rep.	
QC Representative	Name:	Hugues Potvin	
	Position:	GHD	
QA Engineer	Name:	Michael Nadon	
	Position:	Golder-Qa	
Surveyor	Name:	Marc-André Blackburn	
	Position:	FGL-Surveyor	

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Geotextile Installation

SADDLE DAM 4 - TSF DIKE CONSTRUCTION CHECKLIST – GEOTEXTILE INSTALLATION

From Sta. 40+102 Offset -22,16	SHIFT: NIGHT :☐ DAY :☒	DATE :	SHEET 2 OF 5
To Sta. 40+453 Offset -36,83	LOCATION: SD4 geotextile (upstream)		
EQUIPMENT : /			
DESCRIPTION : geotextile			

NO.	ITEMS TO BE INSPECTED	INSPECTED BY LINER INSTALLER/OWNER'S REPRESENTATIVE	INSPECTED BY QA QA ENGINEER
1	Geotextile material received has Manufacturer's certification and meets the Specifications	FCB	MN
2	Visual inspection of geotextile rolls or factory panels to determine physical damage and defects	FCB	MN
3	Deficiencies reported before installation	FCB	MN
4	Inspection of geotextile storage facilities performed	FCB	MN
5	Final bedding surface condition meets the Specification and Approved by Liner Installer	FCB	MN
6	Visual inspection during geotextile installation performed	FCB	MN
7	Damages during installation repaired in accordance with Specifications	FCB	MN

REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: MARC ANDRE BLACKBURN	NAME: Michael Vadom	NAME: Frederick LaBelle
SIGNATURE: MAB	SIGNATURE: M	SIGNATURE: F LaBelle
DATE: 01-10-2017	DATE: 26-09-2017	DATE: 30-09-17

LLDPE Geomembrane Installation

SADDLE DAM 4 - TSF DIKE CONSTRUCTION CHECKLIST – geotextile and liner INSTALLATION

From Sta. 40+102 m Offset -22.16 m	SHIFT: NIGHT :☐ DAY :☒	DATE :	SHEET 3 OF 5
To Sta. 40+453 m Offset -36.83 m	LOCATION: SD4 LLDPE membrane (upstream)		
EQUIPMENT : ✓			
DESCRIPTION : LLDPE membrane			

NO.	ITEMS TO BE INSPECTED	INSPECTED BY LINER INSTALLER	INSPECTED BY QA ENGINEER
1.	Liner material received has Manufacturer's certification and meets the specification	FLD	MV
2.	Visual inspection of liner performed to determine physical damages during handling	FLD	MV
3	Deficiencies reported before installation	FLD	MV
4	Inspection of LINER storage facilities	FLD	MV *
5	Final bedding surface condition meets the Specification and Approved by Liner Installer	FLD	MV
6	Visual inspection during liner installation performed	FLD	MV
7	Weather conditions meet the requirements during installation	FLD	MV
8	Welding carried out in accordance with manufacturer's specification	FLD	MV
9	Liner (routine destructive and non-destructive) testing and sampling performed as required	FLD	MV
10	Floor and upstream wall surfaces of anchor trench are smooth	FLD	MV
11	Damages during installation repaired in accordance with Specification	FLD	MV
12	Site cleaned up	FLD	MV
13	As-built survey conducted and approved	FLD	MV
14	Check for overheating of seams and holes, punctures, folding, wrinkling, visible lumps or protrusions	FLD	MV

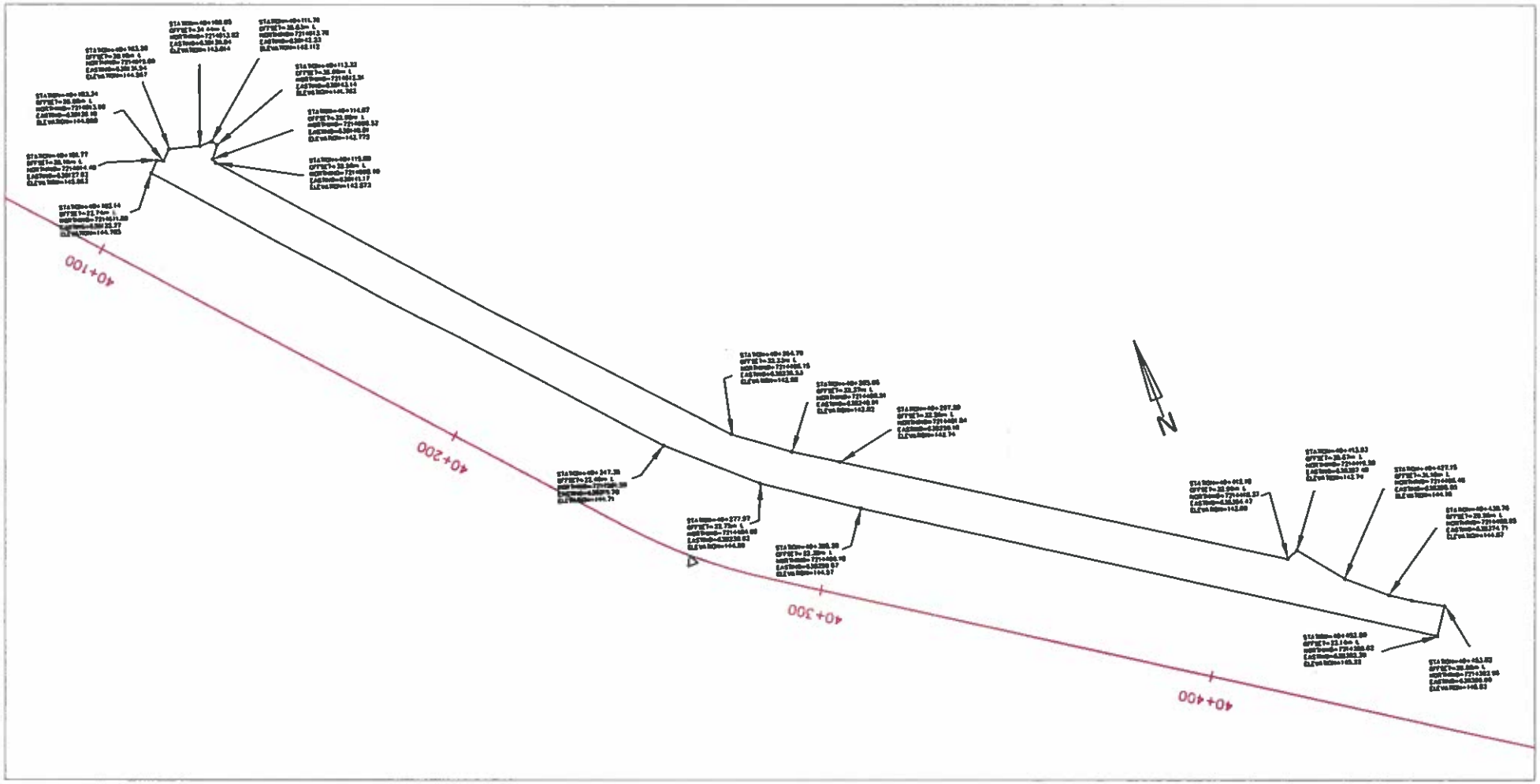
* REMARKS : The LLDPE geomembrane does not meet the specification by being stored outside without any shelter. The risk regarding the use of the unsheltered LLDPE geomembrane is low. * One horizontal seam at 40+170 over the width of the panel (located on the crest of the dike)

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME:	NAME: Michael Vadon	NAME: Frédérick L. Bédard
SIGNATURE:	SIGNATURE: MV	SIGNATURE: Frédérick L Bédard
DATE:	DATE: 26-09-2017	DATE: 2-10-2017

LLDPE APPROVAL FOR SD4
LLDPE-SD4-0003
CONTRACT # 11-1505



984246 N.W.T. Limited
D/B/A :
Qamanittuaq
SANA

PREPARED BY : MARC-ANDRE BLACKBURN
DATE : 29-09-2017
CON-FD-0019-LLDPE-APPROVAL_SD4

Foundation Approval, LLDPE-SD4-003

1:
E=638386.69, N=7214392.96
St=40+453.02, Offset=29.86m L
El: 145.03

2:
E=638382.30, N=7214386.62
St=40+452.90, Offset=22.14m L
El: 145.22

3:
E=638125.27, N=7214611.89
St=40+102.14, Offset=22.74m L
El: 144.705

4:
E=638131.54, N=7214615.89
St=40+103.20, Offset=30.10m L
El: 144.567

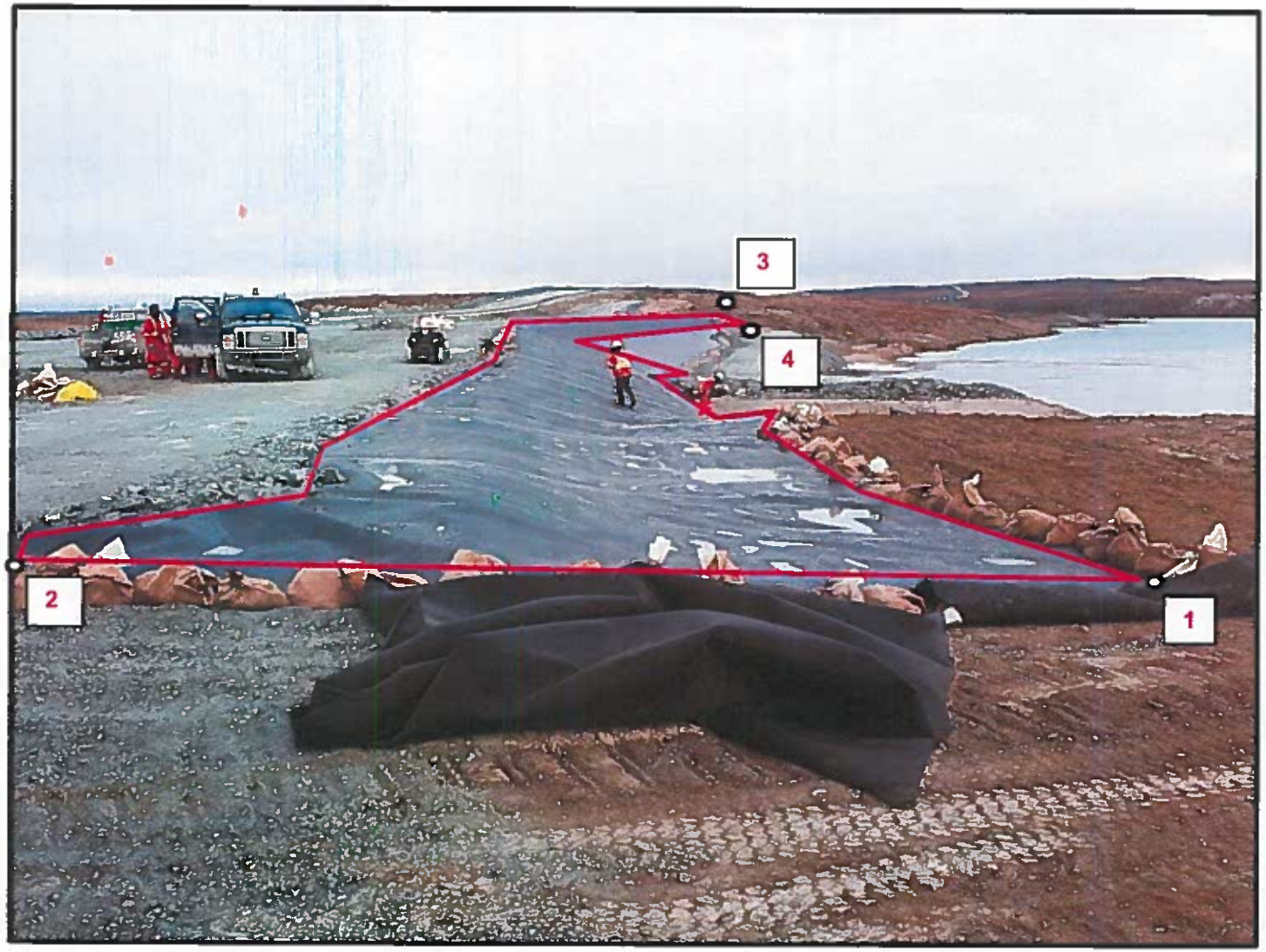


Photo 1- Approximate approved foundation area

Date: 2017-09-26

Photo by (Initial): H.P.

APPENDIX G4 - SADDLE DAM 5 STAGE 3 APPROVAL FORMS

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SD-5

Acceptance No.:	FND-SD5-12	Date:	28/06/2017

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, incl. Station and Offset (according to Central Dike Stations);

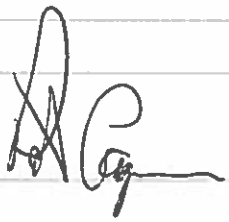
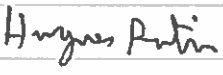
3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative	Name:	Patrice Gagnon	
	Position:	AEM- Ower Rep.	
QC Representative	Name:	Hugues Potvin	
	Position:	GHD	
QA Engineer	Name:	Michael Nadon	
	Position:	Golder-Qa	
Surveyor	Name:	François Gravel	
	Position:	AEM-Surveyor	

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

SADDLE DAM 5 -TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 40+588 Offset 21,51 TO -14,88 m | SHIFT: NIGHT: ☐ DAY ☑ | DATE: 28-06-17 | SHEET 2 OF 4

To Sta. 40+537 Offset 22,60 To -9,01 m | LOCATION:: Saddle Dam 5, Bedrock Foundation

EQUIPMENT: Excavator 345 SANA

DESCRIPTION ROCK FOUNDATION

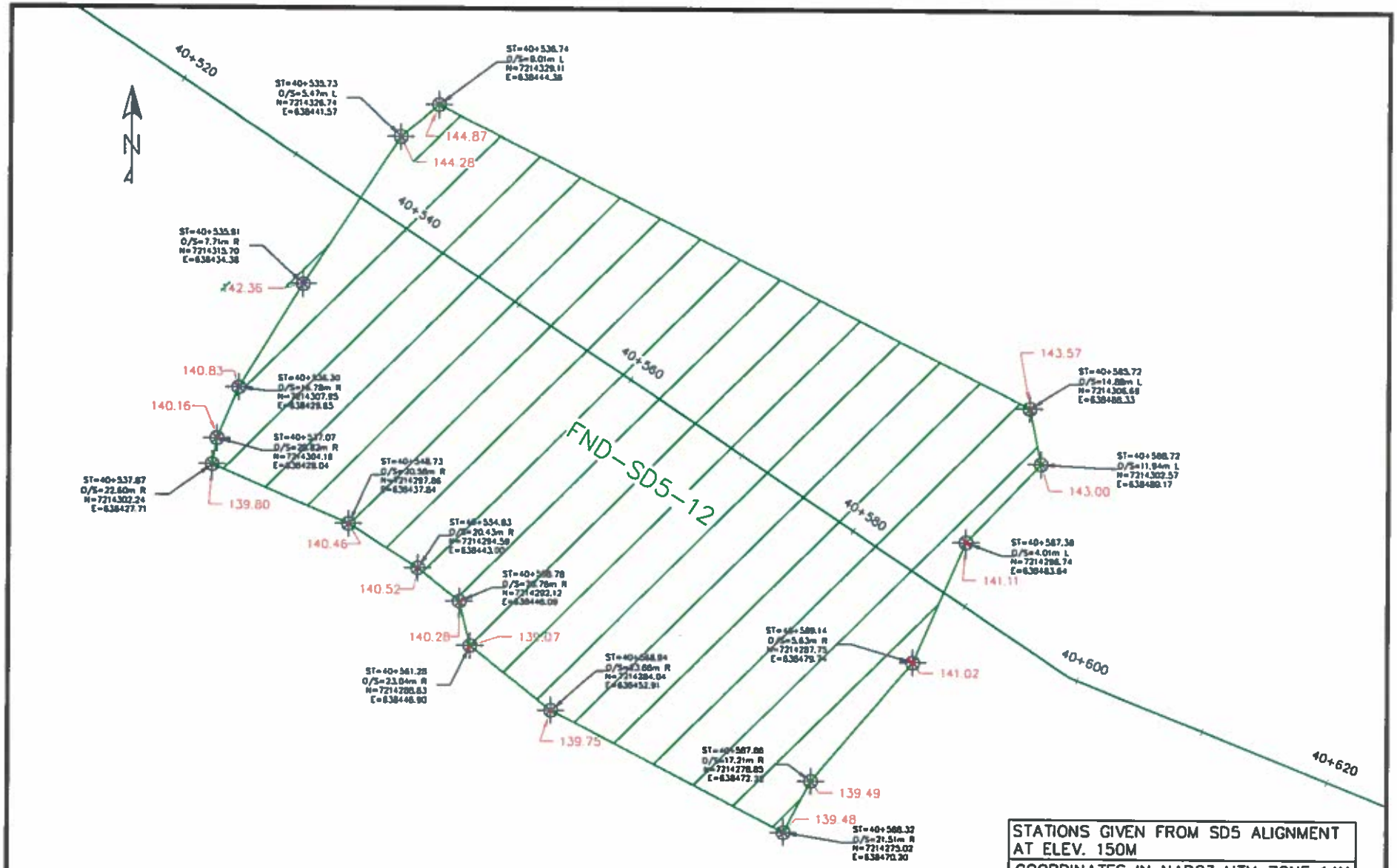
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	PG	M.N.
2.	Storage areas planned for disposal of removed materials	PG	M.N.
3.	Occurrence of snow and ice removal method in place	PG	M.N.
4.	Occurrence of boulders and removal method in place	PG	M.N
5.	Occurrence of hummocks and scalping method in place	PG	MN
6.	Occurrence of surface and ground water and its impact mitigation in place	PG	MN
7.	Presence of other unsuitable materials and removal method in place	PG	MN
8.	Soil frozen or thawed and measures taken	PG	MN
9.	Blasting requirement to remove unsuitable material and safety measure checked	PG	MN
	Preparation of surface for LLDPE geomembrane placement	—	—
10.	Adjustment made to suit design in field	PG	MN
11.	Final walkover inspection before re-sloping or fill placement	PG	MN
	Rough grading of foundation	PG	MN
12.	"As-excavated" survey conducted	PG	MN
	Bedrock cleaning	PG	MN
13.	Bedrock Mapping	—	—

REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: François Gravel-Groulx	NAME: Michael Nadon	NAME: Patrice Lagnon
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 2017-06-30	DATE: 28-06-2017	DATE: 29/06/2017



STATIONS GIVEN FROM SD5 ALIGNMENT AT ELEV. 150M

COORDINATES IN NAD83 UTM ZONE 14N

REV	DATE	DESCRIPTION	BY

REVISIONS

AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO-EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FDN-SD5-12

PROJECT No.	DATE 2017-06-28	
DRAWN BY FRANCOIS GRAVEL-GRENIER		SHEET 1 / 1
APPROVED BY		
DRAWING NO.		REVISION

C:\Meadowbank\DIKE 2017\FOUNDATION APPROVALS\SD5\2017-06-28\FND-SD5-10.dwg, 29 Jun 2017

FILE NO. .DWG

Foundation Approval, FDN-SD5-12

1:
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St=40+537.87, Offset=22.60m R
Elev=139.80

2:
E=638470.20, N=7214275.02
St=40+588.32, Offset=21.51m R
Elev=139.48

3:
E=638444.38, N=7214329.11
St=40+536.74, Offset=9.01m L
Elev=144.87

4:
E=638488.33, N=7214306.69
St=40+585.72, Offset=14.88m L
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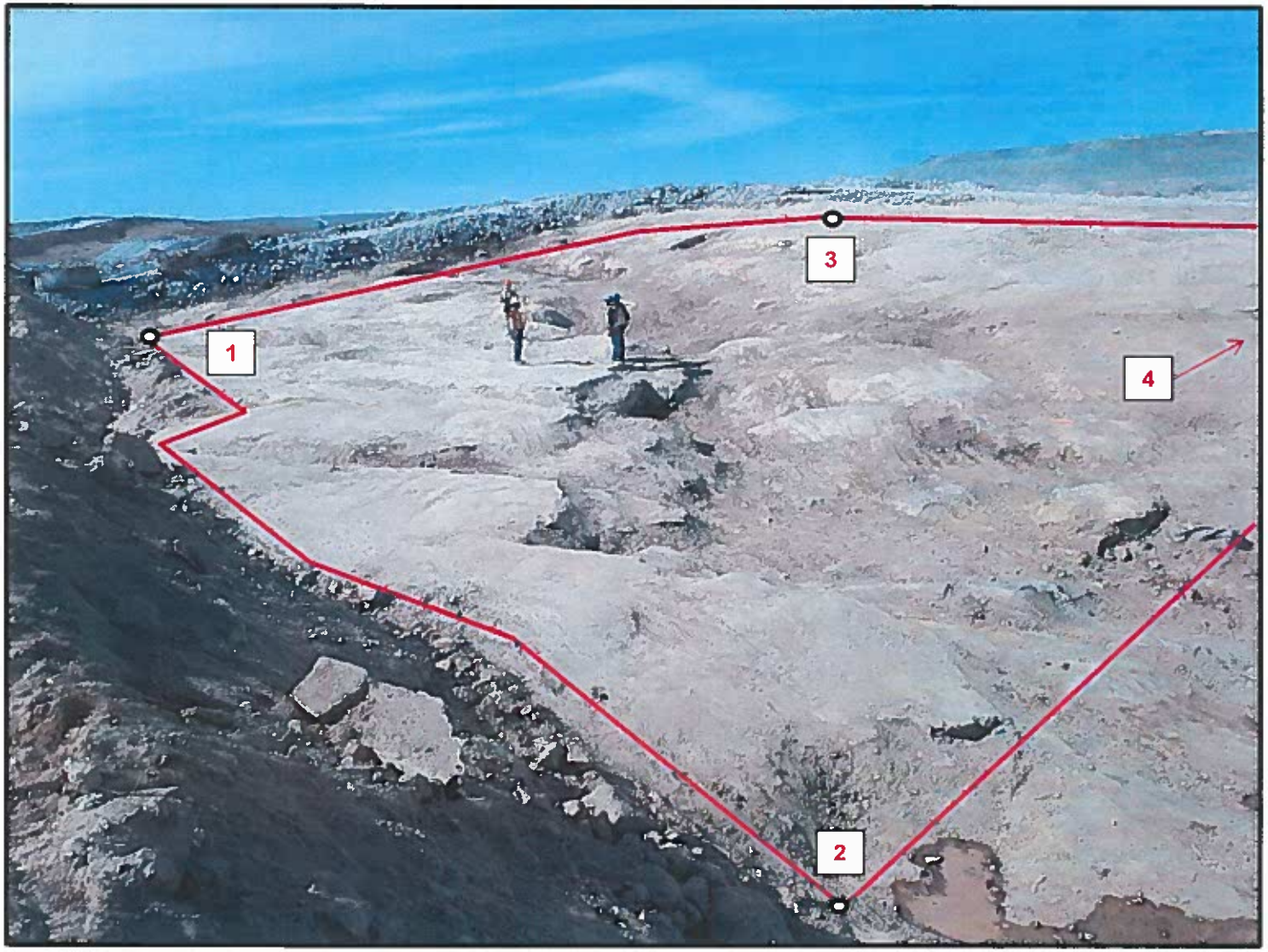


Photo 1- Approximate approved foundation area

Date: 2017-06-29

Photo by (Initial): H.P.

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SD-5

Acceptance No.:	FND-SD5-13	Date:	29/06/2017

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, incl. Station and Offset (according to Central Dike Stations);

3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative	Name:	Patrice Gagnon	
	Position:	AEM- Ower Rep.	
QC Representative	Name:	Hugues Potvin	Hugues Potvin
	Position:	GHD	
QA Engineer	Name:	Michael Nadon	
	Position:	Golder-Qa	
Surveyor	Name:	François Gravel	
	Position:	AEM-Surveyor	

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

SADDLE DAM 5 -TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 40+705 Offset 13,30 To -5,33	SHIFT: NIGHT ☐ DAY ☒	DATE :	SHEET 2 OF 4
To Sta. 40+580 Offset 21,51 To -14,88	LOCATION: : Saddle Dam 5, Bedrock Foundation		
EQUIPMENT: Excavator 345 SANA			
DESCRIPTION ROCK FOUNDATION			

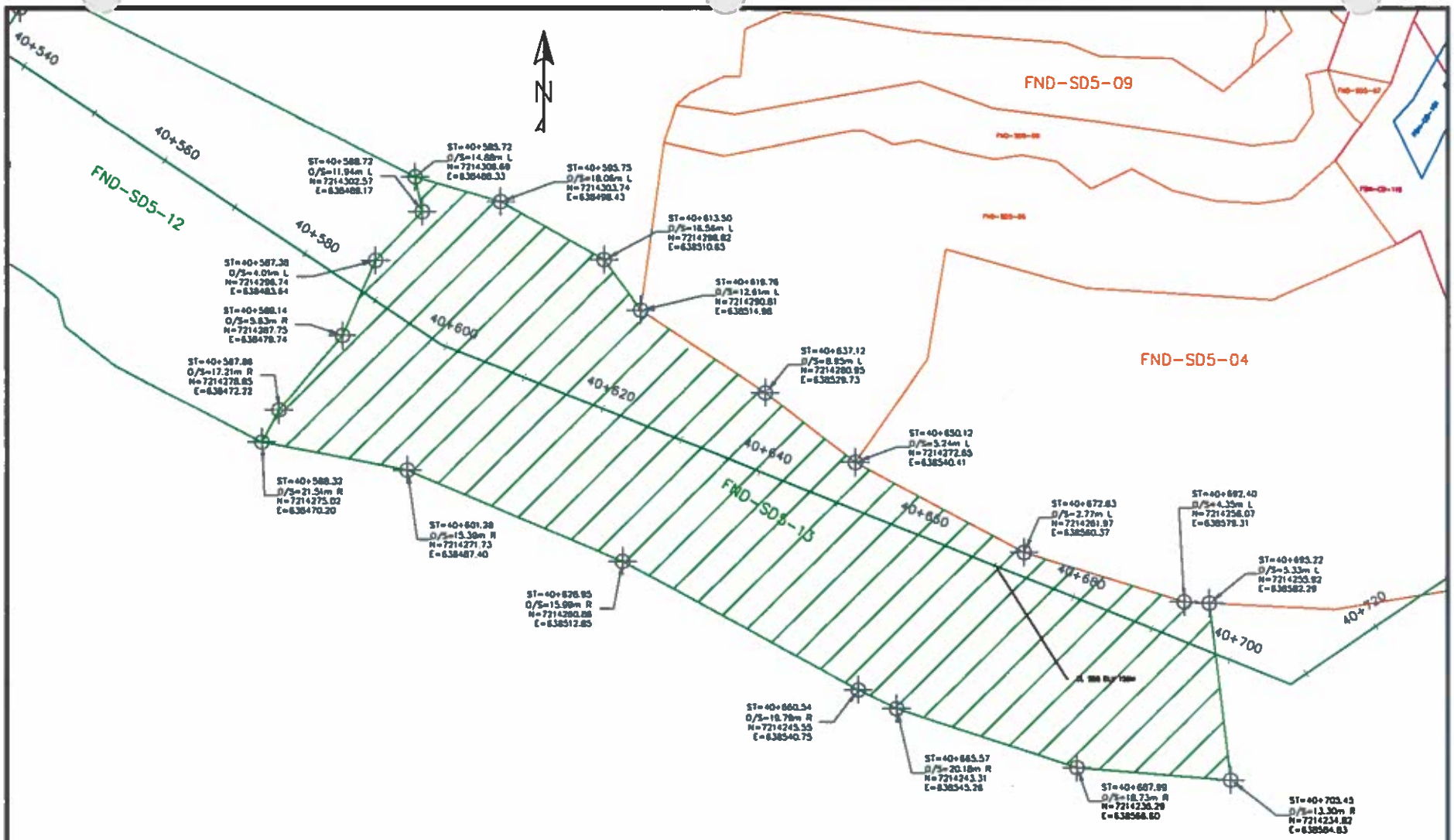
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	PG	MN
2.	Storage areas planned for disposal of removed materials	PG	MN
3.	Occurrence of snow and ice removal method in place	PG	MN
4.	Occurrence of boulders and removal method in place	PG	MN.
5.	Occurrence of hummocks and scalping method in place	PG	MN
6.	Occurrence of surface and ground water and its impact mitigation in place	PG	MN
7.	Presence of other unsuitable materials and removal method in place	PG	MN
8.	Soil frozen or thawed and measures taken	PG	MN
9.	Blasting requirement to remove unsuitable material and safety measure checked	PG	MN
	Preparation of surface for LLDPE geomembrane placement	—	—
10.	Adjustment made to suit design in field	PG	MN
11.	Final walkover inspection before re-sloping or fill placement	PG	MN
	Rough grading of foundation	PG	MN
12.	"As-excavated" survey conducted	PG	MN
	Bedrock cleaning	PG	MN
13.	Bedrock Mapping	—	—

REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE
NAME: François Gravel-Grenier	NAME: Michael Nadon	NAME: Patrick Gagnon
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 2017-07-01	DATE: 30-06-2017	DATE: 30/06/2017



STATIONS GIVEN FROM SD5 ALIGNMENT AT ELEV. 150M

COORDINATES IN NAD83 UTM ZONE 14N

REV	DATE	DESCRIPTION	BY

REVISIONS

© AGNICO EAGLE LTD

AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO-EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FDN-SD5-13

PROJECT No.	
DATE	2017-06-29
DRAWN BY	FRANCOIS GRAVEL-GRENIER
APPROVED BY	
DRAWING NO.	
SHEET	1 / 1
REVISION	

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FILE NO. .DWG

Foundation Approval, FDN-SD5-13

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2:
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St=40+705.45, Offset=13.30m R

3:
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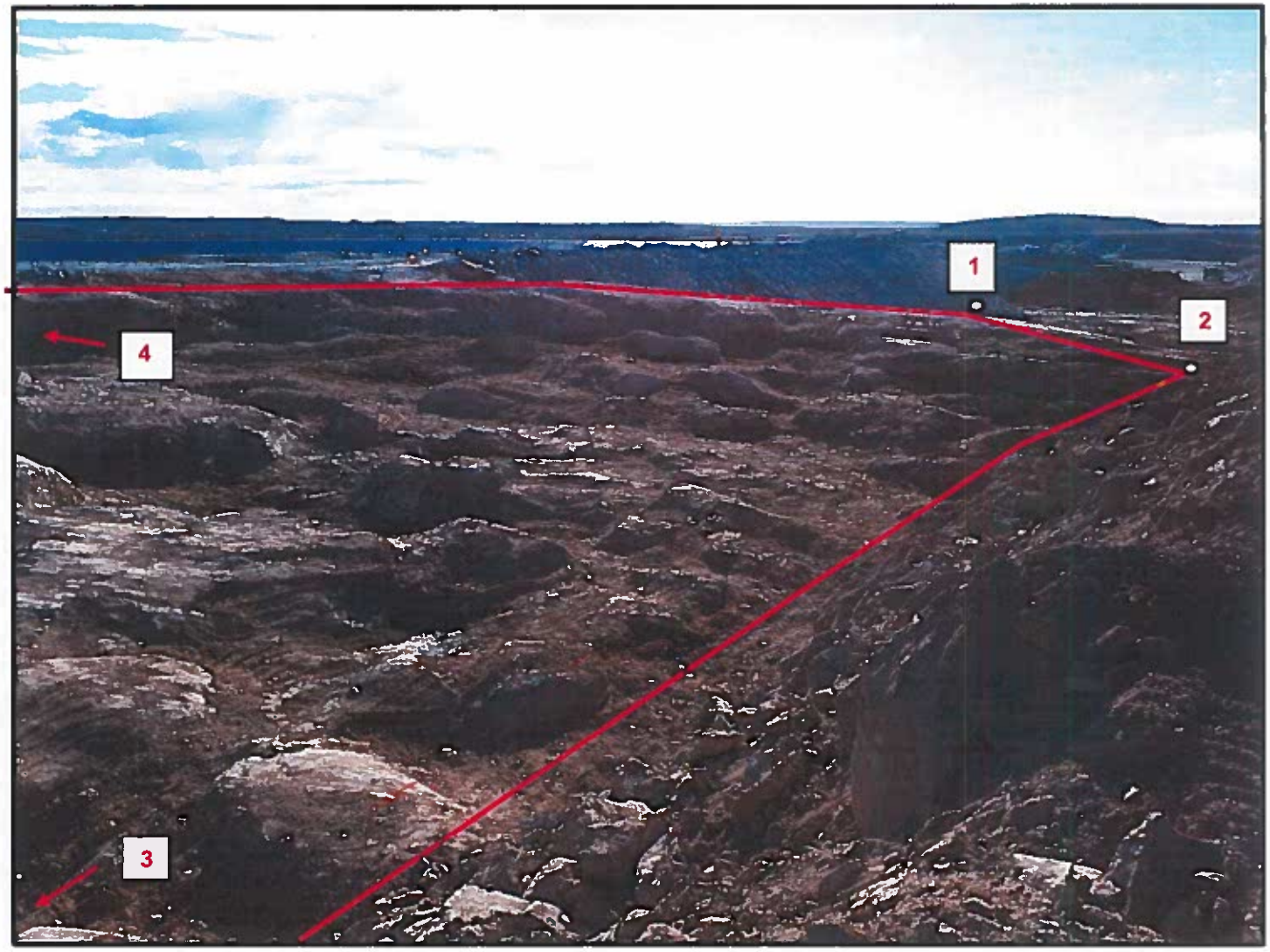


Photo 1- Approximate approved foundation area

Date: 2017-06-29

Photo by (Initial): H.P.

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SD-5

Acceptance No.:	FND-SD5-14	Date:	30/06/2017

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, Incl. Station and Offset (according to Central Dike Stations);

3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative	Name:	Patrice Gagnon	
	Position:	AEM- Ower Rep.	
QC Representative	Name:	Hugues Potvin	Hugues Potvin
	Position:	GHD	
QA Engineer	Name:	Michael Nadon	
	Position:	Golder-Qa	
Surveyor	Name:	François Gravel	
	Position:	AEM-Surveyor	

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

SADDLE DAM 5 -TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 40+736 Offset -2.92 To 22.11m	SHIFT: NIGHT ☐ DAY ☒	DATE: 01-06-2017 SHEET 2 OF 4
To Sta. 40+695 Offset 5.33 To -13.30m	LOCATION: : SADDLE DAM 5, bedrock Foundation	
EQUIPMENT: 345		
DESCRIPTION ROCK FOUNDATION		

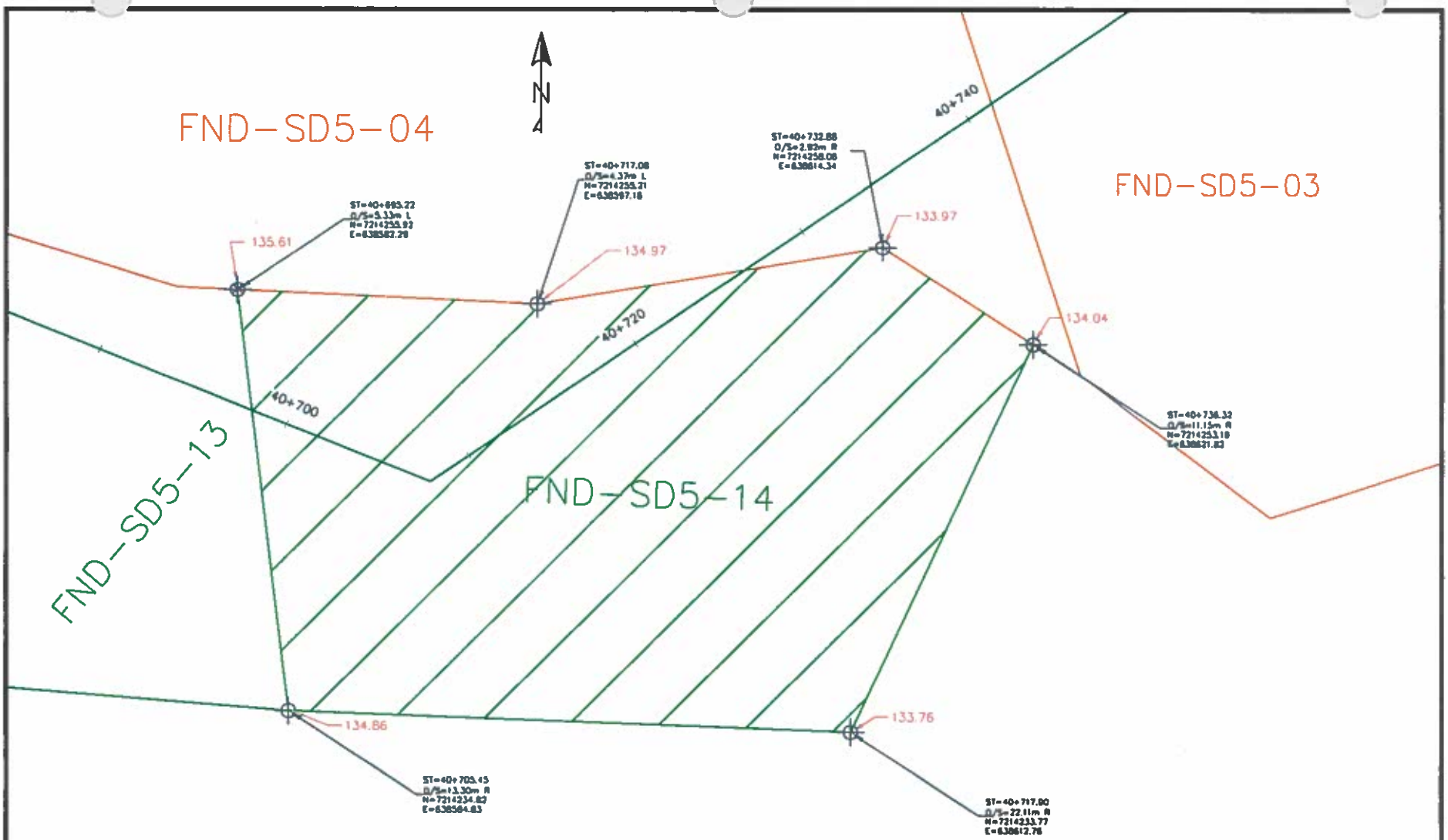
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	PE	M.V.
2.	Storage areas planned for disposal of removed materials	PG	MV
3.	Occurrence of snow and ice removal method in place	PG	MV
4.	Occurrence of boulders and removal method in place	PG	MV
5.	Occurrence of hummocks and scalping method in place	PG	MV
6.	Occurrence of surface and ground water and its impact mitigation in place	PG	MV
7.	Presence of other unsuitable materials and removal method in place	PG	MV
8.	Soil frozen or thawed and measures taken	PG	MV
9.	Blasting requirement to remove unsuitable material and safety measure checked	PG	MV
	Preparation of surface for LLDPE geomembrane placement	—	—
10.	Adjustment made to suit design in field	PG	MV
11.	Final walkover inspection before re-sloping or fill placement	PG	MV
	Rough grading of foundation	PG	MV
12.	"As-excavated" survey conducted	PG	MV
	Bedrock cleaning	PG	MV
13.	Bedrock Mapping	—	—

REMARKS :
On the south part zone of the approval, water was slowly coming back. If the water presence becomes important, it will have to be pumped again.

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: François Gravel-Grenier	NAME: Michael Vadon	NAME: Patrice Gagnon
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 2017-07-02	DATE: 01-07-2017	DATE: 01/07/17



STATIONS GIVEN FROM SD5 ALIGNMENT AT ELEV. 150M

COORDINATES IN NAD83 UTM ZONE 14N

REV	DATE	DESCRIPTION	BY

REVISIONS

AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO-EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FDN-SD5-14

PROJECT No.	DATE 2017-06-30
DRAWN BY FRANCOIS GRAVEL-GRENIER	SHEET 1 / 1
APPROVED BY	
DRAWING NO.	REVISION

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FILE NO. .DWG

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El. 133.76

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El. 134.04

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El. 134.86

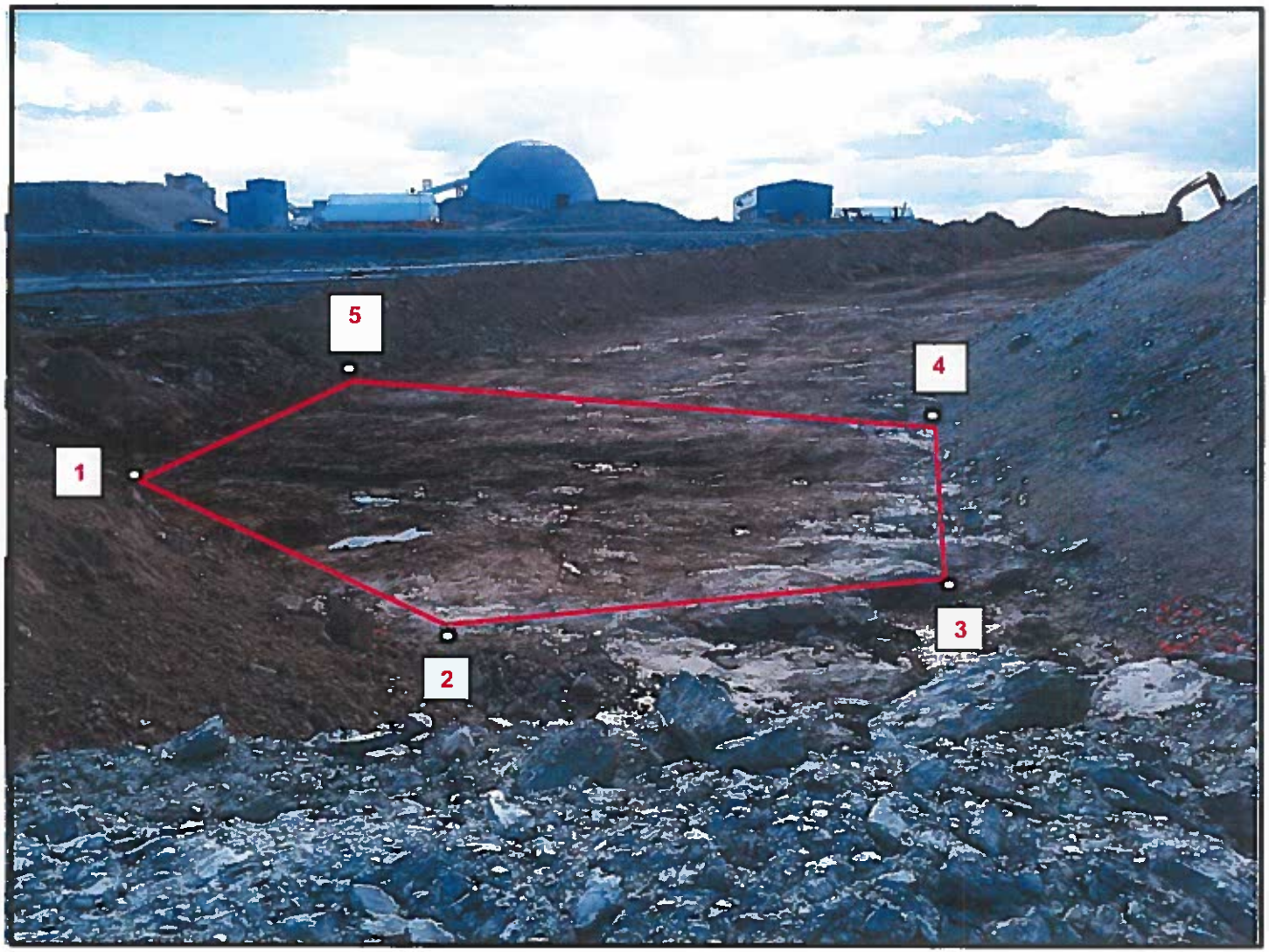


Photo 1- Approximate approved foundation area

Date: 2017-06-30

Photo by (Initial): H.P.

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SD-5

Acceptance No.:	FND-SD5-15	Date:	11/Jul/17

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, incl. Station and Offset (according to Central Dike Stations);

3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative	Name:	Alexandre Lavallee	
	Position:	AEM- Ower Rep.	
QC Representative	Name:	Pierrick Trecasse	
	Position:	GHD	
QA Engineer	Name:	Marlon Habersetzer	
	Position:	Golder-Qa	
Surveyor	Name:	Samuel Kiley-Morin	
	Position:	AEM-Surveyor	

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

SADDLE DAM 5 -TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 0+138.8 Offset 28.81 | SHIFT: NIGHT ☐ DAY ☒ | DATE : 11/07/2017 | SHEET 1 OF 1

To Sta. 40+739.45 Offset 11.15 | LOCATION: : Downstream side of SD5

EQUIPMENT: 345 excavator

DESCRIPTION

NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	ML	MH
2.	Storage areas planned for disposal of removed materials	ML	MH
3.	Occurrence of snow and ice removal method in place	ML	MH
4.	Occurrence of boulders and removal method in place	ML	MH
5.	Occurrence of hummocks and scalping method in place	ML	MH
6.	Occurrence of surface and ground water and its impact mitigation in place	ML	MH
7.	Presence of other unsuitable materials and removal method in place	ML	MH
8.	Soil frozen or thawed and measures taken	ML	MH
9.	Blasting requirement to remove unsuitable material and safety measure checked	ML	MH
	Preparation of surface for LLDPE geomembrane placement	—	—
10.	Adjustment made to suit design in field	ML	MH
11.	Final walkover inspection before re-sloping or fill placement	ML	MH
	Rough grading of foundation	ML	MH
12.	"As-excavated" survey conducted	ML	MH
	Bedrock cleaning	ML	MH
13.	Bedrock Mapping	—	—

REMARKS : Approved provided that water ponds are pumped out before placement of UM rockfill over the foundation.

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Samuel Riley-Marin	NAME: Marion Habersetzer	NAME: Alexandre Lewaillé
SIGNATURE: Samuel Riley-Marin	SIGNATURE:	SIGNATURE:
DATE: 12/07/17	DATE: 11/07/2017	DATE: 12/07/2017

Foundation Approval, FDN-SD5-15

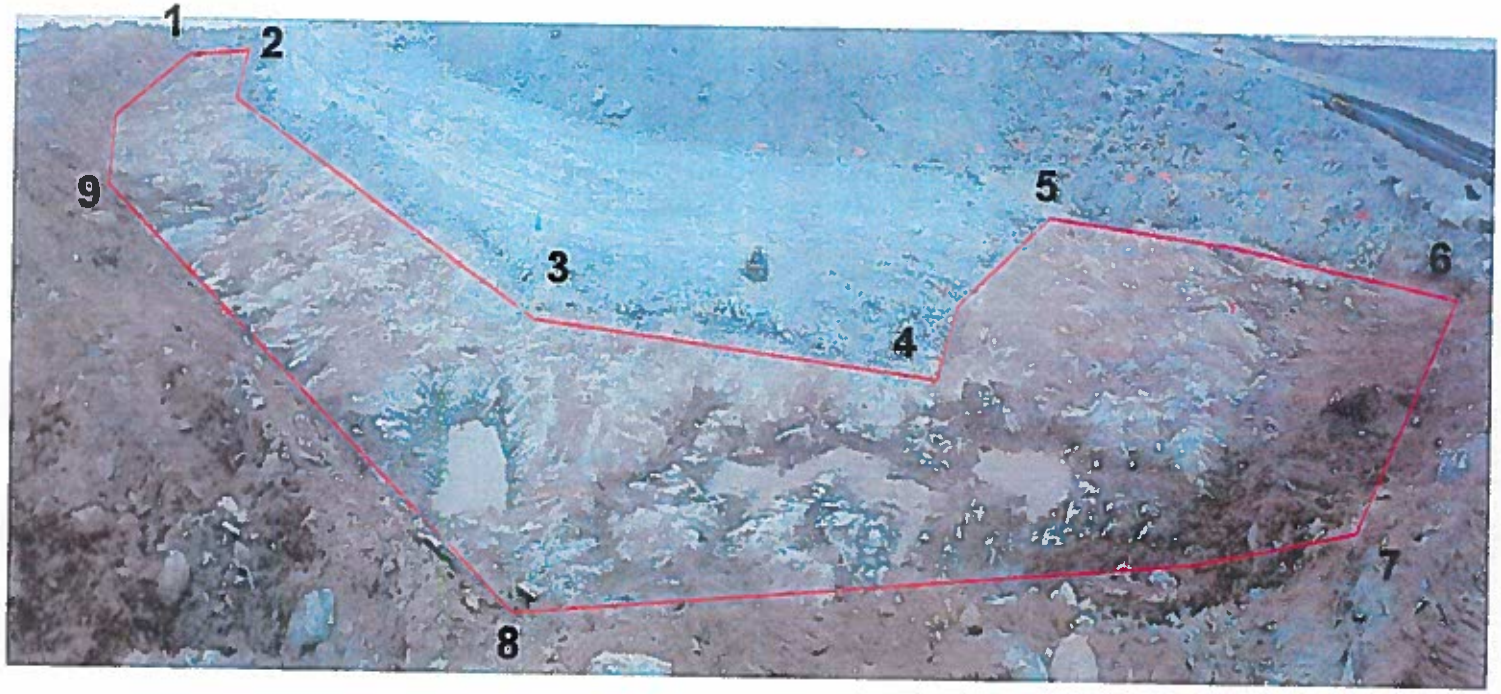
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El. 138.78

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El. 139.53

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St=40+665.57, Offset=20.18m R
El. 137.28

4:
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St=40+717.90, Offset=22.11m L
El. 133.76

5:
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St=40+737.41, Offset=13.74m R
El. 133.84



6:
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St=40+739.45, Offset=32.32m R
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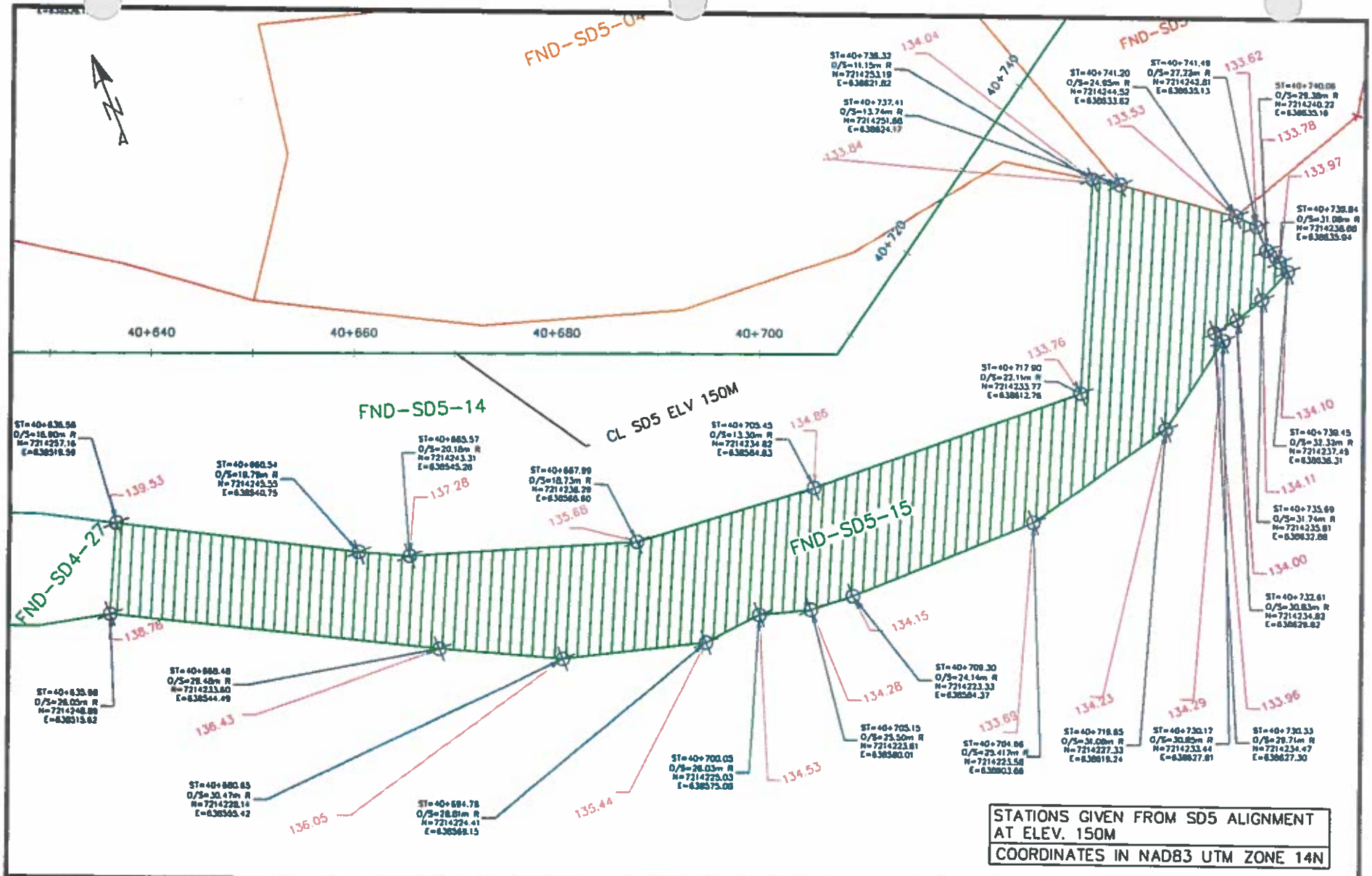
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El. 136.05

9:
E=638544.49 N=7214233.60
St=40+668.48, Offset=29.48m R
El. 136.43

Photo 1- Approximate approved foundation area

Date: 2017-07-11

Photo by (Initial): P.T



REV	DATE	DESCRIPTION	BY
A	2016-06-21	FOUNDATION AREA MODIF	AD

REVISIONS

AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO-EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FND-SD5-15

PROJECT No.	DATE
	2017-07-11
DRAWN BY	SHEET
SAMUEL KILEY-MORIN	1 / 1
APPROVED BY	REVISION
DRAWING NO.	

