




APPENDIX 1-E

Multiple Account Analysis

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	Water management multiple account analysis		Reviewed by: Y. Jalbert		
			Rev.	Date	Page
	627215-1000-40ER-0003		00	December 9, 2015	i

Title of document:

WATER MANAGEMENT MULTIPLE ACCOUNT ANALYSIS

Client:

AGNICO EAGLE MINES LTD, MEADOWBANK DIVISION

Project:

**WHALE PIT PROJECT
GEOTECHNICAL AND WATER MANAGEMENT INFRASTRUCTURE**

Prepared by: Angie Arbaiza, Jr. Eng



2015.12.09
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Reviewed by: Yohan Jalbert, Eng




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Approved by: Yohan Jalbert, Eng



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	Water management multiple account analysis	Rev.	Date	Page
	627215-1000-40ER-0003	00	December 9, 2015	ii

REVISION INDEX

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 SNC • LAVALIN	TECHNICAL NOTE Water management multiple account analysis	Prepared by: A. Arbaiza Reviewed by: Y. Jalbert		
		Rev.	Date	Page
	627215-1000-40ER-0003	00	December 9, 2015	iii

TABLE OF CONTENTS


1.0	INTRODUCTION.....	1
2.0	DEFINITION OF OPTIONS.....	1
2.1	Option 1 – Pumping towards mammoth lake.....	1
2.2	Option 2 - Channel from Whale Tail Lake to Mammoth Lake	1
2.3	Option 3 – Rerouting Water towards Mammoth Lake.....	2
2.4	Option 4 – Rerouting Water towards Southern Watershed	2
2.5	Option 5 – Channel and rerouting water towards Mammoth Lake.....	2
2.6	Pros and cons of options.....	8
3.0	METHODOLOGY.....	9
4.0	RESULTS	12
5.0	DISCUSSION.....	18

LIST OF FIGURES

Figure 2-1: Option 1 – Pumping towards Mammoth Lake	3
Figure 2-2: Option 2 – Channel from Whale Tail Lake to Mammoth Lake	4
Figure 2-3: Option 3 – Rerouting water Towards Mammoth Lake	5
Figure 2-4: Option 4 – Rerouting water towards Southern Watershed	6
Figure 2-5: Option 5 – Channel and rerouting water towards Mammoth Lake.....	7
Figure 4-1: Weighting selected in close collaboration with Agnico Eagle and Golder Associates team.....	13
Figure 4-2: Detailed Results	14
Figure 4-3: Non Weighted Results	16
Figure 4-4: Weighted Results	17

LIST OF TABLES

Table 2-1: Comparison of the different options.....	8
Table 3-1: Sustainability categories.....	9
Table 3-2: Indicator Rating	10
Table 3-3: Calculation Methodology without Weighting	11
Table 3-4: Weighting	12
Table 5-1: Summary of the MAA Results	18

 SNC • LAVALIN	TECHNICAL NOTE		Prepared by: A. Arbaiza		
	Water management multiple account analysis		Reviewed by: Y. Jalbert		
	627215-1000-40ER-0003		Rev.	Date	Page
			00	December 9, 2015	1

1.0 INTRODUCTION

Agnico-Eagle Mines Limited (Agnico Eagle) is currently developing a new gold project called Whale Tail Pit Project. The project is located approximately 50 km northwest of the current Meadowbank facilities. A Scoping Study of the Amaruq Project has been initiated in the fall of 2014. Part of this study is related to the surface infrastructure required to manage the water. Agnico-Eagle has mandated SNC-Lavalin Inc. (SLI) to perform the conceptual study of the geotechnical and water management infrastructure for the project as well as to complete permitting level engineering.

Following a site visit performed in the first week of September and the reception of the Photosat survey of the study area, a multiple account analysis (MAA) session was held on September 24, 2015 where options were evaluated and discussed. The objective of this document is to present the results of the MAA session, the options developed for the water management and the rationale behind the selected options according to four (4) pillars: economy, society, environment and viability.

This document presents an overview of the studied options, the methodology and results associated with the comparative analysis, and a discussion of the results.

2.0 DEFINITION OF OPTIONS


2.1 *Option 1 – Pumping towards mammoth lake*

This option represents the one developed during the Scoping Study. The concept is to block the flow of water with a dike 10 m high and 800 m long to obtain sufficient capacity to store storm water. The watershed for the remaining section of the Whale Tail Lake will have to be managed in order to safely operate the Amaruq open pits.

The storm water management concept for the option is to use the south basin, the southern section of Whale Tail Lake, to temporarily store surface runoff water for the selected design flood before it is pumped into Mammoth Lake, downstream of the Mammoth dike. The storage capacity of the south basin of Whale Tail Lake will be managed to sufficiently contain the inflow design flood and subsequent floods during the pond dewatering, while maintaining a level of water to ensure the resident fish population is protected (i.e. sufficient overwintering). The dewatering process consists of pumping the pond in order to be back to its initial water level within a preset time period.

2.2 *Option 2 - Channel from Whale Tail Lake to Mammoth Lake*

Similar to Option 1, Option 2 concept is to block the flow of water with a dike to promote its diversion via a diversion channel directed towards Mammoth Lake. The proposed dike would be about 6 m high and 750 m long (4 m lower than with option 1). The design of the channel will be based on the natural outlet of the Whale Tail Lake to respect the seasonal water level and to minimize impact on flora and fish habitats.

 SNC • LAVALIN	TECHNICAL NOTE		Prepared by: A. Arbaiza		
	Water management multiple account analysis		Reviewed by: Y. Jalbert		
			Rev.	Date	Page
	627215-1000-40ER-0003		00	December 9, 2015	2

2.3 Option 3 – Rerouting Water towards Mammoth Lake

Option 3 consists of blocking the water flow with the construction of the Whale Tail Dike and rerouting the water flow towards the Northwest passage to Mammoth watershed. Whale Tail Lake will be raised to approximately 160 m to permit flow towards Mammoth Lake, where the new outlet will be constructed. Whale Tail Dike will be 1,500 m long and constructed ± 14 m high, about 4 m higher than Option 1. The Whale Tail South Basin created by the construction of the dike will partially flood the upstream land. A freeboard dike will be constructed at the southern portion of the basin to maintain the water into the proper watershed. Access roads to the spillway will have to be constructed and maintained.

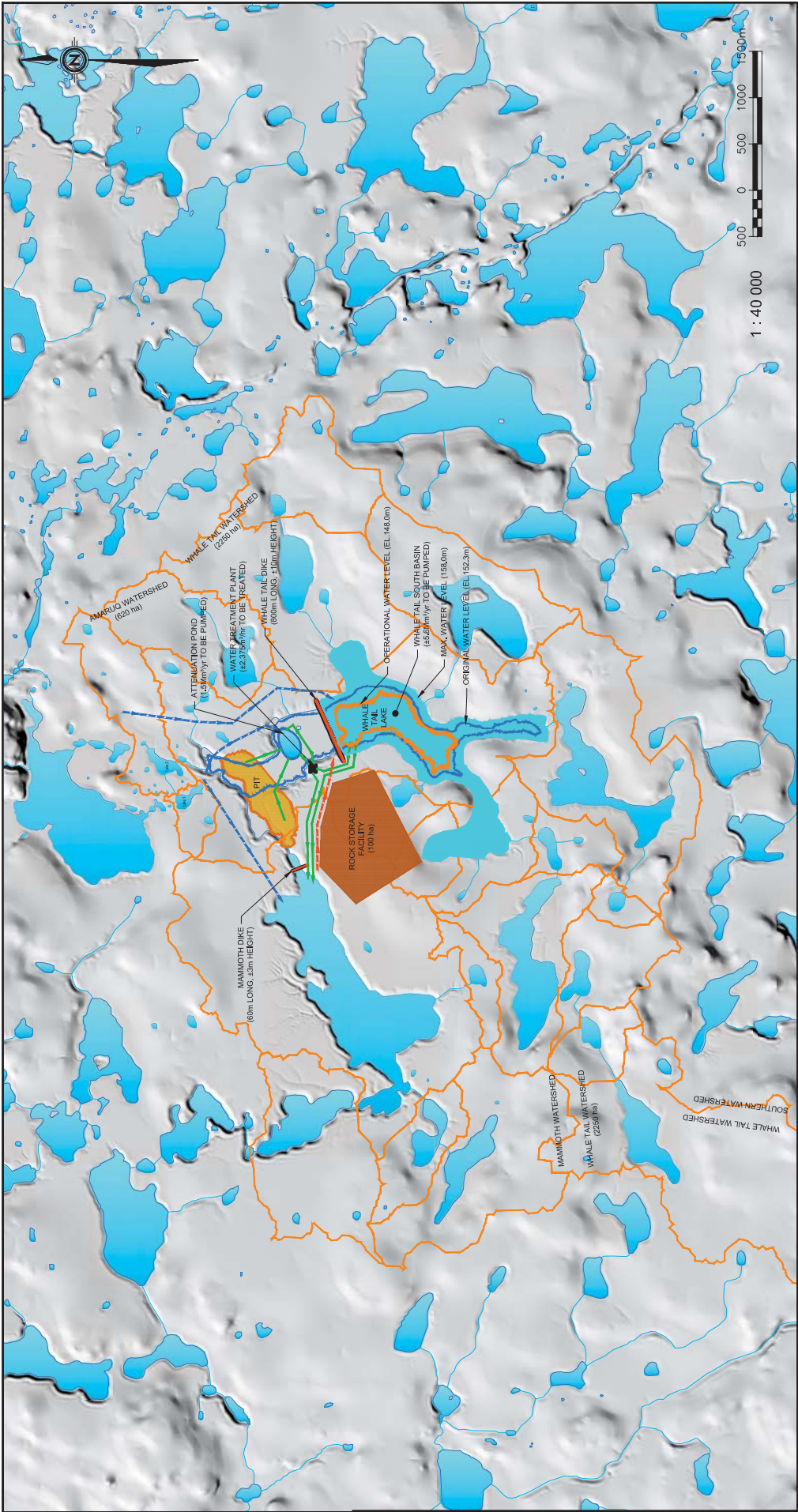
2.4 Option 4 – Rerouting Water towards Southern Watershed