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FILE NO. .DWG

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SD-5 (Key Trench)

Acceptance No.:	FND-SD5-16	Date:	16/Sep/17

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, incl. Station and Offset (according to Central Dike Stations);

3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative	Name:	~~Alexandre Lavallée~~ Alexandre Gagnon
	Position:	AEM- Ower Rep.
QC Representative	Name:	Cédrick Fillon Tremblay
	Position:	GHD
QA Engineer	Name:	Michael Nadon
	Position:	Golder-Qa
Surveyor	Name:	~~Francis Pepin~~ MARC-ANDRE BLACKBURN
	Position:	FGL-Surveyor

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

SADDLE DAM 5 -TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 40+619.9 Offset −39.2 m	SHIFT: NIGHT ☐ DAY ☒	DATE :	SHEET 2 OF 5
To Sta. 40+600 Offset −32.11 m	LOCATION: : SD5 upstream toe liner tie-in		
EQUIPMENT: pressurized air stream			
DESCRIPTION rock foundation			

NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	PG	MN
2.	Storage areas planned for disposal of removed materials	PG	MN
3.	Occurrence of snow and ice removal method in place	PG	MN
4.	Occurrence of boulders and removal method in place	PG	MN
5.	Occurrence of hummocks and scalping method in place	PG	MN
6.	Occurrence of surface and ground water and its impact mitigation in place	—	MN
7.	Presence of other unsuitable materials and removal method in place	PG	MN
8.	Soil frozen or thawed and measures taken	—	~~—~~
9.	Blasting requirement to remove unsuitable material and safety measure checked	—	—
	Preparation of surface for LLDPE geomembrane placement	PG	MN
10.	Adjustment made to suit design in field	PG	MN
11.	Final walkover inspection before re-sloping or fill placement	PG	MN
	Rough grading of foundation	PG	MN
12.	"As-excavated" survey conducted	PG	MN
	Bedrock cleaning	PG	MN
13.	Bedrock Mapping	PG	MN

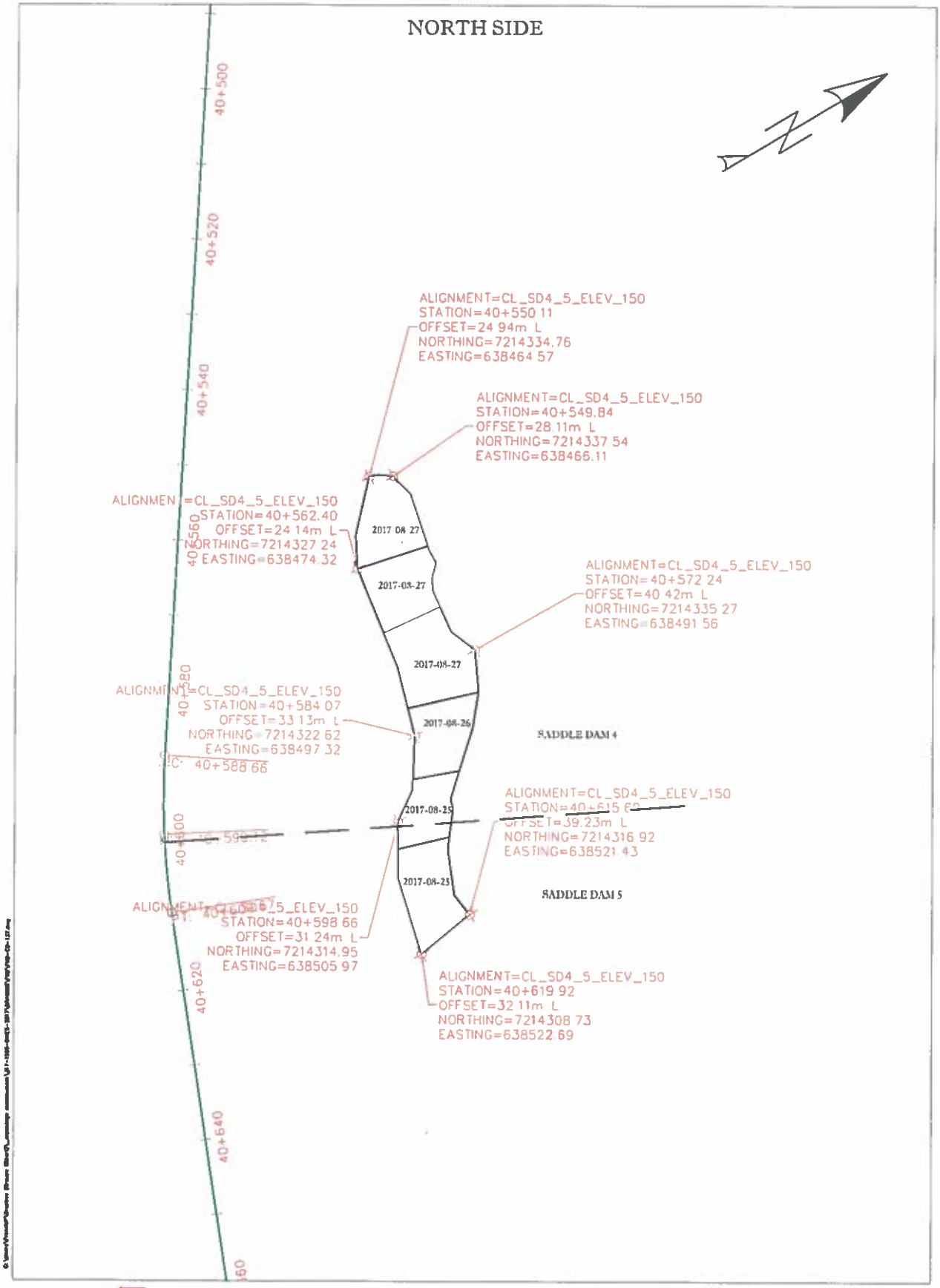
REMARKS :
Approval done after backfilling.

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

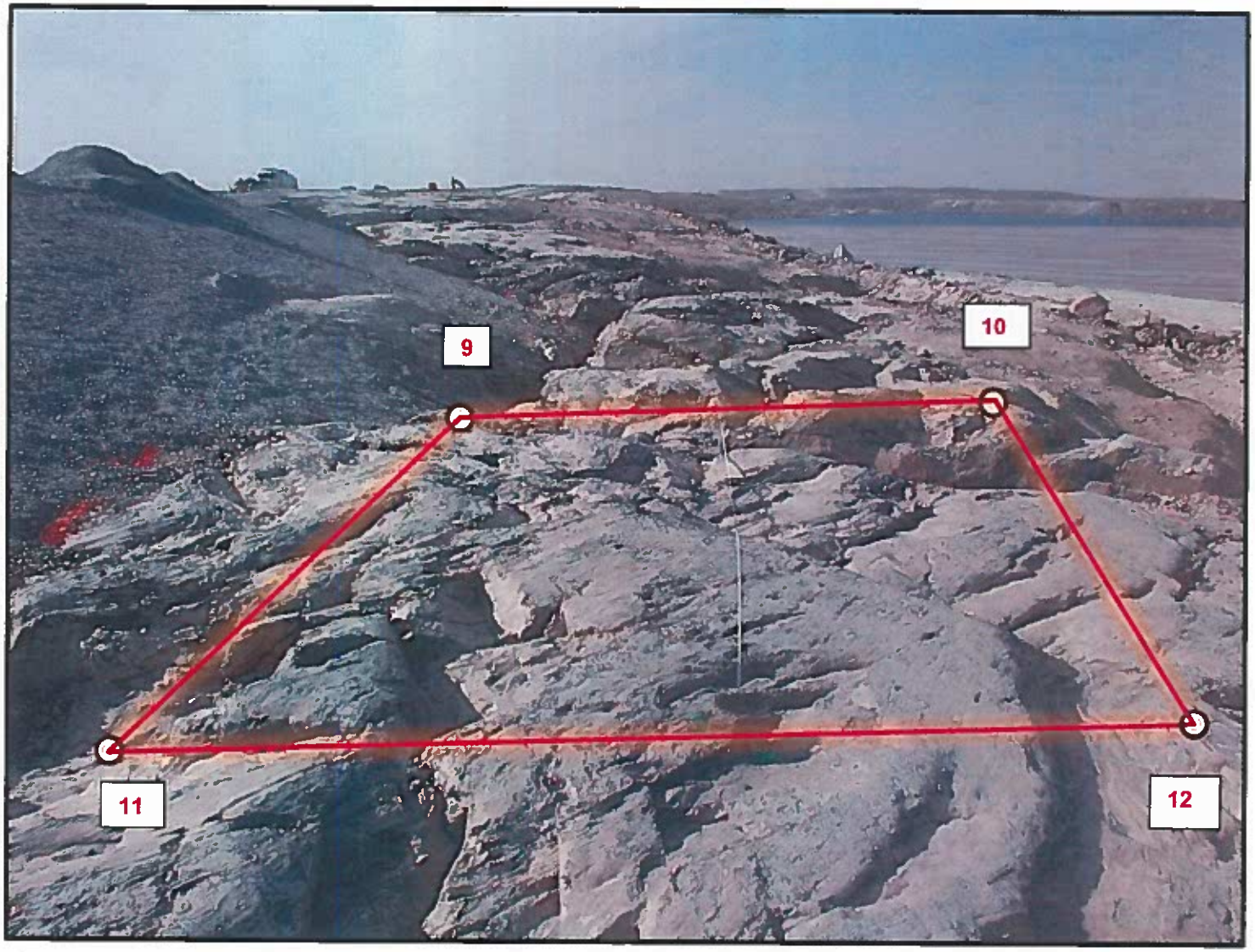
SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: MARC ANDRE BLACKBURN	NAME: Michael Nadeau	NAME: Patrice Gagnon
SIGNATURE: MAB	SIGNATURE: MN	SIGNATURE: PG
DATE: 27/09/2017	DATE: 20-09-20	DATE: 28/09/17

SADDLE DAM 5 - KEY FOUNDATION APPROVAL
DIKES CONSTRUCTION
CONTRACT # 11-607



984246 N.W.T. Limited
D/B/A :
Qamanittuaq
SANA

PREPARED BY : FRANCIS PEPIN
DATE : 15-09-2017
FND-SD5-16



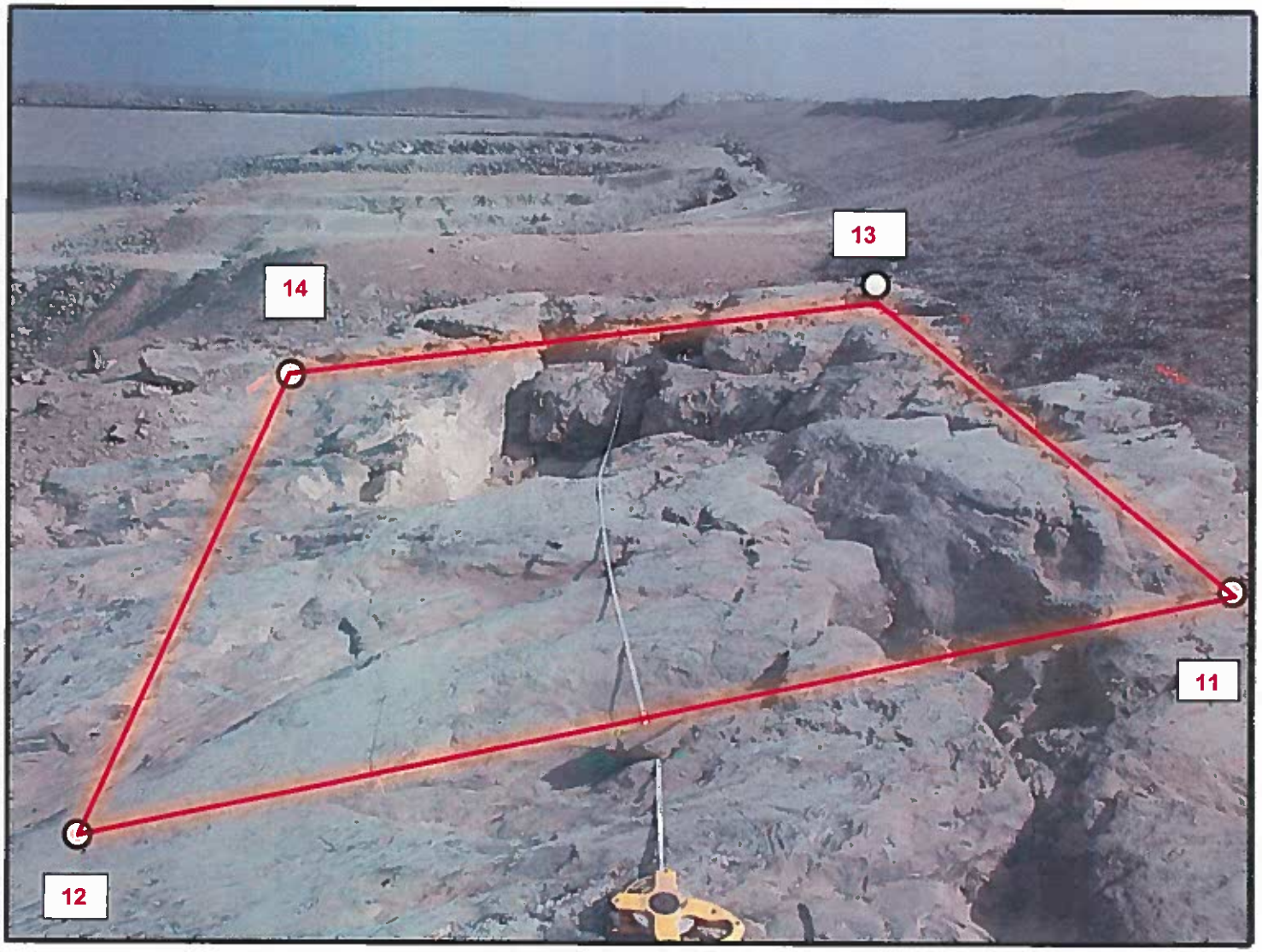
Picture 1- Approximate approved foundation area

Date: 2017-09-16

Photo by (Initial): C.F.T

13:
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N = 7214308.73
St = 40+619.92
Offset = 32.11m - L

14:
E = 638521.43
N = 7214316.92
St = 40+615.69
Offset = 39.23m - L



Picture 1- Approximate approved foundation area

Date: 2017-09-16

Photo by (Initial): C.F.T

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SD5

Acceptance No.:	FND-SD5-17	Date:	24/Sep/17

* IN view of the geosynthetics installation.

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, incl. Station and Offset ;

3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative	Name:	Patrice Gagnon	Frédérik Lebeau
	Position:	AEM- Ower Rep.	
QC Representative	Name:	Hugues Potvin	Hugues Potvin
	Position:	GHD	
QA Engineer	Name:	Michael Nadon	
	Position:	Golder-Qa	
Surveyor	Name:	Marc-André Blackburn	
	Position:	FGL-Surveyor	

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

SADDLE DAM 5 -TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 40+564 Offset -23.10 m | SHIFT: NIGHT ☐ DAY ☑ | DATE: 24-09-2017 | SHEET 2 OF 4

To Sta. 40+712 Offset -31.70 m | LOCATION: : SDS liner Bedding (upstream

EQUIPMENT: —

DESCRIPTION Liner bedding (IN view of the geosynthetics)

NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	FCS	MN
2.	Storage areas planned for disposal of removed materials	FCS	MN
3.	Occurrence of snow and ice removal method in place	—	—
4.	Occurrence of boulders and removal method in place	FCS	MN
5.	Occurrence of hummocks and scalping method in place	FCS	MN.
6.	Occurrence of surface and ground water and its impact mitigation in place	FCS	MN
7.	Presence of other unsuitable materials and removal method in place	FCS	MN
8.	Soil frozen or thawed and measures taken	FCS	MN
9.	Blasting requirement to remove unsuitable material and safety measure checked	✓	—
	Preparation of surface for LLDPE geomembrane placement	FCS	MN
10.	Adjustment made to suit design in field	FCS	MN
11.	Final walkover inspection before re-sloping or fill placement	FCS	MN
	Rough grading of foundation	FCS	MN
12.	"As-excavated" survey conducted	FCS	MN
	Bedrock cleaning	FCS	MN
13.	Bedrock Mapping		—

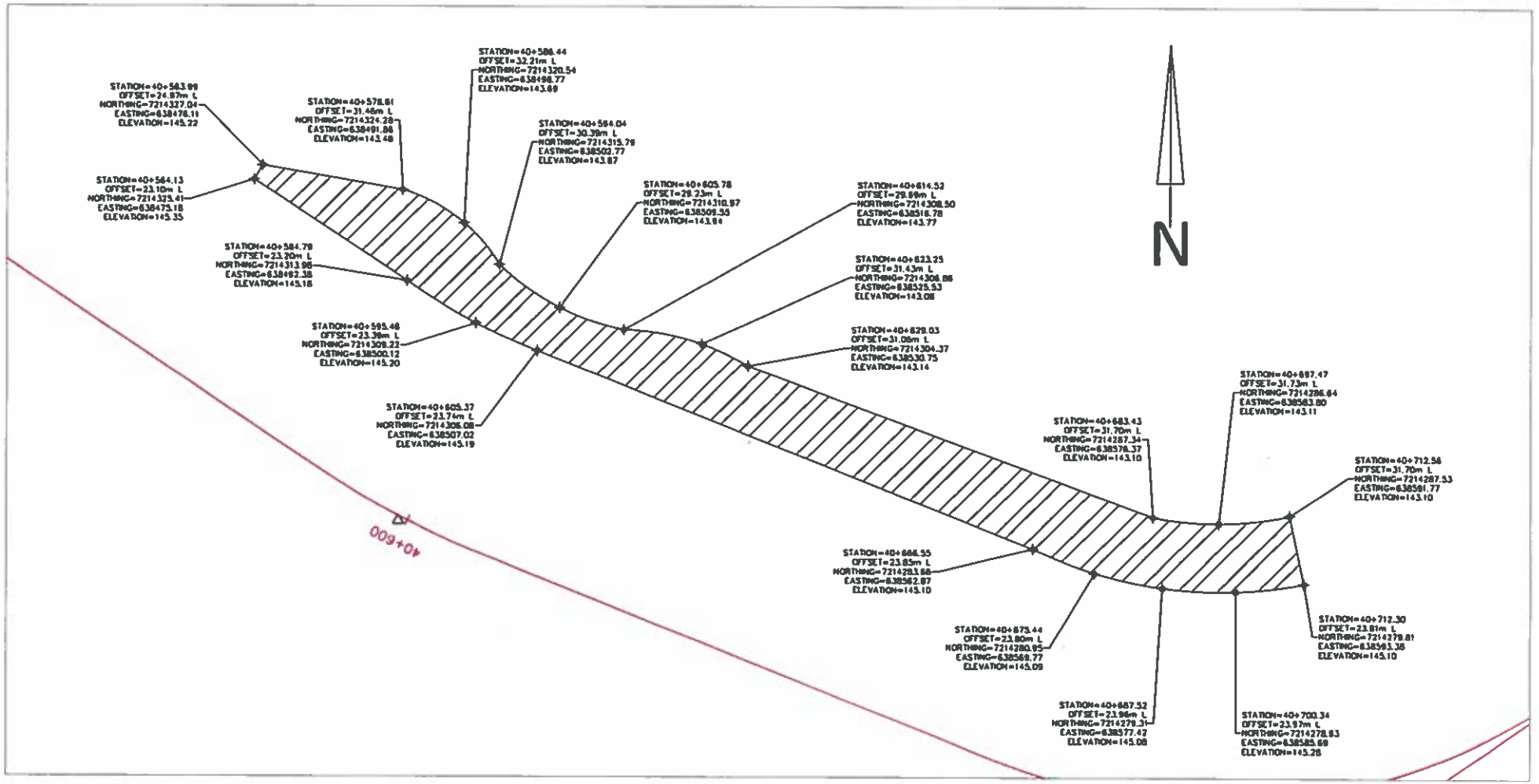
REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: MARC ANDRE BLACKBURN	NAME: Michael Nadon	NAME: Frédérik Laporte
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 27-09-2017	DATE: 24-09-2017	DATE: 28-09-2017

FOUNDATION APPROVAL FOR SD5
FND-SD5-17
CONTRACT # 11-505



984246 N.W.T. Limited
D/B/A :
Qamanittuaq
SANA

PREPARED BY : MARC-ANDRE BLACKBURN
DATE : 20-09-2017
CON-FD-0007-APPROVAL_SD5

Foundation Approval, FDN-SD5-17

1:
E=638591.77, N=7214287.53
St=40+712.56, Offset=31.70m L
El: 143.10

2:
E=638593.38, N=7214279.81
St=40+712.30, Offset=23.81m L
El: 145.10

3:
E=638475.18, N=7214325.41
St=40+584.13, Offset=23.10m L
El: 145.35

4:
E=638476.11, N=7214327.04
St=40+583.99, Offset=24.97m L
El: 145.22

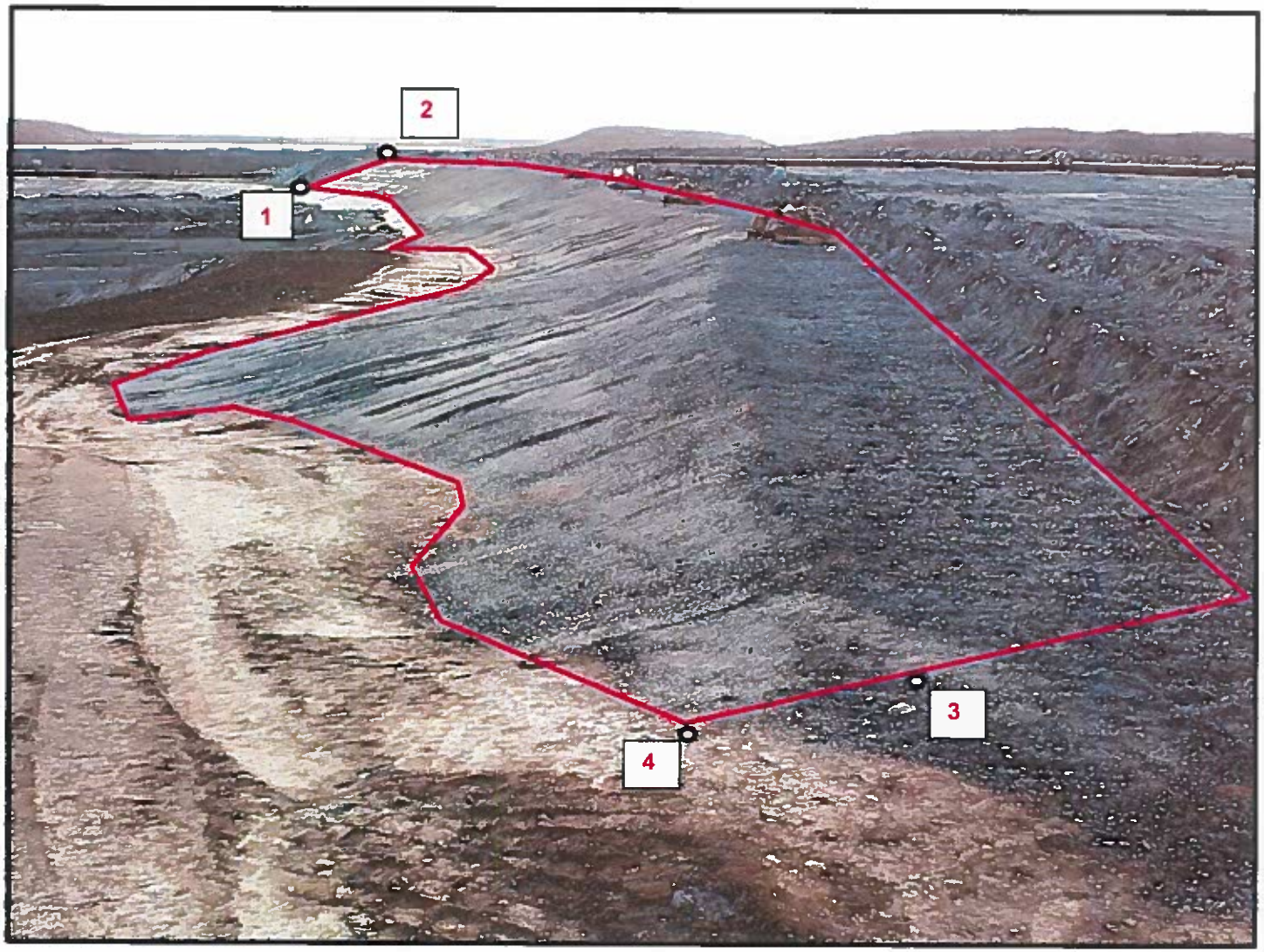


Photo 1- Approximate approved foundation area

Date: 2017-09-24

Photo by (Initial): H.P.

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SD-5

Acceptance No.:	FND-SD5-18	Date:	02/Oct/17

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);

2) Sketch of the approximate accepted area, incl. Station and Offset (according to Central Dike Stations);

3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative	Name:	Frédérick Bolduc	Frédérick L. Bolduc
	Position:	AEM- Ower Rep.	
QC Representative	Name:	Hugues Potvin	Hugues Potvin
	Position:	GHD	
QA Engineer	Name:	Michael Nadon	
	Position:	Golder-Qa	
Surveyor	Name:	Francis Pépin	
	Position:	FGL-Surveyor	

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Excavation and Foundation Preparation

SADDLE DAM 5 -TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 40+541 m Offset 27,62 m	SHIFT: NIGHT ☐ DAY ☑	DATE 02-10 2017	SHEET 2 OF 4
To Sta. 40+623 m Offset 50,16 m	LOCATION: :		
EQUIPMENT: 345 excavator			

DESCRIPTION Foundation Approval in view of the 2nd dam till + Granular Protection

NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	FCB	M.V.
2.	Storage areas planned for disposal of removed materials	FCB	MV.
3.	Occurrence of snow and ice removal method in place	FCB	MV
4.	Occurrence of boulders and removal method in place	FCB	MV
5.	Occurrence of hummocks and scalping method in place	FCB	MV
6.	Occurrence of surface and ground water and its impact mitigation in place	FCB	MV
7.	Presence of other unsuitable materials and removal method in place	FCB	MV
8.	Soil frozen or thawed and measures taken	FCB	MV
9.	Blasting requirement to remove unsuitable material and safety measure checked	—	—
	Preparation of surface for LLDPE geomembrane placement	—	—
10.	Adjustment made to suit design in field	FCB	MV
11.	Final walkover inspection before re-sloping or fill placement	FCB	MV
	Rough grading of foundation	FCB	MV
12.	"As-excavated" survey conducted	FCB	MV
	Bedrock cleaning	FCB	MV
13.	Bedrock Mapping	—	—

REMARKS :

DEVIATIONS : (Attach list if necessary)

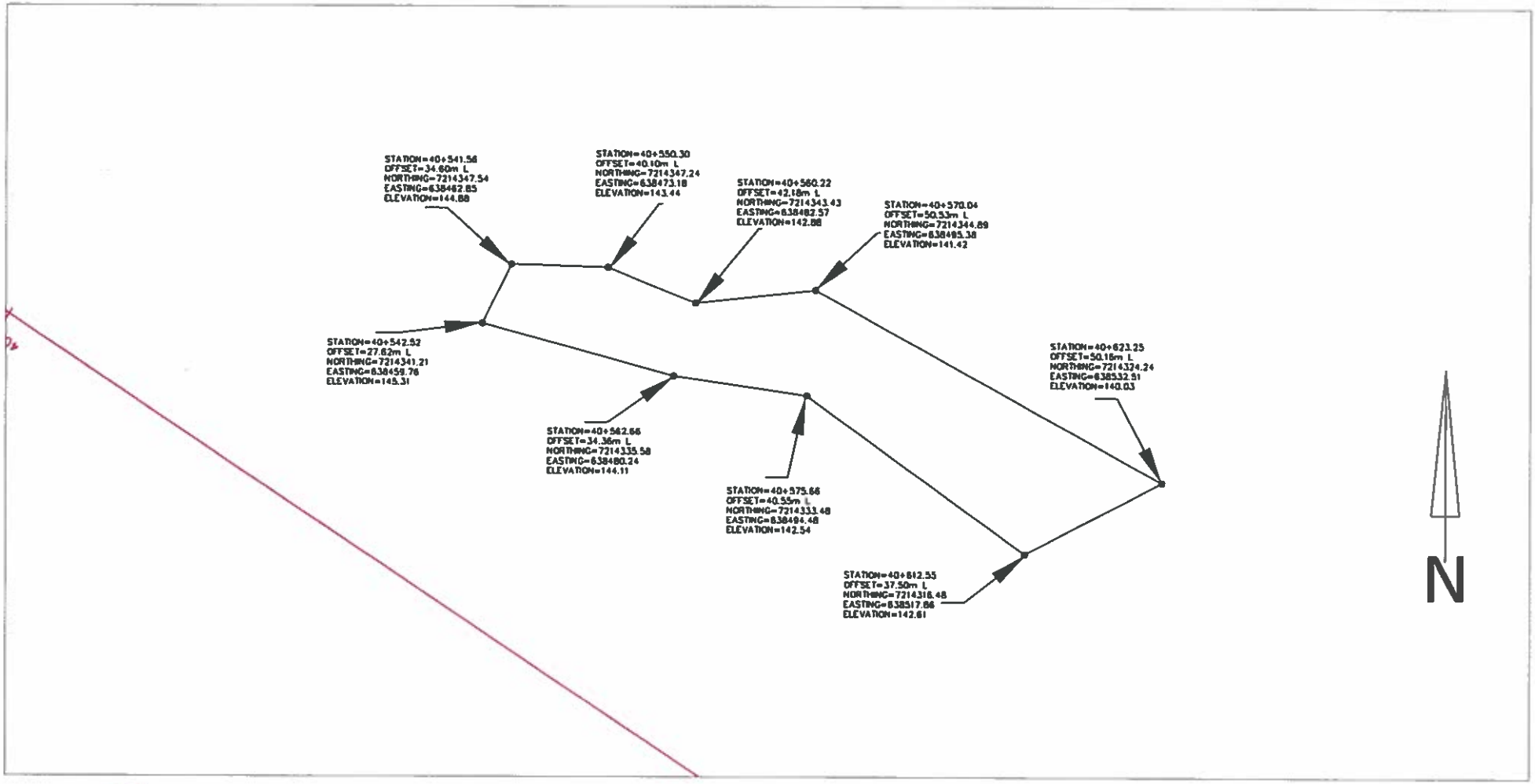
DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Francis Bélin	NAME: Michael Wadsor	NAME: Frederick C. Dobbe
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 2017-10-04	DATE: 02-10-2017	DATE: 05-10-17

FOUNDATION APPROVAL FOR SD5

FND-SD5-0018

CONTRACT # 11-505



984246 N.W.T. Limited
D/B/A :
Qamanittuaq
SANA

PREPARED BY : MARC-ANDRE BLACKBURN
DATE : 01-10-2017
CON-FD-0028-FONDATION-APPROVAL_SD5

Foundation Approval, FDN-SD5-18

1:
E=638459.76, N=7214341.21
St=40+542.52, Offset=27.62m L
Elev=145.31

2:
E=638462.85, N=7214347.54
St=40+541.56, Offset=34.60m L
Elev=144.88

3:
E=638532.51, N=7214324.24
St=40+623.25, Offset=50.16m L
Elev=140.03

4:
E=638517.86, N=7214316.48
St=40+612.55, Offset=37.50m L
Elev=142.61

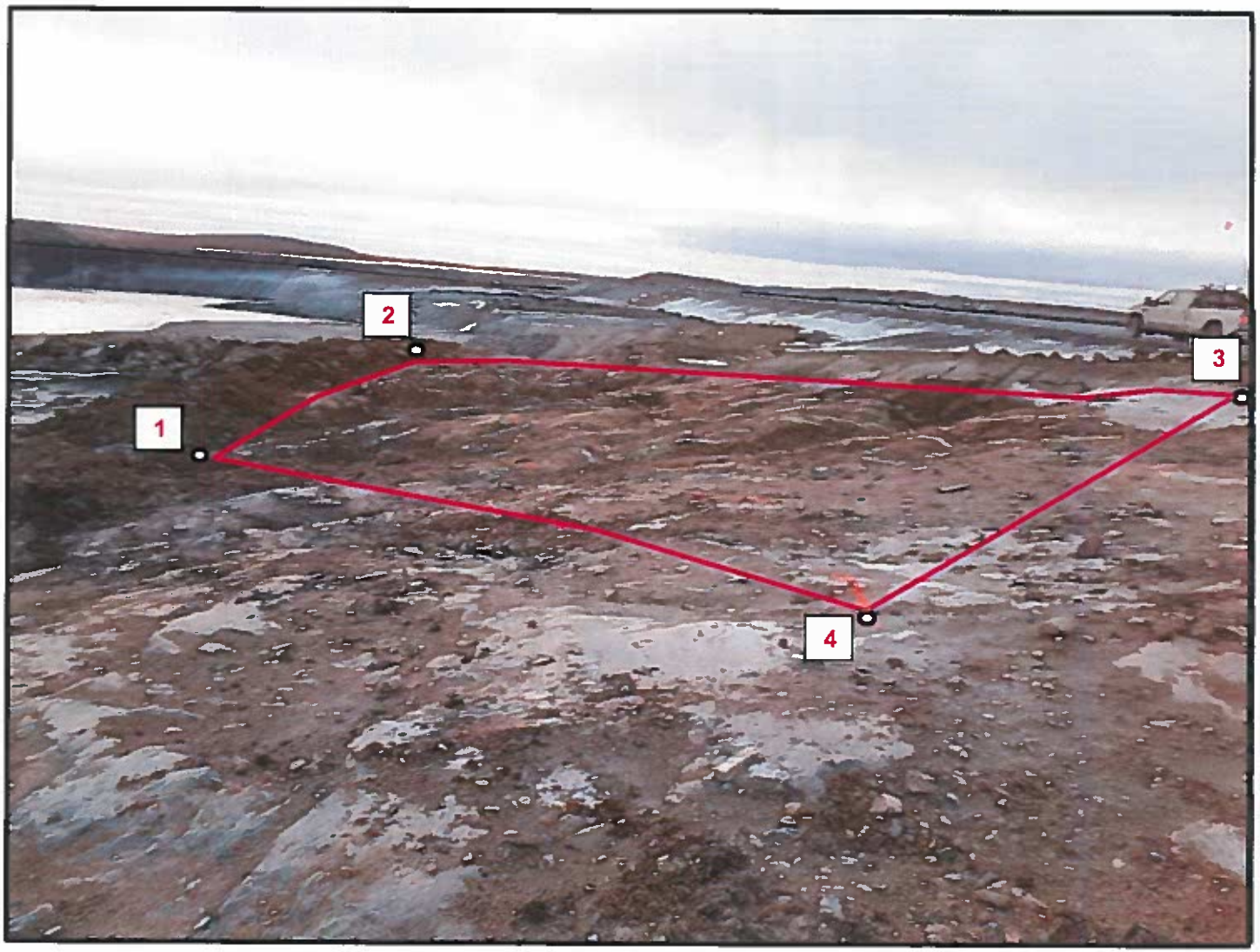


Photo 1- Approximate approved foundation area

Date: 2017-10-02

Photo by (Initial): H.P.

LLDPE GEOMEMBRANE PLACEMENT ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF LLDPE GEOMEMBRANE PLACEMENT - CENTRAL DIKE

Acceptance No.:	LLDPE-SD5-003	Date:	30/Sep/17

This Certificate of Acceptance for LLDPE Geomembrane Placement includes the following items, reviewed and accepted by the undersigned:

1) Sketch of the approximate accepted area;

2) Photo of the accepted area, at the moment of the acceptance;

3) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised personnel representing ZTG Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved aera has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the geomembrane conditions at the time of the inspection and the condition of the geomembrane is required to be maintained prior to and during geotextile and fill placement.

Owner Representative	Name:	Frédérick L. Bolduc Patrice Gagnon	Frédérick L. Bolduc
	Position:	AEM- Ower Rep.	
QC Representative	Name:	Hugues Potvin	Hugues Potvin
	Position:	GHD	
QA Engineer	Name:	Michael Nadon	
	Position:	Golder-Qa	
Surveyor	Name:	Marc-André Blackburn	
	Position:	FGL-Surveyor	

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

Geotextile Installation

SADDLE DAM 5 - TSF DIKE CONSTRUCTION CHECKLIST – GEOTEXTILE INSTALLATION

From Sta. 40+561m Offset -72.02m	SHIFT: NIGHT :☐ DAY :☒	DATE :2017-09-30	SHEET 2 OF 4
To Sta. 40+683 Offset-33.15m	LOCATION: SD5 geotextile (upstream)		
EQUIPMENT : —			

DESCRIPTION : geotextile

NO.	ITEMS TO BE INSPECTED	INSPECTED BY LINER INSTALLER/OWNER'S REPRESENTATIVE	INSPECTED BY QA QA ENGINEER
1	Geotextile material received has Manufacturer's certification and meets the Specifications	FCJ	MV
2	Visual inspection of geotextile rolls or factory panels to determine physical damage and defects	FCB	MV
3	Deficiencies reported before installation	FCD	MV
4	Inspection of geotextile storage facilities performed	FCD	MV
5	Final bedding surface condition meets the Specification and Approved by Liner Installer	FCJ	MV
6	Visual inspection during geotextile installation performed	FCJ	MV
7	Damages during installation repaired in accordance with Specifications	FCD	MV

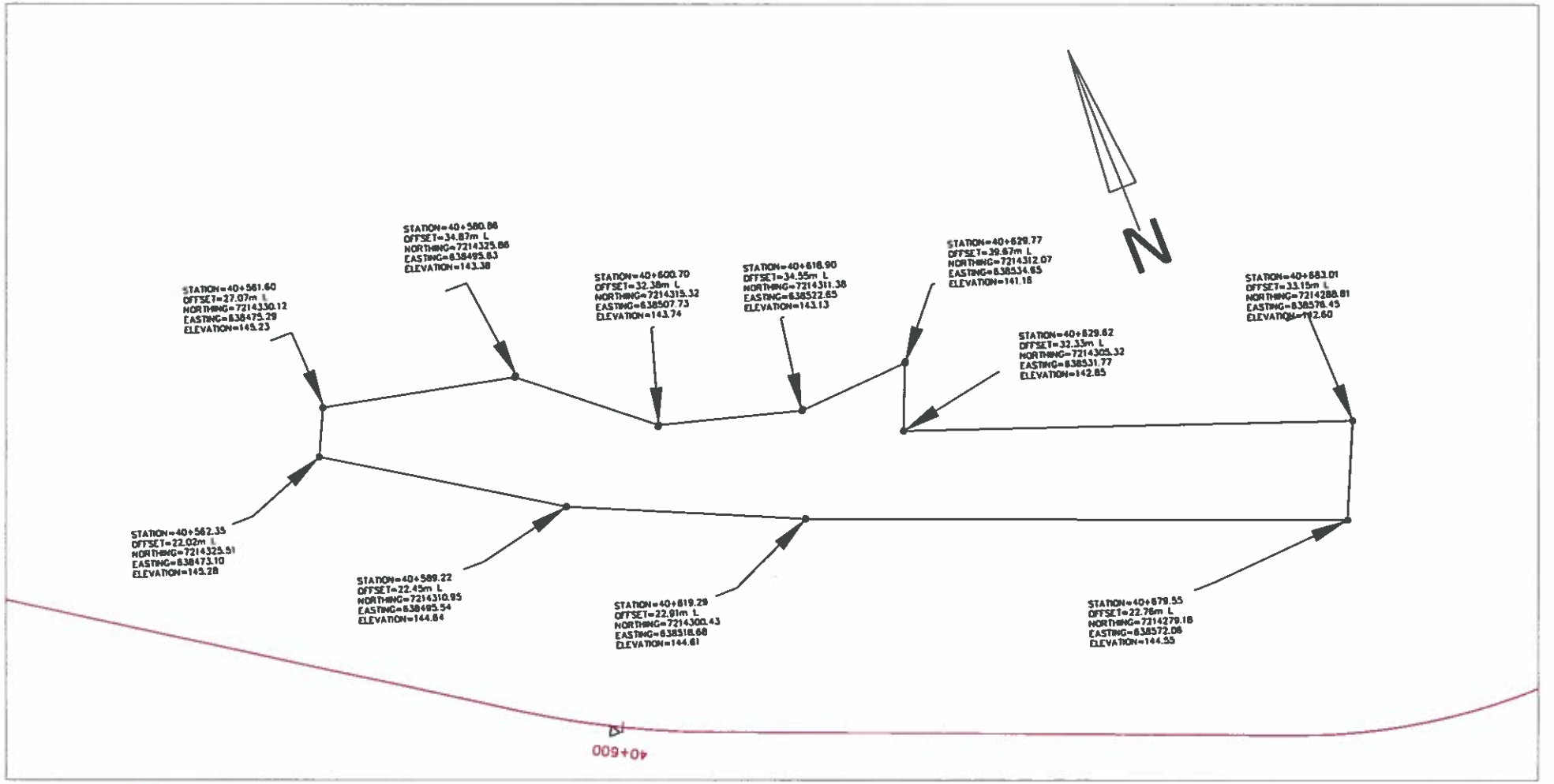
REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: MARC ANDRE BLACKBURN	NAME: Michael Nadon	NAME: Frédérick LaDoke
SIGNATURE: MAB	SIGNATURE: MN	SIGNATURE:
DATE: 01-10-2017	DATE: 2017-09-30	DATE: 2017-09-30

LLDPE APPROVAL FOR SD4
LLDPE-SD5-0003
CONTRACT # 11-505



984246 N.W.T. Limited
D/B/A :
Qamanittuaq
SANA

PREPARED BY : MARC-ANDRE BLACKBURN
DATE : 29-09-2017
CON-FD-0020-LLDPE-APPROVAL_SD5

Foundation Approval, LLDPE-SD5-003

1:
E=638472.10, N=7214325.51
St=40+562.35, Offset=22.02m L
El: 145.28

2:
E=638475.29, N=7214330.12
St=40+561.60, Offset=27.07m L
El: 145.23

3:
E=638576.45, N=7214288.81
St=40+683.01, Offset=33.15m L
El: 142.60

4:
E=638572.06, N=7214279.18
St=40+679.55, Offset=22.76m L
El: 144.55

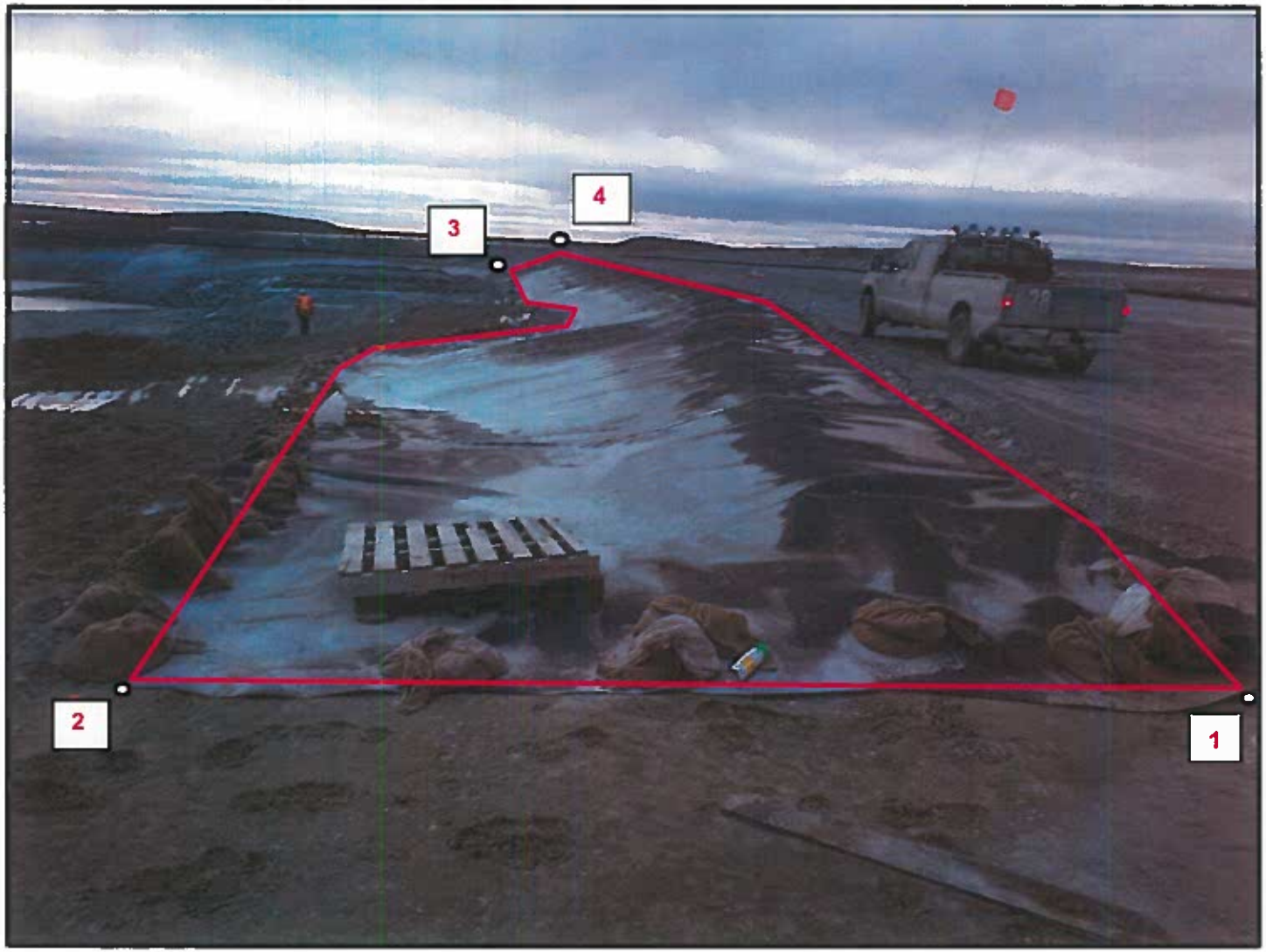


Photo 1- Approximate approved foundation area

Date: 2017-09-30

Photo by (Initial): H.P.

APPENDIX H - GEOSYNTHETICS INSTALLATION QC DOCUMENTATION

FERNAND GILBERT LTÉE.
921700, BOUL. TALBOT, BUREAU 400
CHICOUTIMI, QC
G7H7Y1

WORK REPORT

AGNICO-EAGLE MINES LIMITED
MEADOWBANK DIVISION
SD4, SD5 AND CENTRAL DYKE CONSTRUCTION



GEOSYNTHETICS INSTALLATION

GEOMEMBRANE LLDPE 1,5 MM LLDPE textured

PROTECTION GEOTEXTILE

SEPTEMBER – OCTOBER 2017

ZTG GÉOSYNTHÉTIQUES INC.
4085, rue Lavoisier – Boisbriand, (Québec) J7H 1N1
Tél. : 1-877-430-5333 Fax : 450-430-9352
www.ztg-inc.com
R.B.Q. : 2628-0297-55

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1.2.3 Installation of geomembrane panels 3
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A Work site registry: SD4, SD5 AND Central Dyke North
- Surface Approbation
- Panel position register
- Calibration trial register
- Weld register
- Destructive trial register

B Manufacturer data sheet

C « As built » drawings

INTRODUCTION

ZTG Geosynthetics inc. prepared this report, to the attention of Fernand Gilbert Ltée, for the projects Central Dyke construction, Agnico-Eagle Mines Limited – Meadowbank Division.

This report contains a brief description of the quality control methods used at the work site, the geomembrane manufacturer's quality control along with our work site registries. Also included in this report is the « As built » assembly plans.

The work realised in 1 phases from September 21th to October 2nd 2017 consisted of the installation of a geomembrane of Linear Low Density PolyEthylene (LLDPE) protected by a geotextile. Three different locations were covered.

1. SD4 - represented approximately 3,579 m^2 and more than 512 linear meters of welding.
2. SD5 - represented approximately 1,047 m^2 and more than 153 linear meters of welding.
3. Central Dyke (North) - represented approximately 604 m^2 and more than 88 linear meters of welding.

The procedures of assembling the geomembrane were done with due diligence in accordance with the geosynthetic industry and conform to all requirements and specifications of the tender document.

Wishing the whole will be to your entire satisfaction

ZTG GEOSYNTHETICS INC.

1.0 REALISATION OF THE WORK:

The installation of the geomembrane was done from September 21th to October 2nd 2017.
The work consisted of recovering a surface with a textured membrane of black LLDPE of 1,5 mm (60 mil) in thickness.

1.1 Implicated parties :

This project implicated the following parties:

AGNICO-EAGLE MINES LIMITED – MEADOWBANK DIVISION - Owner
- Mr. Thomas Lépine, Eng. Principal Geotechnical Engineer
- Mr. Patrice Gagnon, Eng. Geotechnical Engineer

FERNAND GILERT Limited - General Contractor
- Mr. Guillaume Tremblay, Division Director

GOLDER ASSOCIATES Limited - Consultant
- Mr. Yves Boulianne, Eng. Associate

ZTG GEOSYNTHETICS INC - Specialized contractor, liner installer
- Mr. Jean-Marc Brunet, Projects Director
- Mr. Marco Pigeon, Operation Director
- Mr. Stéphane Côté, Site supervisor
- Mrs. Marion Ferret, ing. jr., Field Quality Control Engineer
- Mr. Charles-Antoine Meloche-Turcot, Fusion Welder
- Mr. Fleurant Bélanger, Fusion Welder
- Mr. Louis-Philippe Dagenais, Fusion Welder
- Mr. Pierre-Luc Pépin, Fusion Welder

1.2 Work site installation :

1.2.1 Reception and storage of materials

The geomembrane rolls were stored in an acceptable location near the work site. The rolls were well identified and their numbers were recorded before deployment.

1.2.2 Inspection of work surfaces :

At our arrival on the work site, the sand foundation was prepared to our requirements.

1.2.3 Installation of geomembrane panels :

After the deployment of each panel the quality control technician or the supervisor did a visual inspection to find any defects. A number was then attributed and inscribed to each panel. This number was then rewritten on the « as built » drawings.

1.2.4 Welding of the geomembrane panels :

All major welds between panels were done by fusion of polymers. The welding machines used for this are known as wedge-welders, which use the wedge as heat source. These welders produce an air chamber between two welds, which lets us do non-destructive air pressure tests of the welds

The second type of welds were done with a manual extrusion process for the fusion of polymers. This type of weld was used, to fuse the geomembrane to the Seal Lock integrated in the cement foundation, at the intersection of 3 panels and for general repairs. Non destructive testing for this type of weld was the vacuum test

2.0 **QUALITY CONTROL**

2.1 Quality control on the assembly of geomembrane panels.

2.1.1 Welding calibration

All welding equipment was calibrated prior to usage. A weld sample was produced in the same environmental conditions and with the same materials that were to be used that day by the welding technicians.

From the sampled weld we took 25mm in width by 150mm in length samples and tested their resistance with peel and sheer strength. Only after positive results could the technicians start welding the panels.

2.1.2 Weld integrity tests :

All welds were visually inspected and tested by non-destructive means. These tests were “air pressure tests” or “vacuum tests”. These tests let us verify that the welds are sealed tight.

2.1.2.1 Air pressure test :

This type of test was used on all longitudinal welds with a central air chamber. The method consists to inject air with a controlled pressure (29 to 45 PSI) in the air chamber and to verify that there is no pressure loss. If there is a loss of pressure in the air chamber than there is a breach in the weld. The breach will be found by visual inspection or by vacuum testing the weld.

2.1.2.2 Vacuum test :

This type of test was used in small areas where pressure testing was difficult or at welds done by extrusion. This method consisted of putting soapy water on the welds, we then put an airtight box on the weld and pump out the air in order to create negative pressure over the weld. If the weld is breached than bubbles will form over the breach thus locating the area to repair.

2.1.3 Repairs

All nicks and/or tears were repaired by extrusion. These repairs were then vacuum tested to verify that the welds are sealed tight.

2.1.4 «As built » drawings :

The «As built » drawings represent the layout of geomembrane panels and the details of construction.

3.0 **WORK CERTIFICATION :**

This document prepared by ZTG Geosynthetics inc. for the contract given by FERNAND GILBERT LIMITED certifies that the installation of geosynthetics was realised with due diligence in accordance to the geosynthetic industry and conform to the plans and tender document issued by Golder Associates Limited.

ZTG Geosynthetics inc.



Jean-Marc Brunet B.Sc.
Project Director

LIST OF ANNEXES

A **Work site registry: SD4, SD5 AND Central Dyke North**

- Surface Approbation
- Panel position register
- Calibration trial register
- Weld register
- Destructive trial register

B **Manufacturer data sheet**

C **« As built » drawings**

ANNEXE A

SD4, SD5 AND Central Dyke North

Surface Approbation

CERTIFICAT OF SURFACES APPROBATION

GÉOSYNTHÉTIQUES ZTG INC.