Option 4 is similar to Option 3, but all water is rerouted towards the Southern watershed. The dike would need to be constructed at the same elevation than Option 3 (about 14 m high). In this option, the flow to the Northern passage will be blocked with a rockfill dike and the construction of a ditch and a spillway at the southern portion of the basin will be required. This option implies that the general water balance will be modified; about 5.6 Mm³ of water will be added into the Southern watershed. This volume of water will be reduced to the Northern watershed.

2.5 Option 5 – Channel and rerouting water towards Mammoth Lake

Option 5 consists of blocking the water flow with the construction of the Whale Tail Dike, raising the water level of the Whale Tail Lake to approximately 156 m, and rerouting the water flow towards the Northwest passage to Mammoth watershed through a channel. This channel will be constructed to reduce the natural spillway at ± 160 m (option 3) to 156 m. The Whale Tail Dike will be 800 m long and 10 m high.

Figures 2-1 to 2-5 illustrate the five (5) options described in the previous sections.




Titre du projet:		AGNICO EAGLE - MEADOWBANK DIVISION	
		WHALE TAIL PIT PROJECT	
Titre du dessin:		OPTION TO BE DEVELOPED	
		OPTION 1 - PUMPING TOWARDS MAMMOUTH LAKE	
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Vérif:	Y. J.	Date:	2015-12-01
		Projet no:	627215
		Figure no:	2-1

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**AGNICO EAGLE**

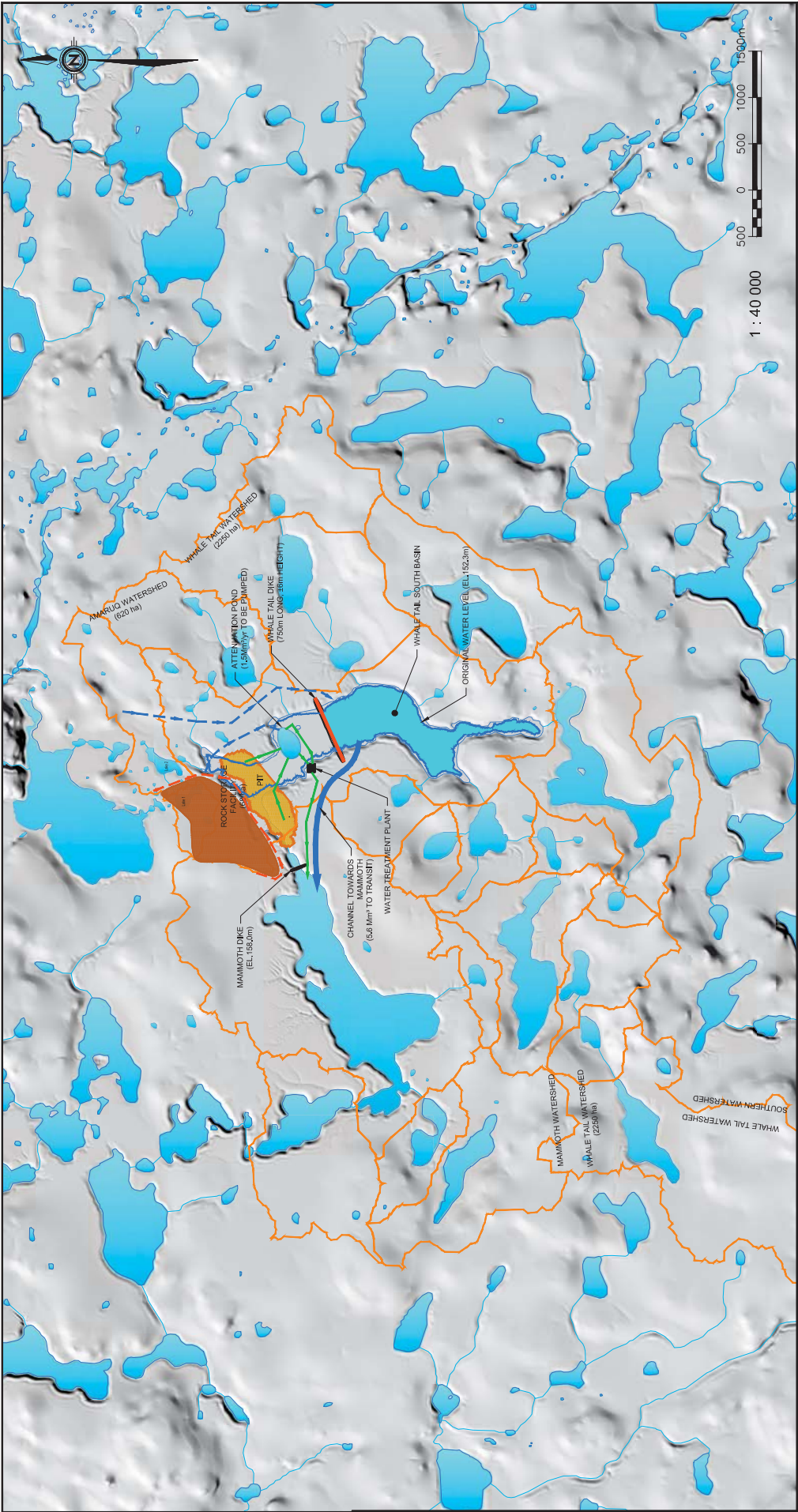
Préparé par:

**SNC-LAVALIN**

Mines et Métallurgie
5500, boul. des Galeries, bur. 200, Québec (Québec), Canada G2K 2E2
Téléphone: (418) 621-5500, Télécopieur: (418) 621-8887

Légende:

- WATERSHED LIMITS
- LAKE
- PROPOSED DIVERSION DITCH
- WATERCOURSE
- PROPOSED COLLECTION DITCH
- PROPOSED PIPELINES



Titre du projet:		AGNICO EAGLE - MEADOWBANK DIVISION	
		WHALE TAIL PIT PROJECT	
Titre du dessin:		OPTION TO BE DEVELOPED	
		OPTION 2 - CHANNEL FROM WHALE TAIL LAKE TO MAMMOTH LAKE	
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		Projet no.:	627215
		Figure no.:	2-2