PROJECT : FILE : **17-050**

AGNICO-EAGLES-MEADOWBANK **PHASE 2017**

DESCRIPTION :

Liner installation to waterproofing SD4.

This here-by confirms the acceptation of the visible surfaces by the representative of ZTG Geosynthetics inc. This acceptance permits the installation of geomembrane on the accepted surfaces

PARTIAL ACCEPTATION :

COMPLETE ACCEPTATION: X

Stéphane Côté — SUPERVISOR

September 22nd 2017 — DATE

This acceptance is limited to the surface verified. ZTG Geosynthetics inc. endorses no responsibility to eventual tears to the geomembrane due to defects or non-accessible vices while visually inspecting the surfaces.

CERTIFICAT OF SURFACES APPROBATION

GÉOSYNTHÉTIQUES ZTG INC.

PROJECT : FILE : **17-050**

AGNICO-EAGLES-MEADOWBANK **PHASE 2017**

DESCRIPTION :

Liner installation to waterproofing , SD5.

This here-by confirms the acceptation of the visible surfaces by the representative of ZTG Geosynthetics inc. This acceptance permits the installation of geomembrane on the accepted surfaces

PARTIAL ACCEPTATION :

COMPLETE ACCEPTATION: X

Stéphane Côté — SUPERVISOR

September 26th 2017 — DATE

This acceptance is limited to the surface verified. ZTG Geosynthetics inc. endorses no responsibility to eventual tears to the geomembrane due to defects or non-accessible vices while visually inspecting the surfaces.

CERTIFICAT OF SURFACES APPROBATION

GÉOSYNTHÉTIQUES ZTG INC.

PROJECT : FILE : **17-050**

AGNICO-EAGLES-MEADOWBANK **PHASE 2017**

DESCRIPTION :

Liner installation to waterproofing Central Dyke (North).

This here-by confirms the acceptation of the visible surfaces by the representative of ZTG Geosynthetics inc. This acceptance permits the installation of geomembrane on the accepted surfaces

PARTIAL ACCEPTATION :

COMPLETE ACCEPTATION: X

Stéphane Côté
SUPERVISOR

September 26th 2017
DATE

This acceptance is limited to the surface verified. ZTG Geosynthetics inc. endorses no responsibility to eventual tears to the geomembrane due to defects or non-accessible vices while visually inspecting the surfaces.

ANNEXE A

SD4, SD5 AND Central Dyke North

Panel position register

PANEL POSITION REGISTER

Panel number	roll identification	Date	Width m	Length m	Area m^2
727		2017-09-22	6,858	10,668	73,16
728		2017-09-22	6,858	15,24	104,52
729		2017-09-22	6,858	10,668	73,16
730		2017-09-22	6,858	10,668	73,16
731		2017-09-22	6,858	10,668	73,16
732		2017-09-22	6,858	10,668	73,16
733		2017-09-22	6,858	10,668	73,16
734		2017-09-22	6,858	10,668	73,16
735		2017-09-22	6,858	10,668	73,16
736		2017-09-22	6,858	10,668	73,16
737	G16C000884	2017-09-22	6,858	10,668	73,16
738	G16C000884	2017-09-22	6,858	10,668	73,16
739	G16C000884	2017-09-23	6,858	10,0584	68,98
740	G16C000884	2017-09-23	6,858	10,0584	68,98
741	G16C000884	2017-09-23	6,858	10,0584	68,98
742	G16C000884	2017-09-23	6,858	10,0584	68,98
743	G16C000884	2017-09-23	6,858	10,0584	68,98
744	G16C000884	2017-09-24	6,858	10,0584	68,98
745	G16C000884	2017-09-24	6,858	10,668	73,16
746	G16C000884	2017-09-24	6,858	11,2776	77,34
747	G16C000884	2017-09-24	6,858	10,0584	68,98
748	G16C000884	2017-09-24	6,858	10,0584	68,98
749	G16C000884	2017-09-24	6,858	10,3632	71,07
750	G16C000884	2017-09-24	6,858	9,7536	66,89
751	G16C000883	2017-09-24	6,858	10,668	73,16
752	G16C000883	2017-09-24	6,858	10,0584	68,98
753	G16C000883	2017-09-24	6,858	10,0584	68,98
754	G16C000883	2017-09-24	6,858	10,0584	68,98
755	G16C000883	2017-09-24	6,858	10,0584	68,98
756	G16C000883	2017-09-24	6,858	10,0584	68,98
757	G16C000883	2017-09-24	6,858	10,9728	75,25
758	G16C000883	2017-09-25	6,858	10,668	73,16
759	G16C000883	2017-09-25	6,858	10,3632	71,07
760	G16C000883	2017-09-25	6,858	10,9728	75,25
761	G16C000883	2017-09-25	6,858	10,668	73,16
762	G16C000883	2017-09-25	6,858	10,3632	71,07
763	G16C000883	2017-09-25	6,858	10,3632	71,07
764	G16C000883	2017-09-25	6,858	10,0584	68,98
765	G16C000876	2017-09-25	6,858	10,3632	71,07
766	G16C000876	2017-09-25	6,858	10,668	73,16
767	G16C000876	2017-09-25	6,858	10,3632	71,07
768	G16C000876	2017-09-25	6,858	10,668	73,16
769	G16C000876	2017-09-25	6,858	10,3632	71,07
770	G16C000876	2017-09-25	6,858	10,668	73,16
771	G16C000876	2017-09-25	6,858	13,1064	89,88

PANEL POSITION REGISTER

Panel number	roll identification	Date	Width m.lin.	Length m.lin.	Area m^2
772	G16C000876	2017-09-25	6,858	11,2776	77,34
773	G16C000876	2017-09-25	6,858	9,4488	64,80
774	G16C000876	2017-09-25	6,858	9,144	62,71
775	G16C000876	2017-09-25	6,858	7,9248	54,35
776	G16C000876	2017-09-25	6,858	7,3152	50,17

Total :	3 578,63 m2

PANEL POSITION REGISTER

Panel number	roll identification	Date	Width m	Length m	Area m^2
777	G16C000876	2017-09-26	6,858	5,7912	39,72
778	G16C000876	2017-09-26	6,858	7,3152	50,17
779	G16C000876	2017-09-26	6,858	10,668	73,16
780	G16C000877	2017-09-26	6,858	12,8016	87,79
781	G16C000877	2017-09-26	6,858	7,9248	54,35
782	G16C000877	2017-09-26	6,858	9,144	62,71
783	G16C000877	2017-09-26	6,858	9,144	62,71
784	G16C000877	2017-09-26	6,858	11,2776	77,34
785	G16C000877	2017-09-26	6,858	14,3256	98,24
786	G16C000877	2017-09-26	6,858	8,2296	56,44
787	G16C000877	2017-09-26	6,858	8,8392	60,62
788	G16C000877	2017-09-26	6,858	9,4488	64,80
789	G16C000877	2017-09-26	6,858	9,144	62,71
790	G16C000877	2017-09-26	6,858	9,144	62,71
791	G16C000877	2017-09-26	6,858	9,4488	64,80
792	G16C000877	2017-09-26	6,858	10,0584	68,98
				Total :	1 047,25 m2

PANEL POSITION REGISTER

Panel number	roll identification	Date	Width m	Length m	Area m^2
793	G16C000877	2017-09-26	6,86	7,92	54,35
794	G16C000877	2017-09-26	6,86	7,92	54,35
795	G16C000877	2017-09-26	6,86	8,53	58,53
796	G16C000877	2017-09-26	6,86	13,41	91,97
797	G16C000877	2017-09-26	6,86	12,19	83,61
798	G16C000877	2017-09-26	6,86	10,97	75,25
799	G16C000877	2017-09-26	6,86	10,06	68,98
800	G16C000877	2017-09-26	6,86	9,14	62,71
801	G16C000877	2017-09-26	6,86	7,92	54,35
				Total :	604,10 m2

ANNEXE A

SD4, SD5 AND Central Dyke North

Calibration trial register

CALIBRATION REGISTER

NUMBER	Date	Heure	Tech.	Equip. no.	TEMP ^{0}	PH/ Temp^0 /vitesse	Pelage bris. (lb/in)	Pelage bris. (lb/in)	cisail bris. (lbs)	cisail bris. (lbs)	Parent
1	2017-09-22	06:50	FB	EX52	250	190	132	102	131	140	139
2	2017-09-22	09:30	FB	W16	460	400	137	139	136	138	138
3	2017-09-22	13:45	FB	EX52	250	190	106	122	131	129	127
4	2017-09-23	13:40	FB	EX53	250	220	121	136	134	131	144
5	2017-09-23	15:00	FB	W16	460	400	145	140	148	149	153
6	2017-09-24	08:20	FB	W16	460	400	139	143	150	148	160
7	2017-09-24	11:00	FB	EX53	250	200	124	105	153	150	149
8	2017-09-25	08:30	FB	W16	460	400	145/134	124/122	165	165	171
9	2017-09-25	13:45	FB	EX53	250	200	102	114	139	138	124
10	2017-09-26	10:50	CA	W16	460	400	131/124	126/131	144	139	140
11	2017-09-28	07:38	CA	EX53	250	230	106	117	151	155	158
12	2017-09-30	06:48	CA	W16	460	390	148/153	159/144	160	160	170
13	2017-09-30	12:00	CA	EX53	250	225	112	128	163	153	145

ANNEXE A

SD4, SD5 AND Central Dyke North

Weld register

WELD REGISTER

Weld #	Date	Time	Length (m)	Welder	Welding machine	Calibra. number	Air test Start	PSI
SD 4								
727/728	2017-09-22	10:50	10,67	FB	W16	2	14:28	52
728/729	2017-09-22	10:59	9,14	FB	W16	2	14:30	28
729/730	2017-09-22	11:08	9,14	FB	W16	2	14:37	40
730/731	2017-09-22	11:15	9,14	FB	W16	2	14:42	34
731/732	2017-09-22	11:22	9,14	FB	W16	2	14:44	40
732/733	2017-09-22	11:30	9,14	LP	W16	2	14:53	37
733/734	2017-09-22	11:40	9,14	LP	W16	2	15:01	31
734/735	2017-09-22	11:45	9,14	LP	W16	2	15:11	29
735/736	2017-09-22	11:50	9,14	LP	W16	2	15:12	31
736/737	2017-09-22	11:55	9,14	LP	W16	2	15:38	30
737/738	2017-09-22	14:00	9,14	LP	W16	2	15:52	32
738/739	2017-09-23	15:05	9,14	FB	W16	5	15:45	36
739/740	2017-09-23	15:10	9,14	FB	W16	5	15:55	37
740/741	2017-09-23	15:15	9,14	FB	W16	5	16:00	31
741/742	2017-09-23	15:20	9,14	FB	W16	5	16:05	30
742/743	2017-09-23	15:25	9,14	FB	W16	5	16:10	38
743/744	2017-09-24	08:33	9,14	FB	W16	6	11:25	30
744/745	2017-09-24	08:40	9,14	FB	W16	6	11:38	38
745/746	2017-09-24	08:48	9,14	FB	W16	6	11:42	31
746/747	2017-09-24	08:54	9,14	FB	W16	6	11:48	40
747/748	2017-09-24	09:06	9,14	FB	W16	6	11:53	31
748/749	2017-09-24	09:16	9,14	FB	W16	6	11:58	34
749/750	2017-09-24	09:22	9,14	FB	W16	6	12:04	31
750/751	2017-09-24	09:41	9,14	FB	W16	6	12:10	34
751/752	2017-09-24	09:48	9,14	FB	W16	6	12:17	38
752/753	2017-09-24	09:57	9,14	FB	W16	6	13:39	35
753/754	2017-09-24	10:04	9,14	FB	W16	6	13:48	30
754/755	2017-09-24	10:11	9,14	FB	W16	6	13:53	32
755/756	2017-09-24	10:20	9,14	FB	W16	6	14:00	32
756/757	2017-09-25	08:38	9,14	FB	W16	8	14:11	30
757/758	2017-09-25	08:46	9,14	CA	W16	8	14:12	30
758/759	2017-09-25	08:55	9,14	CA	W16	8	14:31	31
759/760	2017-09-25	09:02	9,14	CA	W16	8	14:32	31
760/761	2017-09-25	09:10	9,14	CA	W16	8	14:41	30
761/762	2017-09-25	09:20	9,14	CA	W16	8	14:42	30
762/763	2017-09-25	09:27	9,14	CA	W16	8	14:49	30
763/764	2017-09-25	09:35	9,14	CA	W16	8	14:50	30
764/765	2017-09-25	09:46	9,14	CA	W16	8	15:00	37
765/766	2017-09-25	09:54	9,14	CA	W16	8	15:01	31
766/767	2017-09-25	10:02	9,14	CA	W16	8	15:07	38
SD 5								
767/768	2017-09-25	10:11	9,14	CA	W16	8	15:10	31
768/769	2017-09-25	10:17	9,14	CA	W16	8	15:17	32
769/770	2017-09-25	11:10	9,14	CA	W16	8	15:25	30

WELD REGISTER

Weld #	Date	Time	Length (m)	Welder	Welding machine	Calibra. number	Air test Start	PSI
770/771	2017-09-25	11:15	9,14	CA	W16	8	15:28	36
771/772	2017-09-25	11:22	9,14	CA	W16	8	15:36	33
772/773	2017-09-25	11:30	9,14	CA	W16	8	15:43	37
773/774	2017-09-25	11:36	9,14	CA	W16	8	15:50	34
774/775	2017-09-25	11:42	9,14	CA	W16	8	15:56	30
775/776	2017-09-25	11:48	9,14	CA	W16	8	16:02	32
777/778	2017-09-26	11:02	9,14	CA	W16	10	Corr. via extrusio	
778/779	2017-09-26	11:09	9,14	CA	W16	10	16:35	36
779/780	2017-09-26	11:29	9,14	CA	W16	10	16:44	40
780/781	2017-09-26	11:37	9,14	CA	W16	10	16:50	34
781/782	2017-09-26	11:46	9,14	CA	W16	10	16:56	35
782/783	2017-09-26	11:54	9,14	CA	W16	10	17:01	35
783/784	2017-09-26	13:41	9,14	CA	W16	10	17:07	30
784/785	2017-09-26	13:50	9,14	CA	W16	10	17:12	37
785/786	2017-09-26	14:55	9,14	CA	W16	10	17:17	39
786/787	2017-09-26	15:03	9,14	CA	W16	10	17:22	36
787/788	2017-09-26	15:10	9,14	CA	W16	10	17:28	35
788/789	2017-09-26	15:18	9,14	CA	W16	10	17:33	34
789/790	2017-09-26	15:26	9,14	CA	W16	10	17:39	33
790/791	2017-09-26	15:36	9,14	CA	W16	10	17:45	35
791/792	2017-09-26	15:48	9,14	CA	W16	10	17:51	35
Central Dyke (North)								
793/794	2017-09-30	09:10	9,14	CA	W16	12	10:39	34
794/795	2017-09-30	09:17	9,14	CA	W16	12	10:46	32
795/796	2017-09-30	09:23	9,14	CA	W16	12	11:05	35
796/797	2017-09-30	09:37	9,14	CA	W16	12	11:09	34
797/798	2017-09-30	09:48	9,14	CA	W16	12	11:19	30
798/799	2017-09-30	09:55	9,14	CA	W16	12	11:25	36
799/800	2017-09-30	10:05	9,14	CA	W16	12	11:31	33
800/801	2017-09-30	10:11	9,14	CA	W16	12	11:36	36

ANNEXE A

SD4, SD5 AND Central Dyke North

Destructive trial register

DESTRUCTIVE TESTING REGISTER

Test number	Weld number	Peel (lb/po)	Peel (lb/po)	Peel (lb/po)	Shear (lb/po)	Shear (lb/po)
DT-1	742/743	143/151	158/145		165	170
DT-2	760/761	140/143	151/133		159	156
DT-3	785/786	143/150	140/140		160	154
DT-4	797/798	149/129	129/136		151	156

ANNEXE B

SD4, SD5 AND Central Dyke North

Manufacturer data sheet

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Cust: ZTG Geosynthetics, Inc.
PO#: 11154 Agnico Eagle Nunavut
Dest: CPU (Quebec, Canada)

Doc#: 37207

11 rolls 60LL micro (540)
1 roll 40HD micro (750)

	English			Metric					
roll #	width	length	area	width	length	area	check weld rod qty (if ordered)	wgt	resin lot #
	ft.	ft.	ft².	m	m	m²		lbs.	
no third party testing									
G17B002744	23	537	12,351	7.01	163.68	1,147.45	**60LL micro 11tot 1**	**3740**	**CHC811930**
G17B002756	23	540	12,420	7.01	164.59	1,153.86	**60LL micro 11tot 2**	**3758**	**CHG811020**
G17B002757	23	540	12,420	7.01	164.59	1,153.86	**60LL micro 11tot 3**	**3742**	**CHG811020**
G17B002758	23	540	12,420	7.01	164.59	1,153.86	**60LL micro 11tot 4**	**3734**	**CHG811020**
G17B002759	23	540	12,420	7.01	164.59	1,153.86	**60LL micro 11tot 5**	**3730**	**CHG811020**
G17B002760	23	540	12,420	7.01	164.59	1,153.86	**60LL micro 11tot 6**	**3672**	**CHG811020**
G17B002761	23	540	12,420	7.01	164.59	1,153.86	**60LL micro 11tot 7**	**3674**	**CHG811020**
G17B002762	23	540	12,420	7.01	164.59	1,153.86	**60LL micro 11tot 8**	**3660**	**CHG811020**
G17B002763	23	540	12,420	7.01	164.59	1,153.86	**60LL micro 11tot 9**	**3658**	**CHG811020**
G17B002764	23	540	12,420	7.01	164.59	1,153.86	**60LL micro 11tot 10**	**3668**	**CHG811020**
G17B002765	23	540	12,420	7.01	164.59	1,153.86	**60LL micro 11tot 11**	**3668**	**CHG811020**
			136,551			12,686		**40704**	
			total for order						

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ROLL #: G17B002744 **LOT #:** CHC811930 **LINER TYPE:** 60 LL MICROSPIKE

		METRIC	ENGLISH		METRIC	ENGLISH
Thickness Measurement ASTM D5994 (Modified)	MIN:	**1.5** mm	**59** mil	Thickness:	**1.52** mm	**60** mil
	MAX:	**1.7** mm	**66** mil	Length:	**163.680** m	**537** feet
	AVE:	**1.5** mm	**61** mil	Width:	**7.01** m	**23** feet
OIT(Standard) ASTM D 3895						**163** minutes
Asperity ASTM D7466	Average	Top			**.74** mm	**29** mil
		Bottom			**.74** mm	**29** mil
Specific Gravity ASTM D792	Average Density					**.933** g/cc
MFI ASTM D1238 COND. E Grade: **7104**	Melt Flow Index 190C/2160 g - g/10 min					**.28**
Carbon Black Content ASTM D4218	Range					**2.4** %
Carbon Black Dispersion ASTM D5596	Category					**10 in Category 1**
Tensile Strength ASTM D6693 (2 inches / minute)	Average Strength @ Break	MD	**39** N/mm		**223** ppi	**3676** psi
		TD	**38** N/mm		**215** ppi	**3467** psi
Tensile Elongation ASTM D6693 (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @Break	MD				**556** %
		TD				**600** %
Tear Resistance ASTM D1004 (Modified)	Average Tear Resistance	MD		**218.0** N		**49** lbs.
		TD		**226.8** N		**51** lbs.
Puncture Resistance ASTM D4833 (Modified)	Average Peak Load			**551.6** N		**124** lbs.

Customer: ZTG Geosynthetics, Inc.
PO: 11154 Agnico Eagle Nunavut
Destination: CPU (Quebec, Canada)

Production Date: **8/12/2017** OA#: **37207**

Signature: _____

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ROLL #: G17B002756 **LOT #:** CHG811020 **LINER TYPE:** 60 LL MICROSPIKE

		METRIC	ENGLISH		METRIC	ENGLISH
Thickness Measurement ASTM D5994 (Modified)	MIN:	**1.5** mm	**58** mil	Thickness:	**1.52** mm	**60** mil
	MAX:	**1.7** mm	**68** mil	Length:	**164.594** m	**540** feet
	AVE:	**1.5** mm	**61** mil	Width:	**7.01** m	**23** feet
OIT(Standard) ASTM D 3895						**165** minutes
Asperity ASTM D7466	Average	Top			**.74** mm	**29** mil
		Bottom			**.76** mm	**30** mil
Specific Gravity ASTM D792	Average Density					**.935** g/cc
MFI ASTM D1238 COND. E Grade: **7104**	Melt Flow Index 190C/2160 g - g/10 min					**.35**
Carbon Black Content ASTM D4218	Range					**2.4** %
Carbon Black Dispersion ASTM D5596	Category					**10 in Category 1**
Tensile Strength ASTM D6693 (2 inches / minute)	Average Strength @ Break	MD	**36** N/mm		**204** ppi	**3388** psi
		TD	**36** N/mm		**205** ppi	**3441** psi
Tensile Elongation ASTM D6693 (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @Break	MD				**510** %
		TD				**603** %
Tear Resistance ASTM D1004 (Modified)	Average Tear Resistance	MD			**240.2** N	**54** lbs.
		TD			**249.1** N	**56** lbs.
Puncture Resistance ASTM D4833 (Modified)	Average Peak Load				**542.7** N	**122** lbs.

Customer: ZTG Geosynthetics, Inc.
PO: 11154 Agnico Eagle Nunavut
Destination: CPU (Quebec, Canada)

Production Date: **8/14/2017** OA#: **37207**

Signature: _____

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ROLL #: G17B002757 **LOT #:** CHG811020 **LINER TYPE:** 60 LL MICROSPIKE

		METRIC	ENGLISH		METRIC	ENGLISH
Thickness Measurement ASTM D5994 (Modified)	MIN:	**1.5** mm	**58** mil	Thickness:	**1.52** mm	**60** mil
	MAX:	**1.7** mm	**66** mil	Length:	**164.594** m	**540** feet
	AVE:	**1.5** mm	**61** mil	Width:	**7.01** m	**23** feet
OIT(Standard) ASTM D 3895						**165** minutes
Asperity ASTM D7466	Average	Top			**.74** mm	**29** mil
		Bottom			**.71** mm	**28** mil
Specific Gravity ASTM D792	Average Density					**.935** g/cc
MFI ASTM D1238 COND. E Grade: **7104**	Melt Flow Index 190C/2160 g - g/10 min					**.35**
Carbon Black Content ASTM D4218	Range					**2.4** %
Carbon Black Dispersion ASTM D5596	Category					**10 in Category 1**
Tensile Strength ASTM D6693 (2 inches / minute)	Average Strength @ Break	MD	**36** N/mm		**204** ppi	**3388** psi
		TD	**36** N/mm		**205** ppi	**3441** psi
Tensile Elongation ASTM D6693 (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @Break	MD				**510** %
		TD				**603** %
Tear Resistance ASTM D1004 (Modified)	Average Tear Resistance	MD			**240.2** N	**54** lbs.
		TD			**249.1** N	**56** lbs.
Puncture Resistance ASTM D4833 (Modified)	Average Peak Load				**542.7** N	**122** lbs.

Customer: ZTG Geosynthetics, Inc.
PO: 11154 Agnico Eagle Nunavut
Destination: CPU (Quebec, Canada)

Production Date: **8/14/2017** OA#: **37207**

Signature: _____

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Quality Control Department

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ROLL #: G17B002758 **LOT #:** CHG811020 **LINER TYPE:** 60 LL MICROSPIKE

		METRIC	ENGLISH		METRIC	ENGLISH
Thickness Measurement ASTM D5994 (Modified)	MIN:	**1.5** mm	**58** mil	Thickness:	**1.52** mm	**60** mil
	MAX:	**1.7** mm	**66** mil	Length:	**164.594** m	**540** feet
	AVE:	**1.5** mm	**60** mil	Width:	**7.01** m	**23** feet
OIT(Standard) ASTM D 3895						**165** minutes
Asperity ASTM D7466	Average	Top			**.71** mm	**28** mil
		Bottom			**.71** mm	**28** mil
Specific Gravity ASTM D792	Average Density					**.935** g/cc
MFI ASTM D1238 COND. E Grade: **7104**	Melt Flow Index 190C/2160 g - g/10 min					**.35**
Carbon Black Content ASTM D4218	Range					**2.4** %
Carbon Black Dispersion ASTM D5596	Category					**10 in Category 1**
Tensile Strength ASTM D6693 (2 inches / minute)	Average Strength @ Break	MD	**36** N/mm		**204** ppi	**3388** psi
		TD	**36** N/mm		**205** ppi	**3441** psi
Tensile Elongation ASTM D6693 (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @Break	MD				**510** %
		TD				**603** %
Tear Resistance ASTM D1004 (Modified)	Average Tear Resistance	MD			**240.2** N	**54** lbs.
		TD			**249.1** N	**56** lbs.
Puncture Resistance ASTM D4833 (Modified)	Average Peak Load				**542.7** N	**122** lbs.

Customer: ZTG Geosynthetics, Inc.
PO: 11154 Agnico Eagle Nunavut
Destination: CPU (Quebec, Canada)

Production Date: **8/14/2017** OA#: **37207**

Signature: _____

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ROLL #: G17B002759 **LOT #:** CHG811020 **LINER TYPE:** 60 LL MICROSPIKE

		METRIC	ENGLISH		METRIC	ENGLISH
Thickness Measurement ASTM D5994 (Modified)	MIN:	**1.4** mm	**57** mil	Thickness:	**1.52** mm	**60** mil
	MAX:	**1.6** mm	**64** mil	Length:	**164.594** m	**540** feet
	AVE:	**1.5** mm	**60** mil	Width:	**7.01** m	**23** feet
OIT(Standard) ASTM D 3895						**165** minutes
Asperity ASTM D7466	Average	Top			**.71** mm	**28** mil
		Bottom			**.71** mm	**28** mil
Specific Gravity ASTM D792	Average Density					**.935** g/cc
MFI ASTM D1238 COND. E Grade: **7104**	Melt Flow Index 190C/2160 g - g/10 min					**.35**
Carbon Black Content ASTM D4218	Range					**2.4** %
Carbon Black Dispersion ASTM D5596	Category					**10 in Category 1**
Tensile Strength ASTM D6693 (2 inches / minute)	Average Strength @ Break	MD	**36** N/mm		**204** ppi	**3388** psi
		TD	**36** N/mm		**205** ppi	**3441** psi
Tensile Elongation ASTM D6693 (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @Break	MD				**510** %
		TD				**603** %
Tear Resistance ASTM D1004 (Modified)	Average Tear Resistance	MD			**240.2** N	**54** lbs.
		TD			**249.1** N	**56** lbs.
Puncture Resistance ASTM D4833 (Modified)	Average Peak Load				**542.7** N	**122** lbs.

Customer: ZTG Geosynthetics, Inc.
PO: 11154 Agnico Eagle Nunavut
Destination: CPU (Quebec, Canada)

Production Date: **8/14/2017** OA#: **37207**

Signature: _____

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ROLL #: G17B002760 **LOT #:** CHG811020 **LINER TYPE:** 60 LL MICROSPIKE

		METRIC	ENGLISH		METRIC	ENGLISH
Thickness Measurement ASTM D5994 (Modified)	MIN:	**1.4** mm	**53** mil	Thickness:	**1.52** mm	**60** mil
	MAX:	**1.6** mm	**62** mil	Length:	**164.594** m	**540** feet
	AVE:	**1.5** mm	**58** mil	Width:	**7.01** m	**23** feet
OIT(Standard) ASTM D 3895						**165** minutes
Asperity ASTM D7466	Average	Top			**.76** mm	**30** mil
		Bottom			**.74** mm	**29** mil
Specific Gravity ASTM D792	Average Density					**.935** g/cc
MFI ASTM D1238 COND. E Grade: **7104**	Melt Flow Index 190C/2160 g - g/10 min					**.35**
Carbon Black Content ASTM D4218	Range					**2.4** %
Carbon Black Dispersion ASTM D5596	Category					**10 in Category 1**
Tensile Strength ASTM D6693 (2 inches / minute)	Average Strength @ Break	MD	**36** N/mm		**204** ppi	**3388** psi
		TD	**36** N/mm		**205** ppi	**3441** psi
Tensile Elongation ASTM D6693 (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @Break	MD				**510** %
		TD				**603** %
Tear Resistance ASTM D1004 (Modified)	Average Tear Resistance	MD			**240.2** N	**54** lbs.
		TD			**249.1** N	**56** lbs.
Puncture Resistance ASTM D4833 (Modified)	Average Peak Load				**542.7** N	**122** lbs.

Customer: ZTG Geosynthetics, Inc.
PO: 11154 Agnico Eagle Nunavut
Destination: CPU (Quebec, Canada)

Production Date: **8/14/2017** OA#: **37207**

Signature: _____

Maria Coffey
Quality Control Department

agru america
quality control dept.

quality certificate

ROLL #: G17B002761 **LOT #:** CHG811020 **LINER TYPE:** 60 LL MICROSPIKE

		METRIC	ENGLISH		METRIC	ENGLISH
Thickness Measurement ASTM D5994 (Modified)	MIN:	**1.4** mm	**55** mil	Thickness:	**1.52** mm	**60** mil
	MAX:	**1.6** mm	**63** mil	Length:	**164.594** m	**540** feet
	AVE:	**1.5** mm	**58** mil	Width:	**7.01** m	**23** feet
OIT(Standard) ASTM D 3895						**165** minutes
Asperity ASTM D7466	Average	Top			**.76** mm	**30** mil
		Bottom			**.74** mm	**29** mil
Specific Gravity ASTM D792	Average Density					**.935** g/cc
MFI ASTM D1238 COND. E Grade: **7104**	Melt Flow Index 190C/2160 g - g/10 min					**.35**
Carbon Black Content ASTM D4218	Range					**2.4** %
Carbon Black Dispersion ASTM D5596	Category					**10 in Category 1**
Tensile Strength ASTM D6693 (2 inches / minute)	Average Strength @ Break	MD	**35** N/mm		**201** ppi	**3476** psi
		TD	**34** N/mm		**194** ppi	**3220** psi
Tensile Elongation ASTM D6693 (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @Break	MD				**512** %
		TD				**590** %
Tear Resistance ASTM D1004 (Modified)	Average Tear Resistance	MD			**240.2** N	**54** lbs.
		TD			**249.1** N	**56** lbs.
Puncture Resistance ASTM D4833 (Modified)	Average Peak Load				**542.7** N	**122** lbs.

Customer: ZTG Geosynthetics, Inc.
PO: 11154 Agnico Eagle Nunavut
Destination: CPU (Quebec, Canada)

Production Date: **8/14/2017** OA#: **37207**

Signature: _____

Maria Coffey
Quality Control Department

agru america
quality control dept.

quality certificate

ROLL #: G17B002762 **LOT #:** CHG811020 **LINER TYPE:** 60 LL MICROSPIKE

		METRIC	ENGLISH		METRIC	ENGLISH
Thickness Measurement ASTM D5994 (Modified)	MIN:	**1.4** mm	**55** mil	Thickness:	**1.52** mm	**60** mil
	MAX:	**1.6** mm	**62** mil	Length:	**164.594** m	**540** feet
	AVE:	**1.5** mm	**58** mil	Width:	**7.01** m	**23** feet
OIT(Standard) ASTM D 3895						**165** minutes
Asperity ASTM D7466	Average	Top			**.74** mm	**29** mil
		Bottom			**.76** mm	**30** mil
Specific Gravity ASTM D792	Average Density					**.935** g/cc
MFI ASTM D1238 COND. E Grade: **7104**	Melt Flow Index 190C/2160 g - g/10 min					**.35**
Carbon Black Content ASTM D4218	Range					**2.4** %
Carbon Black Dispersion ASTM D5596	Category					**10 in Category 1**
Tensile Strength ASTM D6693 (2 inches / minute)	Average Strength @ Break	MD	**35** N/mm		**201** ppi	**3476** psi
		TD	**34** N/mm		**194** ppi	**3220** psi
Tensile Elongation ASTM D6693 (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @Break	MD				**512** %
		TD				**590** %
Tear Resistance ASTM D1004 (Modified)	Average Tear Resistance	MD			**240.2** N	**54** lbs.
		TD			**249.1** N	**56** lbs.
Puncture Resistance ASTM D4833 (Modified)	Average Peak Load				**542.7** N	**122** lbs.

Customer: ZTG Geosynthetics, Inc.
PO: 11154 Agnico Eagle Nunavut
Destination: CPU (Quebec, Canada)

Production Date: **8/15/2017** OA#: **37207**

Signature: _____

Maria Coffey
Quality Control Department

agru america
quality control dept.

quality certificate

ROLL #: G17B002763 **LOT #:** CHG811020 **LINER TYPE:** 60 LL MICROSPIKE

		METRIC	ENGLISH		METRIC	ENGLISH
Thickness Measurement ASTM D5994 (Modified)	MIN:	**1.5** mm	**57** mil	Thickness:	**1.52** mm	**60** mil
	MAX:	**1.6** mm	**61** mil	Length:	**164.594** m	**540** feet
	AVE:	**1.5** mm	**59** mil	Width:	**7.01** m	**23** feet
OIT(Standard) ASTM D 3895						**165** minutes
Asperity ASTM D7466	Average	Top			**.81** mm	**32** mil
		Bottom			**.71** mm	**28** mil
Specific Gravity ASTM D792	Average Density					**.935** g/cc
MFI ASTM D1238 COND. E Grade: **7104**	Melt Flow Index 190C/2160 g - g/10 min					**.35**
Carbon Black Content ASTM D4218	Range					**2.4** %
Carbon Black Dispersion ASTM D5596	Category					**10 in Category 1**
Tensile Strength ASTM D6693 (2 inches / minute)	Average Strength @ Break	MD	**35** N/mm		**201** ppi	**3476** psi
		TD	**34** N/mm		**194** ppi	**3220** psi
Tensile Elongation ASTM D6693 (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @Break	MD				**512** %
		TD				**590** %
Tear Resistance ASTM D1004 (Modified)	Average Tear Resistance	MD			**240.2** N	**54** lbs.
		TD			**249.1** N	**56** lbs.
Puncture Resistance ASTM D4833 (Modified)	Average Peak Load				**542.7** N	**122** lbs.

Customer: ZTG Geosynthetics, Inc.
PO: 11154 Agnico Eagle Nunavut
Destination: CPU (Quebec, Canada)

Production Date: **8/15/2017** OA#: **37207**

Signature: _____

Maria Coffey
Quality Control Department

agru america
quality control dept.

quality certificate

ROLL #: G17B002764 **LOT #:** CHG811020 **LINER TYPE:** 60 LL MICROSPIKE

		METRIC	ENGLISH		METRIC	ENGLISH
Thickness Measurement ASTM D5994 (Modified)	MIN:	**1.4** mm	**54** mil	Thickness:	**1.52** mm	**60** mil
	MAX:	**1.5** mm	**61** mil	Length:	**164.594** m	**540** feet
	AVE:	**1.5** mm	**58** mil	Width:	**7.01** m	**23** feet
OIT(Standard) ASTM D 3895						**165** minutes
Asperity ASTM D7466	Average	Top			**.84** mm	**33** mil
		Bottom			**.76** mm	**30** mil
Specific Gravity ASTM D792	Average Density					**.935** g/cc
MFI ASTM D1238 COND. E Grade: **7104**	Melt Flow Index 190C/2160 g - g/10 min					**.35**
Carbon Black Content ASTM D4218	Range					**2.4** %
Carbon Black Dispersion ASTM D5596	Category					**10 in Category 1**
Tensile Strength ASTM D6693 (2 inches / minute)	Average Strength @ Break	MD	**35** N/mm		**201** ppi	**3476** psi
		TD	**34** N/mm		**194** ppi	**3220** psi
Tensile Elongation ASTM D6693 (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @Break	MD				**512** %
		TD				**590** %
Tear Resistance ASTM D1004 (Modified)	Average Tear Resistance	MD			**240.2** N	**54** lbs.
		TD			**249.1** N	**56** lbs.
Puncture Resistance ASTM D4833 (Modified)	Average Peak Load				**542.7** N	**122** lbs.

Customer: ZTG Geosynthetics, Inc.
PO: 11154 Agnico Eagle Nunavut
Destination: CPU (Quebec, Canada)

Production Date: **8/15/2017** OA#: **37207**

Signature: _____

Maria Coffey
Quality Control Department

agru america
quality control dept.

quality certificate

ROLL #: G17B002765 **LOT #:** CHG811020 **LINER TYPE:** 60 LL MICROSPIKE

		METRIC	ENGLISH		METRIC	ENGLISH
Thickness Measurement ASTM D5994 (Modified)	MIN:	**1.4** mm	**55** mil	Thickness:	**1.52** mm	**60** mil
	MAX:	**1.6** mm	**62** mil	Length:	**164.594** m	**540** feet
	AVE:	**1.5** mm	**58** mil	Width:	**7.01** m	**23** feet
OIT(Standard) ASTM D 3895						**165** minutes
Asperity ASTM D7466	Average	Top			**.84** mm	**33** mil
		Bottom			**.74** mm	**29** mil
Specific Gravity ASTM D792	Average Density					**.935** g/cc
MFI ASTM D1238 COND. E Grade: **7104**	Melt Flow Index 190C/2160 g - g/10 min					**.35**
Carbon Black Content ASTM D4218	Range					**2.4** %
Carbon Black Dispersion ASTM D5596	Category					**10 in Category 1**
Tensile Strength ASTM D6693 (2 inches / minute)	Average Strength @ Break	MD	**35** N/mm		**201** ppi	**3476** psi
		TD	**34** N/mm		**194** ppi	**3220** psi
Tensile Elongation ASTM D6693 (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @Break	MD				**512** %
		TD				**590** %
Tear Resistance ASTM D1004 (Modified)	Average Tear Resistance	MD			**240.2** N	**54** lbs.
		TD			**249.1** N	**56** lbs.
Puncture Resistance ASTM D4833 (Modified)	Average Peak Load				**542.7** N	**122** lbs.

Customer: ZTG Geosynthetics, Inc.
PO: 11154 Agnico Eagle Nunavut
Destination: CPU (Quebec, Canada)

Production Date: **8/15/2017** OA#: **37207**

Signature: _____

Maria Coffey
Quality Control Department

CoA Date: 04/11/2017

Certificate of Analysis

Shipped To: AGRU AMERICA INC:GEORGETOWN
500 GARRISON RD
GEORGETOWN SC 29440
USA

Recipient: PALMER
Fax:

Delivery #: 89445065
PO #: 011331
Weight: 189500 LB
Ship Date: 04/11/2017
Package: BULK
Mode: Hopper Car
Car #: PSPX001363
Seal No: 91974

Product:
MARLEX 7104 POLYETHYLENE in Bulk

Lot Number: CHC811930

Property	Test Method	Value	Unit
Melt Index	ASTM D1238	0.36	g/10mi
HLMI	ASTM D1238	6.25	g/10mi
Pellet Count	ST-905	29	pel/g
Production date		20170328	
Density	D1505 or D4883	0.918	g/cm3

The data set forth herein have been carefully compiled by Chevron Phillips Chemical Company LP (CPChem).
However, there is no warranty of any kind, either expressed or implied, applicable to its use, and the user assumes all risk and liability in connection therewith.

KEVIN AYRES
QUALITY ASSURANCE SUPERINTENDENT

For CoA questions contact Customer Service Representative at +1-832-813-4806

CoA Date: 08/02/2017

Certificate of Analysis

Shipped To: AGRU AMERICA INC:GEORGETOWN
500 GARRISON RD
GEORGETOWN SC 29440
USA

Recipient: PALMER
Fax:

Delivery #: 89509919
PO #: 011806
Weight: 188950.000 LB
Ship Date: 08/02/2017
Package: BULK
Mode: Hopper Car
Car #: GPLX076541
Seal No: 96094

Product:
MARLEX 7104 POLYETHYLENE in Bulk

Lot Number: CHG811020

Property	Test Method	Value	Unit
Melt Index	ASTM D1238	0.35	g/10min
HLMI	ASTM D1238	14.83	g/10min
Pellet Count	ST-905	33	pelet/gram
Production date		20170714	
Density	D1505 or D4883	0.918	g/cm3

The data set forth herein have been carefully compiled by Chevron Phillips Chemical Company LP (CPChem).
However, there is no warranty of any kind, either expressed or implied, applicable to its use, and the user assumes all risk and liability in connection therewith.

KEVIN AYRES
QUALITY ASSURANCE SUPERINTENDENT

For CoA questions contact Customer Service Representative at +1832813

Yingying Lu, Ph.D., Geomembrane Technical Service & Applications Development
Highways 60 & 123, Bartlesville Research and Technology Center, Room 149 PTC
Bartlesville, OK 74003
■ *918-977-6894* ■ *luyy@cpchem.com* ■ *Fax: 918-977-7599* ■ *www.cpchem.com*

June 17, 2015

Grant Palmer
Agru America
500 Garrison Road
Georgetown, SC 29440

Dear Grant:

This letter is to report the final results of oven-aging and UV-aging tests (according to GRI-GM13 and GRI-GM17) on Agru America black sheet samples that you provided to us recently. These tests were performed by CPChem's Materials Evaluation Laboratory in Bartlesville, OK. The tests were completed June 2015.

The GRI-GM13 (HDPE) and GRI-GM17 (LLDPE) durability tests were done according to the following procedures.

Test	Exposure	Method
HP-OIT	150 °C, 500 psi oxygen	D5885
Oven Aging	90 days, 85 °C	D5721
UV Aging	1600 UV hrs (Conditions were 20 hours UVA-340 at 75 °C followed by 4 hrs dark with condensation at 60 °C. Irradiance was 0.72 W/m^2 at 340 nm.)	D7238

Oven-Aging Results

Sample	Initial HP-OIT (min)	HP-OIT Value after Oven Aging 90 Days (min)	% HP-OIT Retained after Oven Aging 90 Days	GRI-GM13 and GRI-GM17% Retained Requirement (Oven Aging 90 Days)
60 mil HDPE Roll # G14F514045 from Marlex® K307 Polyethylene Lot # H71-4-1337	1066	883	**83**	**80**
40 mil LLDPE Roll # G14C243027 from Marlex® 7104 Polyethylene Lot # CEC810320	512	422	**82**	**60**

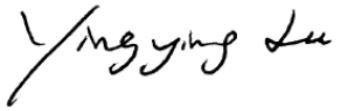
UV-Aging Results

Sample	Initial HP-OIT (min)	HP-OIT Value after UV Aging (min)	% HP-OIT Retained	GRI-GM13 and GRI-GM17 % Retained Requirement
60 mil HDPE Roll # G14F514045 from Marlex® K307 Polyethylene Lot # H71-4-1337	1066	930	**87**	**50**
40 mil LLDPE Roll # G14C243027 from Marlex® 7104 Polyethylene Lot # CEC810320	512	351	**69**	**35**

According to these test results, the durability requirements are met.

If you have any questions, please call me at 918-977-6894.

Sincerely,



Yingying Lu, Ph. D.

Polyethylene Technical Service and Applications Development

Any technical advice, recommendations, results, or analysis ("Information") contained herein, including, without limitation, Information as it may relate to the selection of a specific product ("Product") for your use and application, is given ***without warranty or guarantee*** *and is accepted at your sole risk. It is imperative that you test the Information (and Product, if applicable) to determine to your own satisfaction whether the Information (and Product, if applicable) are suitable for your intended use and application.* ***You expressly assume, and release Chevron Phillips Chemical Company, from all risk and liability, whether based in contract, tort or otherwise, in connection with the use of, or results obtained from, such Information (and Product, if applicable).***

February 20, 2014

Mail To:

Grant Palmer
Agru
500 Garrison Road
Georgetown, SC 29440

email: gp@agruamerica.com

Bill To:

<= Same (P O# : 6381-14)

Dear Mr. Palmer:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs.
TRI is pleased to submit this final report of the laboratory testing for the sample(s) listed below.

TRI Job Reference Number:	E2386-67-07
Material(s) Tested:	One Agru 60 mil. Microspike LLDPE Geomembrane
Test(s) Requested:	2% Secant (ASTM D5323 via ASTM D638, GM17) Multi-axial Tensile (ASTM D 5617)

If you have any questions or require any additional information, please call us at 1-800-880-8378

Sincerely,



Mansukh Patel
Laboratory Manager
Geosynthetic Services Division
www.GeosyntheticTesting.com

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

TRI ENVIRONMENTAL, INC.
9063 BEE CAVES RD. – AUSTIN, TX 78733 – USA | PH: 800.880.TEST OR 512.263.2101

GEOMEMBRANE TEST RESULTS
TRI Client: Agru

Material: Agru 60 mil Microspike LLDPE Geomembrane
Sample Identification: G14D054022 **Chevron 7104 LLDPE Resin** **Resin Lot# CDH811240**
TRI Log #: E2386-67-07

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.
2% Secant Modulus (ASTM D5323 via ASTM D638, GM17)												
MD 2% Secant Modulus (psi)	31940	30117	31015	29143	31454						**30734**	1114
MD 2% Secant Modulus (ppi)	1968	1831	2143	1778	1944						**1933**	141
TD 2% Secant Modulus (psi)	34320	37694	38180	38083	40058						**37667**	2083
TD 2% Secant Modulus (ppi)	2155	2322	2394	2628	2415						**2383**	171
Multi-axial Tensile (ASTM D 5617)												
Test Method A: Centerpoint Deflection Versus Pressure												
Thickness (mils)	62	64	62								**63**	1
Maximum Stress (psi)	1644	1750	1662								**1685**	57
% Elongation @ Rupture (%)	90	81	40								**70**	27
Failure Description	MDT N-EF	MDT N-EF	H-CAT N-EF									

MDT	A tear in the machine direction.
H	Circular or elliptical hole in the specimen.
H-CAT	Circular or elliptical hole in an area where the material has significantly necked down or thinned. The large thinned area resembles a pupil of a cat eye.
N-EF	No edge failure

MD Machine Direction TD Transverse Direction

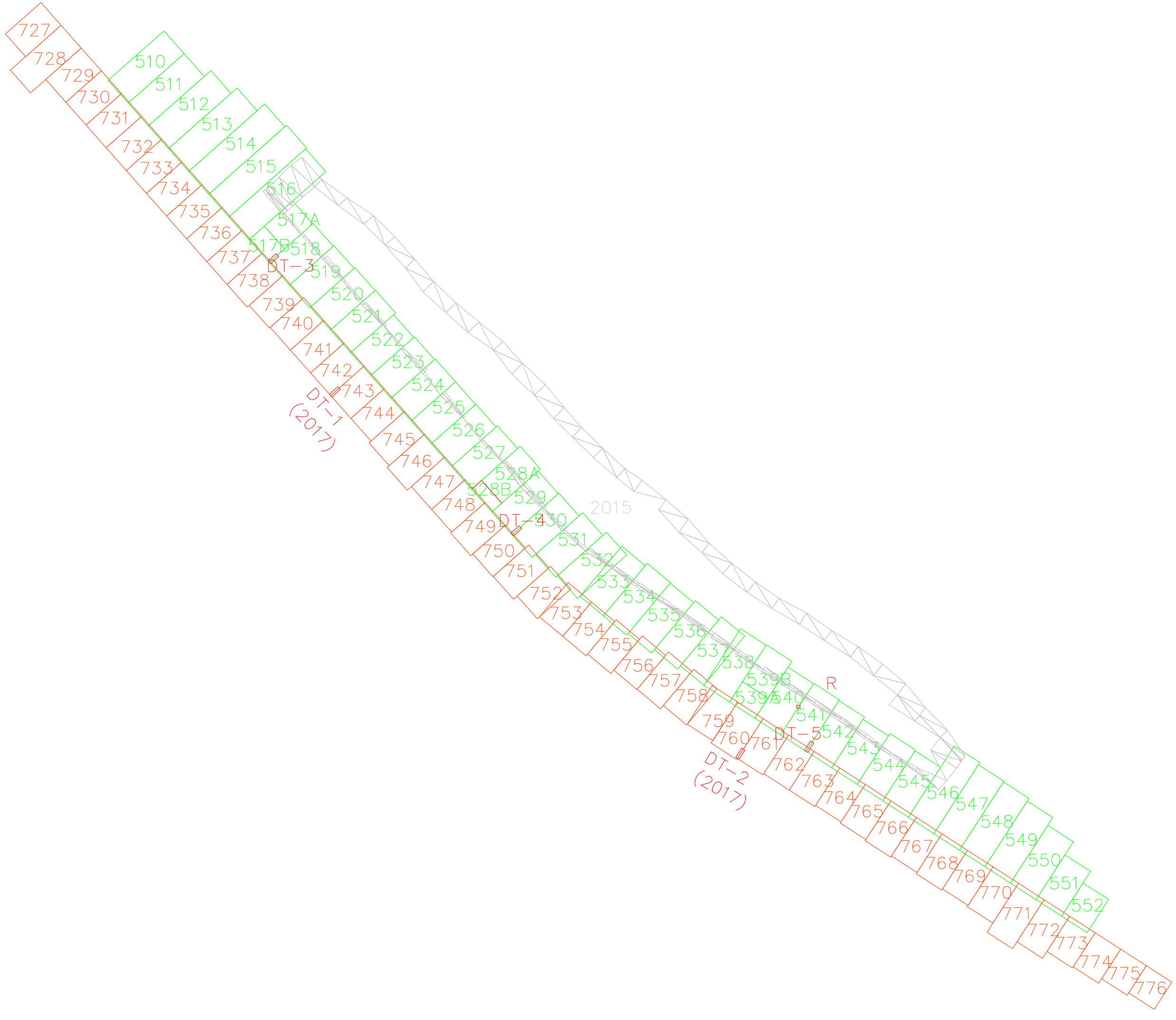
The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

TRI ENVIRONMENTAL, INC.
9063 BEE CAVES RD. – AUSTIN, TX 78733 – USA | PH: 800.880.TEST OR 512.263.2101

ANNEXE C

SD4, SD5 AND Central Dyke North

“As built” drawings



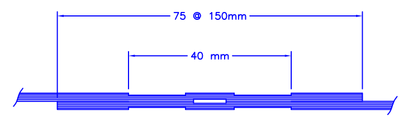
LEGENDE:

XXX — NUMÉRO DE PANNEAU

GEOMEMBRANE PEHD 1.5mm texturé

PIÈCE DE RÉPARATION EXTRUDÉE

PROCEDE DE SOUDURE:



SOUDURE DE FUSION

Soudure double avec chambre a air



SOUDURE PAR EXTRUSION

NOTES:

1) Les panneaux de geomembranes sont assembles par procede de fusion.

2) La soudeuse a extrusion est utilisee aux raccordements des details, a l'intersection de trois panneaux et pour les reparations generales.

– IMPORTANT –

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Géosynthétiques ZTG inc.

No.	REVISIONS	DATE	PAR PER

CONSULTANTS:
Golder Associés

PROPRIETAIRE:
F. Gilbert Inc.