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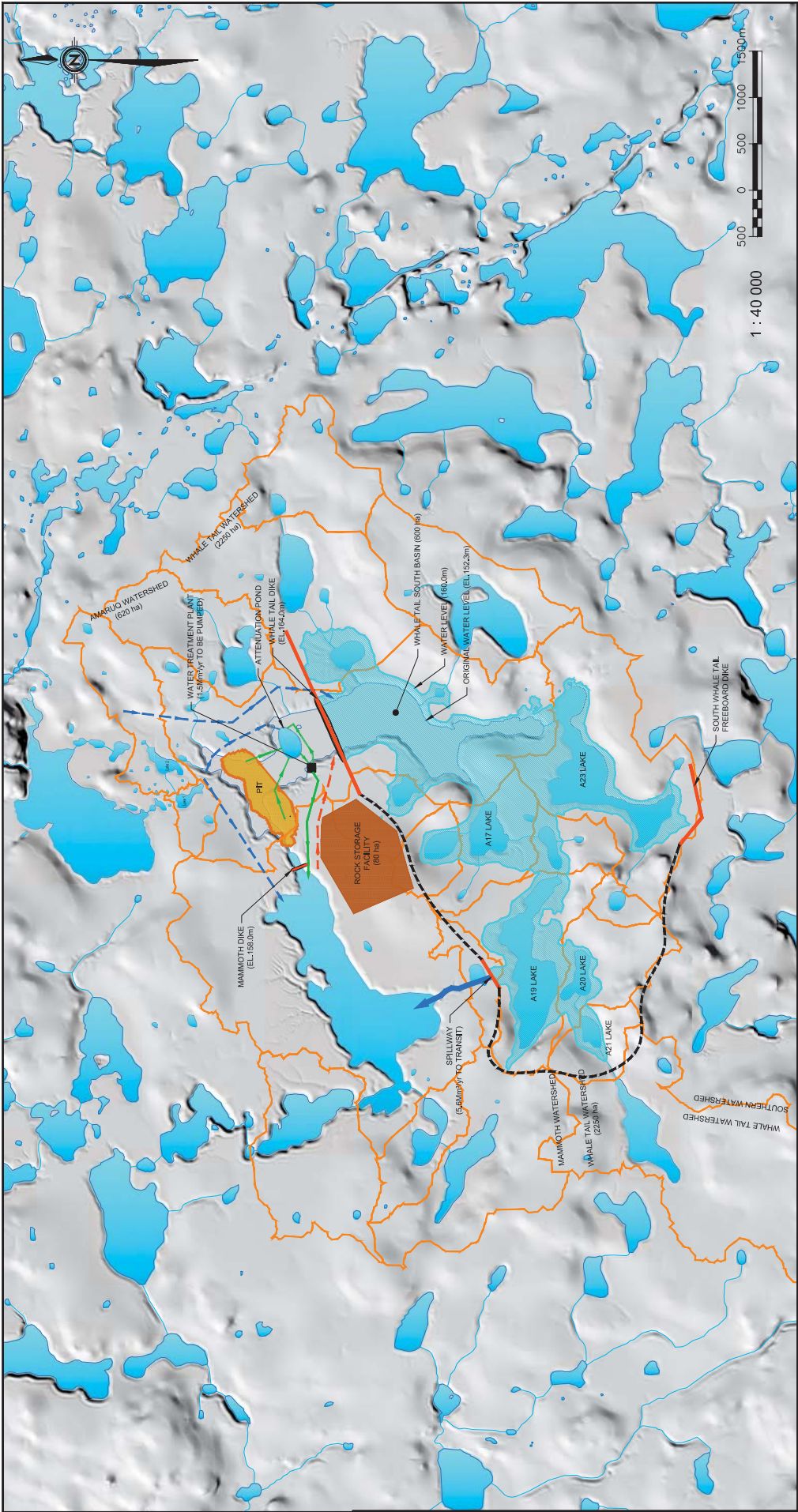
**AGNICO EAGLE**

Préparé par:

**SNC-LAVALIN**
Développement minier durable
Mines et Métallurgie
5500, boul. des Galeries, bur. 200, Québec (Québec), Canada G2K 2E2
Téléphone: (418) 621-5500, Télécopieur: (418) 621-8887

Légende:

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	PROPOSED DIVERSION DITCH
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	PROPOSED COLLECTION DITCH
	PROPOSED PIPELINES



Titre du projet:		AGNICO EAGLE - MEADOWBANK DIVISION	
		WHALE TAIL PIT PROJECT	
Titre du dessin:		OPTION TO BE DEVELOPED	
		OPTION 3 - REROUTING WATER TOWARDS MAMMOTH LAKE	
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		Projet no:	627215
		Figure no:	2-3

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