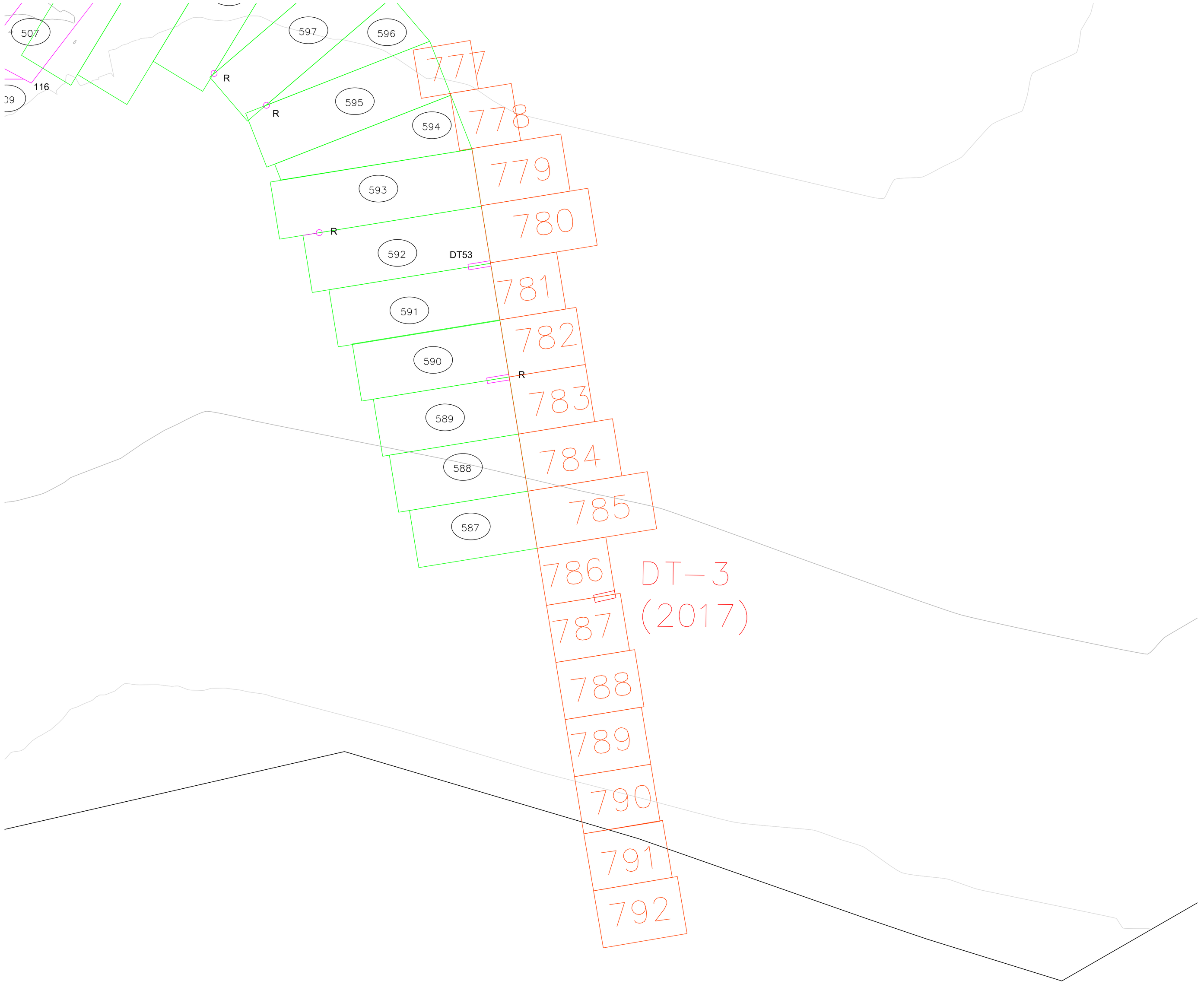
PROJET/PROJECT:
AGNICO EAGLE MINES LIMITED
MEADOWBANK

DISPOSITION TYPIQUE DES PANNEAUX - SD4

DESSINE PAR: DRAWN BY:	MF	DATE:	31/10/2017
VERIFIE PAR: CHECKED BY:	JMB	ECHELLE: SCALE:	PAE

Géosynthétiques ZTG inc.
4085 Lavoisier,
Boisbriand, Qc J7H 1N1
Tel.: (450) 430-5333
Fax: (450) 430-9352

DESSIN No: DRAWING No: 04	REVISION: 0
	FEUILLE No: SHEET No: 1 de 1



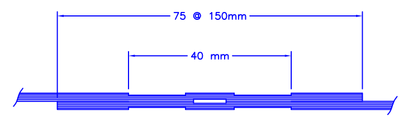
LEGENDE:

XXX — NUMÉRO DE PANNEAU

GEOMEMBRANE PEHD 1.5mm texturé

PIÈCE DE RÉPARATION EXTRUDÉE

PROCEDE DE SOUDURE:



SOUDURE DE FUSION
Soudure double avec chambre a air



SOUDURE PAR EXTRUSION

NOTES:

1) Les panneaux de geomembranes sont assembles par procede de fusion.
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Géosynthétiques ZTG inc.

No.	REVISIONS	DATE	PAR PER

CONSULTANTS:
Golder Associés

PROPRIETAIRE:
F. Gilbert Inc.

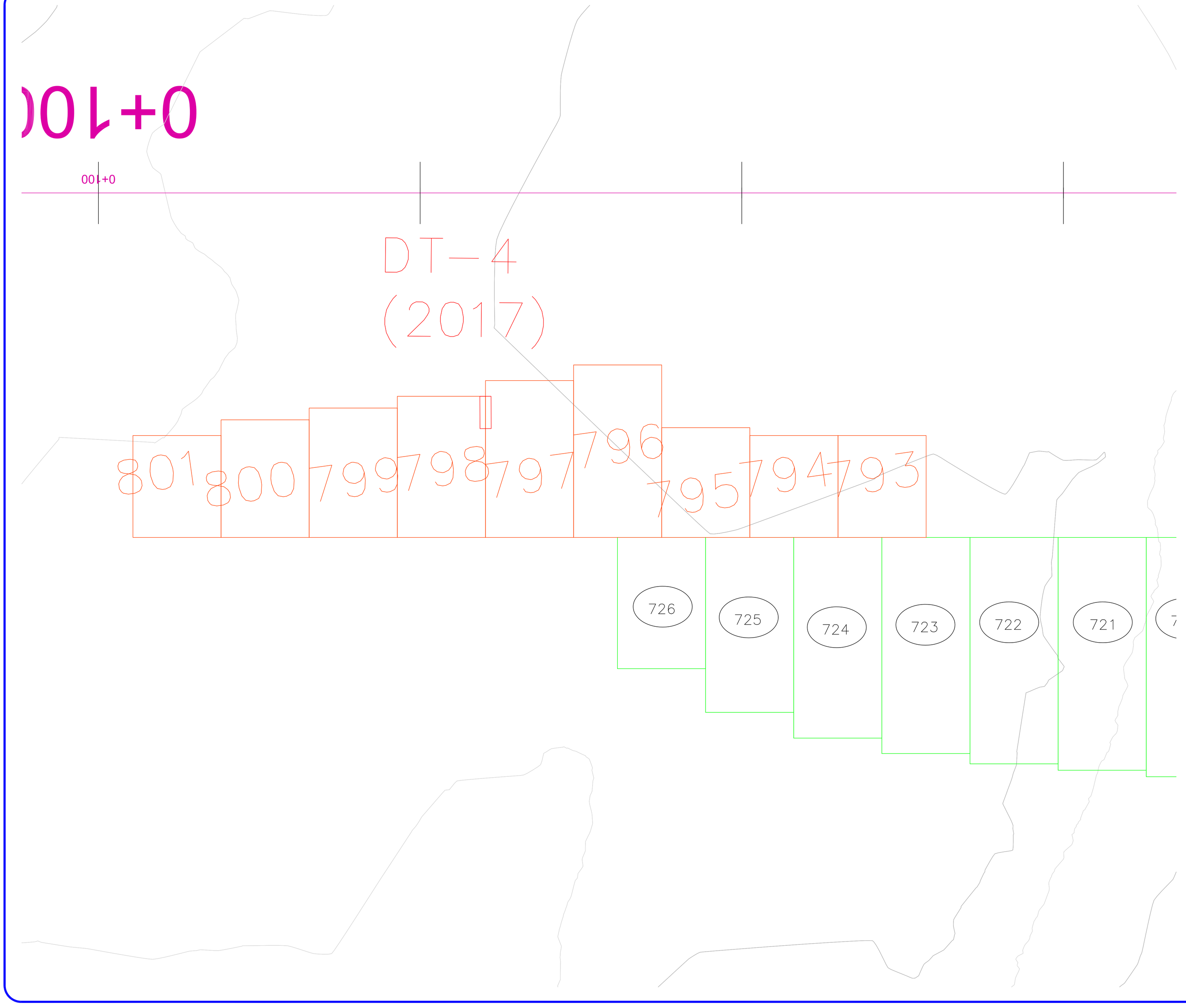
PROJET/PROJECT:
AGNICO EAGLE MINES LIMITED
MEADOWBANK

DISPOSITION TYPIQUE DES PANNEAUX - SDS

DESSINE PAR: DRAWN BY:	MF	DATE:	31/10/2017
VERIFIE PAR: CHECKED BY:	JMB	ECHELLE: SCALE:	PAE

Géosynthétiques ZTG inc.
4085 Lavoisier,
Boisbriand, Qc J7H 1N1
Tel.: (450) 430-5333
Fax: (450) 430-9352

DESSIN No: DRAWING No: 05	REVISION: 0
	FEUILLE No: SHEET No: 1 de 1



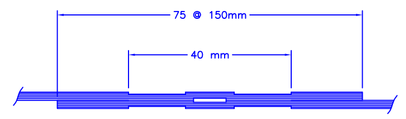
LEGENDE:

XXX — NUMÉRO DE PANNEAU

GEOMEMBRANE PEHD 1.5mm texturé

PIÈCE DE RÉPARATION EXTRUDÉE

PROCEDE DE SOUDURE:



SOUDURE DE FUSION
Soudure double avec chambre a air



SOUDURE PAR EXTRUSION

NOTES:

1) Les panneaux de geomembranes sont assembles par procede de fusion.
2) La soudeuse a extrusion est utilisee aux raccordements des details, a l'intersection de trois panneaux et pour les reparations generales.

– IMPORTANT –

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Géosynthétiques ZTG inc.

No.	REVISIONS	DATE	PAR PER

CONSULTANTS:
Golder Associés

PROPRIETAIRE:
F. Gilbert Inc.

PROJET/PROJECT:
AGNICO EAGLE MINES LIMITED
MEADOWBANK

DISPOSITION TYPIQUE DES PANNEAUX - SD1

DESSINE PAR: DRAWN BY: MF	DATE: 31/10/2016
VERIFIE PAR: CHECKED BY: JMB	ECHELLE: SCALE: PAE

Géosynthétiques ZTG inc.
4085 Lavoisier,
Boisbriand, Qc J7H 1N1
Tel.: (450) 430-5333
Fax: (450) 430-9352

DESSIN No: DRAWING No: 01	REVISION: 0
	FEUILLE No: SHEET No: 7 de 7

APPENDIX I - QC LABORATORY AND FIELD TESTING RESULTS

APPENDIX I1 - STOCKPILE QC RESULTS

APPENDIX I1A - QC RESULTS LAB – TILL STOCKPILE MATERIAL

Too coarse. Not compliant, but judged acceptable. The performance of the Till will still be adequate.

ANALYSE DES SOLS ET DES GRANULATS

CLIENT:	AEM	**PLANCHE NO:**	
PROJET:	Saddle dam 3-4-5	**PROJET NO:**	11118538-B1
		ÉCHANTILLON NO:	429
		DATE:	2017-08-05

Description du matériau:	Pile #1 (South pile)	**Localisation du prélèvement:**	Sana Crusher
Provenance (source 1ère)			
Usage proposé:	Compacted sieved till	**Prélevé par:**	Sébastien Blackburn
		Date de prélèvement:	2017-08-04

GRANULOMÉTRIE (% PASSANT) (LC 21-040)

Tamis				150 mm	76.2 mm	50 mm	37.5 mm	25 mm	19 mm	12.5 mm	4.76 mm	2.00 mm	0.85 mm	0.425 mm	0.25 mm	0.15 mm	0.075 mm
Résultats cumulatifs				100	100	100	95	84	79	74	61	54	48	43	39	36	29.9
Résultats individuels																	
Exigences	min.					100		85		75	63			43			30.0
	max.					100		100		94	83			58			45.0

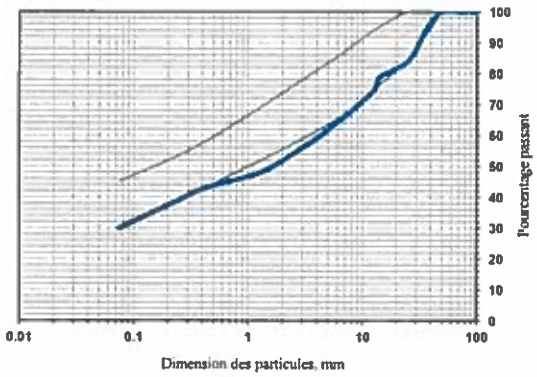
AUTRES ESSAIS	Résultats	Exigences min.	Exigences max.
Water content	4.90%		
Dépassement du % de perte de sable			

ESSAI PROCTOR (NQ 2501-255)	Résultats
Masse volumique sèche maximale	(kg/m^3)
Humidité optimale	(%)

Proctor à 0% de pierre : kg/m3
Facteur de correction:

Fuseau granulométrique: Sieved Till: Fondation, sous-fondation

COURBE GRANULOMÉTRIQUE



% gravier	38.8%	Cu = #N/A	D_{85} = 26.2	D_{15} = #N/A
% sable	31.3%	Cc = #N/A	D_{60} = 4.3	D_{10} = #N/A
% silt/argile	29.9%		D_{50} = 1.6	

Remarques: Écart(s) aux tamis suivant(s):
25, 12.5, 4.76, 0.075, mm

Préparé par: Sébastien Blackburn Vérifié par:

INSPEC•SOL

ANALYSE GRANULOMÉTRIQUE

LC 21-040 [X]
CSA A23.2-2A [ ]

CLIENT: AEM

PROJET No.: 11118538-B1 ÉCHANTILLON No.: 429

APPAREILS DE MESURE UTILISÉS:
Tamis No. EE 13767 Séparateur No. Gilson model # SP-1
Étuve No. B23 3546 Agitateur mécanique No. 25824
Balance No. 1,127,170,847

MASSE TOTALE DE L'ÉCHANTILLON avant:	4717.5	g
MASSE DU RETENU AU TAMIS 5 mm:	1832.0	g
MASSE DU PASSANT AU TAMIS 5 mm:	2885.0	g
MASSE TOTALE DE L'ÉCHANTILLON après:	4717.0	g
MASSE UTILISÉE 5 mm avant lavage :	530.0	g
MASSE UTILISÉE 5 mm après lavage :	281.0	g

Dépassement du % de perte de sable

% PERTE: 0.01 %

% PERTE: 0.71 %

ANALYSE GRANULOMÉTRIQUE & DIMENSION DES GRAINS

TAMIS	MASSE RETENUE (IND.)	MASSE RETENUE (CUM.)	% RETENU (IND.)	% RETENU (CUM.)	% PASSANT (IND.)	% PASSANT (CUM.)
150 mm		0.0		0		100
76.2 mm		0.0		0		100
50 mm		0.0		0		100
37.5 mm		235.0		5		95
25 mm		747.5		16		84
19 mm		1002.5		21		79
12.5 mm		1205.0		26		74
4.76 mm		1832.0		39		61
2.00 mm		61.0		46		54
0.85 mm		116.0		52		48
0.425 mm		158.0		57		43
0.25 mm		192.0		61		39
0.15 mm		221.0		64		36
0.075 mm		271.0		70.1		29.9
PLATEAU		279.0		71.0		29.0

REMARQUES:

EFFECTUÉ PAR: Sébastien Blackburn DATE: 2017-08-04

VÉRIFIÉ PAR : DATE:

Compliant

M.N.

ANALYSE DES SOLS ET DES GRANULATS

CLIENT:	AEM	**PLANCHE NO:**	
PROJET:	Saddle dam 3-4-5	**PROJET NO:**	11118538-B1
		ÉCHANTILLON NO:	430
		DATE:	2017-08-05

Description du matériau:	Pile #2 (South pile)	**Localisation du prélèvement:**	Stockpiled at the north of central dike
Provenance (source 1ère)			
Usage proposé:	Compacted sieved till	**Prélevé par:**	Sébastien Blackburn
		Date de prélèvement:	2017-08-04

GRANULOMÉTRIE (% PASSANT) (LC 21-040)

Tamis				150 mm	76.2 mm	50 mm	37.5 mm	25 mm	19 mm	12.5 mm	4.76 mm	2.00 mm	0.85 mm	0.425 mm	0.25 mm	0.15 mm	0.075 mm
Résultats cumulatifs				100	100	100	100	93	90	85	72	65	58	52	48	44	36.8
Résultats individuels																	
Exigences	min.					100		85		75	63			43			30.0
	max.					100		100		94	83			58			45.0

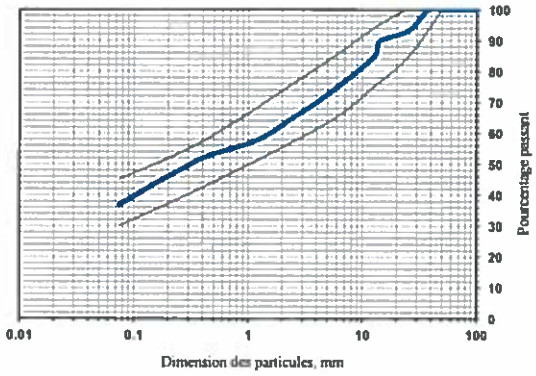
AUTRES ESSAIS	Résultats	Exigences min.	Exigences max.
Water content	7.20%		
Dépassement du % de perte de sable			

ESSAI PROCTOR (NQ 2501-255)	Résultats
Masse volumique sèche maximale	(kg/m³)
Humidité optimale	(%)

Proctor à 0% de pierre : kg/m3
Facteur de correction:

Fuseau granulométrique: Till: Fondation, sous-fondation

COURBE GRANULOMÉTRIQUE



% gravier	28.0%	Cu = #N/A	D_{85} = 12.6	D_{15} = #N/A
% sable	35.2%	Cc = #N/A	D_{60} = 1.5	D_{10} = #N/A
% silt/argile	36.8%		D_{50} = 0.3	

Remarques: Matériau conforme pour usage proposé

mm

Préparé par: Sébastien Blackburn Vérifié par:

INSPEC•SOL

ANALYSE GRANULOMÉTRIQUE

LC 21-040 [X]
CSA A23.2-2A [ ]

ENT: AEM

PROJET No.: 11118538-B1 ÉCHANTILLON No.: 430

APPAREILS DE MESURE UTILISÉS:
Tamis No. EE 13767 Séparateur No. Gilson model # SP-1
Étuve No. B23 3546 Agitateur mécanique No. 25824
Balance No. 1,127,170,847

MASSE TOTALE DE L'ÉCHANTILLON avant:	5218.5	g	
MASSE DU RETENU AU TAMIS 5 mm:	1463.0	g	
MASSE DU PASSANT AU TAMIS 5 mm:	3755.0	g	Dépassement du % de perte de sable
MASSE TOTALE DE L'ÉCHANTILLON après:	5218.0	g	% PERTE: 0.01 %
MASSE UTILISÉE 5 mm avant lavage :	581.0	g	
MASSE UTILISÉE 5 mm après lavage :	295.0	g	% PERTE: 0.34 %

ANALYSE GRANULOMÉTRIQUE & DIMENSION DES GRAINS

TAMIS	MASSE RETENUE (IND.)	MASSE RETENUE (CUM.)	% RETENU (IND.)	% RETENU (CUM.)	% PASSANT (IND.)	% PASSANT (CUM.)
150 mm		0.0		0		100
76.2 mm		0.0		0		100
50 mm		0.0		0		100
37.5 mm		0.0		0		100
25 mm		352.0		7		93
19 mm		531.5		10		90
12.5 mm		798.0		15		85
4.76 mm		1463.0		28		72
2.00 mm		55.0		35		65
0.85 mm		112.0		42		58
0.425 mm		158.0		48		52
0.25 mm		194.0		52		48
0.15 mm		225.0		56		44
0.075 mm		284.0		63.2		36.8
PLATEAU		294.0		64.5		35.5

REMARQUES:

EFFECTUÉ PAR: DATE:

VÉRIFIÉ PAR : DATE:

Compliant M.W.

GHD

ANALYSE DES SOLS ET DES GRANULATS

CLIENT:	AEM	**PLANCHE NO:**	
PROJET:	Saddle dam 3-4-5	**PROJET NO:**	11118538-B1
		ÉCHANTILLON NO:	432
		DATE:	2017-08-11

Description du matériau:	Pile #1 (South pile)	**Localisation:**	Stock pile #1
Provenance (source 1ère)	North Centrale Dike		
Usage proposé:	Compacted sieved till	**Prélevé par:**	Cédrick Fillon Tremblay
		Date de prélèvement:	2017-08-10

GRANULOMÉTRIE (% PASSANT) (LC 21-040)

Tamis				150 mm	76.2 mm	50 mm	37.5 mm	25 mm	19 mm	12.5 mm	4.76 mm	2.00 mm	0.85 mm	0.425 mm	0.25 mm	0.15 mm	0.075 mm
Résultats cumulatifs				100	100	100	100	94	90	84	66	59	52	47	43	39	33.1
Résultats individuels																	
Exigences	min.					100		85		75	63			43			30.0
	max.					100		100		94	83			58			45.0

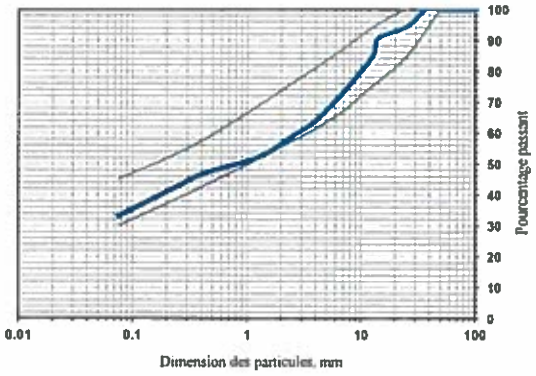
AUTRES ESSAIS	Résultats	Exigences min.	Exigences max.
Water content	8.90%		
Dépassement du % de perte de sable			

ESSAI PROCTOR (NQ 2501-255)	Résultats
Masse volumique sèche maximale	(kg/m^3)
Humidité optimale	(%)

Proctor à 0% de pierre : kg/m3
Facteur de correction:

Fuseau granulométrique: Till: Fondation, sous-fondation

COURBE GRANULOMÉTRIQUE



% gravier	33.6%	Cu = #N/A	D_{85} = 12.7	D_{15} = #N/A
% sable	33.2%	Cc = #N/A	D_{50} = 2.8	D_{10} = #N/A
% silt/argile	33.1%		D_{50} = 0.8	

Remarques: Matériau conforme pour usage proposé

mm

Préparé par: Pierrick Trecasse Vérifié par:

INSPEC•SOL

ANALYSE GRANULOMÉTRIQUE
LC 21-040 [X]
CSA A23.2-2A [ ]

CLIENT: AEM

PROJET No.: 11118538-B1 **ÉCHANTILLON No.:** 432

APPAREILS DE MESURE UTILISÉS:
Tamis No. EE 13767 Séparateur No. Gilson model # SP-1
Étuve No. B23 3546 Agitateur mécanique No. 25824
Balance No. 1,127,170,847

MASSE TOTALE DE L'ÉCHANTILLON avant:	4567.0	g
MASSE DU RETENU AU TAMIS 5 mm:	1536.0	g
MASSE DU PASSANT AU TAMIS 5 mm:	3027.0	g
MASSE TOTALE DE L'ÉCHANTILLON après:	4563.0	g
MASSE UTILISÉE 5 mm avant lavage :	541.0	g
MASSE UTILISÉE 5 mm après lavage :	281.0	g

Dépassement du % de perte de sable

% PERTE: 0.09 %

% PERTE: 0.71 %

ANALYSE GRANULOMÉTRIQUE & DIMENSION DES GRAINS

TAMIS	MASSE RETENUE (IND.)	MASSE RETENUE (CUM.)	% RETENU (IND.)	% RETENU (CUM.)	% PASSANT (IND.)	% PASSANT (CUM.)
150 mm		0.0		0		100
76.2 mm		0.0		0		100
50 mm		0.0		0		100
37.5 mm		0.0		0		100
25 mm		256.0		6		94
19 mm		437.0		10		90
12.5 mm		717.0		16		84
4.76 mm		1536.0		34		66
2.00 mm		61.0		41		59
0.85 mm		116.0		48		52
0.425 mm		158.0		53		47
0.25 mm		192.0		57		43
0.15 mm		221.0		61		39
0.075 mm		271.0		66.9		33.1
PLATEAU		279.0		67.9		32.1

REMARQUES:

EFFECTUÉ PAR: Pierrick Trecasse **DATE:** 2012-08-10

VÉRIFIÉ PAR : **DATE:**

INSPEC•SOL

ANALYSE GRANULOMÉTRIQUE

LC 21-040 [X]
CSA A23.2-2A [ ]

CLIENT: AEM

PROJET No.: 11118538-B1 ÉCHANTILLON No.: 433

APPAREILS DE MESURE UTILISÉS:
Tamis No. EE 13767
Étuve No. B23 3546
Balance No. 1,127,170,847
Séparateur No. Gilson model # SP-1
Agitateur mécanique No. 25824

MASSE TOTALE DE L'ÉCHANTILLON avant:	4816.8	g	
MASSE DU RETENU AU TAMIS 5 mm:	1418.0	g	
MASSE DU PASSANT AU TAMIS 5 mm:	3398.8	g	
MASSE TOTALE DE L'ÉCHANTILLON après:	4816.8	g	% PERTE: 0.00 %
MASSE UTILISÉE 5 mm avant lavage :	549.4	g	
MASSE UTILISÉE 5 mm après lavage :	374.0	g	% PERTE: 0.05 %

ANALYSE GRANULOMÉTRIQUE & DIMENSION DES GRAINS

TAMIS	MASSE RETENUE (IND.)	MASSE RETENUE (CUM.)	% RETENU (IND.)	% RETENU (CUM.)	% PASSANT (IND.)	% PASSANT (CUM.)
150 mm		0.0		0		100
76.2 mm		0.0		0		100
50 mm		0.0		0		100
37.5 mm		0.0		0		100
25 mm		401.0		8		92
19 mm		634.0		13		87
12.5 mm		850.0		18		82
4.76 mm		1418.0		29		71
2.00 mm		52.2		36		64
0.85 mm		102.6		43		57
0.425 mm		147.5		48		52
0.25 mm		202.2		55		45
0.15 mm		271.6		64		36
0.075 mm		341.6		73.3		26.7
PLATEAU		373.8		77.4		22.6

REMARQUES:

EFFECTUÉ PAR: Treccase Pierrick DATE: 2017-08-11

VÉRIFIÉ PAR : DATE:

ANALYSE DES SOLS ET DES GRANULATS

CLIENT:	AEM	**PLANCHE NO:**	
PROJET:	Saddle dam 3-4-5	**PROJET NO:**	11118538-B1
		ÉCHANTILLON NO:	433
		DATE:	2017-08-11

Description du matériau:	Pile #1 (North pile)	**Localisation du prélèvement:**	Stockpiled at the north of central dike
Provenance (source 1ère)			
Usage proposé:	Compacted sieved till	**Prélevé par:**	Cedric Fillon Tremblay
		Date de prélèvement:	2017-08-11

GRANULOMÉTRIE (% PASSANT) (LC 21-040)

Tamis				150 mm	76.2 mm	50 mm	37.5 mm	25 mm	19 mm	12.5 mm	4.76 mm	2.00 mm	0.85 mm	0.425 mm	0.25 mm	0.15 mm	0.075 mm
Résultats cumulatifs				100	100	100	100	92	87	82	71	64	57	52	45	36	26.7
Résultats individuels																	
Exigences	min			100	91			75		65	53			33			20.0
	max			100	100			91		84	73			48			35.0

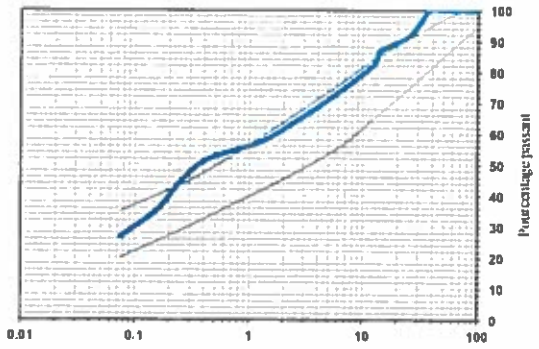
AUTRES ESSAIS	Résultats	Exigences min.	Exigences max.
Water content	7.20%		

ESSAI PROCTOR (NQ 2501-255)	Résultats
Masse volumique sèche maximale	(kg/m³)
Humidité optimale	(%)

Proctor à 0% de pierre : kg/m3
Facteur de correction :

Fuseau granulométrique: Till: Fondation, sous-fondation

COURBE GRANULOMÉTRIQUE



% gravier	29.4%	Cu = #N/A	D_{85} = 13.4	D_{15} = #N/A
% sable	43.9%	Cc = #N/A	D_{60} = 1.7	D_{10} = #N/A
% silt/argile	26.7%		D_{50} = 0.4	

Remarques: Écart(s) aux tamis suivant(s):
25, 0.425, mm

Préparé par: Trecasse Pierrick

Vérifié par:

lacks a little fines but accepted as the hill is well graded.
nx

ANALYSE DES SOLS ET DES GRANULATS

CLIENT: AEM	**PLANCHE NO:**
PROJET: Saddle dam 3-4-5	**PROJET NO:** 11118538-B1
	ÉCHANTILLON NO: 438
	DATE: 2017-09-14

Description du matériau:	Sieved compacted Till (0-50mm)	**Localisation:**	Sana Crusher
Provenance (source 1ère)	South stock pile		
Usage proposé:	Protection liner	**Prélevé par:**	Cédrick Fillon Tremblay
		Date de prélèvement:	2017-09-08

GRANULOMÉTRIE (% PASSANT) (LC 21-040)

Tamis				150 mm	76.2 mm	50 mm	37.5 mm	25 mm	19 mm	12.5 mm	4.76 mm	2.00 mm	0.85 mm	0.425 mm	0.25 mm	0.15 mm	0.075 mm
Résultats cumulatifs				100	100	100	94	88	86	82	71	64	56	44	36	30	24.2
Résultats individuels																	
Exigences	min.					100		85		75	63			43			30.0
	max.					100		100		94	83			58			45.0

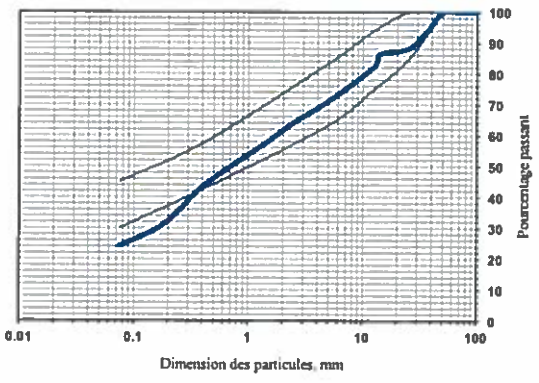
AUTRES ESSAIS	Résultats	Exigences min.	Exigences max.
Water content	8.50%		

ESSAI PROCTOR (NQ 2501-255)	Résultats
Masse volumique sèche maximale	(kg/m³)
Humidité optimale	(%)

Proctor à 0% de pierre : kg/m3
Facteur de correction:

Fuseau granulométrique: Till: Fondation, sous-fondation

COURBE GRANULOMÉTRIQUE



% gravier	29.3%	Cu = #N/A	D_{85} = 13.5	D_{15} = #N/A
% sable	46.5%	Cc = #N/A	D_{60} = 1.7	D_{10} = #N/A
% silt/argile	24.2%		D_{50} = 0.7	

Remarques: Écart(s) aux tamis suivant(s):
0.075, mm

Préparé par: Cédrick Fillon Tremblay Vérifié par:

INSPEC•SOL

ANALYSE GRANULOMÉTRIQUE

LC 21-040 [X]
CSA A23.2-2A [ ]

CLIENT: AEM

PROJET No.: 11118538-B1 ÉCHANTILLON No.: 438

APPAREILS DE MESURE UTILISÉS:
Tamis No. EE 13767
Étuve No. B23 3546
Balance No. 1,127,170,847
Séparateur No. Gilson model # SP-1
Agitateur mécanique No. 25824

MASSE TOTALE DE L'ÉCHANTILLON avant:	6468.1	g	
MASSE DU RETENU AU TAMIS 5 mm:	1892.3	g	
MASSE DU PASSANT AU TAMIS 5 mm:	4575.0	g	
MASSE TOTALE DE L'ÉCHANTILLON après:	6467.3	g	% PERTE: 0.01 %
MASSE UTILISÉE 5 mm avant lavage :	505.7	g	
MASSE UTILISÉE 5 mm après lavage :	350.8	g	% PERTE: -0.11 %

ANALYSE GRANULOMÉTRIQUE & DIMENSION DES GRAINS

TAMIS	MASSE RETENUE (IND.)	MASSE RETENUE (CUM.)	% RETENU (IND.)	% RETENU (CUM.)	% PASSANT (IND.)	% PASSANT (CUM.)
150 mm		0.0		0		100
76.2 mm		0.0		0		100
50 mm		0.0		0		100
37.5 mm		364.1		6		94
25 mm		758.0		12		88
19 mm		884.4		14		86
12.5 mm		1145.0		18		82
4.76 mm		1892.3		29		71
2.00 mm		46.3		36		64
0.85 mm		103.4		44		56
0.425 mm		189.7		56		44
0.25 mm		249.9		64		36
0.15 mm		292.4		70		30
0.075 mm		332.7		75.8		24.2
PLATEAU		351.2		78.4		21.6

REMARQUES:

EFFECTUÉ PAR: Cédrick Fillon Tremblay DATE: 2017-09-12

VÉRIFIÉ PAR : DATE:

lacks a little fines but accepted as the till is well graded.
MH

GHD

ANALYSE DES SOLS ET DES GRANULATS

CLIENT: AEM	**PLANCHE NO:**
PROJET: Saddle dam 3-4-5	**PROJET NO:** 11118538-B1
	ÉCHANTILLON NO: 439
	DATE: 2017-09-13

Description du matériau:	Sieved compacted Till (0-50mm)	**Localisation:**	Sana Crusher
Provenance (source 1ère)	North stock pile		
Usage proposé:	Protection liner	**Prélevé par:**	Cédrick Fillon Tremblay
		Date de prélèvement:	2017-09-08

GRANULOMÉTRIE (% PASSANT) (LC 21-040)

Tamis				150 mm	76.2 mm	50 mm	37.5 mm	25 mm	19 mm	12.5 mm	4.76 mm	2.00 mm	0.85 mm	0.425 mm	0.25 mm	0.15 mm	0.075 mm
Résultats cumulatifs				100	100	100	94	91	85	81	68	62	54	43	36	30	23.8
Résultats individuels																	
Exigences	min.					100		85		75	63			43			30.0
	max.					100		100		94	83			58			45.0

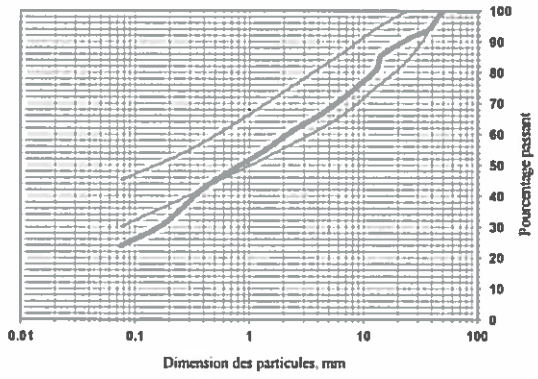
AUTRES ESSAIS	Résultats	Exigences min.	Exigences max.
Water content	8.60%		

ESSAI PROCTOR (NQ 2501-255)	Résultats
Masse volumique sèche maximale	(kg/m^3)
Humidité optimale	(%)

Proctor à 0% de pierre : kg/m3
Facteur de correction:

Fuseau granulométrique: Till: Fondation, sous-fondation

COURBE GRANULOMÉTRIQUE



% gravier	32.2%	Cu = #N/A	D_{85} = 13.9	D_{15} = #N/A
% sable	44.0%	Cc = #N/A	D_{60} = 2.2	D_{10} = #N/A
% silt/argile	23.8%		D_{50} = 0.8	

Remarques: Écart(s) aux tamis suivant(s):
0.075, mm

Préparé par: Cédrick Fillon Tremblay Vérifié par:

FO-630 20 F /06-08

INSPEC•SOL

ANALYSE GRANULOMÉTRIQUE
LC 21-040 [x]
CSA A23.2-2A [ ]

CLIENT: AEM

PROJET No.: 11118538-B1 **ÉCHANTILLON No.:** 439

APPAREILS DE MESURE UTILISÉS:
Tamis No. EE 13767 Séparateur No. Gilson model # SP-1
Étuve No. B23 3546 Agitateur mécanique No. 25824
Balance No. 1,127,170,847

MASSE TOTALE DE L'ÉCHANTILLON avant:	6017.9	g	
MASSE DU RETENU AU TAMIS 5 mm:	1938.5	g	
MASSE DU PASSANT AU TAMIS 5 mm:	4077.3	g	
MASSE TOTALE DE L'ÉCHANTILLON après:	6015.8	g	**% PERTE:** 0.03 %
MASSE UTILISÉE 5 mm avant lavage :	497.8	g	
MASSE UTILISÉE 5 mm après lavage :	347.6	g	**% PERTE:** -0.14 %

ANALYSE GRANULOMÉTRIQUE & DIMENSION DES GRAINS

TAMIS	MASSE RETENUE (IND.)	MASSE RETENUE (CUM.)	% RETENU (IND.)	% RETENU (CUM.)	% PASSANT (IND.)	% PASSANT (CUM.)
150 mm		0.0		0		100
76.2 mm		0.0		0		100
50 mm		0.0		0		100
37.5 mm		354.5		6		94
25 mm		529.5		9		91
19 mm		876.1		15		85
12.5 mm		1171.6		19		81
4.76 mm		1938.5		32		68
2.00 mm		45.8		38		62
0.85 mm		102.3		46		54
0.425 mm		180.0		57		43
0.25 mm		236.3		64		36
0.15 mm		278.8		70		30
0.075 mm		323.1		76.2		23.8
PLATEAU		348.1		79.6		20.4

REMARQUES:

EFFECTUÉ PAR: Cédrick Fillon Tremblay **DATE:** 2017-09-12

VÉRIFIÉ PAR : **DATE:**

compliant M.N.

ANALYSE DES SOLS ET DES GRANULATS

CLIENT:	AEM	**PLANCHE NO:**	
PROJET:	Saddle dam 3-4-5	**PROJET NO:**	11118538-B1
		ÉCHANTILLON NO:	434
		DATE:	2017-08-13

Description du matériau:	Till	**Localisation:**	Stock pile in front
Provenance (source 1ère):	Pit E		
Usage proposé:	fondation of membrane	**Prélevé par:**	Cedrick Fillon Tremblay
		Date de prélèvement:	2017-08-12

GRANULOMÉTRIE (% PASSANT) (LC 21-040)

Tamis				150 mm	76.2 mm	50 mm	37.5 mm	25 mm	19 mm	12.5 mm	4.76 mm	2.00 mm	0.85 mm	0.425 mm	0.25 mm	0.15 mm	0.075 mm
Résultats cumulatifs				100	100	100	100	100	100	85	82	74	66	59	52	44	35.7
Résultats individuels																	
Exigences	min.					100		85		75	63			43			30.0
	max.					100		100		94	83			58			45.0

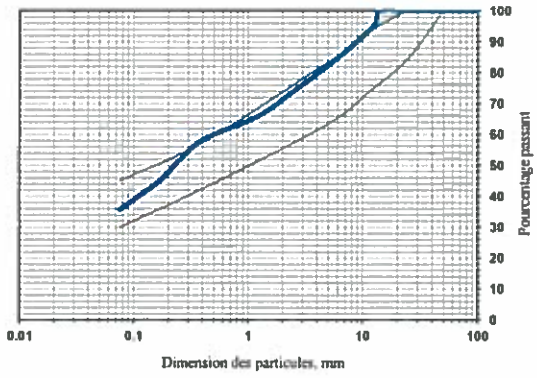
AUTRES ESSAIS	Résultats	Exigences min.	Exigences max.
Water content	8.60%		
Note : Sample hand-sieved (0-20mm) in order to know the fine particles			

ESSAI PROCTOR (NQ 2501-255)	Résultats
Masse volumique sèche maximale	(kg/m³)
Humidité optimale	(%)

Proctor à 0% de pierre : kg/m3
Facteur de correction:

Fuseau granulométrique: Till: Fondation, sous-fondation

COURBE GRANULOMÉTRIQUE



% gravier	18.3%	Cu = #N/A	D_{85} = 6.1	D_{15} = #N/A
% sable	45.9%	Cc = #N/A	D_{60} = 0.5	D_{10} = #N/A
% silt/argile	35.7%		D_{50} = 0.2	

Remarques: Écart(s) aux tamis suivant(s):

12.5, 0.425, mm

Préparé par: Trecasse Pierrick Vérifié par:

INSPEC•SOL

ANALYSE GRANULOMÉTRIQUE

LC 21-040 [X]
CSA A23.2-2A [ ]

ENT: AEM

PROJET No.: 11118538-B1 ÉCHANTILLON No.: 434

APPAREILS DE MESURE UTILISÉS:
Tamis No. EE 13767 Séparateur No. Gilson model # SP-1
Étuve No. B23 3546 Agitateur mécanique No. 25824
Balance No. 1,127,170,847

MASSE TOTALE DE L'ÉCHANTILLON avant:	4808.0	g	
MASSE DU RETENU AU TAMIS 5 mm:	881.0	g	
MASSE DU PASSANT AU TAMIS 5 mm:	3927.0	g	
MASSE TOTALE DE L'ÉCHANTILLON après:	4808.0	g	% PERTE: 0.00 %
MASSE UTILISÉE 5 mm avant lavage :	549.2	g	
MASSE UTILISÉE 5 mm après lavage :	328.1	g	% PERTE: 0.09 %

ANALYSE GRANULOMÉTRIQUE & DIMENSION DES GRAINS

TAMIS	MASSE RETENUE (IND.)	MASSE RETENUE (CUM.)	% RETENU (IND.)	% RETENU (CUM.)	% PASSANT (IND.)	% PASSANT (CUM.)
150 mm		0.0		0		100
76.2 mm		0.0		0		100
50 mm		0.0		0		100
37.5 mm		0.0		0		100
25 mm		0.0		0		100
19 mm		0.0		0		100
12.5 mm		239.0		5		95
4.76 mm		881.0		18		82
2.00 mm		51.1		26		74
0.85 mm		104.6		34		66
0.425 mm		153.9		41		59
0.25 mm		200.9		48		52
0.15 mm		250.4		56		44
0.075 mm		308.9		64.3		35.7
PLATEAU		327.8		67.1		32.9

REMARQUES:

EFFECTUÉ PAR: Treccase Pierrick DATE: 2017-08-11

VÉRIFIÉ PAR : DATE:

Compliant M.IV.

ANALYSE DES SOLS ET DES GRANULATS

CLIENT: AEM	**PLANCHE NO:**
PROJET: Saddle dam 3-4-5	**PROJET NO:** 11118538-B1
	ÉCHANTILLON NO: 433
	DATE: 2017-08-17

Description du matériau:	Till	**Localisation:**	Stock pile
Provenance (source 1ère)	Pit E		
Usage proposé:	fondation of membrane	**Prélevé par:**	Cedrick Fillon Tremblay
		Date de prélèvement:	2017-08-13

GRANULOMÉTRIE (% PASSANT) (LC 21-040)

Tamis				150 mm	76.2 mm	50 mm	37.5 mm	25 mm	19 mm	12.5 mm	4.76 mm	2.00 mm	0.85 mm	0.425 mm	0.25 mm	0.15 mm	0.075 mm
Résultats cumulatifs				82	87	84	79	73	70	67	54	49	43	36	31	26	22.1
Résultats individuels																	
Exigences	min.			100	91			75		65	53			33			20.0
	max.			100	100			91		84	73			48			35.0

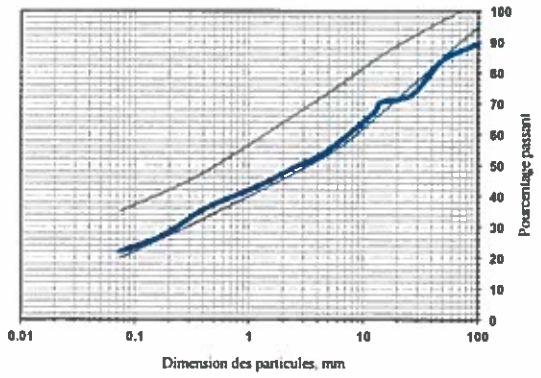
AUTRES ESSAIS	Résultats	Exigences min.	Exigences max.
Water content	8.30%		

ESSAI PROCTOR (NQ 2501-255)	Résultats
Masse volumique sèche maximale	(kg/m^3)
Humidité optimale	(%)

Proctor à 0% de pierre : kg/m3
Facteur de correction:

Fuseau granulométrique: Till: Fondation, sous-fondation

COURBE GRANULOMÉTRIQUE



% gravier	45.7%	Cu = #N/A	D_{85} = 55.4	D_{15} = #N/A
% sable	32.3%	Cc = #N/A	D_{60} = 7.3	D_{10} = #N/A
% silt/argile	22.1%		D_{50} = 2.8	

Remarques: Écart(s) aux tamis suivant(s):

150, 76.2, 25, mm

Préparé par: Cedrick Fillon Tremblay & Pierrick Trecasse Vérifié par:

INSPEC•SOL

ANALYSE GRANULOMÉTRIQUE

LC 21-040 [X]
CSA A23.2-2A [ ]

CLIENT: AEM

PROJET No.: 11118538-B1 ÉCHANTILLON No.: 433

APPAREILS DE MESURE UTILISÉS:
Tamis No. EE 13767 Séparateur No. Gilson model # SP-1
Étuve No. B23 3546 Agitateur mécanique No. 25824
Balance No. 1,127,170,847

MASSE TOTALE DE L'ÉCHANTILLON avant:	168407.2	g	
MASSE DU RETENU AU TAMIS 5 mm:	76889.6	g	
MASSE DU PASSANT AU TAMIS 5 mm:	91506.1	g	
MASSE TOTALE DE L'ÉCHANTILLON après:	168395.7	g	% PERTE: 0.01 %
MASSE UTILISÉE 5 mm avant lavage :	5175.4	g	
MASSE UTILISÉE 5 mm après lavage :	3181.5	g	% PERTE: 0.03 %

ANALYSE GRANULOMÉTRIQUE & DIMENSION DES GRAINS

TAMIS	MASSE RETENUE (IND.)	MASSE RETENUE (CUM.)	% RETENU (IND.)	% RETENU (CUM.)	% PASSANT (IND.)	% PASSANT (CUM.)
150 mm		13430.7		8		92
76.2 mm		21075.4		13		87
50 mm		26618.9		16		84
37.5 mm		35464.4		21		79
25 mm		46605.4		28		72
19 mm		50061.4		30		70
12.5 mm		55365.3		33		67
4.76 mm		76889.6		46		54
2.00 mm		490.6		51		49
0.85 mm		1046.0		57		43
0.425 mm		1742.1		64		36
0.25 mm		2261.1		69		31
0.15 mm		2662.9		74		26
0.075 mm		3074.3		77.9		22.1
PLATEAU		3180.4		79.1		20.9

REMARQUES:

EFFECTUÉ PAR: Cedrick Fillon Tremblay & Pierrick Trecasse DATE: 2017-08-17

VÉRIFIÉ PAR : DATE:

APPENDIX I1B - QC RESULTS LAB - FINE FILTER STOCKPILE MATERIAL

Compliant

M.N.

ANALYSE DES SOLS ET DES GRANULATS

CLIENT:	Agnico Eagle Mines	**PLANCHE NO:**	
PROJET:	Meadowbank Construction of SD-3-4-5	**PROJET NO:**	11118538-B1
		ÉCHANTILLON NO:	372
		DATE:	2017-07-08 Night Shift

Description du matériau:	Fine filter	**Localisation du prélèvement:**	Sana Crusher
Provenance (source 1ère)	Sana Crusher		
Usage proposé:	Inverse filter	**Prélevé par:**	Hugues Potvin
		Date de prélèvement:	2017-07-08

GRANULOMÉTRIE (% PASSANT) (LC 21-040)

Tamis				150 mm	76,2 mm	50 mm	37,5 mm	25 mm	19 mm	12,5 mm	4,76 mm	2,00 mm	0,85 mm	0,425 mm	0,25 mm	0,15 mm	0,075 mm
Résultats cumulatifs				100	100	100	100	100	89	71	46	33	24	19	16	14	11,5
Résultats individuels																	
Exigences	min.						100	100		50	23			0			0
	max.						100	100		100	68			20			15

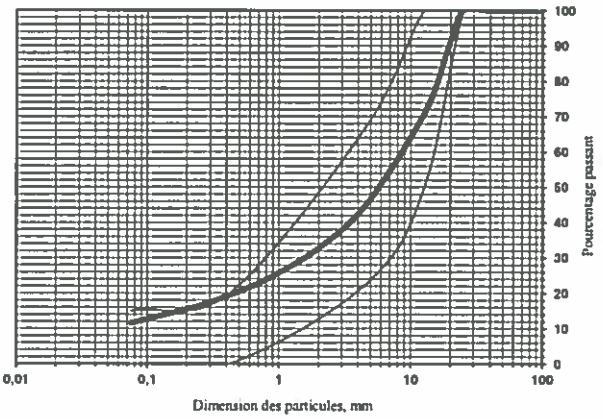
AUTRES ESSAIS	Résultats	Exigences min.	Exigences max.

ESSAI PROCTOR (NQ 2501-255)	Résultats
Masse volumique sèche maximale	(kg/m^3)
Humidité optimale	(%)

Proctor à 0% de pierre : kg/m3
Facteur de correction:

Fuseau granulométrique: Fine Filter: Central Dike

COURBE GRANULOMÉTRIQUE



% gravier	54,4%	Cu = #N/A	D_{85} = 17,5	D_{15} = 0,2
% sable	34,1%	Cc = #N/A	D_{60} = 8,3	D_{10} = #N/A
% silt/argile	11,5%		D_{50} = 5,6	

Remarques: Matériau conforme pour usage proposé

Préparé par: Sebastien Blackburn Vérifié par:

Compliant
MH

ANALYSE DES SOLS ET DES GRANULATS

CLIENT:	Agnico Eagle Mines	**PLANCHE NO:**	
PROJET:	Meadowbank Construction of SD-3-4-5	**PROJET NO:**	11118538-B1
		ÉCHANTILLON NO:	373
		DATE:	2017-08-05

Description du matériau:	Fine filter	**Localisation du prélèvement:**	Sana Crusher
Provenance (source 1ère):	Sana Crusher		
Usage proposé:	Inverse filter	**Prélevé par:**	Sébastien Blackburn
		Date de prélèvement:	2017-08-04

GRANULOMÉTRIE (% PASSANT) (LC 21-040)

Tamis				150 mm	76.2 mm	50 mm	37.5 mm	25 mm	19 mm	12.5 mm	4.76 mm	2.00 mm	0.85 mm	0.425 mm	0.25 mm	0.15 mm	0.075 mm
Résultats cumulatifs				100	100	100	100	99	83	64	41	27	20	15	13	11	8.6
Résultats individuels																	
Exigences	min.						100	100		50	23			0			0
	max.						100	100		100	68			20			15

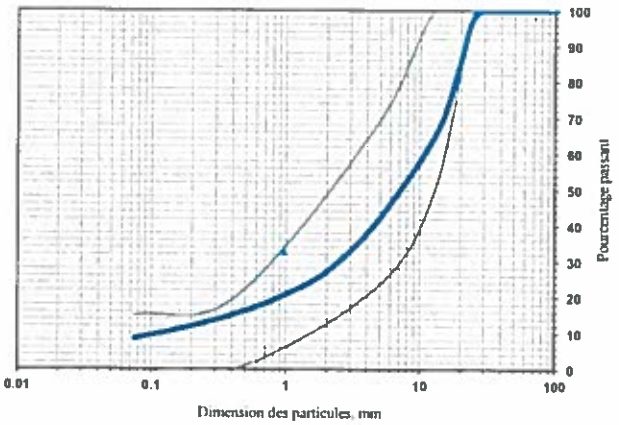
AUTRES ESSAIS	Résultats	Exigences min.	Exigences max.
Water content	2,7%		

ESSAI PROCTOR (NQ 2501-255)	Résultats
Masse volumique sèche maximale	(kg/m³)
Humidité optimale	(%)

Proctor à 0% de pierre : kg/m3
Facteur de correction:

Fuseau granulométrique: Fine Filter: Central Dike

COURBE GRANULOMÉTRIQUE



% gravier	58.8%	Cu = 92	D_{85} = 19.7	D_{15} = 0.4
% sable	32.6%	Cc = 5	D_{50} = 10.5	D_{10} = 0.1
% silt/argile	8.6%		D_{50} = 6.9	

Remarques: Écart(s) aux tamis suivant(s): 25 mm

Préparé par: Sebastien Blackburn Vérifié par:

FO 630 2011F 708 00

ANALYSE DES SOLS ET DES GRANULATS

CLIENT:	Agnico Eagle Mines	**PLANCHE NO:**	
PROJET:	Meadowbank Construction of SD-3-4-5	**PROJET NO:**	11118538-B1
		ÉCHANTILLON NO:	373
		DATE:	2017-08-05

Description du matériau:	Fine filter	**Localisation du prélèvement:**	Sana Crusher
Provenance (source 1ère):	Sana Crusher		
Usage proposé:	Inverse filter	**Prélevé par:**	Sébastien Blackburn
		Date de prélèvement:	2017-08-04

GRANULOMÉTRIE (% PASSANT) (LC 21-040)

Tamis				150 mm	76.2 mm	50 mm	37.5 mm	25 mm	19 mm	12.5 mm	4.76 mm	2.00 mm	0.85 mm	0.425 mm	0.25 mm	0.15 mm	0.075 mm
Résultats cumulatifs				100	100	100	100		83	64	41	27	20	15	13	11	8.6
Résultats individuels																	
Exigences	min.						100	100		50	23			0			0
	max.						100	100		100	68			20			15

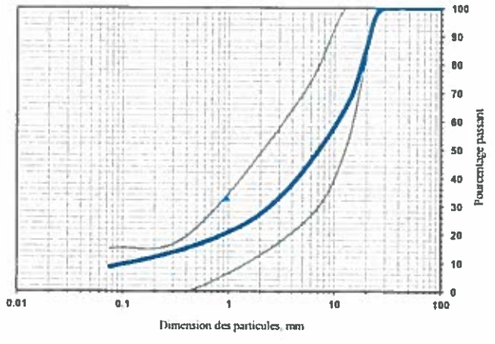
AUTRES ESSAIS	Résultats	Exigences min.	Exigences max.
Water content	2,7%		

ESSAI PROCTOR (NQ 2501-255)	Résultats
Masse volumique sèche maximale	(kg/m³)
Humidité optimale	(%)

Proctor à 0% de pierre : kg/m3
Facteur de correction:

Fuseau granulométrique: Fine Filter: Central Dike

COURBE GRANULOMÉTRIQUE



% gravier	58.8%	Cu = 92	D_{85} = 19.7	D_{15} = 0.4
% sable	32.6%	Cc = 5	D_{50} = 10.5	D_{10} = 0.1
% silt/argile	8.6%		D_{50} = 6.9	

Remarques: Écart(s) aux tamis suivant(s): 25 mm

Préparé par: Sebastien Blackburn Vérifié par:

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ANALYSE DES SOLS ET DES GRANULATS

CLIENT:	Agnico Eagle Mines	**PLANCHE NO:**	
PROJET:	Meadowbank Construction of SD-3-4-5	**PROJET NO:**	11118538-B1
		ÉCHANTILLON NO:	375
		DATE:	2017-08-05

Description du matériau:	Fine filter	**Localisation :**	Stock pile
Provenance (source 1ère):	Pit D		
Usage proposé:	Inver☒Filter	**Prélevé par:**	Cédrick Fillon Tremblay
		Date de prélèvement:	2017-08-12

GRANULOMÉTRIE (% PASSANT) (LC 21-040)

Tamis				150 mm	76.2 mm	50 mm	37.5 mm	25 mm	19 mm	12.5 mm	4.76 mm	2.00 mm	0.85 mm	0.425 mm	0.25 mm	0.15 mm	0.075 mm
Résultats cumulatifs				100	100	100	100	100	92	78	51	36	24	18	15	13	10.4
Résultats individuels																	
Exigences	min.						100	100		50	23			0			0
	max.						100	100		100	68			20			15

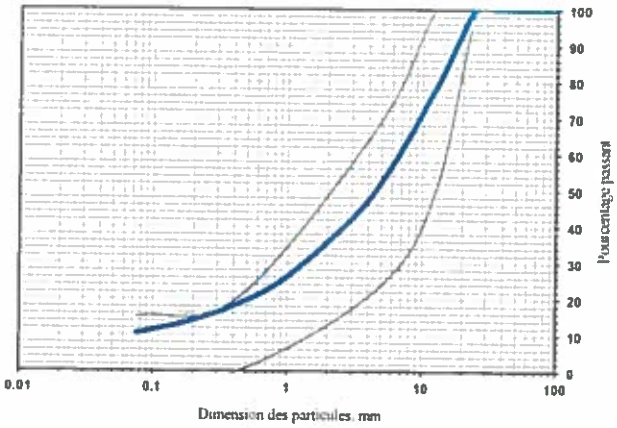
AUTRES ESSAIS	Résultats	Exigences min.	Exigences max.
Water content	2,7%		

ESSAI PROCTOR (NQ 2501-255)	Résultats
Masse volumique sèche maximale	(kg m^{-3})
Humidité optimale	(%)

Proctor a 0% de pierre : kg/m3
Facteur de correction:

Fuseau granulométrique: Fine Filter: Central Dike

COURBE GRANULOMÉTRIQUE



% gravier	49.0%	Cu = #N/A	D_{85} = 15.4	D_{15} = 0.2
% sable	40.7%	Cc = #N/A	D_{60} = 6.6	D_{10} = #N/A
% silt/argile	10.4%		D_{50} = 4.5	

Remarques: Matériau conforme pour usage proposé

Préparé par: Sebastien Blackburn

Vérifié par:

ANALYSE GRANULOMÉTRIQUE

LC 21-040 [X]
CSA A23.2-2A [ ]

CLIENT: Agnk Agnico Eagle Mines

PROJET No.: 11118538-B1 ÉCHANTILLON No.: 375

APPAREILS DE MESURE UTILISÉS:
Tamis No
Étuve No
Balance No
Séparateur No #SP-1
Agitateur mécanique No

MASSE TOTALE DE L'ÉCHANTILLON avant:	5135.0 g	
MASSE DU RETENU AU TAMIS 5 mm:	2514.0 g	Ne jamais écrire dans ces onglets
MASSE DU PASSANT AU TAMIS 5 mm:	2620.0 g	
MASSE TOTALE DE L'ÉCHANTILLON après:	5134.0 g	% PERTE: 0.02 %
MASSE UTILISÉE 5 mm avant lavage :	574.9 g	
MASSE UTILISÉE 5 mm après lavage :	464.5 g	% PERTE: 0.00 %

ANALYSE GRANULOMÉTRIQUE & DIMENSION DES GRAINS

TAMIS	MASSE RETENUE (IND.)	MASSE RETENUE (CUM.)	% RETENU (IND.)	% RETENU (CUM.)	% PASSANT (IND.)	% PASSANT (CUM.)
150 mm		0.0		0		100
76.2 mm		0.0		0		100
50 mm		0.0		0		100
37.5 mm		0.0		0		100
25 mm		0.0		0		100
19 mm		405.0		8		92
12.5 mm		1107.0		22		78
4.76 mm		2514.0		49		51
2.00 mm		171.5		64		36
0.85 mm		300.8		76		24
0.425 mm		367.1		82		18
0.25 mm		403.6		85		15
0.15 mm		431.3		87		13
0.075 mm		458.1		89.6		10.4
PLATEAU		464.5		90.1982564		9.801743599

REMARQUES:

EFFECTUÉ PAR: Hugues Potvin DATE: 2017-08-05

VÉRIFIÉ PAR : DATE:

APPENDIX I1C - QC RESULTS LAB - COARSE FILTER STOCKPILE MATERIAL

NOT compliant, but accepted.
The sandy part is too fine, but it is judged that the performance of the filter will still be adequate.

M.N.

ANALYSE DES SOLS ET DES GRANULATS

CLIENT:	Agnico Eagle Mines Limited	**PLANCHE NO:**	
PROJET:	SD-3, 4 and 5	**PROJET NO:**	11118538-B1
		ÉCHANTILLON NO:	367
		DATE:	2017-07-09

Description du matériau:	Coarse filter	**Localisation du prélèvement:**	Sana Crusher
Provenance (source 1ère)	Sana Crusher		
Usage proposé:	Filters	**Prélevé par:**	Hugues Potvin
		Date de prélèvement:	2017-07-08

GRANULOMÉTRIE (% PASSANT) (LC 21-040)

Tamis			x mm	200 mm	150 mm	75 mm	25 mm	19 mm	12,5 mm	4,76 mm	2,00 mm	0,85 mm	0,425 mm	0,25 mm	0,15 mm	0,075 mm
Résultats cumulatifs			100	100	100	78	44	38	21	20	14	11	9	8	7	5,7
Résultats individuels																
Exigences	min.	#N/A		100	86	35	5		0	0	0					
	max.	#N/A		100	100	100	40		18	9	5					

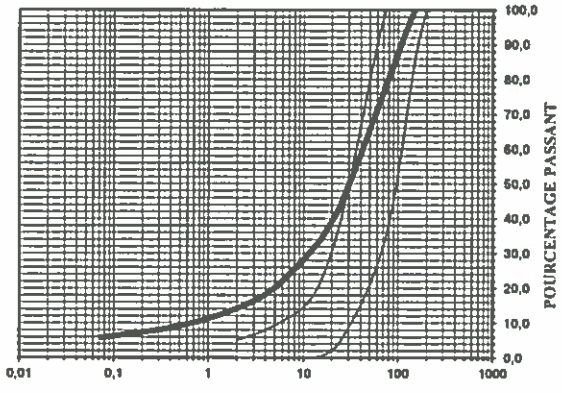
AUTRES ESSAIS	Résultats	Exigences min.	Exigences max.

ESSAI PROCTOR (NQ 2501-255)	Résultats
Masse volumique sèche maximale	(kg/m³)
Humidité optimale	(%)

Proctor à 0% de pierre : kg/m3
Facteur de correction:

Fuseau granulométrique: Coarse Filter: Central Dike

COURBE GRANULOMÉTRIQUE



% gravier	80,4%	Cu = 61	D_{85} = #N/A	D_{15} = 2,3
% sable	13,9%	Cc = 5	D_{60} = 41,7	D_{10} = 0,7
% silt/argile	5,7%		D_{50} = 30,2	

Remarques: Écart(s) aux tamis suivant(s): 25, 12,5, 4,76, 2 mm

Préparé par: Hugues Potvin Vérifié par:

Détermination de la teneur en eau
LC 21-200

Client: A.E.M.

Projet No.: 11118538-B1 **Échantillon No:** 368-373-429-430

Appareils de mesure utilisés:

Étuve No.: _____ Balance No.: _____

Échantillon No.	368	373	429	430				
Contenant No.	5979.7	S-100	205	204				
Masse du contenant + sol humide (g)	67702.5	8325.0	6344.0	6989.0				
Masse du contenant + sol sec (g)	67518.0	8139.0	6112.0	6615.5				
Masse du contenant (g)	7604.0	1312.0	1395.0	1397.0				
Masse du sol sec (g)	59914.0	6827.0	4717.0	5218.5				
Masse de l'eau (g)	184.5	186.0	232.0	373.5				
Teneur en eau (%)	0.3	2.7	4.9	7.2				
Échantillon No.								
Contenant No.								
Masse du contenant + sol humide (g)								
Masse du contenant + sol sec (g)								
Masse du contenant (g)								
Masse du sol sec (g)								
Masse de l'eau (g)								
Teneur en eau (%)								

Remarques: _____

Effectué par: Sebastien Blackburn **Date:** 08/05/2017

Vérifié par : _____ **Date:** _____

Not compliant but accepted. The performance of the filter is judged to remain adequate despite the excessively fine sandy part.

MH

ANALYSE DES SOLS ET DES GRANULATS

CLIENT:	Agnico Eagle Mines Limited	**PLANCHE NO:**	
PROJET:	SD-3, 4 and 5	**PROJET NO:**	11118538-B1
		ÉCHANTILLON NO:	368
		DATE:	2017-08-05

Description du matériau:	Coarse filter	**Localisation du prélèvement:**	Sana Crusher
Provenance (source 1ère):	Sana Crusher		
Usage proposé:	filters	**Prélevé par:**	Sébastien Blackburn
		Date de prélèvement:	2017-08-04

GRANULOMÉTRIE (% PASSANT) (LC 21-040)

Tamis			x mm	200 mm	150 mm	75 mm	25 mm	19 mm	12.5 mm	4.76 mm	2.00 mm	0.85 mm	0.425 mm	0.25 mm	0.15 mm	0.075 mm
Résultats cumulatifs			100	100	100	68	38	30	23	15	10	7	6	5	4	3.7
Résultats individuels																
Exigences	min.	#N/A		100	86	35	5		0	0	0					
	max.	#N/A		100	100	100	40		18	9	5					

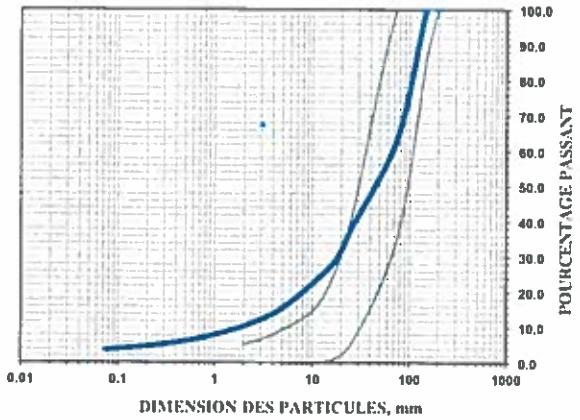
AUTRES ESSAIS	Résultats	Exigences min.	Exigences max.
Water content	0.30%		
Dépassement du % de perte de sable			

ESSAI PROCTOR (NQ 2501-255)	Résultats
Masse volumique sèche maximale	(kg/m^3)
Humidité optimale	(%)

Proctor à 0% de pierre : kg/m3
Facteur de correction:

Fuseau granulométrique: Coarse Filter: Central Dike

COURBE GRANULOMÉTRIQUE



% gravier	84.7%	Cu = 37	D_{85} = #N/A	D_{15} = 4.6
% sable	11.6%	Cc = 3	D_{60} = 65.3	D_{10} = 1.8
% silt/argile	3.7%		D_{50} = 42.4	

Remarques: Écart(s) aux tamis suivant(s): 12.5, 4.76, 2 mm

Préparé par: Hugues Potvin Vérifié par:

GHD

ANALYSE GRANULOMÉTRIQUE

LC 21-040 [x]
CSA A23.2-2A [ ]

CLIENT: Agnico Eagle Mines Limited

PROJET No.: 11118538-B1 **ÉCHANTILLON No.:** 370

APPAREILS DE MESURE UTILISÉS:

Tamis No. EE 13767 | Séparateur No. Gilson model #SP-1
Étuve No. B23 3546 | Agitateur mécanique No. 25824
Balance No. 1,127,170,847

MASSE TOTALE DE L'ÉCHANTILLON avant:	51228.0	g
MASSE DU RETENU AU TAMIS 5 mm:	44991.0	g
MASSE DU PASSANT AU TAMIS 5 mm:	6234.0	g
MASSE TOTALE DE L'ÉCHANTILLON après:	51225.0	g
MASSE UTILISÉE 5 mm avant lavage :	1737.2	g
MASSE UTILISÉE 5 mm après lavage :	1363.8	g

Ne jamais écrire dans ces onglets

% PERTE: 0.01 %

% PERTE: 0.06 %

ANALYSE GRANULOMÉTRIQUE & DIMENSION DES GRAINS

TAMIS	MASSE RETENUE (IND.)	MASSE RETENUE (CUM.)	% RETENU (IND.)	% RETENU (CUM.)	% PASSANT (IND.)	% PASSANT (CUM.)
x mm		0.0		0		100
200 mm		0.0		0		100
150 mm		0.0		0		100
75 mm		18797.0		37		63
25 mm		35216.0		69		31
19 mm		38371.0		75		25
12.5 mm		40951.0		80		20
4.76 mm		44991.0		88		12
2.00 mm		524.5		92		8
0.85 mm		867.2		94		6
0.425 mm		1063.6		95		5
0.25 mm		1174.5		96		4
0.15 mm		1256.0		97		3
0.075 mm		1335.6		97.2		2.8
PLATEAU		1363.0		97.37745888		2.622541116

REMARQUES:

EFFECTUÉ PAR: Hugues Potvin **DATE:** 2017-08-05

VÉRIFIÉ PAR : **DATE:**

ANALYSE DES SOLS ET DES GRANULATS

CLIENT:	Agnico Eagle Mines Limited	**PLANCHE NO:**	
PROJET:	SD-3, 4 and 5	**PROJET NO:**	11118538-B1
		ÉCHANTILLON NO:	374
		DATE:	2017-09-01

Description du matériau:	Coarse filter	**Localisation du prélèvement:**	Sanna crusher number 2
Provenance (source 1ère):	Sanna crusher		
Usage proposé:	Filter	**Prélevé par:**	Sébastien Blackburn
		Date de prélèvement:	2017-08-29

GRANULOMÉTRIE (% PASSANT) (LC 21-040)

Tamis				x mm	200 mm	150 mm	75 mm	25 mm	19 mm	12.5 mm	4.76 mm	2.00 mm	0.85 mm	0.425 mm	0.25 mm	0.15 mm	0.075 mm
Résultats cumulatifs				100	100	100	48	21	16	12	7	5	3	3	2	2	1.7
Résultats individuels																	
Exigences	min.		#N/A		100	86	35	5		0	0	0					
	max.		#N/A		100	100	100	40		18	9	5					

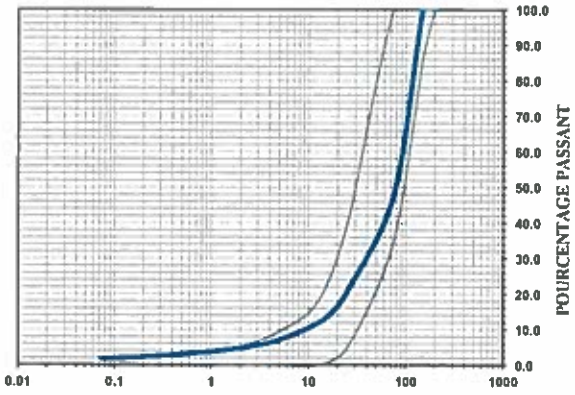
AUTRES ESSAIS	Résultats	Exigences min.	Exigences max.
Water content	0.32%		

ESSAI PROCTOR (NQ 2501-255)	Résultats
Masse volumique sèche maximale	(kg/m³)
Humidité optimale	(%)

Proctor à 0% de pierre : kg/m3
Facteur de correction:

Fuseau granulométrique: Coarse Filter: Central Dike

COURBE GRANULOMÉTRIQUE



% gravier	93.2%	Cu = #N/A	D_{85} = #N/A	D_{15} = 17.4
% sable	5.1%	Cc = #N/A	D_{60} = #N/A	D_{10} = 8.9
% silt/argile	1.7%		D_{50} = #N/A	

Remarques: Matériau conforme pour usage proposé

Préparé par: Sebastien Blackburn

Vérifié par:

ANALYSE GRANULOMÉTRIQUE

LC 21-040 [X]
CSA A23.2-2A [ ]

CLIENT: Agnico Eagle Mines Limited

PROJET No.: 11118538-B1 **ÉCHANTILLON No.:** 374

APPAREILS DE MESURE UTILISÉS:

Tamis No. EE 13767
Étuve No. B23 3546
Balance No. 1,127,170,847
Séparateur No. Gilson model #SP-1
Agitateur mécanique No. 25824

MASSE TOTALE DE L'ÉCHANTILLON avant:	57304.9	g
MASSE DU RETENU AU TAMIS 5 mm:	53410.1	g
MASSE DU PASSANT AU TAMIS 5 mm:	3876.9	g
MASSE TOTALE DE L'ÉCHANTILLON après:	57287.0	g
MASSE UTILISÉE 5 mm avant lavage :	545.7	g
MASSE UTILISÉE 5 mm après lavage :	417.4	g

Ne jamais écrire dans ces onglets

% PERTE: 0.03 %

% PERTE: 0.00 %

ANALYSE GRANULOMÉTRIQUE & DIMENSION DES GRAINS

TAMIS	MASSE RETENUE (IND.)	MASSE RETENUE (CUM.)	% RETENU (IND.)	% RETENU (CUM.)	% PASSANT (IND.)	% PASSANT (CUM.)
x mm		0.0		0		100
200 mm		0.0		0		100
150 mm		0.0		0		100
75 mm		29891.7		52		48
25 mm		45394.9		79		21
19 mm		48181.8		84		16
12.5 mm		50522.5		88		12
4.76 mm		53410.1		93		7
2.00 mm		166.6		95		5
0.85 mm		267.2		97		3
0.425 mm		321.9		97		3
0.25 mm		355.4		98		2
0.15 mm		381.4		98		2
0.075 mm		409.0		98.3		1.7
PLATEAU		417.4		98.40203926		1.59796074

REMARQUES:

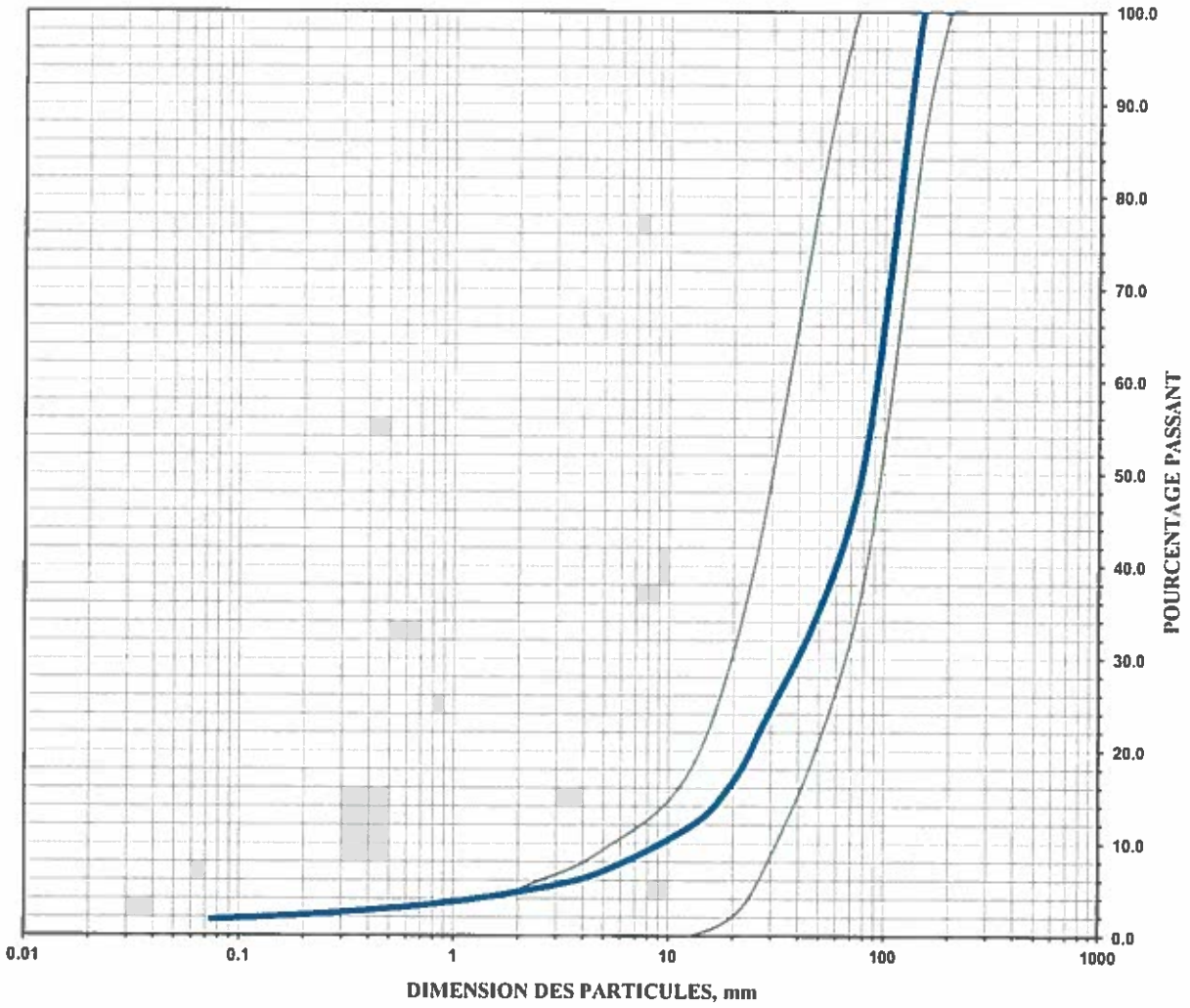
EFFECTUÉ PAR: Pierrick Trecasse **DATE:** 2017-08-17

VÉRIFIÉ PAR : **DATE:**

CLIENT: Agnico Eagle Mines Limited

PROJET No.: 11118538-B1 ÉCHANTILLON No.: 374

COURBE GRANULOMÉTRIQUE



SILT ET ARGILE	FIN	MOYEN	GROSSIER	FIN	GROSSIER
	SABLE			GRAVIER	

Préparé par: Sebastien Blackburn

Vérifié par: _____

APPENDIX I1D - QC RESULTS FIELD TESTING – TILL STOCKPILE MATERIAL

Détermination de la teneur en eau
LC 21-200

Client: A.E.M.

Projet No.: 11118538-B1 **Échantillon No:** 368-373-429-430

Appareils de mesure utilisés:

Étuve No.: _____ Balance No.: _____

Échantillon No.	368	373	429	430				
Contenant No.	5979.7	S-100	205	204				
Masse du contenant + sol humide (g)	67702.5	8325.0	6344.0	6989.0				
Masse du contenant + sol sec (g)	67518.0	8139.0	6112.0	6615.5				
Masse du contenant (g)	7604.0	1312.0	1395.0	1397.0				
Masse du sol sec (g)	59914.0	6827.0	4717.0	5218.5				
Masse de l'eau (g)	184.5	186.0	232.0	373.5				
Teneur en eau (%)	0.3	2.7	4.9	7.2				
Échantillon No.								
Contenant No.								
Masse du contenant + sol humide (g)								
Masse du contenant + sol sec (g)								
Masse du contenant (g)								
Masse du sol sec (g)								
Masse de l'eau (g)								
Teneur en eau (%)								

Remarques: _____

Effectué par: Sebastien Blackburn **Date:** 08/05/2017

Vérifié par : _____ **Date:** _____

INSPEC•SOL

(NQ 2501-250, NQ 2501-255)

ENT: Agnico Eagle Mine

PROJET No.: 11118538-B1

ÉCHANTILLON No.: 433
Type de matériau: Till
Provenance: Pit E in stock pile

APPAREILS DE MESURE UTILISÉS:

Moule Proctor No. C-3
Étuve No. 127-08
Marteau No. 121-13
Cylindre Gradué No. 231-08
Séparateur No. -
Balance No. 122-06

TENEUR EN EAU

ESSAI No.		1 (6%)	2 (initiale)	3 (8%)	4 (9%)	5 (10%)	6(12%
CONTENANT No.		82	205	201	204	80	81
MASSE DU CONTENANT + SOL HUMIDE	(g)	4865.7	6101.4	6146.1	6079.0	5086.2	4957.0
MASSE DU CONTENANT + SOL SEC	(g)	4605.5	5722.7	5740.5	5670.1	4624.0	4468.6
MASSE DU CONTENANT	(g)	403.7	1394.0	1400.5	1395.7	401.5	405.4
MASSE DU SOL SEC	(g)	4201.8	4328.7	4340.0	4274.4	4222.5	4063.2
MASSE DE L'EAU	(g)	260.2	378.7	405.6	408.9	462.2	488.4
TENEUR EN EAU	(%)	6.2%	8.7%	9.3%	9.6%	10.9%	12.0%

DONNÉES PROCTOR

MÉTHODE UTILISÉE: A

MASSE DU MOULE (g): 6238.0

VOLUME DU MOULE (cm^3): 2124.0

MASSE DU SOL + MOULE	(g)	10698.3	10944.7	10981.7	10918.6	10884.1	10792.1
MASSE VOLUMIQUE HUMIDE	(g / cm^3)	2.100	2.216	2.233	2.204	2.187	2.144
MASSE VOLUMIQUE SÈCHE	(g / cm^3)	1.977	2.038	2.042	2.011	1.972	1.914

RÉSULTATS

TENEUR EN EAU OPTIMALE: 9.0 %

MASSE VOLUMIQUE HUMIDE MAXIMALE: 2233 kg / m^3 139.4 lbs / pi^3

MASSE VOLUMIQUE SÈCHE MAXIMALE: 2049 kg / m^3 127.9 lbs / pi^3

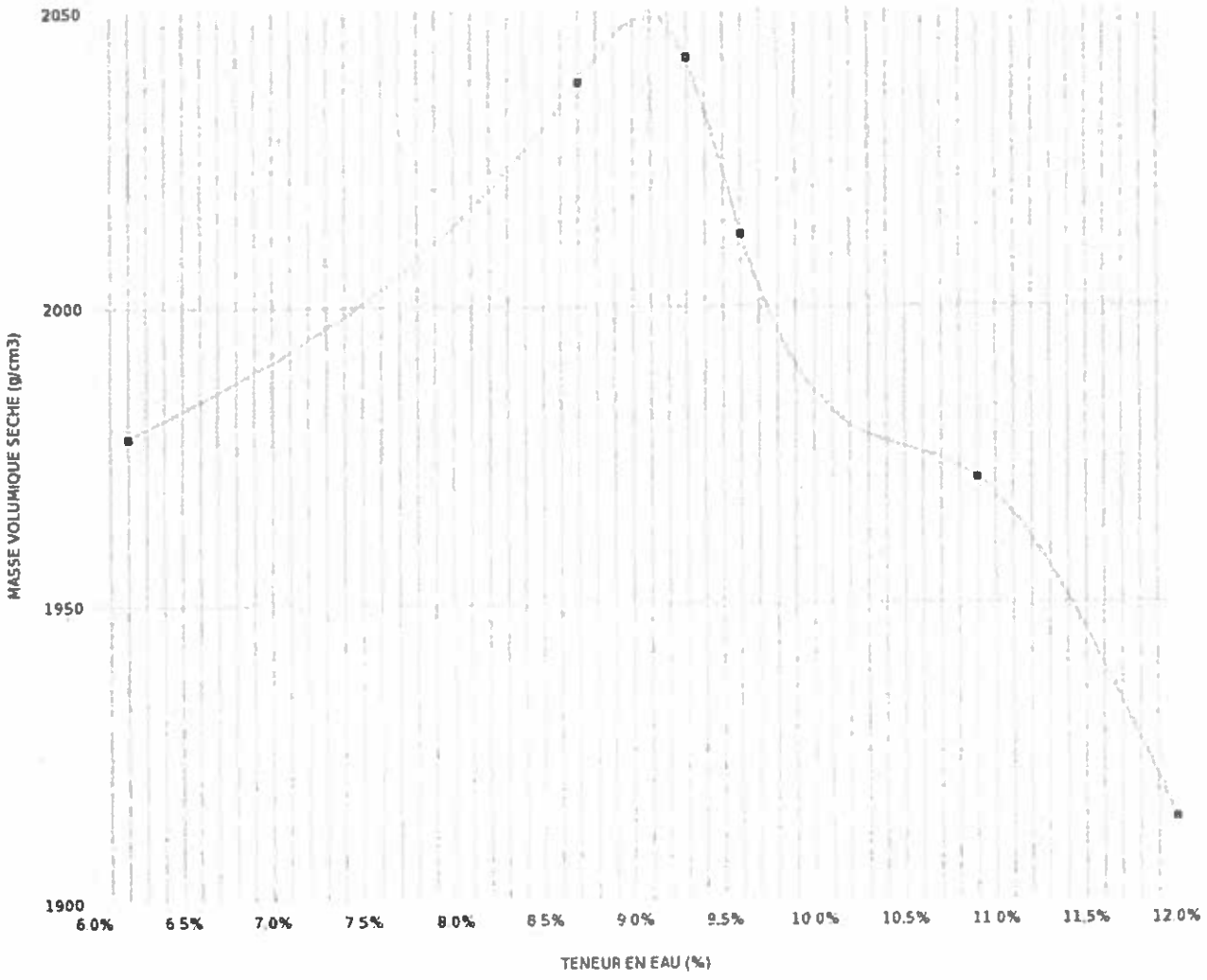
REMARQUES: Proctor effectué à : 18% de pierre Facteur de correction : 4.56
Masse volumique à 0% de pierre: 1967 kg\m³

EFFECTUÉ PAR: Cédrick Fillon Tremblay & Pierrick Trecasse DATE: 2017-08-17

RIFIÉ PAR : DATE:

CLIENT: test

PROJET No.: 11111111-B11 **ÉCHANTILLON No.:** Nunavut - 433



ÉCHANTILLON PRÉPARÉ: ☐ SEC ☐ HUMIDE D^R ESTIMÉE: 2,7 MESURÉE: _____

REMARQUES: Proctor effectué à: 18 % de pierre Facteur de correction: 4.56
Masse volumique à 0% de pierre: 1967 kg/m3

EFFECTUÉ PAR: Cédric Fillon-Tremblay **DATE:** 2017-08-18

VÉRIFIÉ PAR: **DATE:**

APPENDIX I2 - CENTRAL DIKE QC RESULTS

APPENDIX I2A - QC RESULTS LAB – TILL
CENTRAL DIKE NORTH ABUTMENT PREPARATION

ANALYSE DES SOLS ET DES GRANULATS

CLIENT:	AEM	**PLANCHE NO:**	
PROJET:	Saddle dam 3-4-5	**PROJET NO:**	11118538-B1
		ÉCHANTILLON NO:	437
		DATE:	2017-09-09

Description du matériau:	Sieved compacted Till (0-50mm)	**Localisation:**	Central Dike
Provenance (source 1ère)	On place / El : 143.8		St : 0+108.0 / Offset : 20.9
Usage proposé:	key fondation	**Prélevé par:**	Cédrick Fillon Tremblay
	EL: 143.8	**Date de prélèvement:**	2017-09-08

GRANULOMÉTRIE (% PASSANT) (LC 21-040)

Tamis				150 mm	76.2 mm	50 mm	37.5 mm	25 mm	19 mm	12.5 mm	4.76 mm	2.00 mm	0.85 mm	0.425 mm	0.25 mm	0.15 mm	0.075 mm
Résultats cumulatifs				100	100	100	99	95	91	86	75	66	59	51	45	39	30.7
Résultats individuels																	
Exigences	min.					100		85		75	63			43			30.0
	max.					100		100		94	83			58			45.0

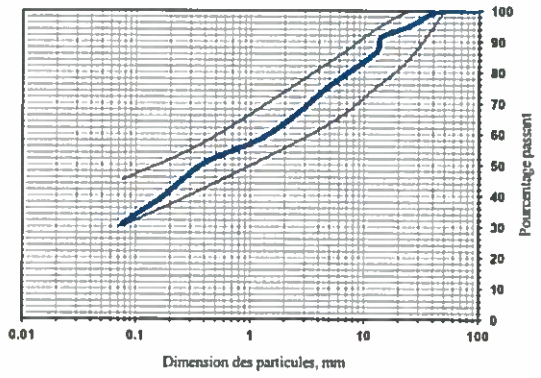
AUTRES ESSAIS	Résultats	Exigences min.	Exigences max.
Water content	6.80%		

ESSAI PROCTOR (NQ 2501-255)	Résultats
Masse volumique sèche maximale	(kg/m^3)
Humidité optimale	(%)

Proctor à 0% de pierre : kg/m3
Facteur de correction:

Fuseau granulométrique: Till: Fondation, sous-fondation

COURBE GRANULOMÉTRIQUE



% gravier	24.9%	Cu = #N/A	D_{85} = 11.1	D_{15} = #N/A
% sable	44.4%	Cc = #N/A	D_{60} = 1.4	D_{10} = #N/A
% silt/argile	30.7%		D_{50} = 0.4	

Remarques: Matériau conforme pour usage proposé

mm

Préparé par: Cédrick Fillon Tremblay Vérifié par:

INSPEC•SOL

ANALYSE GRANULOMÉTRIQUE

LC 21-040 [X]
CSA A23.2-2A [ ]

CLIENT: AEM

PROJET No.: 11118538-B1 ÉCHANTILLON No.: 437

APPAREILS DE MESURE UTILISÉS:
Tamis No. EE 13767 Séparateur No. Gilson model # SP-1
Étuve No. B23 3546 Agitateur mécanique No. 25824
Balance No. 1,127,170,847

MASSE TOTALE DE L'ÉCHANTILLON avant:	6208.5	g	
MASSE DU RETENU AU TAMIS 5 mm:	1544.2	g	
MASSE DU PASSANT AU TAMIS 5 mm:	4660.0	g	
MASSE TOTALE DE L'ÉCHANTILLON après:	6204.2	g	% PERTE: 0.07 %
MASSE UTILISÉE 5 mm avant lavage :	637.5	g	
MASSE UTILISÉE 5 mm après lavage :	432.5	g	% PERTE: 0.09 %

ANALYSE GRANULOMÉTRIQUE & DIMENSION DES GRAINS

TAMIS	MASSE RETENUE (IND.)	MASSE RETENUE (CUM.)	% RETENU (IND.)	% RETENU (CUM.)	% PASSANT (IND.)	% PASSANT (CUM.)
150 mm		0.0		0		100
76.2 mm		0.0		0		100
50 mm		0.0		0		100
37.5 mm		70.3		1		99
25 mm		297.4		5		95
19 mm		535.6		9		91
12.5 mm		846.7		14		86
4.76 mm		1544.2		25		75
2.00 mm		75.4		34		66
0.85 mm		140.2		41		59
0.425 mm		203.0		49		51
0.25 mm		256.1		55		45
0.15 mm		308.0		61		39
0.075 mm		376.9		69.3		30.7
PLATEAU		432.1		75.8		24.2

REMARQUES:

EFFECTUÉ PAR: Cédrick Fillon Tremblay DATE: 2017-09-09

VÉRIFIÉ PAR : DATE:

APPENDIX I2B - QC RESULTS LAB- FINE FILTER
CENTRAL DIKE NORTH ABUTMENT PREPARATION

ANALYSE DES SOLS ET DES GRANULATS

CLIENT:	Agnico Eagle Mines	**PLANCHE NO:**	
PROJET:	Meadowbank Construction of SD-3-4-5	**PROJET NO:**	11118538-B1
		ÉCHANTILLON NO:	378
		DATE:	2017-08-20

Description du matériau:	Fine filter	**Localisation :**	On place
Provenance (source 1ère):	Centrale Dike		
Usage proposé:	Filter	**Prélevé par:**	Cédrick Fillon Tremblay
		Date de prélèvement:	2017-08-19

GRANULOMÉTRIE (% PASSANT) (LC 21-040)

Tamis				150 mm	76.2 mm	50 mm	37.5 mm	25 mm	19 mm	12.5 mm	4.76 mm	2.00 mm	0.85 mm	0.425 mm	0.25 mm	0.15 mm	0.075 mm
Résultats cumulatifs				100	100	100	100	100	85	67	38	26	18	14	12	10	8.3
Résultats individuels																	
Exigences	min.						100	100		50	23			0			0
	max.						100	100		100	68			20			15

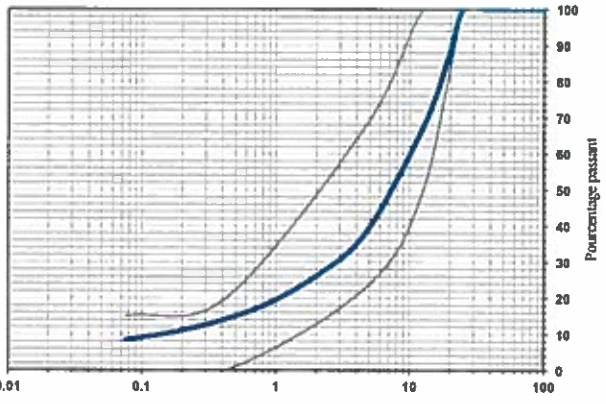
AUTRES ESSAIS	Résultats	Exigences min.	Exigences max.
Water content	2,7%		

ESSAI PROCTOR (NQ 2501-255)	Résultats
Masse volumique sèche maximale	(kg/m^3)
Humidité optimale	(%)

Proctor à 0% de pierre : kg/m3
Facteur de correction :

Fuseau granulométrique: Fine Filter: Central Dike

COURBE GRANULOMÉTRIQUE



% gravier	61.7%	Cu = 68	D_{85} = 18.9	D_{15} = 0.5
% sable	30.0%	Cc = 5	D_{60} = 9.9	D_{10} = 0.1
% silt/argile	8.3%		D_{50} = 7.1	

Remarques: Matériau conforme pour usage proposé

Préparé par: Pierrick Trecasse

Vérifié par:

ANALYSE GRANULOMÉTRIQUE
LC 21-040 [X]
CSA A23.2-2A [ ]

CLIENT: Agnico Eagle Mines

PROJET No.: 11118538-B1 **ÉCHANTILLON No.:** 378 378

APPAREILS DE MESURE UTILISÉS:
Tamis No. EE 13767 Séparateur No. Gilson model #SP-1
Étuve No. B23 3546 Agitateur mécanique No. 25824
Balance No. 1,127,170,847

MASSE TOTALE DE L'ÉCHANTILLON avant:	7240.3	g
MASSE DU RETENU AU TAMIS 5 mm:	4467.3	g
MASSE DU PASSANT AU TAMIS 5 mm:	2770.0	g
MASSE TOTALE DE L'ÉCHANTILLON après:	7237.3	g
MASSE UTILISÉE 5 mm avant lavage :	592.1	g
MASSE UTILISÉE 5 mm après lavage :	471.5	g

Ne jamais écrire dans ces onglets

% PERTE: 0.04 %

% PERTE: 0.02 %

ANALYSE GRANULOMÉTRIQUE & DIMENSION DES GRAINS

TAMIS	MASSE RETENUE (IND.)	MASSE RETENUE (CUM.)	% RETENU (IND.)	% RETENU (CUM.)	% PASSANT (IND.)	% PASSANT (CUM.)
150 mm		0.0		0		100
76.2 mm		0.0		0		100
50 mm		0.0		0		100
37.5 mm		0.0		0		100
25 mm		0.0		0		100
19 mm		1063.2		15		85
12.5 mm		2360.8		33		67
4.76 mm		4467.3		62		38
2.00 mm		189.6		74		26
0.85 mm		310.0		82		18
0.425 mm		373.0		86		14
0.25 mm		409.2		88		12
0.15 mm		436.2		90		10
0.075 mm		463.5		91.7		8.3
PLATEAU		471.4		92.2		7.8

REMARQUES:

EFFECTUÉ PAR: Pierrick Trecasse **DATE:** 2017-08-19

VÉRIFIÉ PAR : **DATE:**

APPENDIX I2C - QC RESULTS LAB - COARSE FILTER CENTRAL DIKE NORTH ABUTMENT PREPARATION

Compliant M.W.

GHD

ANALYSE DES SOLS ET DES GRANULATS

CLIENT:	Agnico Eagle Mines Limited	**PLANCHE NO:**	
PROJET:	SD-3, 4 and 5	**PROJET NO:**	11118538-B1
		ÉCHANTILLON NO:	369
		DATE:	2017-08-19

Description du matériau:	Coarse filter	**Localisation du prélèvement:**	On place
Provenance (source 1ère):	Centrale Dike		
Usage proposé:	Inverse filter	**Prélevé par:**	Cédrick Fillon Tremblay
		Date de prélèvement:	2017-08-18

GRANULOMÉTRIE (% PASSANT) (LC 21-040)

Tamis				x mm	200 mm	150 mm	75 mm	25 mm	19 mm	12.5 mm	4.76 mm	2.00 mm	0.85 mm	0.425 mm	0.25 mm	0.15 mm	0.075 mm
Résultats cumulatifs				100	100	100	47	25	21	16	10	7	5	4	4	3	2.6
Résultats individuels																	
Exigences	min.		#N/A		100	86	35	5		0	0	0					
	max.		#N/A		100	100	100	40		18	9	5					

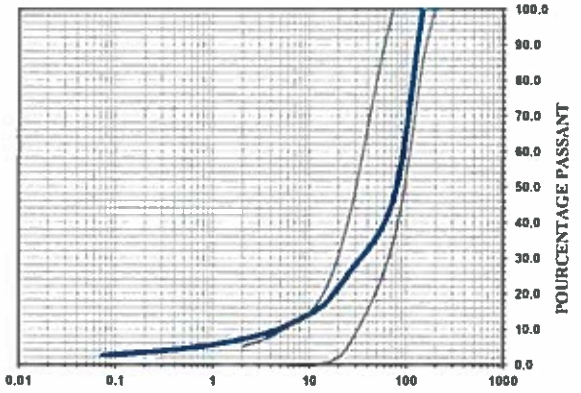
AUTRES ESSAIS	Résultats	Exigences min.	Exigences max.
Water content	0.70%		

ESSAI PROCTOR (NQ 2501-255)	Résultats
Masse volumique sèche maximale	(kg/m³)
Humidité optimale	(%)

Proctor à 0% de pierre : kg/m3
Facteur de correction:

Fuseau granulométrique: Coarse Filter: Central Dike

COURBE GRANULOMÉTRIQUE



% gravier	90.0%	Cu = #N/A	D_{85} = #N/A	D_{15} = 11.0
% sable	7.3%	Cc = #N/A	D_{60} = #N/A	D_{10} = 4.8
% silt/argile	2.6%		D_{50} = #N/A	

Remarques: Écart(s) aux tamis suivant(s): 4.76, 2 mm

Préparé par: Pierrick Trecasse Vérifié par:

FO-0030 201/F 08-08

ANALYSE GRANULOMÉTRIQUE

LC 21-040 [X]
CSA A23.2-2A [ ]

CLIENT: Agnico Eagle Mines Limited

PROJET No.: 11118538-B1 ÉCHANTILLON No.: 369

APPAREILS DE MESURE UTILISÉS:

Tamis No. EE 13767
Étuve No. B23 3546
Balance No. 1,127,170,847
Séparateur No. Gilson model #SP-1
Agitateur mécanique No. 25824

MASSE TOTALE DE L'ÉCHANTILLON avant:	52456.0	g	Ne jamais écrire dans ces onglets
MASSE DU RETENU AU TAMIS 5 mm:	47222.6	g	
MASSE DU PASSANT AU TAMIS 5 mm:	5230.1	g	
MASSE TOTALE DE L'ÉCHANTILLON après:	52452.7	g	% PERTE: 0.01 %
MASSE UTILISÉE 5 mm avant lavage :	1714.4	g	
MASSE UTILISÉE 5 mm après lavage :	1289.5	g	% PERTE: 0.02 %

ANALYSE GRANULOMÉTRIQUE & DIMENSION DES GRAINS

TAMIS	MASSE RETENUE (IND.)	MASSE RETENUE (CUM.)	% RETENU (IND.)	% RETENU (CUM.)	% PASSANT (IND.)	% PASSANT (CUM.)
x mm		0.0		0		100
200 mm		0.0		0		100
150 mm		0.0		0		100
75 mm		27862.9		53		47
25 mm		39169.7		75		25
19 mm		41451.3		79		21
12.5 mm		44132.1		84		16
4.76 mm		47222.6		90		10
2.00 mm		487.3		93		7
0.85 mm		804.6		95		5
0.425 mm		978.8		96		4
0.25 mm		1091.2		96		4
0.15 mm		1174.2		97		3
0.075 mm		1262.3		97.4		2.6
PLATEAU		1289.3		97.52618222		2.473817779

REMARQUES:

EFFECTUÉ PAR: Pierrick Trecasse DATE: 2017-08-18

VÉRIFIÉ PAR : DATE:

APPENDIX I2D - QC RESULTS FIELD TESTING - TILL

CENTRAL DIKE NORTH ABUTMENT PREPARATION

Masse volumique maximale – planche de référence

Client :	A.E.M	N° de réf. :	11118538-B1
	Meadowbank	Date (inspection) :	2017/09/08
Projet :	Saddle Dam #3-4-5	Date (rapport) :	2017/09/09

Entrepreneur Gen. : F.G.L Terr. :

Matériau : Compacted sieved till Provenance : Meadowbank Épaisseur (mm) : 0.5 m

Matériau sous-jacent : Bedrock Provenance : Terrain naturel Épaisseur (mm) : ∞

Compacteur utilisé : Rouleau vibrant 10T

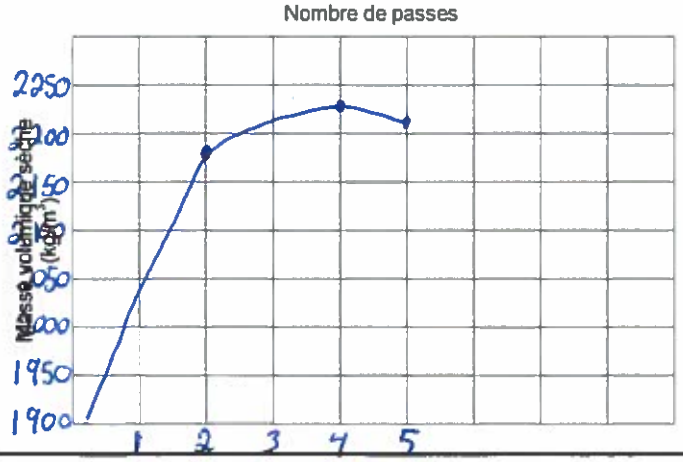
Appareil de mesure (marque) : Troxler Modèle : 3440 No de série : 61597

Échantillon: Densité rel. Brute de la pierre (D):

% de retenu 5.0 mm (P): Teneur en eau de la pierre (AR):
(D):

Nombre de passes	Masse volumique sèche			Moyenne	% Humidité			Moyenne	Augmentation mass vol. sèche en %
	Point A	Point B	Point C		Point A	Point B	Point C		
0	1843	1822	1904	1856.3	5.3	4.1	4.8	4.7	-
2	2184	2161	2203	2182.7	5.5	5.7	5.8	5.7	17.6
4	2212	2242	2229	2227.7	6.1	5.9	5.1	5.7	2.1
5	2208	2221	2213	2214	5.9	6.0	5.5	5.8	-0.6

Note: La masse volumique maximale est atteinte lorsque deux lectures consécutives du % d'augmentation sont inférieures à 1%.



$$\% \text{ d'aug.} = \frac{\text{masse dernière passe - masse passe précédente}}{\text{Masse passe précédente}} \times 100$$

Masse vol. max.	Nbre de passes
2228	4

Préparé par : Cédrick Fillon Tremblay Vérifié par :

Nucléodensimètre - Détermination du degré de compacité

N° de contrat :	A.E.M	Division :	Terre	Appareil	
N° de projet:	11118538-B1	Matériau :	Compacted sieved till	Marque :	Troxler
Projet :	Saddle Dam #3-4-5	Calibre :	0-50 mm	Modèle :	3440
Municipalité :	Meadowbank	Usage :	Key Fondation	N° de série :	61597

Entrepreneur : F.G.L Équipement de compactage : Roulant vibrant 10T

Nom de la source du matériau : _____ Municipalité : _____

☐ Proctor modifié Échantillon N° :

Masse volumique max. : _____ kg/m³ % retenu 5,0 mm : _____ % Humidité optimale : _____ %

Masse volum. à 0% de retenu 5mm : _____ Kg/m³

Facteur de correction (f.c.) : _____ Correction humidité (K) : _____

★ Planche de référence Masse volumique maximale obtenue par planche de référence : 2228 kg/m³

Valeurs référentielles (R) : Densité : _____ Humidité : 5.8 %

Date de l'essai		2017/09/08	2017/09/08	2017/09/08	2017/09/08	
N° du test		#1	#2	#3	#4	
Key foundation		Central Dike	Central Dike	Central Dike	Central Dike	
Chaînage		0+092	0+100	0+107.7	0+114.4	
Distance du ℄		16.9R	20.8R	17.9R	20.1R	
Élévation		144.9	144.2	143.8	143.4	
Profondeur de l'essai		200	200	200	200	
Masse volum. sèche (D-Dry)	1 lecture 60 sec	2186	2211	2249	2184	
% de retenu 5,0 mm dans l'essai						
Masse volumique maximale corrigée						
% d'humidité (%H)	1 lecture 60 sec	5.9	5.5	5.8	5.8	
Compacité obtenue		98.1%	99.2%	100.9%	98.0%	
Compacité exigée		98% R.B	98% R.B	98% R.B	98% R.B	98% R.B

Préparé par : _____ Date : AA 17 MM 09 JJ 09

Vérifié par : _____ Date : AA _____ MM _____ JJ _____

Masse volumique maximale – planche de référence

Client :	A.E.M	N° de réf. :	11118538-B1
	Meadowbank	Date (inspection) :	2017/09/30
Projet :	Saddle Dam #3-4-5	Date (rapport) :	2017/10/01

Entrepreneur Gen. : F.G.L Terr. :

Matériau : Compacted sieved till Provenance : Meadow bank Épaisseur (mm) : 0.5 m

Matériau sous-jacent : Compacter sieved till Provenance : Terrain naturel Épaisseur (mm) : ∞

Compacteur utilisé : Rouleau vibrant

Appareil de mesure (marque) : Troxler Modèle : 3440 No de série :

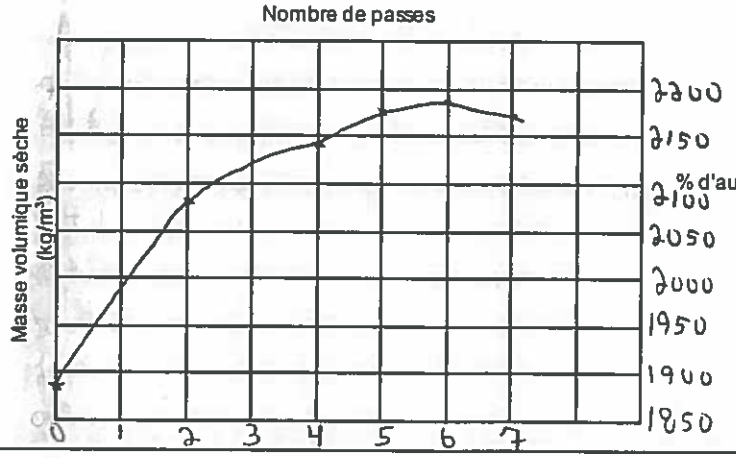
Échantillon: Densité rel. Brute de la pierre (D):

% de retenu 5.0 mm (P): Teneur en eau de la pierre (AR):

(D):

Nombre de passes	Masse volumique sèche			Moyenne	% Humidité			Moyenne	Augmentation mass vol. sèche en %
	Point A	Point B	Point C		Point A	Point B	Point C		
0	1858	1895	1879	1877	8.7	7.3	6.9	7.6	-
2	2102	2078	2083	2088	8.6	8.0	7.2	7.9	11.24
4	2159	2114	2149	2141	8.6	8.3	7.6	8.2	2.5
5	2181	2168	2182	2177	8.6	8.2	7.7	8.2	1.7
6	2167	2173	2212	2184	8.7	7.6	7.0	7.8	0.3
7	2140	2159	2210	2170	8.7	7.9	7.2	7.9	-0.6

Note: La masse volumique maximale est atteinte lorsque deux lectures consécutives du % d'augmentation sont inférieures à 1%.



$$\%\ \text{d'aug.} = \frac{\text{masse dernière passe - masse passe précédente}}{\text{Masse passe précédente}} \times 100$$

Masse vol. max.	Nbre de passes
2184	6

Préparé par : Hugues Potvin Vérifié par :

Rapport de vérification de la compacité des sols au chantier

Client :	A.E.M	No de réf. :	
	11118538-B1	Date (Inspection) :	2017/10/01
Projet :	Saddle Dam #3-4-5	Date (Rapport) :	2017/10/01
	Meadowbank	Type (Inspection) :	☒ Tempsplein ☐ Tempspartiel (visite)

Entrepreneur	Général : F.G.L	Terrassement :

Matériaux utilisés		Caractéristiques	
Matériau de remblai	Provenance	Masse volumique maximale (kg/m³)	Humidité optimale (%)
Type I	Compacted sieved till	2184	8
Type II			

Échantillon(s) prélevés(s) :	☒ Non ☐ Oui	[Si oui, où, type(s) et provenance(s)] :	Meadowbank

Type d'ouvrage	Localisation	Élévation (m)	Matériau de remblai		Vérification de conformité	
			Type	Épaisseur (mm)	% Exigé	Résultat
1. Key foundation	Central Dike	± 143	I	500	98	C
2.						
3.						
4.						
5.						

Résultats C= Conforme NC= non conforme

Épreuve de roulage : No

Vérification du gel : No

Mesures correctives recommandées : No

Remarques :

Préparé par : Hugues Potvin Vérifié par :

Nucléodensimètre - Détermination du degré de compacité

N° de contrat :	A.E.M	Division :	Terre	Appareil	
N° de projet:	11118538-B1	Matériau :	Compacted sieved till	Marque :	Troxler
Projet :	Saddle Dam #3-4-5	Calibre :	0-50 mm	Modèle :	3440
Municipalité :	Meadowbank	Usage :	Key Fondation	N° de série :	

Entrepreneur : F.G.L **Équipement de compactage :** Roulant vibrant CAT, 11-1101

Nom de la source du matériau : _____ **Municipalité :** _____

☐ **Proctor modifié** **Échantillon N° :**

Masse volumique max. : kg/m³ **% retenu 5,0 mm :** _____ % **Humidité optimale :** _____ %

Masse volum. à 0% de retenu 5mm : _____ Kg/m³

Facteur de correction (f.c.) : _____ Correction humidité (K) : _____

★ **Planche de référence** **Masse volumique maximale obtenue par planche de référence :** 2184 kg/m³

Valeurs référentielles (R) : Densité : _____ Humidité : 7.8 %

Date de l'essai		2017/10/01	2017/10/01	2017/10/01		
N° du test		#31	#32	#33		
Key foundation		Central Dike	Central Dike	Central Dike		
Chaînage		0+138.8	0+128.7	0+121.1		
Distance du ℄		36.3R	35.6R	33.5R		
Élévation		142.7	143.2	143.5		
Profondeur de l'essai		200	200	200		
Masse volum. sèche (D-Dry)	1 lecture 60 sec	2140	2159	2210		
% de retenu 5,0 mm dans l'essai						
Masse volumique maximale corrigée						
% d'humidité (%H)	1 lecture 60 sec	8.7	7.9	7.2		
Compacité obtenue		98%	98.9%	101.2%		
Compacité exigée		98% R.B	98% R.B	98% R.B		

Préparé par : Hugues Potvin **Date :** AA MM JJ — 17 10 01

Vérifié par : _____ **Date :** AA MM JJ — _____

APPENDIX I3 - SADDLE DAM 3 QC RESULTS

APPENDIX I3A - QC RESULTS LAB – TILL

SADDLE DAM 3 STAGE 3

Lacks a little fines but accepted as the hill is well graded.
FTH

ANALYSE DES SOLS ET DES GRANULATS

CLIENT: AEM	**PLANCHE NO:**
PROJET: Saddle dam 3-4-5	**PROJET NO:** 11118538-B1
	ÉCHANTILLON NO: 436
	DATE: 2017-09-13

Description du matériau:	Sieved compacted Till (0-50mm)	**Localisation:**	SD-3
Provenance (source 1ère)	On place		St : 20+651 / Offset : 38.3L
Usage proposé:	Protection liner	**Prélevé par:**	Cédrick Fillon Tremblay
	EL: 141.2	**Date de prélèvement:**	2017-09-08

GRANULOMÉTRIE (% PASSANT) (LC 21-040)

Tamis				150 mm	76.2 mm	50 mm	37.5 mm	25 mm	19 mm	12.5 mm	4.76 mm	2.00 mm	0.85 mm	0.425 mm	0.25 mm	0.15 mm	0.075 mm
Résultats cumulatifs				100	100	100	95	90	85	79	66	58	50	42	36	30	23.9
Résultats individuels																	
Exigences	min.					100		85		75	63			43			30.0
	max.					100		100		94	83			58			45.0

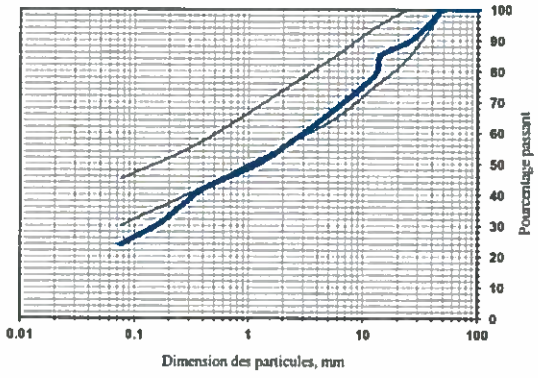
AUTRES ESSAIS	Résultats	Exigences min.	Exigences max.
Water content	6.50%		

ESSAI PROCTOR (NQ 2501-255)	Résultats
Masse volumique sèche maximale	(kg/m^3)
Humidité optimale	(%)

Proctor à 0% de pierre : kg/m3
Facteur de correction:

Fuseau granulométrique: Till: Fondation, sous-fondation

COURBE GRANULOMÉTRIQUE



% gravier	34.5%	Cu = #N/A	D_{85} = 14.0	D_{15} = #N/A
% sable	41.6%	Cc = #N/A	D_{60} = 3.0	D_{10} = #N/A
% silt/argile	23.9%		D_{50} = 1.2	

Remarques: Écart(s) aux tamis suivant(s):
0.425, 0.075, mm

Préparé par: Cédrick Fillon Tremblay Vérifié par:

INSPEC•SOL

ANALYSE GRANULOMÉTRIQUE

LC 21-040 [X]
CSA A23.2-2A [ ]

CLIENT: AEM

PROJET No.: 11118538-B1 ÉCHANTILLON No.: 436

APPAREILS DE MESURE UTILISÉS:
Tamis No. EE 13767 Séparateur No. Gilson model # SP-1
Étuve No. B23 3546 Agitateur mécanique No. 25824
Balance No. 1,127,170,847

MASSE TOTALE DE L'ÉCHANTILLON avant:	6180.1	g	
MASSE DU RETENU AU TAMIS 5 mm:	2131.2	g	
MASSE DU PASSANT AU TAMIS 5 mm:	4038.9	g	
MASSE TOTALE DE L'ÉCHANTILLON après:	6170.1	g	% PERTE: 0.16 %
MASSE UTILISÉE 5 mm avant lavage :	531.0	g	
MASSE UTILISÉE 5 mm après lavage :	364.6	g	% PERTE: 0.03 %

ANALYSE GRANULOMÉTRIQUE & DIMENSION DES GRAINS

TAMIS	MASSE RETENUE (IND.)	MASSE RETENUE (CUM.)	% RETENU (IND.)	% RETENU (CUM.)	% PASSANT (IND.)	% PASSANT (CUM.)
150 mm		0.0		0		100
76.2 mm		0.0		0		100
50 mm		0.0		0		100
37.5 mm		288.8		5		95
25 mm		631.6		10		90
19 mm		922.5		15		85
12.5 mm		1320.2		21		79
4.76 mm		2131.2		34		66
2.00 mm		62.9		42		58
0.85 mm		123.7		50		50
0.425 mm		187.4		58		42
0.25 mm		238.8		64		36
0.15 mm		285.0		70		30
0.075 mm		337.5		76.1		23.9
PLATEAU		364.5		79.5		20.5

REMARQUES:

EFFECTUÉ PAR: Cédrick Fillon Tremblay DATE: 2017-09-12

VÉRIFIÉ PAR : DATE:

ANALYSE DES SOLS ET DES GRANULATS

CLIENT: AEM	**PLANCHE NO:**
PROJET: Saddle dam 3-4-5	**PROJET NO:** 11118538-B1
	ÉCHANTILLON NO: 442
	DATE: 2017-10-09

Description du matériau:	Sieved compacted Till (0-50mm)	**Localisation:**	ch. 20+780
Provenance (source 1ère):	Pit E		
Usage proposé:	Till plug	**Prélevé par:**	Hugues Potvin
		Date de prélèvement:	2017-10-08

GRANULOMÉTRIE (% PASSANT) (LC 21-040)

Tamis				150 mm	76.2 mm	50 mm	37.5 mm	25 mm	19 mm	12.5 mm	4.76 mm	2.00 mm	0.85 mm	0.425 mm	0.25 mm	0.15 mm	0.075 mm
Résultats cumulatifs				100	100	100	100	96	92	88	75	68	60	54	50	45	37.9
Résultats individuels																	
Exigences	min.					100		85		75	63			43			30.0
	max.					100		100		94	83			58			45.0

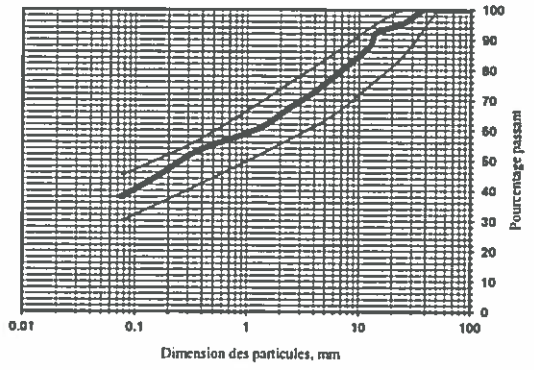
AUTRES ESSAIS	Résultats	Exigences min.	Exigences max.
Water content	9.50%		

ESSAI PROCTOR (NQ 2501-255)	Résultats
Masse volumique sèche maximale	(kg/m³)
Humidité optimale	(%)

Proctor à 0% de pierre : kg/m3
Facteur de correction:

Fuseau granulométrique: Till: Fondation, sous-fondation

COURBE GRANULOMÉTRIQUE



% gravier	25.2%	Cu = #N/A	D_{85} = 10.1	D_{15} = #N/A
% sable	36.9%	Cc = #N/A	D_{60} = 1.2	D_{10} = #N/A
% silt/argile	37.9%		D_{50} = 0.3	

Remarques: Matériau conforme pour usage proposé

mm

Préparé par: Hugues Potvin Vérifié par:

ANALYSE GRANULOMÉTRIQUE

LC 21-040 [X]
CSA A23.2-2A [ ]

CLIENT: AEM

PROJET No.: 11118538-B1 ÉCHANTILLON No.: 442

APPAREILS DE MESURE UTILISÉS:
Tamis No. EE 13767
Étuve No. B23 3546
Balance No. 1,127,170,847
Séparateur No. Gilson model # SP-1
Agitateur mécanique No. 25824

MASSE TOTALE DE L'ÉCHANTILLON avant:	4403.0	g	
MASSE DU RETENU AU TAMIS 5 mm:	1109.0	g	
MASSE DU PASSANT AU TAMIS 5 mm:	3291.0	g	
MASSE TOTALE DE L'ÉCHANTILLON après:	4400.0	g	% PERTE: 0.07 %
MASSE UTILISÉE 5 mm avant lavage :	665.0	g	
MASSE UTILISÉE 5 mm après lavage :	341.0	g	% PERTE: 0.00 %

ANALYSE GRANULOMÉTRIQUE & DIMENSION DES GRAINS

TAMIS	MASSE RETENUE (IND.)	MASSE RETENUE (CUM.)	% RETENU (IND.)	% RETENU (CUM.)	% PASSANT (IND.)	% PASSANT (CUM.)
150 mm		0.0		0		100
76.2 mm		0.0		0		100
50 mm		0.0		0		100
37.5 mm		0.0		0		100
25 mm		197.0		4		96
19 mm		346.0		8		92
12.5 mm		536.0		12		88
4.76 mm		1109.0		25		75
2.00 mm		62.5		32		68
0.85 mm		128.0		40		60
0.425 mm		183.0		46		54
0.25 mm		224.0		50		50
0.15 mm		267.0		55		45
0.075 mm		328.0		62.1		37.9
PLATEAU		341.0		63.5		36.5

REMARQUES:

EFFECTUÉ PAR: Hugues Potvin DATE: 2017-10-09

VÉRIFIÉ PAR : DATE:

APPENDIX I3B - QC RESULTS LAB - FINE FILTER
SADDLE DAM 3 STAGE 3

M.W. Compliant

GHD

ANALYSE DES SOLS ET DES GRANULATS

CLIENT:	Agnico Eagle Mines	**PLANCHE NO:**	
PROJET:	Meadowbank Construction of SD-3-4-5	**PROJET NO:**	11118538-B1
		ÉCHANTILLON NO:	377
		DATE:	2017-08-18

Description du matériau:	Fine filter	**Localisation :**	On place
Provenance (source 1ère):	SD-3		
Usage proposé:	Invern Filter	**Prélevé par:**	Cédrick Fillon Tremblay
		Date de prélèvement:	2017-08-17

GRANULOMÉTRIE (% PASSANT) (LC 21-040)

Tamis				150 mm	76.2 mm	50 mm	37.5 mm	25 mm	19 mm	12.5 mm	4.76 mm	2.00 mm	0.85 mm	0.425 mm	0.25 mm	0.15 mm	0.075 mm
Résultats cumulatifs				100	100	100	100	100	92	76	46	31	23	17	11	10	9.1
Résultats individuels																	
Exigences	min.						100	100		50	23			0			0
	max.						100	100		100	68			20			15

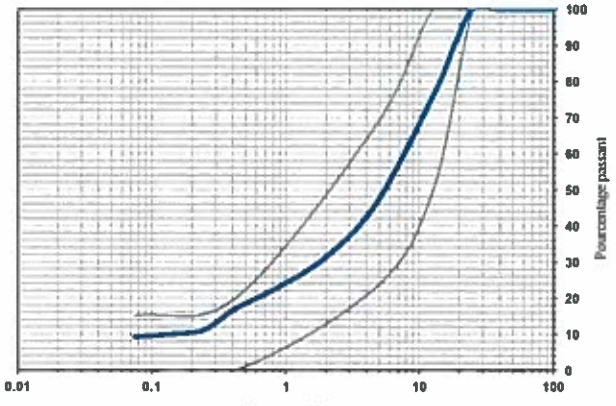
AUTRES ESSAIS	Résultats	Exigences min.	Exigences max.
Water content	2,7%		

ESSAI PROCTOR (NQ 2501-255)	Résultats
Masse volumique sèche maximale	(kg/m^3)
Humidité optimale	(%)

Proctor à 0% de pierre : kg/m3
Facteur de correction:

Fuseau granulométrique: Fine Filter: Central Dike

COURBE GRANULOMÉTRIQUE



% gravier	53.8%	Cu = 50	D_{85} = 16.0	D_{15} = 0.4
% sable	37.0%	Cc = 3	D_{60} = 7.5	D_{10} = 0.2
% silt/argile	9.1%		D_{50} = 5.4	

Remarques: Matériau conforme pour usage proposé

Préparé par: Pierrick Trecasse

Vérifié par:

ANALYSE GRANULOMÉTRIQUE

LC 21-040 [X]
CSA A23.2-2A [ ]

CLIENT: Agnico Eagle Mines

PROJET No.: 11118538-B1 **ÉCHANTILLON No.:** 377

APPAREILS DE MESURE UTILISÉS:

Tamis No. EE 13767 Séparateur No. Gilson model #SP-1
Étuve No. B23 3546 Agitateur mécanique No. 25824
Balance No. 1,127,170,847

MASSE TOTALE DE L'ÉCHANTILLON avant:	5656.9	g
MASSE DU RETENU AU TAMIS 5 mm:	3044.2	g
MASSE DU PASSANT AU TAMIS 5 mm:	2611.6	g
MASSE TOTALE DE L'ÉCHANTILLON après:	5655.8	g
MASSE UTILISÉE 5 mm avant lavage :	587.5	g
MASSE UTILISÉE 5 mm après lavage :	477.3	g

Ne jamais écrire dans ces onglets

% PERTE: 0.02 %

% PERTE: 0.04 %

ANALYSE GRANULOMÉTRIQUE & DIMENSION DES GRAINS

TAMIS	MASSE RETENUE (IND.)	MASSE RETENUE (CUM.)	% RETENU (IND.)	% RETENU (CUM.)	% PASSANT (IND.)	% PASSANT (CUM.)
150 mm		0.0		0		100
76.2 mm		0.0		0		100
50 mm		0.0		0		100
37.5 mm		0.0		0		100
25 mm		0.0		0		100
19 mm		477.8		8		92
12.5 mm		1350.5		24		76
4.76 mm		3044.2		54		46
2.00 mm		190.3		69		31
0.85 mm		299.8		77		23
0.425 mm		371.1		83		17
0.25 mm		445.5		89		11
0.15 mm		460.3		90		10
0.075 mm		471.2		90.9		9.1
PLATEAU		477.1		91.3		8.7

REMARQUES:

EFFECTUÉ PAR: Pierrick Trecasse **DATE:** 2017-08-17

VÉRIFIÉ PAR : **DATE:**

APPENDIX I3C - QC RESULTS LAB - COARSE FILTER

SADDLE DAM 3 STAGE 3

Same as #368

ANALYSE DES SOLS ET DES GRANULATS

CLIENT:	Agnico Eagle Mines Limited	**PLANCHE NO:**	
PROJET:	SD-3, 4 and 5	**PROJET NO:**	11118538-B1
		ÉCHANTILLON NO:	371
		DATE:	2017-08-18

Description du matériau:	Coarse filter	**Localisation du prélèvement:**	On place
Provenance (source 1ère):	SD-3		
Usage proposé:	Inverse filter	**Prélevé par:**	Cédrick Fillon Tremblay
		Date de prélèvement:	2017-08-17

GRANULOMÉTRIE (% PASSANT) (LC 21-040)

Tamis				x mm	200 mm	150 mm	75 mm	25 mm	19 mm	12.5 mm	4.76 mm	2.00 mm	0.85 mm	0.425 mm	0.25 mm	0.15 mm	0.075 mm
Résultats cumulatifs				100	100	100	54	31	26	20	12	8	6	4	4	3	2.4
Résultats individuels																	
Exigences	min.		#N/A		100	86	35	5		0	0	0					
	max.		#N/A		100	100	100	40		18	9	5					

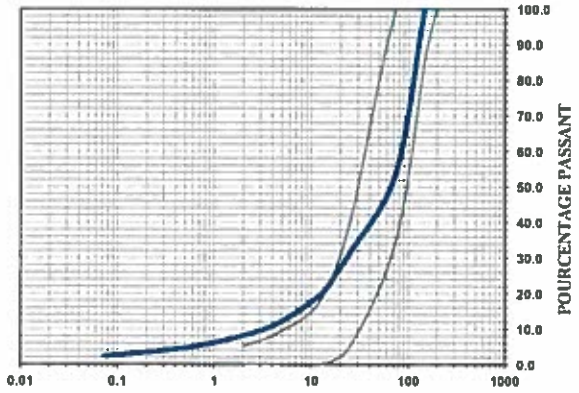
AUTRES ESSAIS	Résultats	Exigences min.	Exigences max.
Water content	0.90%		

ESSAI PROCTOR (NQ 2501-255)	Résultats
Masse volumique sèche maximale	(kg/m^3)
Humidité optimale	(%)

Proctor à 0% de pierre : kg/m3
Facteur de correction:

Fuseau granulométrique: Coarse Filter: Central Dike

COURBE GRANULOMÉTRIQUE



% gravier	88.3%	Cu = #N/A	D_{85} = #N/A	D_{15} = 7.2
% sable	9.3%	Cc = #N/A	D_{60} = #N/A	D_{10} = 3.2
% silt/argile	2.4%		D_{50} = 61.8	

Remarques: Écart(s) aux tamis suivant(s): 12.5, 4.76, 2 mm

Préparé par: Pierrick Trecasse

Vérifié par:

GHD

ANALYSE GRANULOMÉTRIQUE

LC 21-040 [X]
CSA A23.2-2A [ ]

CLIENT: Agnico Eagle Mines Limited

PROJET No.: 11118538-B1 ÉCHANTILLON No.: 371

APPAREILS DE MESURE UTILISÉS:
Tamis No. EE 13767 Séparateur No. Gilson model #SP-1
Étuve No. B23 3546 Agitateur mécanique No. 25824
Balance No. 1,127,170,847

MASSE TOTALE DE L'ÉCHANTILLON avant:	53791.6 g	Ne jamais écrire dans ces onglets
MASSE DU RETENU AU TAMIS 5 mm:	47509.8 g	
MASSE DU PASSANT AU TAMIS 5 mm:	6280.0 g	
MASSE TOTALE DE L'ÉCHANTILLON après:	53789.8 g	% PERTE: 0.00 %
MASSE UTILISÉE 5 mm avant lavage :	1724.7 g	
MASSE UTILISÉE 5 mm après lavage :	1380.3 g	% PERTE: 0.03 %

ANALYSE GRANULOMÉTRIQUE & DIMENSION DES GRAINS

TAMIS	MASSE RETENUE (IND.)	MASSE RETENUE (CUM.)	% RETENU (IND.)	% RETENU (CUM.)	% PASSANT (IND.)	% PASSANT (CUM.)
x mm		0.0		0		100
200 mm		0.0		0		100
150 mm		0.0		0		100
75 mm		24752.4		46		54
25 mm		36928.7		69		31
19 mm		39650.2		74		26
12.5 mm		43212.0		80		20
4.76 mm		47509.8		88		12
2.00 mm		537.3		92		8
0.85 mm		885.0		94		6
0.425 mm		1073.0		96		4
0.25 mm		1186.8		96		4
0.15 mm		1266.6		97		3
0.075 mm		1367.0		97.6		2.4
PLATEAU		1379.9		97.66534164		2.334658356

REMARQUES:

EFFECTUÉ PAR: Pierrick Trecasse DATE: 2017-08-17

VÉRIFIÉ PAR : DATE:

APPENDIX I3D - QC RESULTS LAB - TILL

SADDLE DAM 3 STAGE 3

Nucléodensimètre - Détermination du degré de compacité

N° de contrat :	A.E.M	Division :	Terre	Appareil	
N° de projet:	11118538-B1	Matériau :	Compacted sieved till	Marque :	Troxler
Projet :	Saddle Dam #3-4-5	Calibre :	0-50 mm	Modèle :	3440
Municipalité :	Meadowbank	Usage :	Key Fondation	N° de série :	61597

Entrepreneur : F.G.L **Équipement de compactage :** Roulant vibrant 10T

Nom de la source du matériau : _____ **Municipalité :** _____

☐ **Proctor modifié** **Échantillon N° :**

Masse volumique max. : kg/m³ **% retenu 5,0 mm :** _____ % **Humidité optimale :** _____ %

Masse volum. à 0% de retenu 5mm : _____ Kg/m³

Facteur de correction (f.c.) : _____ Correction humidité (K) : _____

★ **Planche de référence** **Masse volumique maximale obtenue par planche de référence :** 2228 kg/m³

Valeurs référentielles (R) : Densité : _____ Humidité : 5.8 %

Date de l'essai		2017/09/09	2017/09/09	2017/09/09	2017/09/09	2017/09/09
N° du test		#5	#6	#7	#8	#9
Key foundation		SD-5	SD-4	SD-4	SD-4	SD-4
Chaînage		40+615.2	40+611.3	40+602	40+601.7	40+586
Distance du ℄		34L	34L	31.5L	35L	34L
Élévation		143.5	143.6	143.6	143.6	143.4
Profondeur de l'essai		200	200	200	200	200
Masse volum. sèche (D-Dry)	1 lecture 60 sec	2225	2185	2198	2180	2193
% de retenu 5,0 mm dans l'essai						
Masse volumique maximale corrigée						
% d'humidité (%H)	1 lecture 60 sec	5.0	5.1	5.3	4.4	4.9
Compacité obtenue		99.9%	98.1%	98.7%	97.8%	98.4%
Compacité exigée		98% R.B	98% R.B	98% R.B	98% R.B	98% R.B

Préparé par : _____ **Date :** AA 17 MM 09 JJ 09

Vérifié par : _____ **Date :** AA _____ MM _____ JJ _____

Nucléodensimètre - Détermination du degré de compacité

N° de contrat :	A.E.M	Division :	Terre	Appareil	
N° de projet:	11118538-B1	Matériau :	Compacted sieved till	Marque :	Troxler
Projet :	Saddle Dam #3-4-5	Calibre :	0-50 mm	Modèle :	3440
Municipalité :	Meadowbank	Usage :	Key Fondation	N° de série :	61597

Entrepreneur : F.G.L Équipement de compactage : Roulant vibrant 10T

Nom de la source du matériau : _____ Municipalité : _____

☐ Proctor modifié Échantillon N° :

Masse volumique max. : kg/m³ % retenu 5,0 mm : _____ % Humidité optimale : _____ %

Masse volum. à 0% de retenu 5mm : _____ Kg/m³

Facteur de correction (f.c.) : _____ Correction humidité (K) : _____

☆ Planche de référence Masse volumique maximale obtenue par planche de référence : 2228 kg/m³

Valeurs référentielles (R) : Densité : _____ Humidité : 5.8 %

Date de l'essai		2017/09/09	2017/09/09	2017/09/09	2017/09/09	2017/09/09
N° du test		#10	#11	#12	#13	#14
Key foundation		SD-4	SD-4	SD-4	SD-4	SD-4
Chaînage		40+579.7	40+570.6	40+563.0	40+458.6	40+451
Distance du ℄		35.6L	30.5L	29.7L	28.6L	30.8L
Élévation		143.2	144.4	144.9	144.9	144.8
Profondeur de l'essai		200	200	200	200	200
Masse volum. sèche (D-Dry)	1 lecture 60 sec	2203	2258	2203	2282	2241
% de retenu 5,0 mm dans l'essai						
Masse volumique maximale corrigée						
% d'humidité (%H)	1 lecture 60 sec	5.1	4.8	5.5	4.2	5.2
Compacité obtenue		98.9%	101.3%	98.9%	102.4%	100.6%
Compacité exigée		98% R.B	98% R.B	98% R.B	98% R.B	98% R.B

Préparé par : C.G. Date : AA MM JJ

Vérifié par : _____ Date : AA MM JJ

Nucléodensimètre - Détermination du degré de compacité

N° de contrat :	A.E.M	Division :	Terre	Appareil	
N° de projet:	11118538-B1	Matériau :	Compacted sieved till	Marque :	Troxler
Projet :	Saddle Dam #3-4-5	Calibre :	0-50 mm	Modèle :	3440
Municipalité :	Meadowbank	Usage :	Key Fondation	N° de série :	61597

Entrepreneur : F.G.L Équipement de compactage : Roulant vibrant 10T

Nom de la source du matériau : _____ Municipalité : _____

☐ Proctor modifié Échantillon N° :

Masse volumique max. : kg/m³ % retenu 5,0 mm : _____ % Humidité optimale : _____ %

Masse volum. à 0% de retenu 5mm : _____ Kg/m³

Facteur de correction (f.c.) : _____ Correction humidité (K) : _____

★ Planche de référence Masse volumique maximale obtenue par planche de référence : 2228 kg/m³

Valeurs référentielles (R) : Densité : _____ Humidité : 5.8 %

Date de l'essai		2017/09/09	2017/09/09	2017/09/09	2017/09/09	2017/09/09
N° du test		#15	#16	#17	#18	#19
Key foundation		SD-4	SD-4	SD-4	SD-4	SD-4
Chaînage		40+443.4	40+438.3	40+430	40+423.5	40+107
Distance du ℄		29.8L	28.6L	33.1L	31.4L	34.8L
Élévation		144.7	144.7	143.3	143.9	143.3
Profondeur de l'essai		200	200	200	200	200
Masse volum. sèche (D-Dry)	1 lecture 60 sec	2192	2288	2225.1	2193	2189
% de retenu 5,0 mm dans l'essai						
Masse volumique maximale corrigée						
% d'humidité (%H)	1 lecture 60 sec	5.3	4.7	5.4	5.2	5.3
Compacité obtenue		98.4%	102.7%	99.9%	98.4%	98.2%
Compacité exigée		98% R.B	98% R.B	98% R.B	98% R.B	98% R.B

Préparé par : C.P.G Date : AA MM JJ

Vérifié par : _____ Date : AA MM JJ

Nucléodensimètre - Détermination du degré de compacité

N° de contrat :	A.E.M	Division :	Terre	Appareil	
N° de projet:	11118538-B1	Matériau :	Compacted sieved till	Marque :	Troxler
Projet :	Saddle Dam #3-4-5	Calibre :	0-50 mm	Modèle :	3440
Municipalité :	Meadowbank	Usage :	Key Fondation	N° de série :	61597

Entrepreneur : F.G.L Équipement de compactage : Roulant vibrant 10T

Nom de la source du matériau : _____ Municipalité : _____

☐ Proctor modifié Échantillon N° :

Masse volumique max. : kg/m³ % retenu 5,0 mm : _____ % Humidité optimale : _____ %

Masse volum. à 0% de retenu 5mm : _____ Kg/m³

Facteur de correction (f.c.) : _____ Correction humidité (K) : _____

☆ Planche de référence Masse volumique maximale obtenue par planche de référence : 2228 kg/m³

Valeurs référentielles (R) : Densité : _____ Humidité : 5.8 %

Date de l'essai		2017/09/09	2017/09/09			
N° du test		#20	#21			
Key foundation		SD-4	SD-4			
Chaînage		40+105.2	40+101.5			
Distance du ℄		30.7L	30.6L			
Élévation		144.1	144.6			
Profondeur de l'essai		200	200			
Masse volum. sèche (D-Dry)	1 lecture 60 sec	2216	2203			
% de retenu 5,0 mm dans l'essai						
Masse volumique maximale corrigée						
% d'humidité (%H)	1 lecture 60 sec	4.9	5.1			
Compacité obtenue		99.5%	98.9%			
Compacité exigée		98% R.B	98% R.B			

Préparé par : E.G. Date : AA MM JJ

Vérifié par : _____ Date : AA MM JJ

Nucléodensimètre - Détermination du degré de compacité

N° de contrat :	A.E.M	Division :	Terre	Appareil	
N° de projet:	11118538-B1	Matériau :	Compacted sieved till	Marque :	Troxler
Projet :	Saddle Dam #3-4-5	Calibre :	0-50 mm	Modèle :	3440
Municipalité :	Meadowbank	Usage :	Key Fondation	N° de série :	61597

Entrepreneur : F.G.L Équipement de compactage : Roulant vibrant 10T

Nom de la source du matériau : _____ Municipalité : _____

☐ Proctor modifié Échantillon N° :

Masse volumique max. : _____ kg/m³ % retenu 5,0 mm : _____ % Humidité optimale : _____ %

Masse volum. à 0% de retenu 5mm : _____ Kg/m³

Facteur de correction (f.c.) : _____ Correction humidité (K) : _____

★ Planche de référence Masse volumique maximale obtenue par planche de référence : 2228 kg/m³

Valeurs référentielles (R) : Densité : _____ Humidité : 5.8 %

Date de l'essai		2017/09/11	2017/09/11	2017/09/11	2017/09/11	2017/09/11
N° du test		#22	#23	#24	#25	#26
Key foundation		SD-3	SD-3	SD-3	SD-3	SD-3
Chaînage		20+821.0	20+814.7	20+806.7	20+800.9	20+592.7
Distance du ℄		26.9L	28.6L	29.1L	31.2L	35.7L
Élévation		145	144.8	144.7	144.7	145
Profondeur de l'essai		200	200	200	200	200
Masse volum. sèche (D-Dry)	1 lecture 60 sec	2203	2191	2204	2187	2186
% de retenu 5,0 mm dans l'essai						
Masse volumique maximale corrigée						
% d'humidité (%H)	1 lecture 60 sec	6.4	7.4	6.9	7.8	8.6
Compacité obtenue		98.9%	98.3%	98.9%	98.2%	98.3%
Compacité exigée		98% R.B	98% R.B	98% R.B	98% R.B	98% R.B

Préparé par : _____ Date : AA MM JJ

Vérifié par : _____ Date : AA MM JJ

Nucléodensimètre - Détermination du degré de compacité

N° de contrat :	A.E.M	Division :	Terre	Appareil	
N° de projet:	11118538-B1	Matériau :	Compacted sieved till	Marque :	Troxler
Projet :	Saddle Dam #3-4-5	Calibre :	0-50 mm	Modèle :	3440
Municipalité :	Meadowbank	Usage :	Key Fondation	N° de série :	61597

Entrepreneur : F.G.L Équipement de compactage : Roulant vibrant 10T

Nom de la source du matériau : _____ Municipalité : _____

☐ Proctor modifié Échantillon N° :

Masse volumique max. : kg/m³ % retenu 5,0 mm : _____ % Humidité optimale : _____ %

Masse volum. à 0% de retenu 5mm : _____ Kg/m³

Facteur de correction (f.c.) : _____ Correction humidité (K) : _____

☆ Planche de référence Masse volumique maximale obtenue par planche de référence : 2228 kg/m³

Valeurs référentielles (R) : Densité : _____ Humidité : 5.8 %

Date de l'essai		2017/09/11	2017/09/11	2017/09/11	2017/09/11	
N° du test		#27	#28	#29	#30	
Key foundation		SD-3	SD-3	SD-3	SD-3	
Chaînage		20+590.2	20+589.2	20+582.9	20+573.8	
Distance du ℄		35.5L	31.6L	30.1L	30.7L	
Élévation		145.0	145.0	145.1	144.7	
Profondeur de l'essai		200	200	200	200	
Masse volum. sèche (D-Dry)	1 lecture 60 sec	2215	2206	2237	2222	
% de retenu 5,0 mm dans l'essai						
Masse volumique maximale corrigée						
% d'humidité (%H)	1 lecture 60 sec	7.5	7.5	6.7	5.6	
Compacité obtenue		99.4%	99.0%	100.4%	99.7%	
Compacité exigée		98% R.B	98% R.B	98% R.B	98% R.B	

Préparé par : _____ Date : AA MM JJ

Vérifié par : _____ Date : AA MM JJ

APPENDIX I4 - SADDLE DAMS 4 AND 5 QC RESULTS

APPENDIX I4A - QC RESULTS LAB - TILL

SADDLE DAM 4 AND 5 STAGE 3

Compliant.
MH

ANALYSE DES SOLS ET DES GRANULATS

CLIENT:	AEM	**PLANCHE NO:**	
PROJET:	Saddle dam 3-4-5	**PROJET NO:**	11118538-B1
		ÉCHANTILLON NO:	435
		DATE:	2017-09-05

Description du matériau:	Sieved compacted Till (0-50mm)	**Localisation:**	SD-4 & SD-5
Provenance (source 1ère):	on place (first 0.5m and 40+430)		
Usage proposé:	key fondation	**Prélevé par:**	Sébastien Blackburn
		Date de prélèvement:	2017-09-02

GRANULOMÉTRIE (% PASSANT) (LC 21-040)

Tamis				150 mm	76.2 mm	50 mm	37.5 mm	25 mm	19 mm	12.5 mm	4.76 mm	2.00 mm	0.85 mm	0.425 mm	0.25 mm	0.15 mm	0.075 mm
Résultats cumulatifs				100	100	100	95	85	81	75	65	59	52	47	43	39	33.0
Résultats individuels																	
Exigences	min.					100		85		75	63			43			30.0
	max.					100		100		94	83			58			45.0

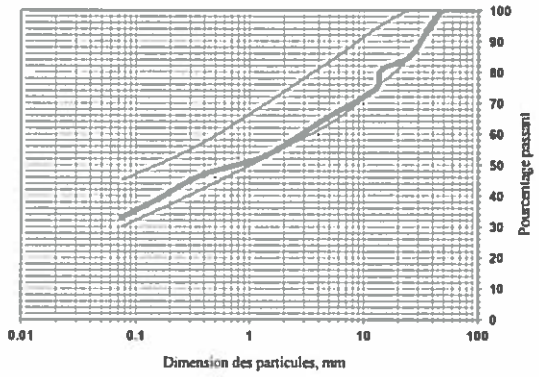
AUTRES ESSAIS	Résultats	Exigences min.	Exigences max.
Water content	6.30%		

ESSAI PROCTOR (NQ 2501-255)	Résultats
Masse volumique sèche maximale	(kg/m³)
Humidité optimale	(%)

Proctor à 0% de pierre : kg/m3
Facteur de correction:

Fuseau granulométrique: Till: Fondation, sous-fondation

COURBE GRANULOMÉTRIQUE



% gravier	34.7%	Cu = #N/A	D_{85} = 24.8	D_{15} = #N/A
% sable	32.3%	Cc = #N/A	D_{60} = 2.8	D_{10} = #N/A
% silt/argile	33.0%		D_{50} = 0.8	

Remarques: Matériau conforme pour usage proposé

mm

Préparé par: Cédrick Fillon Tremblay Vérifié par:

INSPEC•SOL

ANALYSE GRANULOMÉTRIQUE
LC 21-040 [x]
CSA A23.2-2A [ ]

CLIENT: AEM

PROJET No.: 11118538-B1 ÉCHANTILLON No.: 435

APPAREILS DE MESURE UTILISÉS:
Tamis No. EE 13767 Séparateur No. Gilson model # SP-1
Étuve No. B23 3546 Agitateur mécanique No. 25824
Balance No. 1,127,170,847

MASSE TOTALE DE L'ÉCHANTILLON avant:	5241.2	g		
MASSE DU RETENU AU TAMIS 5 mm:	1817.6	g		
MASSE DU PASSANT AU TAMIS 5 mm:	3422.8	g		
MASSE TOTALE DE L'ÉCHANTILLON après:	5240.4	g	% PERTE: 0.02	%
MASSE UTILISÉE 5 mm avant lavage :	781.9	g		
MASSE UTILISÉE 5 mm après lavage :	433.9	g	% PERTE: 0.05	%

ANALYSE GRANULOMÉTRIQUE & DIMENSION DES GRAINS

TAMIS	MASSE RETENUE (IND.)	MASSE RETENUE (CUM.)	% RETENU (IND.)	% RETENU (CUM.)	% PASSANT (IND.)	% PASSANT (CUM.)
150 mm		0.0		0		100
76.2 mm		0.0		0		100
50 mm		0.0		0		100
37.5 mm		259.1		5		95
25 mm		777.2		15		85
19 mm		1010.3		19		81
12.5 mm		1331.9		25		75
4.76 mm		1817.6		35		65
2.00 mm		79.6		41		59
0.85 mm		155.4		48		52
0.425 mm		214.8		53		47
0.25 mm		262.6		57		43
0.15 mm		313.6		61		39
0.075 mm		386.3		67.0		33.0
PLATEAU		433.7		70.9		29.1

REMARQUES:

EFFECTUÉ PAR: Cédrick Fillon Tremblay DATE: 2017-09-05

VÉRIFIÉ PAR : DATE:

ANALYSE DES SOLS ET DES GRANULATS

CLIENT:	AEM	**PLANCHE NO:**	
PROJET:	Saddle dam 3-4-5	**PROJET NO:**	11118538-B1
		ÉCHANTILLON NO:	440
		DATE:	2017-10-07

Description du matériau:	Sieved compacted Till (0-50mm)	**Localisation:**	ch. 40+420
Provenance (source 1ère)	Pit E		
Usage proposé:	Till plug	**Prélevé par:**	Hugues Potvin
		Date de prélèvement:	2017-10-05

GRANULOMÉTRIE (% PASSANT) (LC 21-040)

Tamis				150 mm	76.2 mm	50 mm	37.5 mm	25 mm	19 mm	12.5 mm	4.76 mm	2.00 mm	0.85 mm	0.425 mm	0.25 mm	0.15 mm	0.075 mm
Résultats cumulatifs				100	100	100	100	93	91	87	70	63	57	50	45	40	33.8
Résultats individuels																	
Exigences	min.					100		85		75	63			43			30.0
	max.					100		100		94	83			58			45.0

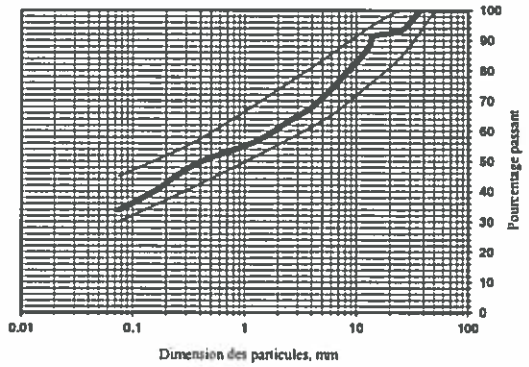
AUTRES ESSAIS	Résultats	Exigences min.	Exigences max.
Water content	9.20%		
Dépassement du % de perte de sable			

ESSAI PROCTOR (NQ 2501-255)	Résultats
Masse volumique sèche maximale	(kg/m^3)
Humidité optimale	(%)

Proctor à 0% de pierre : kg/m3
Facteur de correction:

Fuseau granulométrique: Till: Fondation, sous-fondation

COURBE GRANULOMÉTRIQUE



% gravier	29.8%	Cu = #N/A	D_{85} = 11.1	D_{15} = #N/A
% sable	36.4%	Cc = #N/A	D_{60} = 1.8	D_{10} = #N/A
% silt/argile	33.8%		D_{50} = 0.4	

Remarques: Matériau conforme pour usage proposé

mm

Préparé par: Hugues Potvin Vérifié par:

ANALYSE DES SOLS ET DES GRANULATS

CLIENT: AEM	**PLANCHE NO:**
PROJET: Saddle dam 3-4-5	**PROJET NO:** 11118538-B1
	ÉCHANTILLON NO: 441
	DATE: 2017-10-09

Description du matériau:	Sieved compacted Till (0-50mm)	**Localisation:**	ch. 40+570
Provenance (source 1ère)	Pit E		
Usage proposé:	Till plug	**Prélevé par:**	Hugues Potvin
		Date de prélèvement:	2017-10-06

GRANULOMÉTRIE (% PASSANT) (LC 21-040)

Tamis				150 mm	76.2 mm	50 mm	37.5 mm	25 mm	19 mm	12.5 mm	4.76 mm	2.00 mm	0.85 mm	0.425 mm	0.25 mm	0.15 mm	0.075 mm
Résultats cumulatifs				100	100	100	100	92	87	82	65	59	52	43	38	34	27.5
Résultats individuels																	
Exigences	min.					100		85		75	63			43			30.0
	max.					100		100		94	83			58			45.0

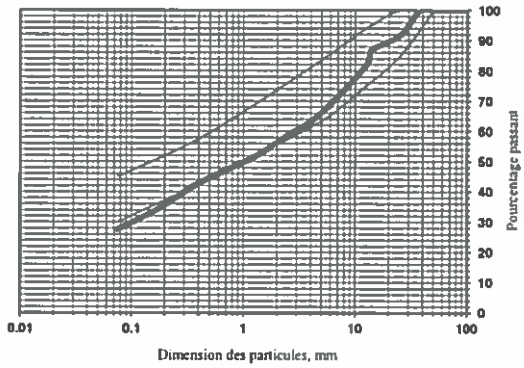
AUTRES ESSAIS	Résultats	Exigences min.	Exigences max.
Water content	8.90%		
Dépassement du % de perte total			
Dépassement du % de perte de sable			

ESSAI PROCTOR (NQ 2501-255)	Résultats
Masse volumique sèche maximale	(kg/m^3)
Humidité optimale	(%)

Proctor à 0% de pierre : kg/m3
Facteur de correction:

Fuseau granulométrique: Till: Fondation, sous-fondation

COURBE GRANULOMÉTRIQUE



% gravier	34.6%	Cu = #N/A	D_{85} = 13.4	D_{15} = #N/A
% sable	37.8%	Cc = #N/A	D_{60} = 2.8	D_{10} = #N/A
% silt/argile	27.5%		D_{50} = 1.0	

Remarques: Écart(s) aux tamis suivant(s):

0.075, mm

Préparé par: Hugues Potvin

Vérifié par:

ANALYSE GRANULOMÉTRIQUE

LC 21-040 [X]
CSA A23.2-2A [ ]

CLIENT: AEM

PROJET No.: 11118538-B1 ÉCHANTILLON No.: 441

APPAREILS DE MESURE UTILISÉS:
Tamis No. EE 13767
Étuve No. B23 3546
Balance No. 1,127,170,847
Séparateur No. Gilson model # SP-1
Agitateur mécanique No. 25824

MASSE TOTALE DE L'ÉCHANTILLON avant:	5308.0 g	
MASSE DU RETENU AU TAMIS 5 mm:	1838.0 g	Dépassement du % de perte total
MASSE DU PASSANT AU TAMIS 5 mm:	3365.0 g	Dépassement du % de perte de sable
MASSE TOTALE DE L'ÉCHANTILLON après:	5203.0 g	% PERTE: 1.98 %
MASSE UTILISÉE 5 mm avant lavage :	653.0 g	
MASSE UTILISÉE 5 mm après lavage :	397.0 g	% PERTE: 0.50 %

ANALYSE GRANULOMÉTRIQUE & DIMENSION DES GRAINS

TAMIS	MASSE RETENUE (IND.)	MASSE RETENUE (CUM.)	% RETENU (IND.)	% RETENU (CUM.)	% PASSANT (IND.)	% PASSANT (CUM.)
150 mm		0.0		0		100
76.2 mm		0.0		0		100
50 mm		0.0		0		100
37.5 mm		0.0		0		100
25 mm		439.5		8		92
19 mm		697.0		13		87
12.5 mm		977.5		18		82
4.76 mm		1838.0		35		65
2.00 mm		66.0		41		59
0.85 mm		138.0		48		52
0.425 mm		220.0		57		43
0.25 mm		273.5		62		38
0.15 mm		318.0		66		34
0.075 mm		378.0		72.5		27.5
PLATEAU		395.0		74.2		25.8

REMARQUES:

EFFECTUÉ PAR: Hugues Potvin DATE: 2017-10-09

VÉRIFIÉ PAR : DATE:

APPENDIX I4B - QC RESULTS LAB - FINE FILTER
SADDLE DAM 4 AND 5 STAGE 3

Compliant M.V.

ANALYSE DES SOLS ET DES GRANULATS

CLIENT:	Agnico Eagle Mines	**PLANCHE NO:**	
PROJET:	Meadowbank Construction of SD-3-4-5	**PROJET NO:**	11118538-B1
		ÉCHANTILLON NO:	376
		DATE:	2017-08-13

Description du matériau:	Fine filter	**Localisation :**	In place
Provenance (source 1ère):	SD-5 & SD-4		
Usage proposé:	Invern Filter	**Prélevé par:**	Cédrick Fillon Tremblay
		Date de prélèvement:	2017-08-12

GRANULOMÉTRIE (% PASSANT) (LC 21-040)

Tamis				150 mm	76.2 mm	50 mm	37.5 mm	25 mm	19 mm	12.5 mm	4.76 mm	2.00 mm	0.85 mm	0.425 mm	0.25 mm	0.15 mm	0.075 mm
Résultats cumulatifs				100	100	100	100	100	92	78	46	25	20	17	13	10	9.1
Résultats individuels																	
Exigences	min.						100	100		50	23			0			0
	max.						100	100		100	68			20			15

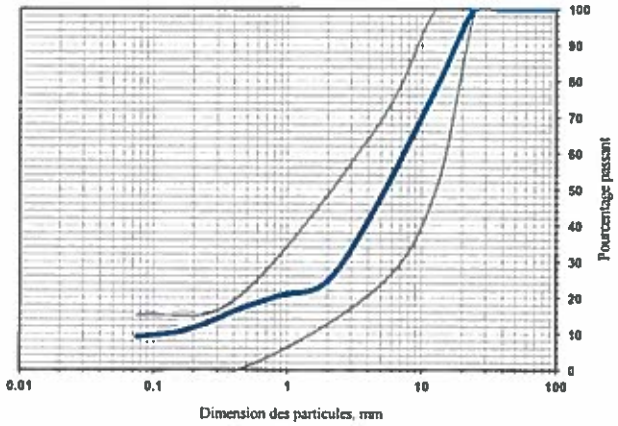
AUTRES ESSAIS	Résultats	Exigences min.	Exigences max.
Water content	2,7%		

ESSAI PROCTOR (NQ 2501-255)	Résultats
Masse volumique sèche maximale	(kg/m³)
Humidité optimale	(%)

Proctor à 0% de pierre : kg/m3
Facteur de correction :

Fuseau granulométrique: Fine Filter: Central Dike

COURBE GRANULOMÉTRIQUE



% gravier	53.5%	Cu = 60	D_{85} = 15.5	D_{15} = 0.3
% sable	37.4%	Cc = 7	D_{60} = 7.2	D_{10} = 0.1
% silt/argile	9.1%		D_{50} = 5.3	

Remarques: Matériau conforme pour usage proposé

Préparé par: Pierrick Trecasse

Vérifié par:

ANALYSE GRANULOMÉTRIQUE

LC 21-040 [X]
CSA A23.2-2A [ ]

CLIENT: Agnic Agnico Eagle Mines

PROJET No.: 11118538-B1 **ÉCHANTILLON No.:** 376

APPAREILS DE MESURE UTILISÉS:

Tamis No. EE 13767 Séparateur No. Gilson model #SP-1
Étuve No. B23 3546 Agitateur mécanique No. 25824
Balance No. 1,127,170,847

MASSE TOTALE DE L'ÉCHANTILLON avant:	5093.0	g
MASSE DU RETENU AU TAMIS 5 mm:	2726.0	g
MASSE DU PASSANT AU TAMIS 5 mm:	2365.0	g
MASSE TOTALE DE L'ÉCHANTILLON après:	5091.0	g
MASSE UTILISÉE 5 mm avant lavage :	570.1	g
MASSE UTILISÉE 5 mm après lavage :	467	g

Ne jamais écrire dans ces onglets

% PERTE: 0.04 %

% PERTE: 0.04 %

ANALYSE GRANULOMÉTRIQUE & DIMENSION DES GRAINS

TAMIS	MASSE RETENUE (IND.)	MASSE RETENUE (CUM.)	% RETENU (IND.)	% RETENU (CUM.)	% PASSANT (IND.)	% PASSANT (CUM.)
150 mm		0.0		0		100
76.2 mm		0.0		0		100
50 mm		0.0		0		100
37.5 mm		0.0		0		100
25 mm		0.0		0		100
19 mm		393.0		8		92
12.5 mm		1118.0		22		78
4.76 mm		2726.0		54		46
2.00 mm		267.4		75		25
0.85 mm		319.5		80		20
0.425 mm		365.6		83		17
0.25 mm		411.1		87		13
0.15 mm		442.4		90		10
0.075 mm		458.3		90.9		9.1
PLATEAU		466.8		91.57880232		8.421197682

REMARQUES:

EFFECTUÉ PAR: Pierrick Trecasse **DATE:** 2017-08-12

VÉRIFIÉ PAR : **DATE:**

ANALYSE DES SOLS ET DES GRANULATS

CLIENT:	Agnico Eagle Mines	**PLANCHE NO:**	
PROJET:	Meadowbank Construction of SD-3-4-5	**PROJET NO:**	11118538-B1
		ÉCHANTILLON NO:	379
		DATE:	2017-08-20

Description du matériau:	Fine filter	**Localisation :**	On place
Provenance (source 1ère):	SD-4/SD-5		
Usage proposé:	Filter	**Prélevé par:**	Cédrick Fillon Tremblay
		Date de prélèvement:	2017-08-19

GRANULOMÉTRIE (% PASSANT) (LC 21-040)

Tamis				150 mm	76.2 mm	50 mm	37.5 mm	25 mm	19 mm	12.5 mm	4.76 mm	2.00 mm	0.85 mm	0.425 mm	0.25 mm	0.15 mm	0.075 mm
Résultats cumulatifs				100	100	100	100	100	95	74	33	19	13	10	8	7	5.5
Résultats individuels																	
Exigences	min.						100	100		50	23			0			0
	max.						100	100		100	68			20			15

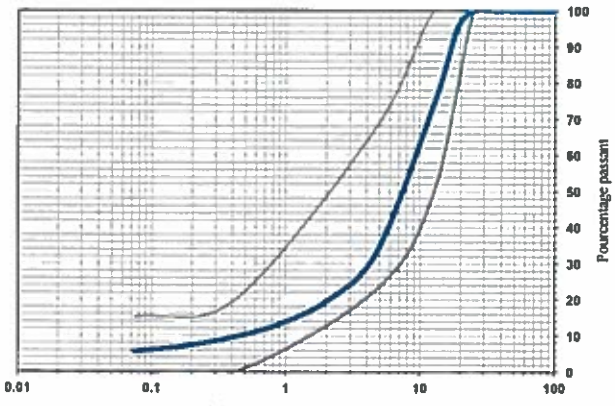
AUTRES ESSAIS	Résultats	Exigences min.	Exigences max.
Water content	2,7%		

ESSAI PROCTOR (NQ 2501-255)	Résultats
Masse volumique sèche maximale	(kg/m^3)
Humidité optimale	(%)

Proctor à 0% de pierre : kg/m3
Facteur de correction:

Fuseau granulométrique: Fine Filter: Central Dike

COURBE GRANULOMÉTRIQUE



% gravier	66.9%	Cu = 20	D_{85} = 15.6	D_{15} = 1.1
% sable	27.7%	Cc = 4	D_{60} = 9.1	D_{10} = 0.5
% silt/argile	5.5%		D_{50} = 7.1	

Remarques: Matériau conforme pour usage proposé

Préparé par: Pierrick Trecasse

Vérifié par:

ANALYSE GRANULOMÉTRIQUE

LC 21-040 [X]
CSA A23.2-2A [ ]

CLIENT: Agnico Eagle Mines

PROJET No.: 11118538-B1 ÉCHANTILLON No.: 379

APPAREILS DE MESURE UTILISÉS:

Tamis No. EE 13767 Séparateur No. Gilson model #SP-1
Étuve No. B23 3546 Agitateur mécanique No. 25824
Balance No. 1,127,170,847

MASSE TOTALE DE L'ÉCHANTILLON avant:	6869.8	g	Ne jamais écrire dans ces onglets
MASSE DU RETENU AU TAMIS 5 mm:	4593.6	g	
MASSE DU PASSANT AU TAMIS 5 mm:	2274.2	g	
MASSE TOTALE DE L'ÉCHANTILLON après:	6867.8	g	% PERTE: 0.03 %
MASSE UTILISÉE 5 mm avant lavage :	577.6	g	
MASSE UTILISÉE 5 mm après lavage :	490.7	g	% PERTE: 0.04 %

ANALYSE GRANULOMÉTRIQUE & DIMENSION DES GRAINS

TAMIS	MASSE RETENUE (IND.)	MASSE RETENUE (CUM.)	% RETENU (IND.)	% RETENU (CUM.)	% PASSANT (IND.)	% PASSANT (CUM.)
150 mm		0.0		0		100
76.2 mm		0.0		0		100
50 mm		0.0		0		100
37.5 mm		0.0		0		100
25 mm		0.0		0		100
19 mm		323.1		5		95
12.5 mm		1777.3		26		74
4.76 mm		4593.6		67		33
2.00 mm		239.9		81		19
0.85 mm		355.4		87		13
0.425 mm		410.1		90		10
0.25 mm		440.4		92		8
0.15 mm		462.2		93		7
0.075 mm		482.3		94.5		5.5
PLATEAU		490.5		95.0		5.0

REMARQUES:

EFFECTUÉ PAR: Pierrick Trecasse DATE: 2017-08-19

VÉRIFIÉ PAR : DATE:

Compliant.
MH

ANALYSE DES SOLS ET DES GRANULATS

CLIENT:	Agnico Eagle Mines	**PLANCHE NO:**	
PROJET:	Meadowbank Construction of SD-3-4-5	**PROJET NO:**	11118538-B1
		ÉCHANTILLON NO:	380
		DATE:	2017-10-05

Description du matériau:	Fine filter	**Localisation :**	ch. 40+610
Provenance (source 1ère):	SD-4/SD-5		
Usage proposé:	Filter	**Prélevé par:**	Hugues Potvin
		Date de prélèvement:	2017-10-04

GRANULOMÉTRIE (% PASSANT) (LC 21-040)

Tamis				150 mm	76.2 mm	50 mm	37.5 mm	25 mm	19 mm	12.5 mm	4.76 mm	2.00 mm	0.85 mm	0.425 mm	0.25 mm	0.15 mm	0.075 mm
Résultats cumulatifs				100	100	100	100	100	93	80	52	35	24	18	15	13	10.2
Résultats individuels																	
Exigences	min.						100	100		50	23			0			0
	max.						100	100		100	68			20			15

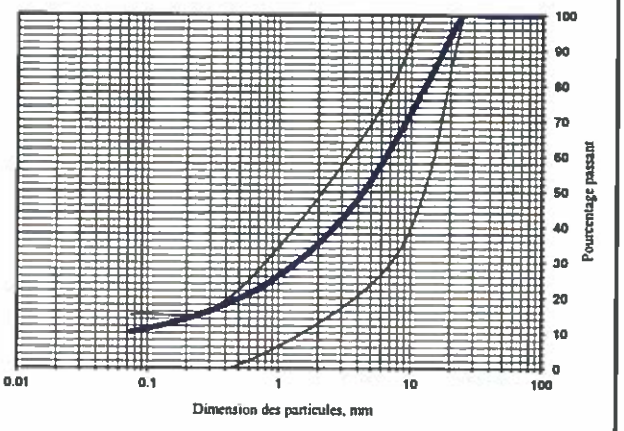
AUTRES ESSAIS	Résultats	Exigences min.	Exigences max.
Water content	3,2%		

ESSAI PROCTOR (NQ 2501-255)	Résultats
Masse volumique sèche maximale	(kg/m^3)
Humidité optimale	(%)

Proctor à 0% de pierre : kg/m3
Facteur de correction:

Fuseau granulométrique: Fine Filter: Central Dike

COURBE GRANULOMÉTRIQUE



% gravier	47.9%	Cu = #N/A	D_{85} = 15.0	D_{15} = 0.2
% sable	41.9%	Cc = #N/A	D_{60} = 6.3	D_{10} = #N/A
% silt/argile	10.2%		D_{50} = 4.3	

Remarques: Matériau conforme pour usage proposé

Préparé par: Hugues Potvin **Vérifié par:**

ANALYSE GRANULOMÉTRIQUE

LC 21-040 [X]
CSA A23.2-2A [ ]

CLIENT: Agnico Eagle Mines

PROJET No.: 11118538-B1 **ÉCHANTILLON No.:** 380

APPAREILS DE MESURE UTILISÉS:

Tamis No. EE 13767 Séparateur No. Gilson model #SP-1
Étuve No. B23 3546 Agitateur mécanique No. 25824
Balance No. 1,127,170,847

MASSE TOTALE DE L'ÉCHANTILLON avant:	4826.0	g
MASSE DU RETENU AU TAMIS 5 mm:	2314.0	g
MASSE DU PASSANT AU TAMIS 5 mm:	2508.0	g
MASSE TOTALE DE L'ÉCHANTILLON après:	4822.0	g
MASSE UTILISÉE 5 mm avant lavage :	536	g
MASSE UTILISÉE 5 mm après lavage :	442	g

Ne jamais écrire dans ces onglets

% PERTE: 0.08 %

% PERTE: 0.23 %

ANALYSE GRANULOMÉTRIQUE & DIMENSION DES GRAINS

TAMIS	MASSE RETENUE (IND.)	MASSE RETENUE (CUM.)	% RETENU (IND.)	% RETENU (CUM.)	% PASSANT (IND.)	% PASSANT (CUM.)
150 mm		0.0		0		100
76.2 mm		0.0		0		100
50 mm		0.0		0		100
37.5 mm		0.0		0		100
25 mm		0.0		0		100
19 mm		359.0		7		93
12.5 mm		983.0		20		80
4.76 mm		2314.0		48		52
2.00 mm		172.0		65		35
0.85 mm		285.0		76		24
0.425 mm		345.5		82		18
0.25 mm		380.0		85		15
0.15 mm		406.0		87		13
0.075 mm		431.0		89.8		10.2
PLATEAU		441.0		90.8		9.2

REMARQUES:

EFFECTUÉ PAR: Hugues Potvin **DATE:** 2017-10-05

VÉRIFIÉ PAR : **DATE:**

APPENDIX I4C - QC RESULTS LAB - COARSE FILTER

SADDLE DAM 4 AND 5 STAGE 3

APPENDIX I4D - QC RESULTS FIELD TESTING - TILL

SADDLE DAM 4 AND 5 STAGE 3

Nucléodensimètre - Détermination du degré de compacité

N° de contrat :	A.E.M	Division :	Terre	Appareil	
N° de projet:	11118538-B1	Matériau :	Compacted sieved till	Marque :	Troxler
Projet :	Saddle Dam #3-4-5	Calibre :	0-50 mm	Modèle :	3440
Municipalité :	Meadowbank	Usage :	Key Fondation	N° de série :	61597

Entrepreneur : F.G.L **Équipement de compactage :** Roulant vibrant CAT, 11-1101

Nom de la source du matériau : SANA crusher stockpile **Municipalité :** Meadowbank

☆ **Proctor modifié** **Échantillon N° :** 433

Masse vol. max : 2049 **kg/m³** **% retenu 5,0 mm :** _____ **%** **Humidité optimale :** 9 **%**

Masse volum. à 0% de retenu 5mm : _____ **Kg/m³**

Facteur de correction (f.c.) : _____ Correction humidité (K) : _____

☐ **Planche de référence** **Masse volumique maximale obtenue par planche de référence :** 2228 **kg/m³**

Valeurs référentielles (R) : Densité : _____ Humidité : 5.8 %

Date de l'essai		2017-10-03	2017-10-03	2017-10-03	2017-10-03	
N° du test		#34	#35	#36	#37	
Key foundation		SD-5	SD-5	SD-5	SD-5	
Chaînage		40+570.2	40+581.3	40+600	40+614.7	
Distance du ℄		34L	36.6L	35.5L	36.3L	
Élévation		144.7	143.9	144.23	143.9	
Profondeur de l'essai		200	200	200	200	
Masse volum. sèche (D-Dry)	1 lecture 60 sec	2067	2036	2053	2080	
% de retenu 5,0 mm dans l'essai						
Masse volumique maximale corrigée						
% d'humidité (%H)	1 lecture 60 sec	10.1	9.8	9.4	7.7	
Compacité obtenue		100.9 %	99.4%	100.2%	101.5%	
Compacité exigée		95% R.B	95% R.B	95% P.M.	95% P.M.	

Préparé par : Hugues Potvin **Date :** AA MM JJ 17 10 03

Vérifié par : _____ **Date :** AA MM JJ _____

Nucléodensimètre - Détermination du degré de compacité

N° de contrat :	A.E.M	Division :	Terre	Appareil	
N° de projet:	11118538-B1	Matériau :	Compacted sieved till	Marque :	Troxler
Projet :	Saddle Dam #3-4-5	Calibre :	0-50 mm	Modèle :	3440
Municipalité :	Meadowbank	Usage :	Key Fondation	N° de série :	61597

Entrepreneur : F.G.L Équipement de compactage : Roulant vibrant CAT, 11-1101

Nom de la source du matériau : Pit E in stock pile Municipalité : Meadowbank

☆ Proctor modifié Échantillon N° : 433

Masse vol. max : 2049 kg/m³ % retenu 5,0 mm : _____ % Humidité optimale : 9 %

Masse volum. à 0% de retenu 5mm : _____ Kg/m³

Facteur de correction (f.c.) : _____ Correction humidité (K) : _____

☐ Planche de référence Masse volumique maximale obtenue par planche de référence : 2228 kg/m³

Valeurs référentielles (R) : Densité : _____ Humidité : 5.8 %

Date de l'essai		2017-10-04	2017-10-04	2017-10-04	2017-10-05	
N° du test		#38	#39	#40	#41	
Key foundation		SD-4	SD-4	SD-4	SD-4	
Chaînage		40+416	40+423.9	40+419.2	40+439.5	
Distance du ℄		38.3L	36.5L	35.4L	33.9L	
Élévation		143.1	143.9	144.08	145.1	
Profondeur de l'essai		200	200	200	200	
Masse volum. sèche (D-Dry)	1 lecture 60 sec	1982	2060	2043	2016	
% de retenu 5,0 mm dans l'essai						
Masse volumique maximale corrigée						
% d'humidité (%H)	1 lecture 60 sec	8.9	8.5	8.0	10.0	
Compacité obtenue		96.7 %	100.5%	99.7%	98.4%	
Compacité exigée		95% P.M.	95% P.M.	95% P.M.	95% P.M.	

Préparé par : Hugues Potvin Date : AA MM JJ 17 10 05

Vérifié par : _____ Date : AA MM JJ _____

Nucléodensimètre - Détermination du degré de compacité

N° de contrat :	A.E.M	Division :	Terre	Appareil	
N° de projet:	11118538-B1	Matériau :	Compacted sieved till	Marque :	Troxler
Projet :	Saddle Dam #3-4-5	Calibre :	0-50 mm	Modèle :	3440
Municipalité :	Meadowbank	Usage :	Key Fondation	N° de série :	61597

Entrepreneur : F.G.L Équipement de compactage : Roulant vibrant CAT, 11-1101

Nom de la source du matériau : Pit E Municipalité : Meadowbank

☆ Proctor modifié Échantillon N° : 433

Masse vol. max : 2049 kg/m³ % retenu 5,0 mm : _____ % Humidité optimale : 9 %

Masse volum. à 0% de retenu 5mm : _____ Kg/m³

Facteur de correction (f.c.) : _____ Correction humidité (K) : _____

☐ Planche de référence Masse volumique maximale obtenue par planche de référence : _____ kg/m³

Valeurs référentielles (R) : Densité : _____ Humidité : _____

Date de l'essai		2017-10-06	2017-10-06			
N° du test		#42	#43			
Key foundation		SD-4	SD-4			
Chaînage		40+105.5	40+111.4			
Distance du ℄		36.7L	39.2L			
Élévation		143.9	142.5			
Profondeur de l'essai		200	200			
Masse volum. sèche (D-Dry)	1 lecture 60 sec	2119	2132			
% de retenu 5,0 mm dans l'essai						
Masse volumique maximale corrigée						
% d'humidité (%H)	1 lecture 60 sec	7.9	7.8			
Compacité obtenue		103.4 %	104%			
Compacité exigée		95% P.M.	95% P.M.			

NB ; PROBABLEMENT PLUS DE PIERRE DANS LE MATERIAU QUE CELUI UTILISÉ POUR LE PROCTOR

Préparé par : Hugues Potvin Date : AA MM JJ 17 10 07

Vérifié par : _____ Date : AA MM JJ

APPENDIX J - QA LABORATORY AND FIELD TESTING RESULTS

APPENDIX J1 - STOCKPILE QA RESULTS

APPENDIX J1A - QA RESULTS LAB - TILL STOCKPILE MATERIAL

Golder Associates

COMPLIANT

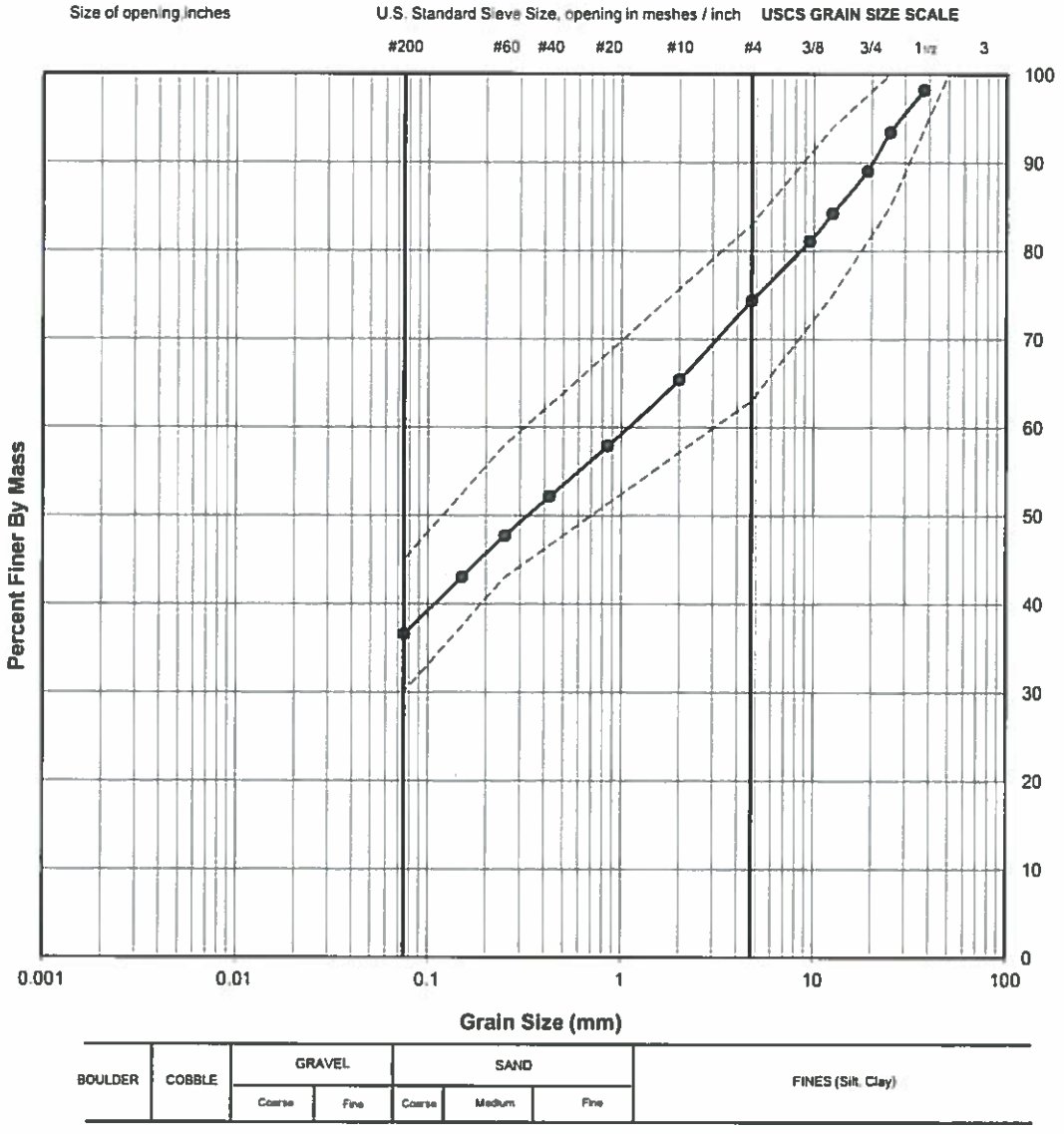
Golder Associates Ltd. - Meadowbank Laboratory
Nunavut, Canada

PARTICLE SIZE ANALYSIS OF SOILS

Reference
ASTM C136-06 & C117-04

Project No.:	1777687	**Sample No.:**	**STCK-24**
Client:	AEM	**Field Label:**	STCK-24
Project:	Meadowbank Gold Project	**Depth (m):**	NA
Location:	Nunavut	**Lab ID No:**	STCK-24
Remarks:	-	**Date Sampled:**	August 24, 2017
Sa. Location:	Stockpile North CD (pile #2)	**Material Specification:**	Sieved till
Water content:	6,9%	**Method:**	SPLIT, WASHED
		Date Tested:	August 28, 2017

Sieve Size (USS)	(mm)	Passing %
3.5"	87.5	100.0
3"	75.0	100.0
2"	50.0	100.0
1.5"	37.5	98.2
1"	25.0	93.4
3/4"	19.0	89.0
1/2"	12.5	84.2
3/8"	9.5	81.1
#4	4.8	74.3
#10	2.0	65.4
#20	0.9	57.9
#40	0.4	52.1
#60	0.3	47.7
#100	0.2	43.0
#200	0.1	36.6



** The test data given herein pertain to the sample provided only. This report constitutes a testing service only. Interpretation of the data can be provided upon request.*

M.Nadon	August 28, 2017	M.Nadon	
TESTED BY	DATE	CHECKED BY	DATE

APPENDIX J1B - QA RESULTS LAB - COARSE FILTER STOCKPILE MATERIAL

Golder Associates

Golder Associates Ltd. Meadowbank Laboratory
Nunavut, Canada

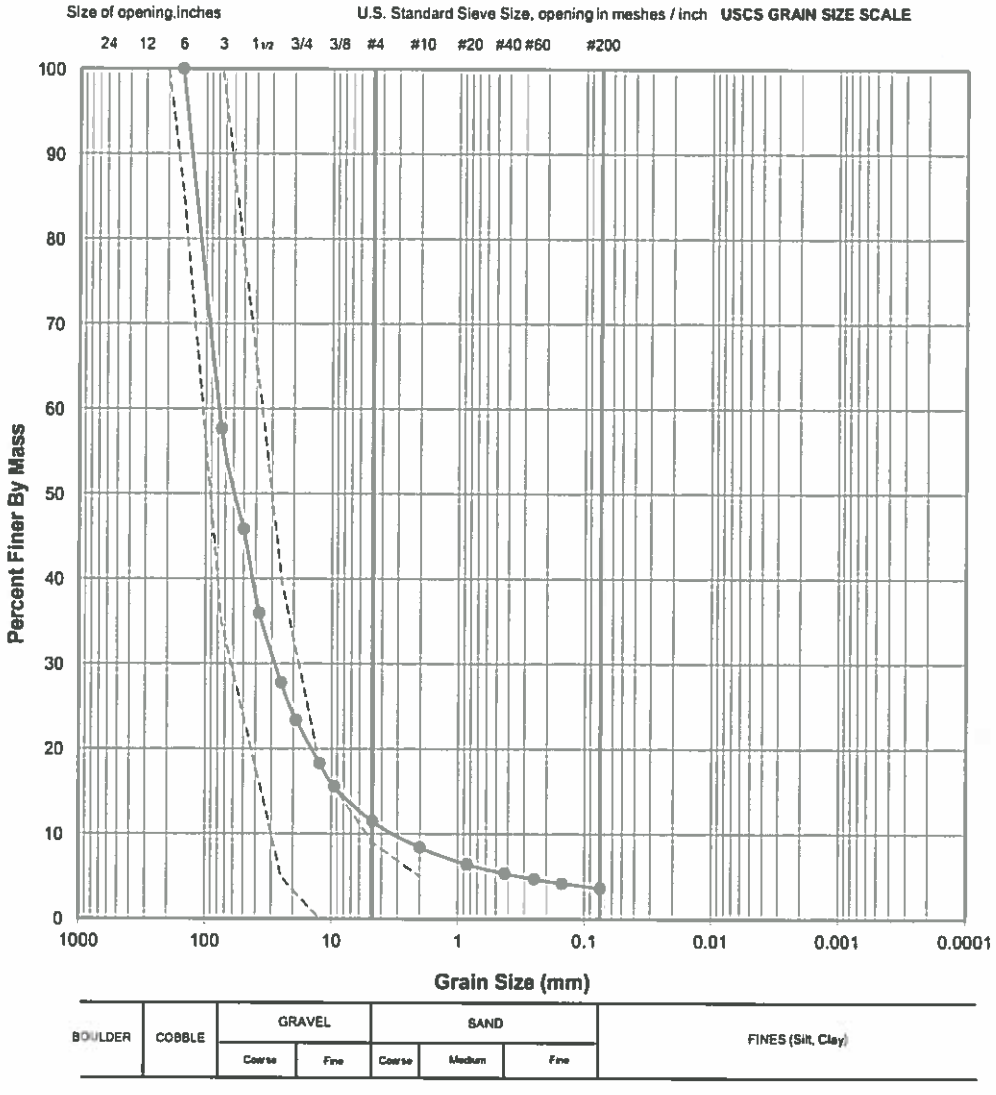
COMPLIANT

PARTICLE SIZE ANALYSIS OF SOILS

Reference
ASTM C136-06 & C117-04

Project No.:	1777687	**Sample No.:**	**STCK-23**
Client:	AEM	**Field Label:**	STCK-23
Project:	Meadowbank Gold Project	**Depth (m):**	NA
Location:	Nunavut	**Lab ID No:**	STCK-23
Remarks:	0.0	**Date Sampled:**	August 4, 2017
Sa. Location:	Stock Pile Sana Crusher	**Material Specification:**	Coarse Filter
Water content: 1,1%		**Method:**	SPLIT, WASHED
		Date Tested:	August 28, 2017

Sieve Size (USS)	(mm)	Passing %
8"	200.0	100.0
6"	152.4	100.0
3"	75.0	57.6
2"	50.0	45.8
1.5"	37.5	35.9
1"	25.0	27.8
3/4"	19.0	23.4
1/2"	12.5	18.3
3/8"	9.5	15.5
#4	4.8	11.5
#10	2.0	8.4
#20	0.9	6.4
#40	0.4	5.3
#60	0.3	4.7
#100	0.2	4.2
#200	0.1	3.6



** The test data given herein pertain to the sample provided only. This report constitutes a testing service only. Interpretation of the data can be provided upon request.*

M.Nadon	August 28, 2017	M.Nadon	
TESTED BY	DATE	CHECKED BY	DATE

Coarse Filter SAVA CRUSHER STCK-23

Golder Associates — Sieve Analysis (LS-601, LS-602)

Sieve	Wt. Retained (g)	% Retained	Back Sieve Wt. Retained (g)	Back Sieve % Retained	Specification	% Passing
152.4	—					
75	19568.5 + 6518.9 = 26087.4					
50	7287.6					
37.5	6084.0					
25.4	5014.0					
20	2717.8					
12.7	3275.4					
9.5	~~4411.2~~					
4.75	4411.2					
2.00	164.6					
0.85	276.9					
0.425	329.1					
0.250	363.8					
0.150	391.9					
0.075	471.4					
Pan	429.1					
Total						

TOTAL SAMPLE

Initial Wt. of Sample 61568.5 g

Final Wt. of Sample _____ g

% Error (CA) _____ %

BACK SIEVE

Wt. of Sample Before Wash 555.9 g

Wt. of Sample After Wash 429.4 g

% PASSING 0.075 mm

Difference (Before/After Wash) _____ g

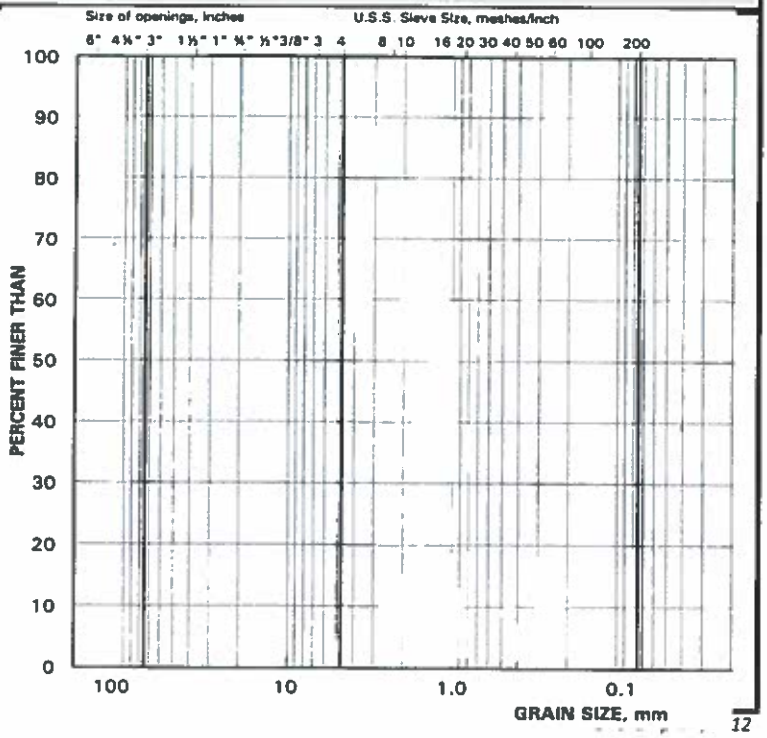
Pan Wt. _____ g

Total Fines _____ g

% Passing 0.075 mm Sieve _____ %

Remarks Sample split @ 20mm sieve

Project No.	11-1221-0035
Project Name	AEM Meadowbank
Material	Coarse Filter (Zone 3)
Source	
Date Rec'd	
Date Tested	
Tested by	
Calculated by	
Checked By	
Sample Log-in No.	



Created April 23, 2012

ANALYSE DES SOLS ET DES GRANULATS

CLIENT:	Agnico Eagle Mines Limited	**PLANCHE NO:**	
PROJET:	SD-3, 4 and 5	**PROJET NO:**	11118538-B1
		ÉCHANTILLON NO:	Sana crusher (Golder) STCK-23
		DATE:	

Description du matériau:	Coarse filter	**Localisation du prélèvement:**	Stockpile
Provenance (source 1ère):	Sana Crusher		
Usage proposé:	Filter	**Prélevé par:**	Marion H.
		Date de prélèvement:	

GRANULOMÉTRIE (% PASSANT) (LC 21-040)

Tamis				x mm	200 mm	150 mm	75 mm	25 mm	19 mm	12.5 mm	4.76 mm	2.00 mm	0.85 mm	0.425 mm	0.25 mm	0.15 mm	0.075 mm
Résultats cumulatifs				100	100	100	58	28	23	18	11	8	6	4	4	3	2.6
Résultats individuels																	
Exigences	min.		#N/A		100	86	35	5		0	0	0					
	max.		#N/A		100	100	100	40		18	9	5					

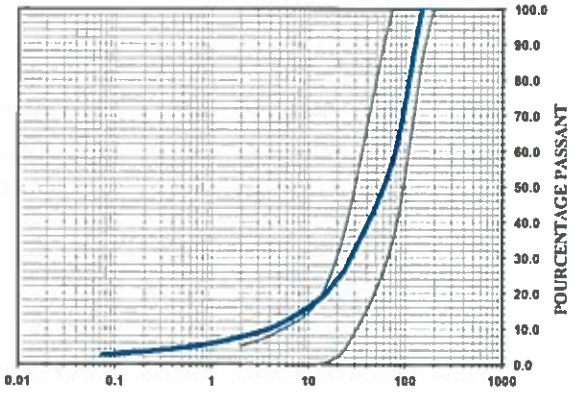
AUTRES ESSAIS	Résultats	Exigences min.	Exigences max.

ESSAI PROCTOR (NQ 2501-255)	Résultats
Masse volumique sèche maximale	(kg/m³)
Humidité optimale	(%)

Proctor à 0% de pierre : kg/m3
Facteur de correction:

Fuseau granulométrique: Coarse Filter: Central Dike

COURBE GRANULOMÉTRIQUE



% gravier	89.1%	Cu = #N/A	D_{85} = #N/A	D_{15} = 8.4
% sable	8.2%	Cc = #N/A	D_{60} = #N/A	D_{10} = 3.8
% silt/argile	2.6%		D_{50} = 56.6	

Remarques: Écart(s) aux tamis suivant(s): 4.76, 2 mm

Préparé par: Sebastien Blackburn Vérifié par:

ANALYSE GRANULOMÉTRIQUE

LC 21-040 [X]

CSA A23.2-2A [ ]

CLIENT: Agnico Eagle Mines Limited

PROJET No.: 11118538-B1 **ÉCHANTILLON No.:** Sana crusher (Golder) STCK-23

APPAREILS DE MESURE UTILISÉS:

Tamis No. EE 13767 Séparateur No. Gilson model #SP-1

Étuve No. B23 3546 Agitateur mécanique No.

Balance No. 1,127,170,847

MASSE TOTALE DE L'ÉCHANTILLON avant:	61568.5	g
MASSE DU RETENU AU TAMIS 5 mm:	54877.4	g
MASSE DU PASSANT AU TAMIS 5 mm:	6666.2	g
MASSE TOTALE DE L'ÉCHANTILLON après:	61543.6	g
MASSE UTILISÉE 5 mm avant lavage :	555.9	g
MASSE UTILISÉE 5 mm après lavage :	429.4	g

Ne jamais écrire dans ces onglets

% PERTE: 0.04 %

% PERTE: 0.07 %

ANALYSE GRANULOMÉTRIQUE & DIMENSION DES GRAINS

TAMIS	MASSE RETENUE (IND.)	MASSE RETENUE (CUM.)	% RETENU (IND.)	% RETENU (CUM.)	% PASSANT (IND.)	% PASSANT (CUM.)
x mm		0.0		0		100
200 mm		0.0		0		100
150 mm		0.0		0		100
75 mm		26087.4		42		58
25 mm		44473.0		72		28
19 mm		47190.8		77		23
12.5 mm		50466.2		82		18
4.76 mm		54877.4		89		11
2.00 mm		164.6		92		8
0.85 mm		270.9		94		6
0.425 mm		329.1		96		4
0.25 mm		363.8		96		4
0.15 mm		391.9		97		3
0.075 mm		421.4		97.4		2.6
PLATEAU		429.1		97.52108562		2.478914382

REMARQUES:

EFFECTUÉ PAR: Mickael Nadon **DATE:**

VÉRIFIÉ PAR : **DATE:**

APPENDIX J2 - CENTRAL DIKE QA RESULTS

APPENDIX J2A - QA RESULTS LAB - TILL

CENTRAL DIKE NORTH ABUTMENT PREPARATION

Sandy part is a little too coarse, but accepted as the till is well graded.

Golder Associates

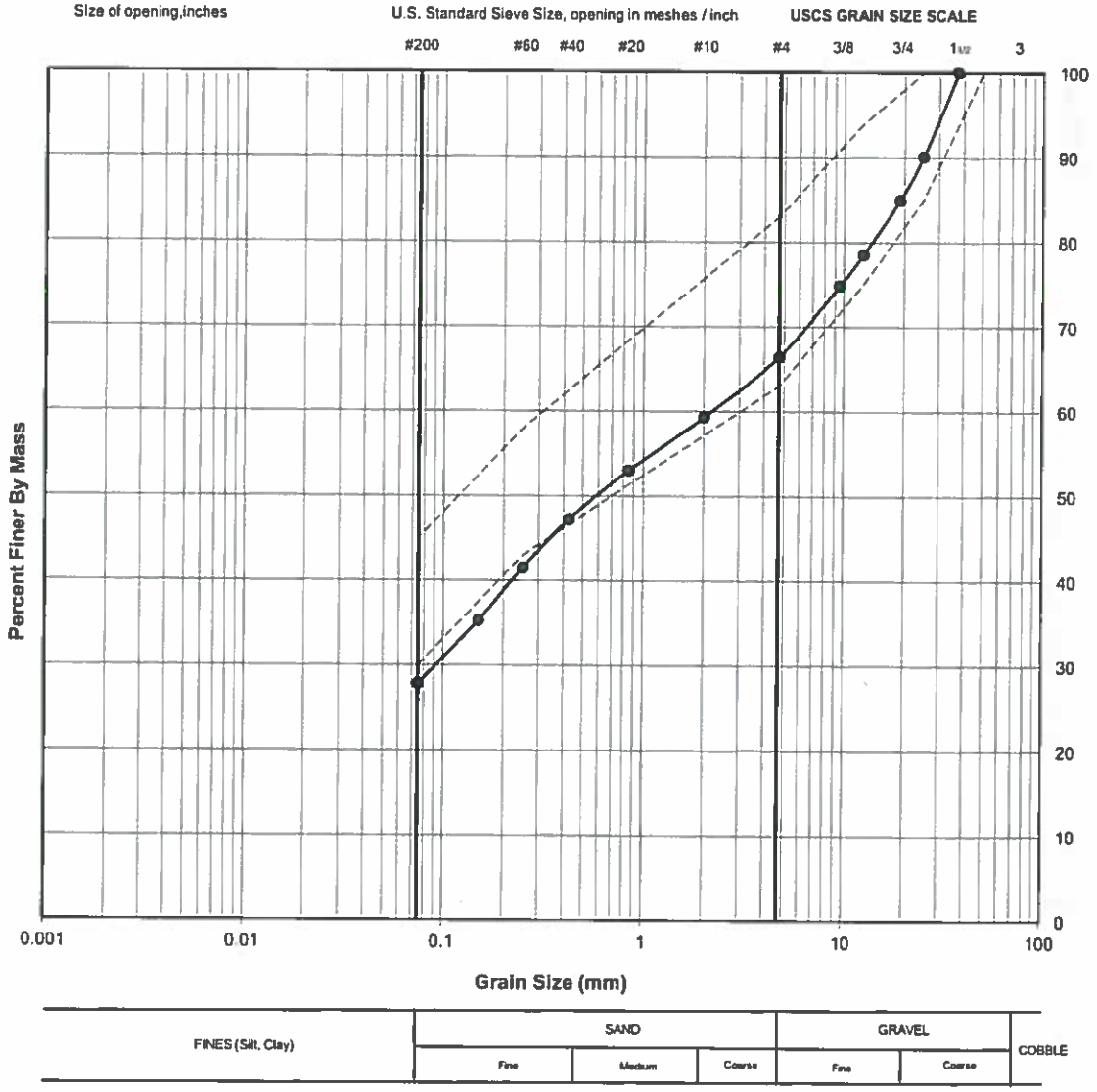
Golder Associates Ltd. - Meadowbank Laboratory
Nunavut, Canada

PARTICLE SIZE ANALYSIS OF SOILS

Reference: ASTM C136-06 & C117-04

Project No.:	1777687	**Sample No.:**	**CD-546**
Client:	AEM	**Field Label:**	CD-546
Project:	Meadowbank Gold Project	**Depth (m):**	NA
Location:	Nunavut	**Lab ID No:**	CD-546
Remarks:	El. 144,2	**Date Sampled:**	September 7, 2017
Sa. Location:	As placed: Sta. 0+100m/ o.s. -18.7 m	**Material Specification:**	Sieved Till
Water content:	6,36%	**Method:**	SPLIT, WASHED
		Date Tested:	September 28, 2017

Sieve Size (USS)	Sieve Size (mm)	Passing %
3.5"	87.5	100.0
3"	75.0	100.0
2"	50.0	100.0
1.5"	37.5	100.0
1"	25.0	90.1
3/4"	19.0	84.9
1/2"	12.5	78.5
3/8"	9.5	74.8
#4	4.8	66.4
#10	2.0	59.3
#20	0.9	53.0
#40	0.4	47.2
#60	0.3	41.5
#100	0.2	35.3
#200	0.1	27.8



** The test data given herein pertain to the sample provided only. This report constitutes a testing service only. Interpretation of the data can be provided upon request.*

M.Nadon	September 28, 2017	M.Nadon	September 29, 2017
TESTED BY	DATE	CHECKED BY	DATE

CD-546 Sieved Till

Sieve Analysis (LS-601, LS-602)

Sieve	Wt. Retained (g)	% Retained	Back Sieve Wt. Retained (g)	Back Sieve % Retained	Specification	% Passing
50						
37.5	163.8					
25.4	510	673.8				
20	246.5	920.3				
12.7	267.1	1187.4				
9.5	148.3	1335.7				
4.75	362	1697.7				
2.00		78.3				
0.85		146.9				
0.425		210.1				
0.250		272.3				
0.150		346.0				
0.075		421.6				
Pan		460.0				
Total						

TOTAL SAMPLE

Initial Wt. of Sample 5035.0 g

Final Wt. of Sample _____ g

% Error (CA) _____ %

BACK SIEVE

Wt. of Sample Before Wash 723.7 g

Wt. of Sample After Wash _____ g

% PASSING 0.075 mm

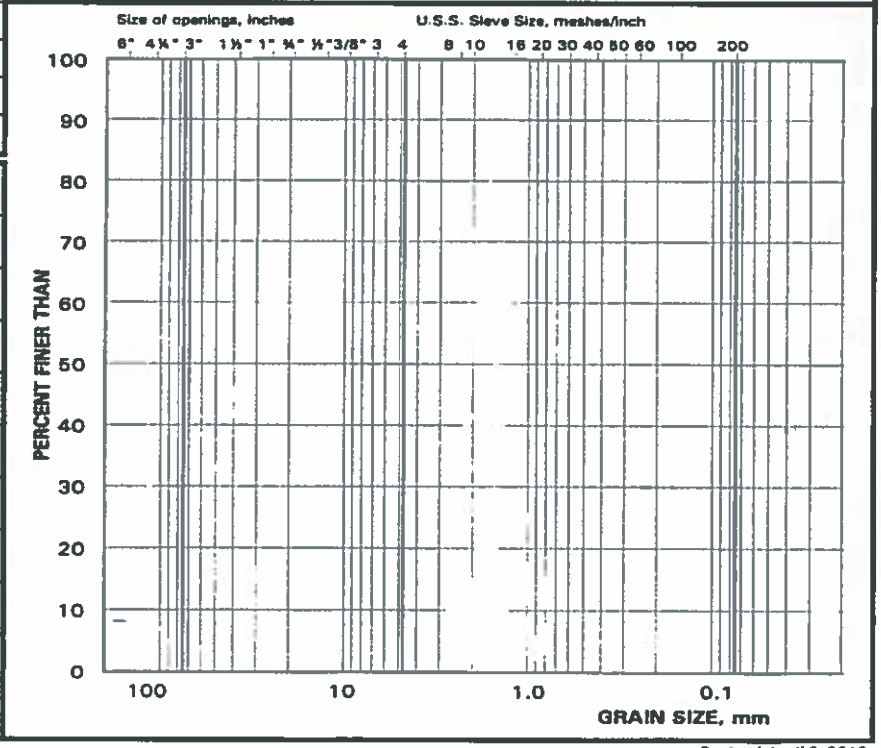
Difference (Before/After Wash) _____ g

Pan Wt. 18.4 g

Total Fines _____ g

% Passing 0.075 mm Sieve _____ %

Remarks



Project No. 11-1221-0035

Project Name AEM Meadowbank

Material Fine Filter (Zone 2)

Source

Date Rec'd

Date Tested

Tested by

Calculated by

Checked By

Sample Log-in No.

Created December 14, 2009

Revised April 2, 2012

n:\Admin\Lab\Lab Work Forms\Aggregates\Sieve Analysis - Blank.xls

APPENDIX J2B - QA RESULTS LAB - FINE FILTER
CENTRAL DIKE NORTH ABUTMENT PREPARATION

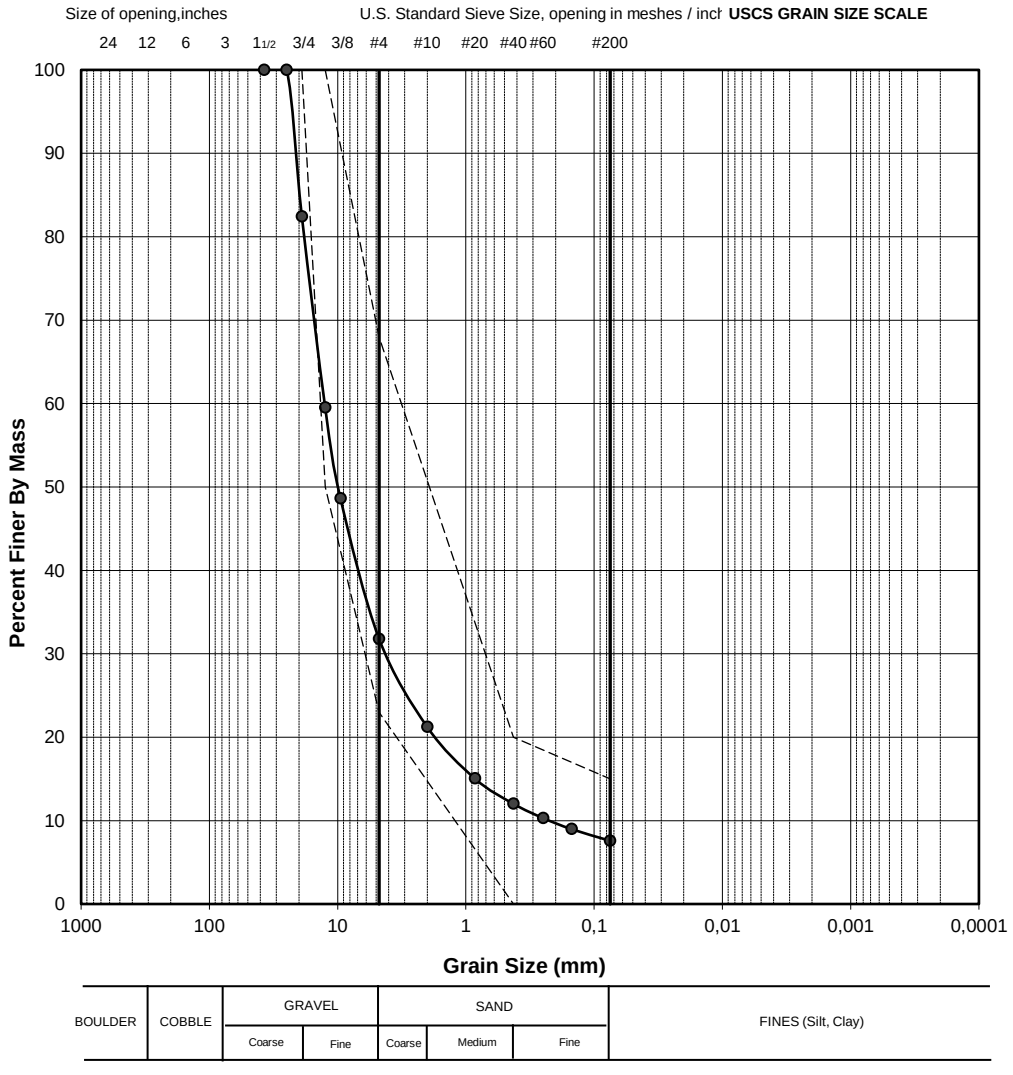
Laboratory
Nunavut, Canada

PARTICLE SIZE ANALYSIS OF SOILS

Reference
ASTM C136-06 & C117-04

Project No.:	1777687	**Sample No.:**	**CD-544**
Client:	AEM	**Field Label:**	CD-544
Project:	Meadowbank Gold Project	**Depth (m):**	NA
Location:	Nunavut	**Lab ID No:**	CD-544
Remarks:	EL: 144.5 m	**Date Sampled:**	August 18, 2017
Sa. Location:	As placed Sta. 0+100 m/o.s. -24 m	**Material Specification:**	Fine Filter
Moisture Content : 2,3%		**Method:**	SPLIT, WASHED
		Date Tested:	August 21, 2018

Sieve Size (USS)	(mm)	Passing %
3.5"	87,5	100,0
3"	75,0	100,0
2"	50,0	100,0
1.5"	37,5	100,0
1"	25,0	100,0
3/4"	19,0	82,4
1/2"	12,5	59,5
3/8"	9,5	48,6
#4	4,8	31,8
#10	2,0	21,2
#20	0,9	15,0
#40	0,4	12,0
#60	0,3	10,3
#100	0,2	9,0
#200	0,1	7,6



** The test data given herein pertain to the sample provided only. This report constitutes a testing service only. Interpretation of the data can be provided upon request.*

M.Nadon	August 21, 2018	M.Nadon	
TESTED BY	DATE	CHECKED BY	DATE

APPENDIX J2C - QA RESULTS LAB - COARSE FILTER CENTRAL DIKE NORTH ABUTMENT PREPARATION

Difficulté avec l'entrée de données dans le document EXCEL GOLDER.
Demandé à GHD de vérifier les résultats

COMPLIANT

ANALYSE DES SOLS ET DES GRANULATS

CLIENT:	Agnico Eagle Mines Limited	**PLANCHE NO:**	
PROJET:	SD-3, 4 and 5	**PROJET NO:**	11118538-B1
		ÉCHANTILLON NO:	Central Dike - GD545
		DATE:	

Description du matériau:	Coarse filter	**Localisation du prélèvement:**	Central Dike
Provenance (source 1ère):	In place		
Usage proposé:	Filter	**Prélevé par:**	Mickael Nadon
		Date de prélèvement:	2017-08-17

GRANULOMÉTRIE (% PASSANT) (LC 21-040)

Tamis				x mm	200 mm	150 mm	75 mm	25 mm	19 mm	12.5 mm	4.76 mm	2.00 mm	0.85 mm	0.425 mm	0.25 mm	0.15 mm	0.075 mm
Résultats cumulatifs				100	100	100	54	25	20	16	9	1	5	4	4	3	2.5
Résultats individuels																	
Exigences	min.		#N/A		100	86	35	5		0	0	0					
	max.		#N/A		100	100	100	40		18	9	5					

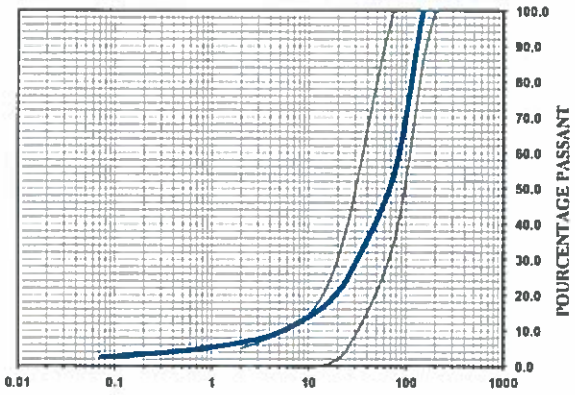
AUTRES ESSAIS	Résultats	Exigences min.	Exigences max.

ESSAI PROCTOR (NQ 2501-255)	Résultats
Masse volumique sèche maximale	(kg/m^3)
Humidité optimale	(%)

Proctor à 0% de pierre : kg/m3
Facteur de correction:

Fuseau granulométrique: Coarse Filter: Central Dike

COURBE GRANULOMÉTRIQUE



% gravier	90.7%	Cu = #N/A	D_{85} = #N/A	D_{15} = 11.4
% sable	6.8%	Cc = #N/A	D_{60} = #N/A	D_{10} = 5.3
% silt/argile	2.5%		D_{50} = 64.3	

Remarques: Écart(s) aux tamis suivant(s): 2 mm

Préparé par: [redacted] Michael Nadon

Vérifié par:

FO-930 201AF (08-08)

ANALYSE GRANULOMÉTRIQUE

LC 21-040 [X]

CSA A23.2-2A [ ]

CLIENT: Agnico Eagle Mines Limited

PROJET No.: 11118538-B1 **ÉCHANTILLON No.:** Central Dike CD-545

APPAREILS DE MESURE UTILISÉS:

Tamis No. EE 13767 Séparateur No. Gilson model #SP-1

Étuve No. B23 3546 Agitateur mécanique No. 25824

Balance No. 1,127,170,847

MASSE TOTALE DE L'ÉCHANTILLON avant:	51005.8	g
MASSE DU RETENU AU TAMIS 5 mm:	46257.3	g
MASSE DU PASSANT AU TAMIS 5 mm:	4728.1	g
MASSE TOTALE DE L'ÉCHANTILLON après:	50985.4	g
MASSE UTILISÉE 5 mm avant lavage :	541.6	g
MASSE UTILISÉE 5 mm après lavage :	405.2	g

Ne jamais écrire dans ces onglets

% PERTE: 0.04 %

% PERTE: 0.05 %

ANALYSE GRANULOMÉTRIQUE & DIMENSION DES GRAINS

TAMIS	MASSE RETENUE (IND.)	MASSE RETENUE (CUM.)	% RETENU (IND.)	% RETENU (CUM.)	% PASSANT (IND.)	% PASSANT (CUM.)
x mm		0.0		0		100
200 mm		0.0		0		100
150 mm		0.0		0		100
75 mm		23406.1		46		54
25 mm		38352.8		75		25
19 mm		40590.8		80		20
12.5 mm		42980.2		84		16
4.76 mm		46257.3		91		9
2.00 mm		156.0		93		7
0.85 mm		249.8		95		5
0.425 mm		303.7		96		4
0.25 mm		337.9		96		4
0.15 mm		365.2		97		3
0.075 mm		394.3		97.5		2.5
PLATEAU		405.0		97.65194145		2.348058552

REMARQUES:

EFFECTUÉ PAR: Mickael Nadon **DATE:**

VÉRIFIÉ PAR : **DATE:**

Coarse filter central Dike

Pre-aeration = 20'457,4 - 1340,5 gr = 17'660,7
Leach tails = 20572,6 - 1595,2 gr = 18'977,4
204 = 14259,0 - 1397,5 gr = 12'861,5
} 51'005,8

CD 545

Golder Associates

Sieve Analysis (LS-601, LS-602)

Sieve	Wt. Retained (g)	% Retained	Back Sieve Wt. Retained (g)	Back Sieve % Retained	Specification	% Passing
152.4	4839,6					
75	18566,5					
50	7040,3					
37.5	2755,8					
25.4	5150,6					
20	2238,0					
12.7	2389,4					
9.5						
4.75	3277,1					
2.00	156,0					
0.85	249,8					
0.425	303,7					
0.250	337,9					
0.150	365,2					
0.075	394,3					
Pan	4050					
Total						

TOTAL SAMPLE

Initial Wt. of Sample 51005,8 g

Final Wt. of Sample _____ g

% Error (CA) _____ %

BACK SIEVE

Wt. of Sample Before Wash 541,6 g

Wt. of Sample After Wash 405,2 g

% PASSING 0.075 m m

Difference (Before/After Wash) _____ g

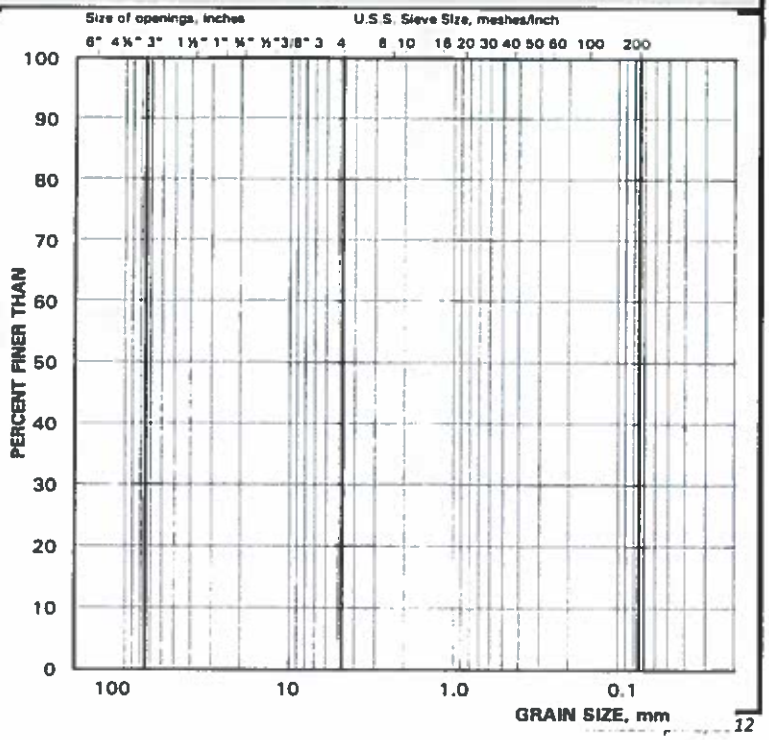
Pan Wt. _____ g

Total Fines _____ g

% Passing 0.075 mm Sieve _____ %

Remarks Sample split @ 20mm sieve

Project No.	11-1221-0035
Project Name	AEM Meadowbank
Material	Coarse Filter (Zone 3)
Source	
Date Rec'd	
Date Tested	
Tested by	
Calculated by	
Checked By	
Sample Log-in No.	



Created April 23, 2012

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40590,8
56665
46257,3
4728,1
10394,6

APPENDIX J3 - SADDLE DAM 3 QA RESULTS

APPENDIX J3A - QA RESULTS LAB - TILL

SADDLE DAM 3 STAGE 3

Sandy part is a little too coarse, but accepted as the till is well graded

Golder Associates

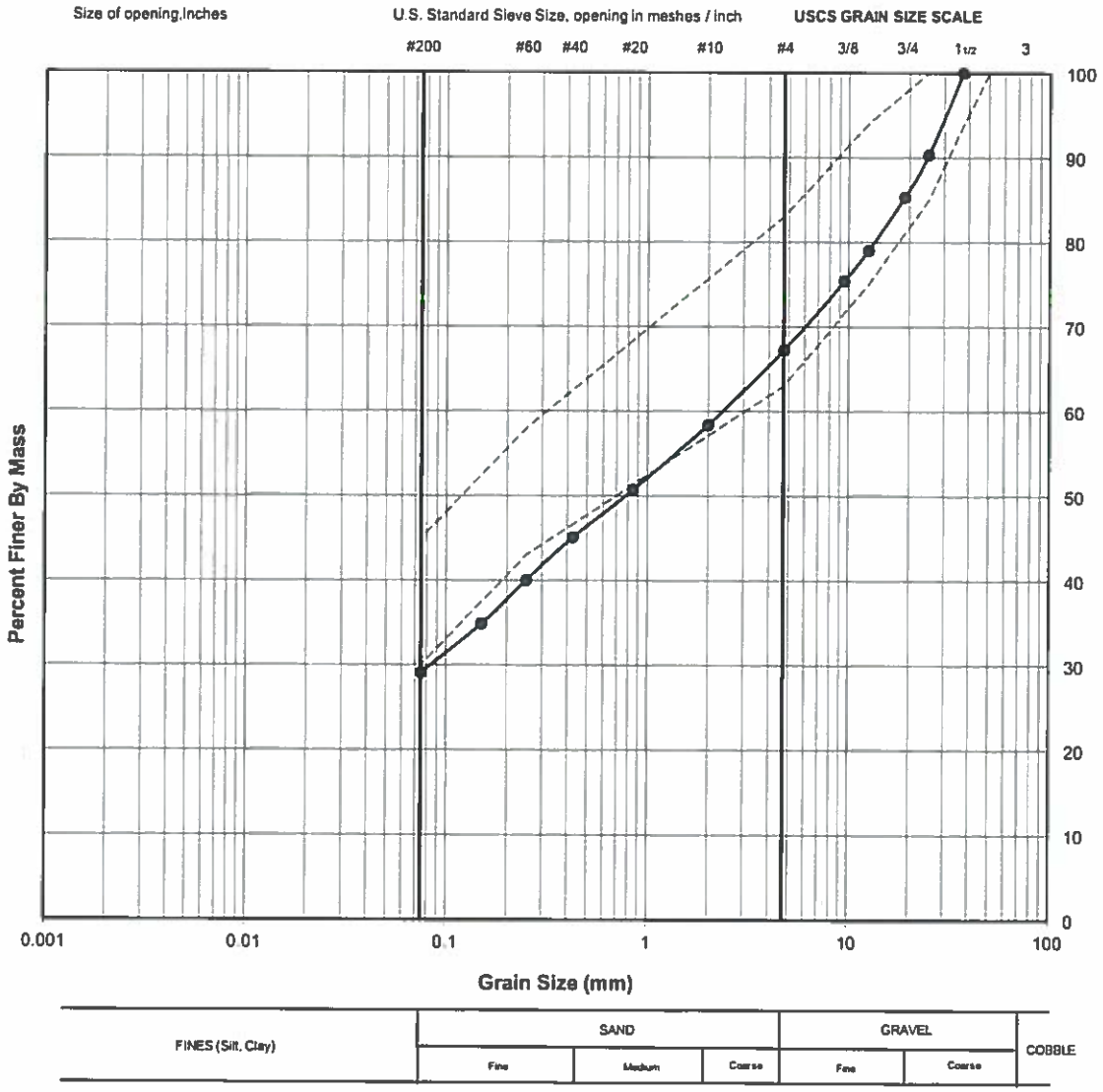
Golder Associates Ltd. - Meadowbank Laboratory
Nunavut, Canada

PARTICLE SIZE ANALYSIS OF SOILS

Reference: ASTM C136-06 & C117-04

Project No.:	1777687	**Sample No.:**	**SD3-010**
Client:	AEM	**Field Label:**	SD3-010
Project:	Meadowbank Gold Project	**Depth (m):**	NA
Location:	Nunavut	**Lab ID No:**	SD3-010
Remarks:	El. 140,7	**Date Sampled:**	September 8, 2017
Sa. Location:	As placed Sta. 20+644/o.s. -45.6 m	**Material Specification:**	Sieved Till
Water content:	6,67%	**Method:**	SPLIT, WASHED
		Date Tested:	September 27, 2017

Sieve Size (USS)	Sieve Size (mm)	Passing %
3.5"	87.5	100.0
3"	75.0	100.0
2"	50.0	100.0
1.5"	37.5	100.0
1"	25.0	90.3
3/4"	19.0	85.3
1/2"	12.5	79.0
3/8"	9.5	75.4
#4	4.8	67.3
#10	2.0	58.4
#20	0.9	50.7
#40	0.4	45.1
#60	0.3	40.0
#100	0.2	34.9
#200	0.1	29.1



** The test data given herein pertain to the sample provided only. This report constitutes a testing service only. Interpretation of the data can be provided upon request.*

M.Nadon	September 27, 2017	M.Nadon	September 28, 2017
TESTED BY	DATE	CHECKED BY	DATE

SD3-010

Sieve Analysis (LS-601, LS-602)

Sieve	Wt. Retained (g)	% Retained	Back Sieve Wt. Retained (g)	Back Sieve % Retained	Specification	% Passing
50						
37.5			Cumul			
25.4	500.1		500.1			
20	257.9		758.0			
12.7	324.2		1082.2			
9.5	186.2		1268.4			
4.75	421.6		1690			
2.00		77.6		77.6		
0.85		66.8		144.4		
0.425		49.6		144		
0.250		44.1		238.1		
0.150		44.8		282.9		
0.075		50.7		333.6		
Pan		8.2				
Total						

TOTAL SAMPLE

Initial Wt. of Sample 5161.4 g

Final Wt. of Sample _____ g

% Error (CA) _____ %

BACK SIEVE

Wt. of Sample Before Wash 587.8 g

Wt. of Sample After Wash _____ g

% PASSING 0.075 m m

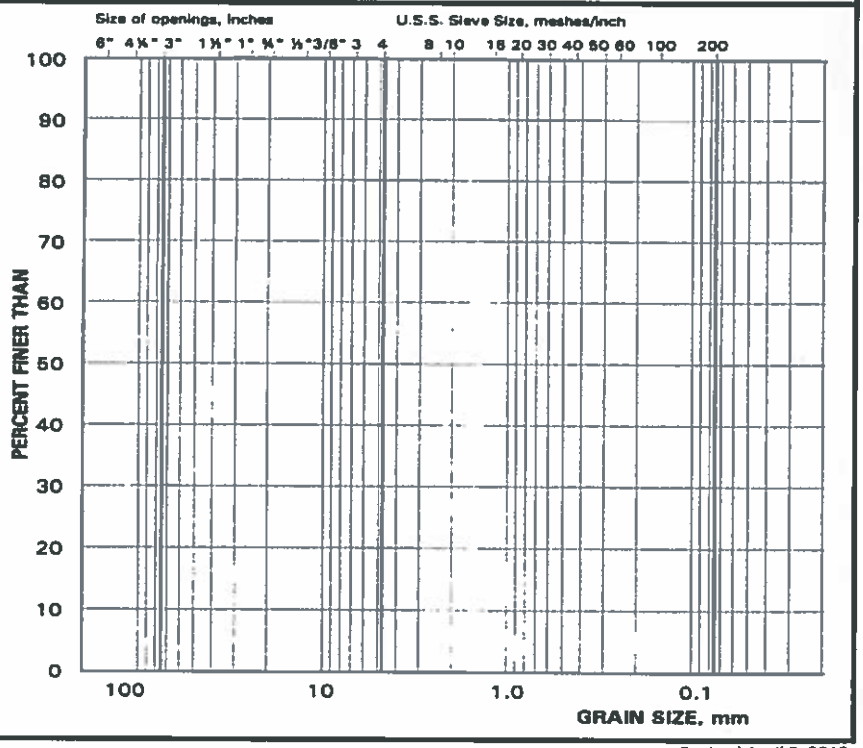
Difference (Before/After Wash) _____ g

Pan Wt. _____ g

Total Fines _____ g

% Passing 0.075 mm Sieve _____ %

Remarks



Project No. 11-1221-0035

Project Name AEM Meadowbank

Material Fine Filter (Zone 2)

Source

Date Rec'd

Date Tested

Tested by

Calculated by

Checked By

Sample Log-in No.

Created December 14, 2009

Revised April 2, 2012

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APPENDIX J3B - QA RESULTS LAB - FINE FILTER

SADDLE DAM 3 STAGE 3

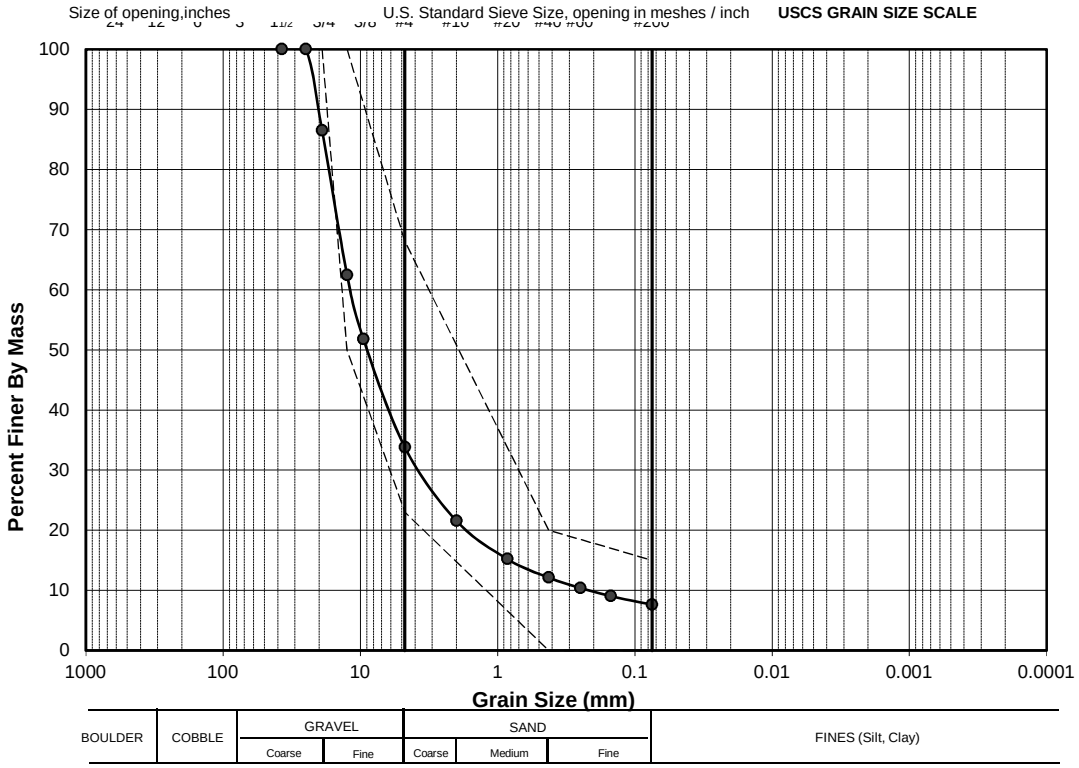
Golder Associates Ltd. - Meadowbank Laboratory
Nunavut, Canada

PARTICLE SIZE ANALYSIS OF SOILS

Reference
ASTM C136-06 & C117-04

Project No.:	1777687	**Sample No.:**	**SD3-08**
Client:	AEM	**Field Label:**	SD3-08
Project:	Meadowbank Gold Project	**Depth (m):**	NA
Location:	Nunavut	**Lab ID No:**	SD3-08
Remarks:	El. 144.5 m	**Date Sampled:**	August 17, 2017
Sa. Location:	As placed Sta. 20+580 m/o.s. -30 m	**Material Specification:**	Fine Filter
Moisture Content : 2,3%		**Method:**	SPLIT, WASHED
		Date Tested:	August 20, 2017

Sieve Size (USS)	(mm)	Passing %
3.5"	87.5	100.0
3"	75.0	100.0
2"	50.0	100.0
1.5"	37.5	100.0
1"	25.0	100.0
3/4"	19.0	86.5
1/2"	12.5	62.4
3/8"	9.5	51.8
#4	4.8	33.8
#10	2.0	21.6
#20	0.9	15.2
#40	0.4	12.1
#60	0.3	10.4
#100	0.2	9.0
#200	0.1	7.6



** The test data given herein pertain to the sample provided only. This report constitutes a testing service only. Interpretation of the data can be provided upon request.*

M.Nadon	August 20, 2017	M.Nadon	
TESTED BY	DATE	CHECKED BY	DATE

APPENDIX J3C - QA RESULTS LAB - COARSE FILTER

SADDLE DAM 3 STAGE 3

Difficulté avec l'entrée de données dans le document EXCEL.
Demande à GHD de vérifier les résultats (Voir document attaché)

COMPLIANT

Golder Associates

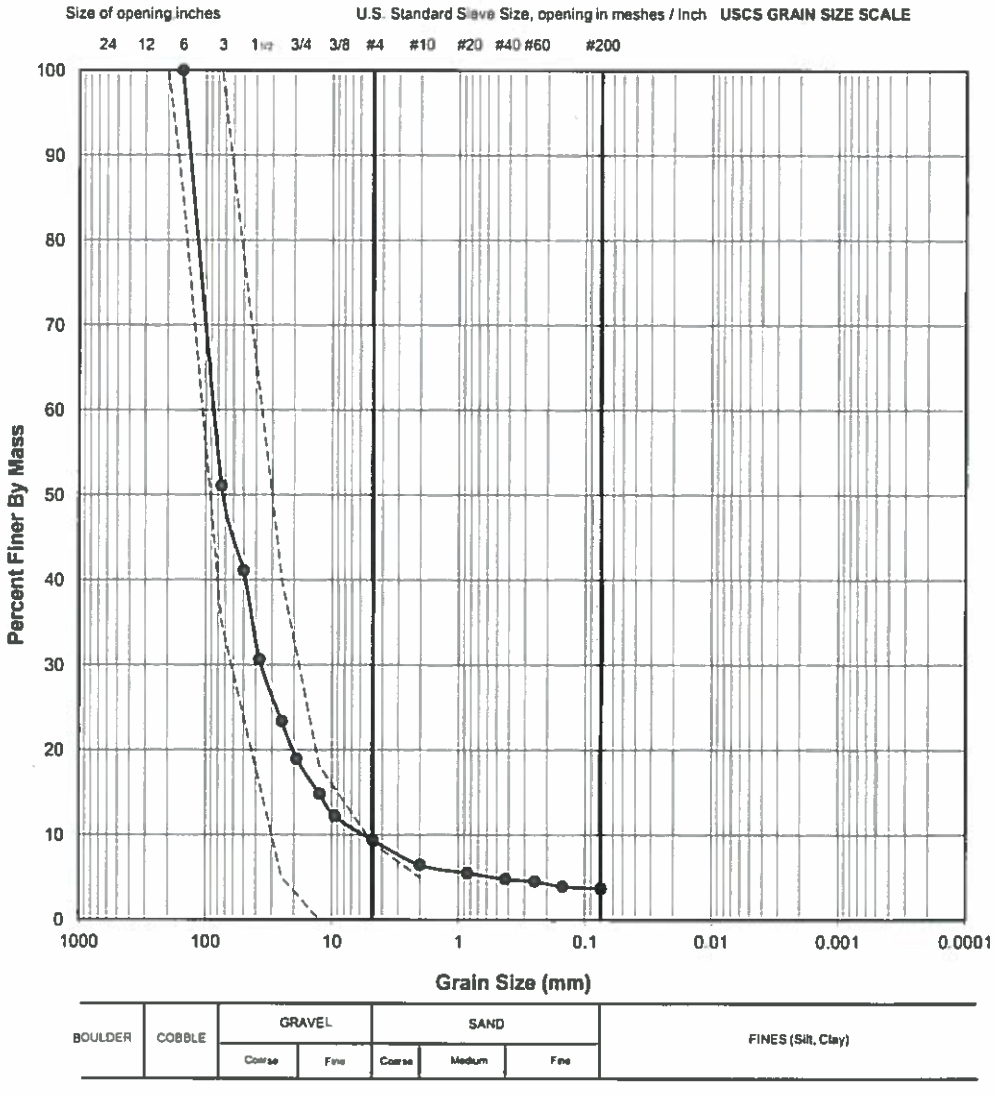
Golder Associates Ltd. Meadowbank Laboratory
Nunavut, Canada

PARTICLE SIZE ANALYSIS OF SOILS

Reference: ASTM C136-06 & C117-04

Project No.:	1777687	**Sample No.:**	**SD3-09**
Client:	AEM	**Field Label:**	SD3-09
Project:	Meadowbank Gold Project	**Depth (m):**	NA
Location:	Nunavut	**Lab ID No:**	SD3-09
Remarks:	(in place) 20+770/-2!	**Date Sampled:**	August 29, 2017
Sta. Location:	SD3-09	**Material Specification:**	Coarse Filter
Water content: 0,5%		**Method:**	SPLIT, WASHED
		Date Tested:	September 1, 2017

Sieve Size (USS)	(mm)	Passing %
8"	200.0	100.0
6"	152.4	100.0
3"	75.0	51.1
2"	50.0	41.1
1.5"	37.5	30.6
1"	25.0	23.3
3/4"	19.0	18.9
1/2"	12.5	14.8
3/8"	9.5	12.2
#4	4.8	9.4
#10	2.0	6.4
#20	0.9	5.5
#40	0.4	4.8
#60	0.3	4.5
#100	0.2	3.9
#200	0.1	3.7



** The test data given herein pertain to the sample provided only. This report constitutes a testing service only. Interpretation of the data can be provided upon request.*

M.Nadon	September 1, 2017	M.Nadon	
TESTED BY	DATE	CHECKED BY	DATE

SD3-09

9785.3

Golder Associates — Sieve Analysis (LS-601, LS-602)

Sieve	Wt. Retained (g)	% Retained	Back Sieve Wt. Retained (g)	Back Sieve % Retained	Specification	% Passing
152.4						
75	20777.1	+ 4493.5	= 25270.6			
50	5157.3					
37.5	5393.5					
25.4	37700					
20	2262.4					
12.7	2410.0					
9.5						
4.75	2932.2					
2.00	1645					
0.85	771.0					
0.425	332.4					
0.250	371.5					
0.150	403.1					
0.075	435.8					
Pan	447.3 → 211.5					
Total						

4495.2

TOTAL SAMPLE

Initial Wt. of Sample 51639.1 g

Final Wt. of Sample _____ g

% Error (CA) _____ %

BACK SIEVE

Wt. of Sample Before Wash 574.1 g

Wt. of Sample After Wash 447.5 g

% PASSING 0.075 m m

Difference (Before/After Wash) _____ g

Pan Wt. _____ g

Total Fines _____ g

% Passing 0.075 mm Sieve _____ %

Remarks Sample split @ 20mm sieve

Project No. 11-1221-0035

Project Name AEM Meadowbank

Material Coarse Filter (Zone 3)

Source

Date Rec'd

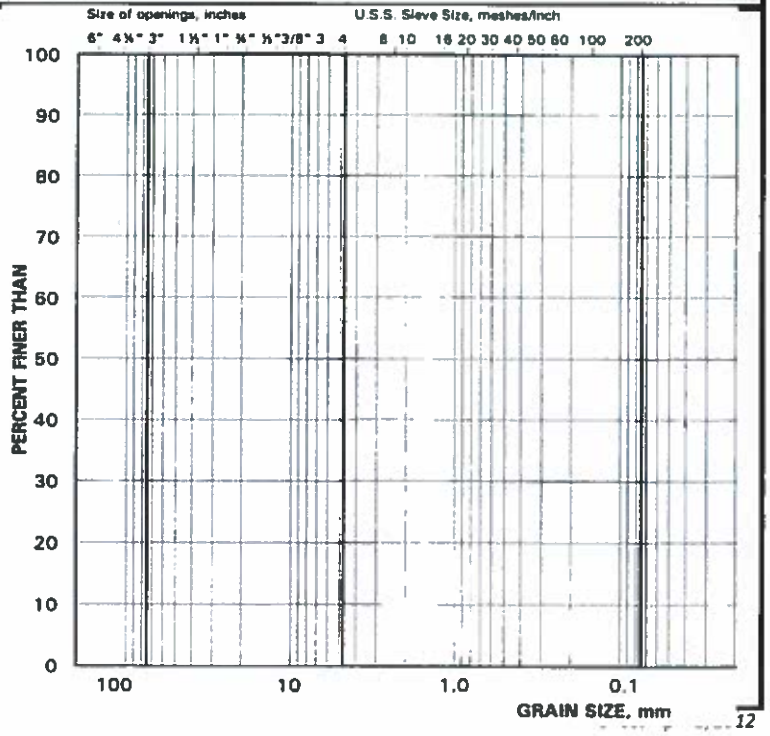
Date Tested

Tested by

Calculated by

Checked By

Sample Log-in No.



Created April 23, 2012

12

9167.6

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ANALYSE DES SOLS ET DES GRANULATS

CLIENT:	Agnico Eagle Mines Limited	**PLANCHE NO:**	
PROJET:	SD-3, 4 and 5	**PROJET NO:**	11118538-B1
		ÉCHANTILLON NO:	SD-3 - 09
		DATE:	-

Description du matériau:	Coarse filter	**Localisation du prélèvement:**	SD-3
Provenance (source 1ère):	In place		
Usage proposé:	Filter	**Prélevé par:**	Mickael Nadon
		Date de prélèvement:	

GRANULOMÉTRIE (% PASSANT) (LC 21-040)

Tamis				x mm	200 mm	150 mm	75 mm	25 mm	19 mm	12.5 mm	4.76 mm	2.00 mm	0.85 mm	0.425 mm	0.25 mm	0.15 mm	0.075 mm
Résultats cumulatifs				100	100	100	51	23	19	14	9	6	5	4	3	3	2.1
Résultats individuels																	
Exigences	min.		#N/A		100	86	35	5		0	0	0					
	max.		#N/A		100	100	100	40		18	9	5					

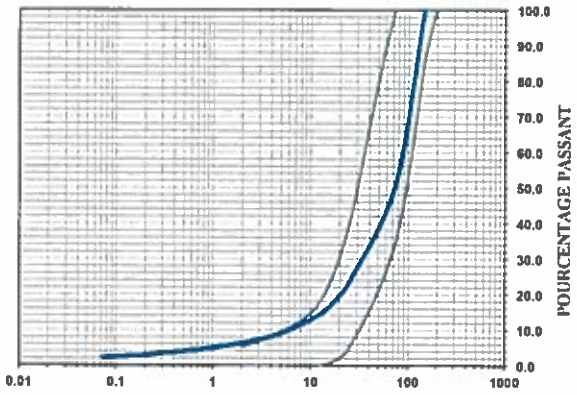
AUTRES ESSAIS	Résultats	Exigences min.	Exigences max.

ESSAI PROCTOR (NQ 2501-255)	Résultats
Masse volumique sèche maximale	(kg/m³)
Humidité optimale	(%)

Proctor à 0% de pierre : kg/m3
Facteur de correction:

Fuseau granulométrique: Coarse Filter: Central Dike

COURBE GRANULOMÉTRIQUE



% gravier	91.3%	Cu = #N/A	D_{85} = #N/A	D_{15} = 13.4
% sable	6.6%	Cc = #N/A	D_{60} = #N/A	D_{10} = 5.9
% silt/argile	2.1%		D_{50} = 71.9	

Remarques: Écart(s) aux tamis suivant(s): 2 mm

Préparé par: Sebastien Blackburn Vérifié par:

GHD

ANALYSE GRANULOMÉTRIQUE

LC 21-040 [X]
CSA A23.2-2A [ ]

CLIENT: Agnico Eagle Mines Limited

PROJET No.: 11118538-B1 ÉCHANTILLON No.: SD-3 507-09

APPAREILS DE MESURE UTILISÉS:
Tamis No. EE 13767
Étuve No. B23 3546
Balance No. 1,127,170,847
Séparateur No. Gilson model #SP-1
Agitateur mécanique No.

MASSE TOTALE DE L'ÉCHANTILLON avant:	51639.1	g
MASSE DU RETENU AU TAMIS 5 mm:	47126.0	g
MASSE DU PASSANT AU TAMIS 5 mm:	4495.2	g
MASSE TOTALE DE L'ÉCHANTILLON après:	51621.2	g
MASSE UTILISÉE 5 mm avant lavage :	574.1	g
MASSE UTILISÉE 5 mm après lavage :	447.5	g

Ne jamais écrire dans ces onglets

% PERTE: 0.03 %

% PERTE: 0.04 %

ANALYSE GRANULOMÉTRIQUE & DIMENSION DES GRAINS

TAMIS	MASSE RETENUE (IND.)	MASSE RETENUE (CUM.)	% RETENU (IND.)	% RETENU (CUM.)	% PASSANT (IND.)	% PASSANT (CUM.)
x mm		0.0		0		100
200 mm		0.0		0		100
150 mm		0.0		0		100
75 mm		25270.6		49		51
25 mm		39521.4		77		23
19 mm		41783.8		81		19
12.5 mm		44193.8		86		14
4.76 mm		47126.0		91		9
2.00 mm		164.5		94		6
0.85 mm		271.0		95		5
0.425 mm		332.4		96		4
0.25 mm		371.5		97		3
0.15 mm		403.1		97		3
0.075 mm		435.8		97.9		2.1
PLATEAU		447.3		98.06968583		1.93031417

REMARQUES:

EFFECTUÉ PAR: Mickael Nadon DATE:

VÉRIFIÉ PAR : DATE:

APPENDIX J4 - SADDLE DAM 4 AND 5 QA RESULTS

APPENDIX J4A - QA RESULTS LAB - TILL

SADDLE DAM 4 AND 5 STAGE 3

Sandy pan is a little too coarse but accepted as the till is well graded

Golder Associates

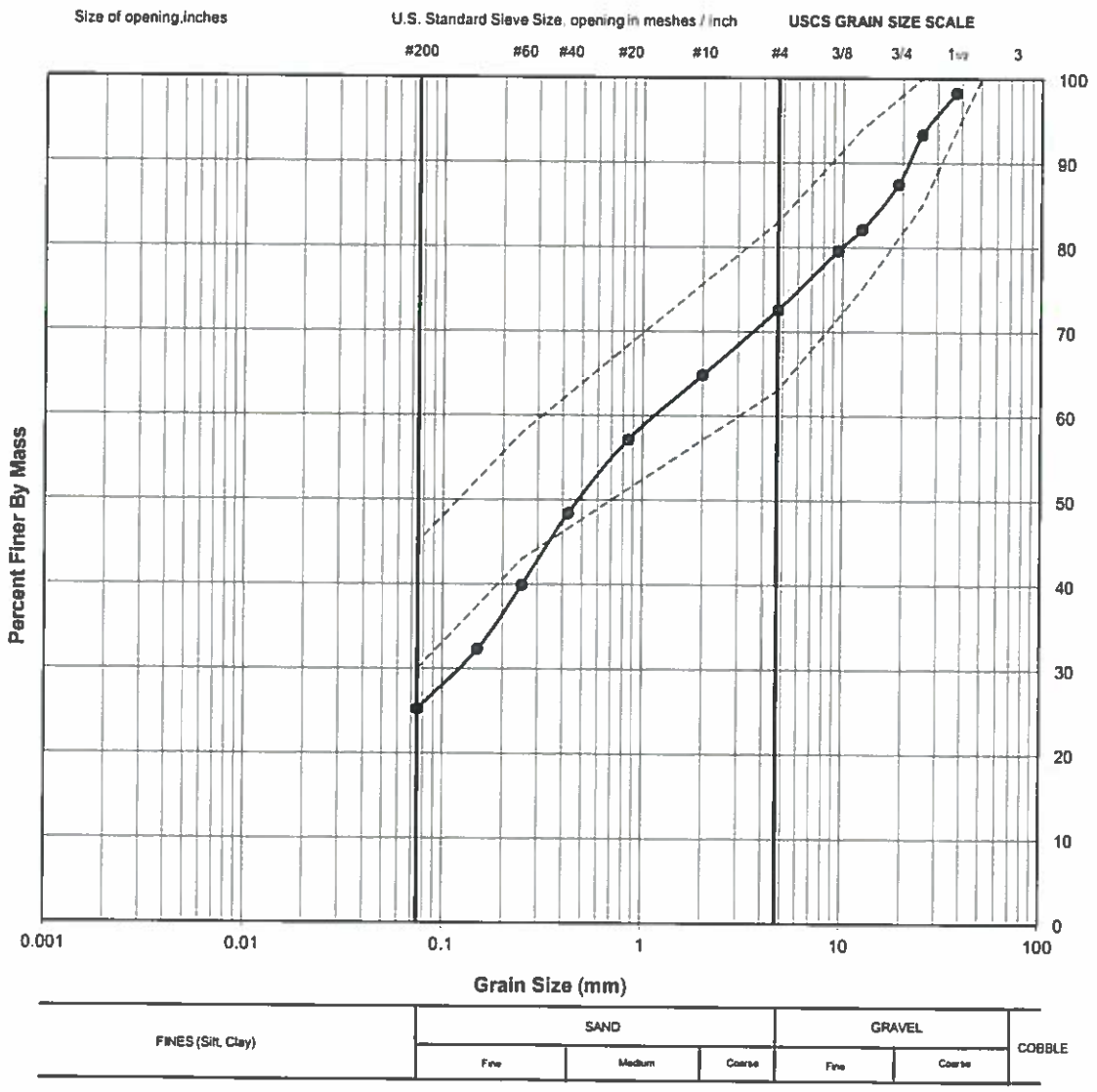
Golder Associates Ltd. - Meadowbank Laboratory
Nunavut, Canada

PARTICLE SIZE ANALYSIS OF SOILS

Reference: ASTM C136-06 & C117-04

Project No.:	1777687	**Sample No.:**	**SD4-010**
Client:	AEM	**Field Label:**	SD4-010
Project:	Meadowbank Gold Project	**Depth (m):**	NA
Location:	Nunavut	**Lab ID No:**	SD4-010
Remarks:	El. 144,5 m	**Date Sampled:**	September 2, 2017
Sa. Location:	As placed Sta. 40+430 m/-30 m	**Material Specification:**	Sieved Till
Water content:	7,4%	**Method:**	SPLIT, WASHED
		Date Tested:	September 28, 2017

Sieve Size (USS)	Sieve Size (mm)	Passing %
3.5"	87.5	100.0
3"	75.0	100.0
2"	50.0	100.0
1.5"	37.5	98.3
1"	25.0	93.3
3/4"	19.0	87.4
1/2"	12.5	82.1
3/8"	9.5	79.6
#4	4.8	72.6
#10	2.0	64.8
#20	0.9	57.2
#40	0.4	48.4
#60	0.3	39.9
#100	0.2	32.3
#200	0.1	25.2



** The test data given herein pertain to the sample provided only. This report constitutes a testing service only. Interpretation of the data can be provided upon request.*

M.Nadon	September 28, 2017	M.Nadon	September 29, 2017
TESTED BY	DATE	CHECKED BY	DATE

F:\SD4-010.xlsx

SD4-10 Sieved Till

Golder Associates

Sieve Analysis (LS-601, LS-602)

Sieve	Wt. Retained (g)	% Retained	Back Sieve Wt. Retained (g)	Back Sieve % Retained	Specification	% Passing
50						
37.5	87.5					
25.4	259.5	347				
20	304.8	651.8				
12.7	278.6	930.4				
9.5	128.9	1059.3				
4.75	364.2	1423.5				
2.00		63.2				
0.85		126.1				
0.425		197.7				
0.250		267.1				
0.150		379.1				
0.075		387.2				
Pan		400.5				
Total						

TOTAL SAMPLE

Initial Wt. of Sample 5189.09 g

Final Wt. of Sample _____ g

% Error (CA) _____ %

BACK SIEVE

Wt. of Sample Before Wash 593.6 g

Wt. of Sample After Wash _____ g

% PASSING 0.075 mm

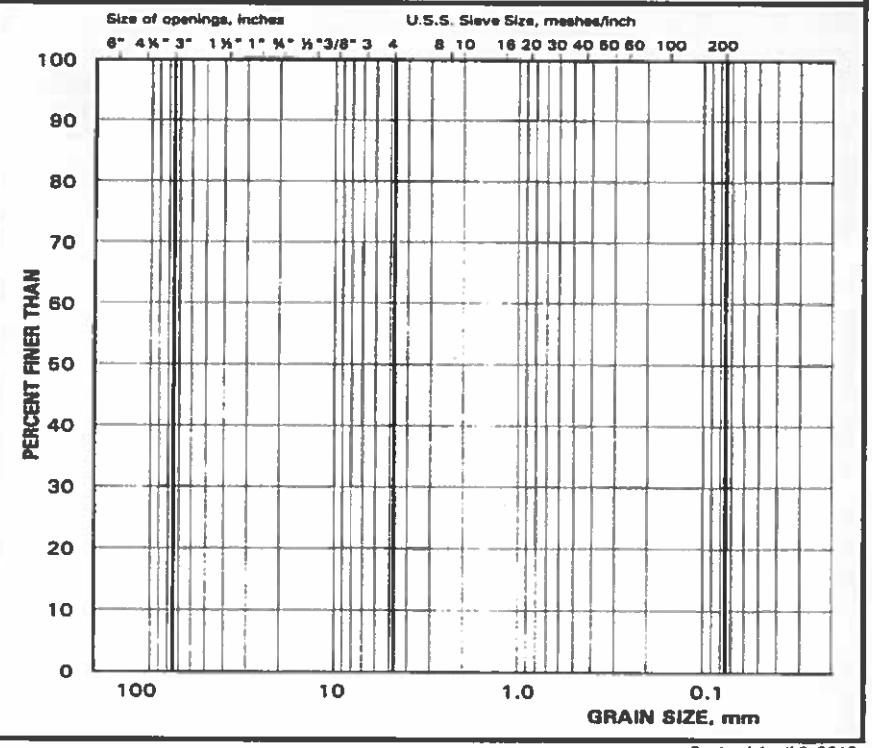
Difference (Before/After Wash) _____ g

Pan Wt. _____ g

Total Fines _____ g

% Passing 0.075 mm Sieve _____ %

Remarks



Project No. 11-1221-0035

Project Name AEM Meadowbank

Material Fine Filter (Zone 2)

Source

Date Rec'd

Date Tested

Tested by

Calculated by

Checked By

Sample Log-in No.

Created December 14, 2009

Revised April 2, 2012

n:\Admin\Lab\Lab Work Forms\Aggregates\Sieve Analysis - Blank.xls

APPENDIX J4B - QA RESULTS LAB - FINE FILTER

SADDLE DAM 4 AND 5 STAGE 3

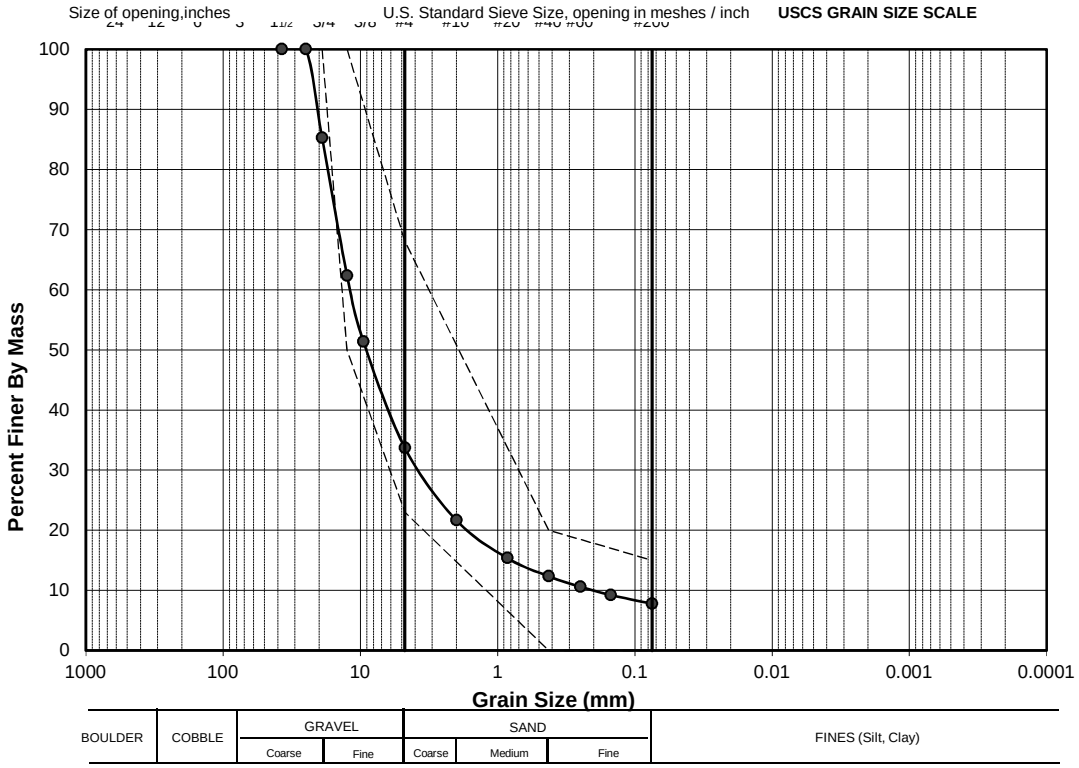
Golder Associates Ltd. - Meadowbank Laboratory
Nunavut, Canada

PARTICLE SIZE ANALYSIS OF SOILS

Reference
ASTM C136-06 & C117-04

Project No.:	1777687	**Sample No.:**	**SD4-08**
Client:	AEM	**Field Label:**	SD4-08
Project:	Meadowbank Gold Project	**Depth (m):**	NA
Location:	Nunavut	**Lab ID No:**	SD4-08
Remarks:	El. 145 m	**Date Sampled:**	August 17, 2017
Sa. Location:	As placed Sta. 40+580 m/o.s. -30 m	**Material Specification:**	Fine Filter
Moisture Content : 2,3%		**Method:**	SPLIT, WASHED
		Date Tested:	August 20, 2017

Sieve Size (USS)	(mm)	Passing %
3.5"	87.5	100.0
3"	75.0	100.0
2"	50.0	100.0
1.5"	37.5	100.0
1"	25.0	100.0
3/4"	19.0	85.3
1/2"	12.5	62.3
3/8"	9.5	51.4
#4	4.8	33.7
#10	2.0	21.7
#20	0.9	15.4
#40	0.4	12.3
#60	0.3	10.6
#100	0.2	9.2
#200	0.1	7.8



** The test data given herein pertain to the sample provided only. This report constitutes a testing service only. Interpretation of the data can be provided upon request.*

M.Nadon	August 20, 2017	M.Nadon	
TESTED BY	DATE	CHECKED BY	DATE

APPENDIX J4C - QA RESULTS LAB - COARSE FILTER

SADDLE DAM 4 AND 5 STAGE 3

Difficulté avec l'entrée de données dans le document EXCEL GOLDER
Demandé à GHD de vérifier les résultats
(voir document attaché)
COMPLIANT

Golder Associates

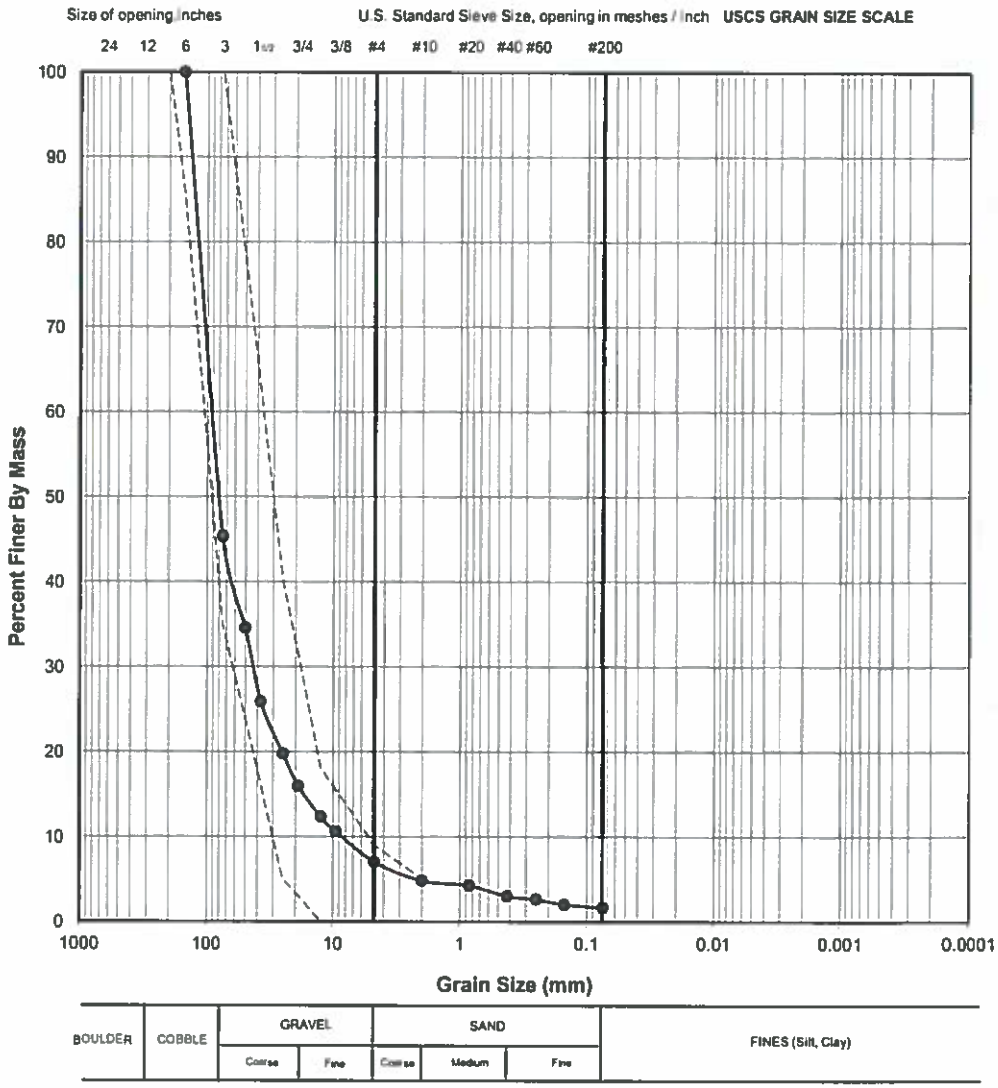
Golder Associates Ltd. Meadowbank Laboratory
Nunavut, Canada

PARTICLE SIZE ANALYSIS OF SOILS

Reference
ASTM C136-06 & C117-04

Project No.:	1777687	**Sample No.:**	**SD4-09**
Client:	AEM	**Field Label:**	SD4-09
Project:	Meadowbank Gold Project	**Depth (m):**	NA
Location:	Nunavut	**Lab ID No:**	SD4-09
Remarks:	(in place) 40+350/-2(	**Date Sampled:**	August 24, 2017
Sa. Location:	SD4-09	**Material Specification:**	Coarse Filter
Water content: 1,1%		**Method:**	SPLIT, WASHED
		Date Tested:	August 31, 2017

Sieve Size (USS)	(mm)	Passing %
8"	200.0	100.0
6"	152.4	100.0
3"	75.0	45.3
2"	50.0	34.5
1.5"	37.5	25.9
1"	25.0	19.7
3/4"	19.0	15.9
1/2"	12.5	12.3
3/8"	9.5	10.6
#4	4.8	7.0
#10	2.0	4.8
#20	0.9	4.2
#40	0.4	3.0
#60	0.3	2.6
#100	0.2	2.0
#200	0.1	1.6



** The test data given herein pertain to the sample provided only. This report constitutes a testing service only. Interpretation of the data can be provided upon request.*

M.Nadon	August 31, 2017	M.Nadon	
TESTED BY	DATE	CHECKED BY	DATE

F:\SD4-09.xlsx

SD4-09 Coarse filter ⇒ SD-4-5

grosse = 21003,2 - Panne = 13917,3
Sag-3 = 19170,0 - Panne = 17592,5
Sag-2 = 20613,9 - Panne = 18980,5

52490-3

Golder Associates — Sieve Analysis (LS-601, LS-602)

Sieve	Wt. Retained (g)	% Retained	Back Sieve: Wt. Retained (g)	Back Sieve: % Retained	Specification	% Passing
152.4	18345,6	+ 10344,8				
75	5668					
50						
37.5	3228,2	+ 1531,6				
25.4	3206,9					
20	1999,9					
12.7	2042,0					
9.5	–					
4.75	2694,7					
2.00	154,5					
0.85	247,8					
0.425	298,9					
0.250	330,2					
0.150	355,1					
0.075	381,2					
Pan	389,2					
Total						

488617
361511

TOTAL SAMPLE

Initial Wt. of Sample _____ g

Final Wt. of Sample _____ g

% Error (CA) _____ %

BACK SIEVE

Wt. of Sample Before Wash 515,2 g

Wt. of Sample After Wash 389,2 g

% PASSING 0.075 m m

Difference (Before/After Wash) _____ g

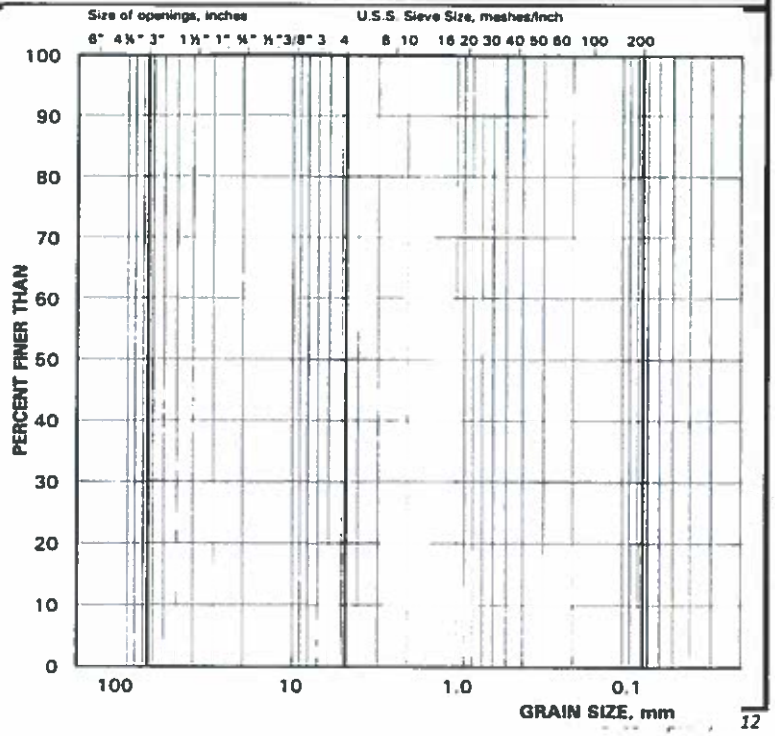
Pan Wt. _____ g

Total Fines _____ g

% Passing 0.075 mm Sieve _____ %

1664,71

Remarks Sample split @ 20mm sieve



Project No.	11-1221-0035
Project Name	AEM Meadowbank
Material	Coarse Filter (Zone 3)
Source	
Date Rec'd	
Date Tested	
Tested by	
Calculated by	
Checked By	
Sample Log-in No.	

Created April 23, 2012

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ANALYSE DES SOLS ET DES GRANULATS

CLIENT:	Agnico Eagle Mines Limited	**PLANCHE NO:**	
PROJET:	SD-3, 4 and 5	**PROJET NO:**	11118538-B1
		ÉCHANTILLON NO:	SD-4-5
		DATE:	SD4-09

Description du matériau:	Coarse filter	**Localisation du prélèvement:**	~~Stockpile~~ SD-4-5
Provenance (source 1ère):	In place		
Usage proposé:	Filter	**Prélevé par:**	Mickael Nadon
		Date de prélèvement:	

GRANULOMÉTRIE (% PASSANT) (LC 21-040)

Tamis				x mm	200 mm	150 mm	75 mm	25 mm	19 mm	12.5 mm	4.76 mm	2.00 mm	0.85 mm	0.425 mm	0.25 mm	0.15 mm	0.075 mm
Résultats cumulatifs				100	100	100	45	20	16	12	7	5	4	3	2	2	1.8
Résultats individuels																	
Exigences	min.		#N/A		100	86	35	5		0	0	0					
	max.		#N/A		100	100	100	40		18	9	5					

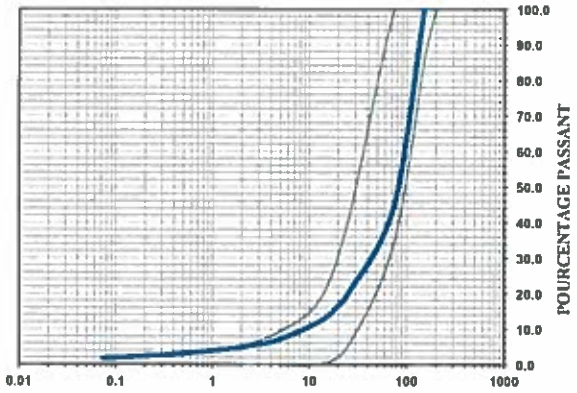
AUTRES ESSAIS	Résultats	Exigences min.	Exigences max.

ESSAI PROCTOR (NQ 2501-255)	Résultats
Masse volumique sèche maximale	(kg/m³)
Humidité optimale	(%)

Proctor à 0% de pierre : kg/m3
Facteur de correction:

Fuseau granulométrique: Coarse Filter: Central Dike

COURBE GRANULOMÉTRIQUE



% gravier	93.1%	Cu = #N/A	D_{85} = #N/A	D_{15} = 17.2
% sable	5.1%	Cc = #N/A	D_{60} = #N/A	D_{10} = 8.6
% silt/argile	1.8%		D_{50} = #N/A	

Remarques: Matériau conforme pour usage proposé

Préparé par: Sebastien Blackburn Vérifié par:

ANALYSE GRANULOMÉTRIQUE

LC 21-040 [X]
CSA A23.2-2A [ ]

CLIENT: Agnico Eagle Mines Limited

PROJET No.: 11118538-B1 ÉCHANTILLON No.: SD-4-5 SD4-09

APPAREILS DE MESURE UTILISÉS:
Tamis No. EE 13767
Étuve No. B23 3546
Balance No. 1,127,170,847
Séparateur No. Gilson model #SP-1
Agitateur mécanique No.

MASSE TOTALE DE L'ÉCHANTILLON avant:	52490.3	g
MASSE DU RETENU AU TAMIS 5 mm:	48861.7	g
MASSE DU PASSANT AU TAMIS 5 mm:	3615.1	g
MASSE TOTALE DE L'ÉCHANTILLON après:	52476.8	g
MASSE UTILISÉE 5 mm avant lavage :	515.2	g
MASSE UTILISÉE 5 mm après lavage :	389.2	g

Ne jamais écrire dans ces onglets

% PERTE: 0.03 %

% PERTE: 0.00 %

ANALYSE GRANULOMÉTRIQUE & DIMENSION DES GRAINS

TAMIS	MASSE RETENUE (IND.)	MASSE RETENUE (CUM.)	% RETENU (IND.)	% RETENU (CUM.)	% PASSANT (IND.)	% PASSANT (CUM.)
x mm		0.0		0		100
200 mm		0.0		0		100
150 mm		0.0		0		100
75 mm		28690.4		55		45
25 mm		42125.1		80		20
19 mm		44125.0		84		16
12.5 mm		46167.0		88		12
4.76 mm		48861.7		93		7
2.00 mm		154.5		95		5
0.85 mm		247.8		96		4
0.425 mm		298.9		97		3
0.25 mm		330.2		98		2
0.15 mm		355.1		98		2
0.075 mm		381.2		98.2		1.8
PLATEAU		389.2		98.30934602		1.690653983

REMARQUES:

EFFECTUÉ PAR: Mickael Nadon DATE:

VÉRIFIÉ PAR : DATE: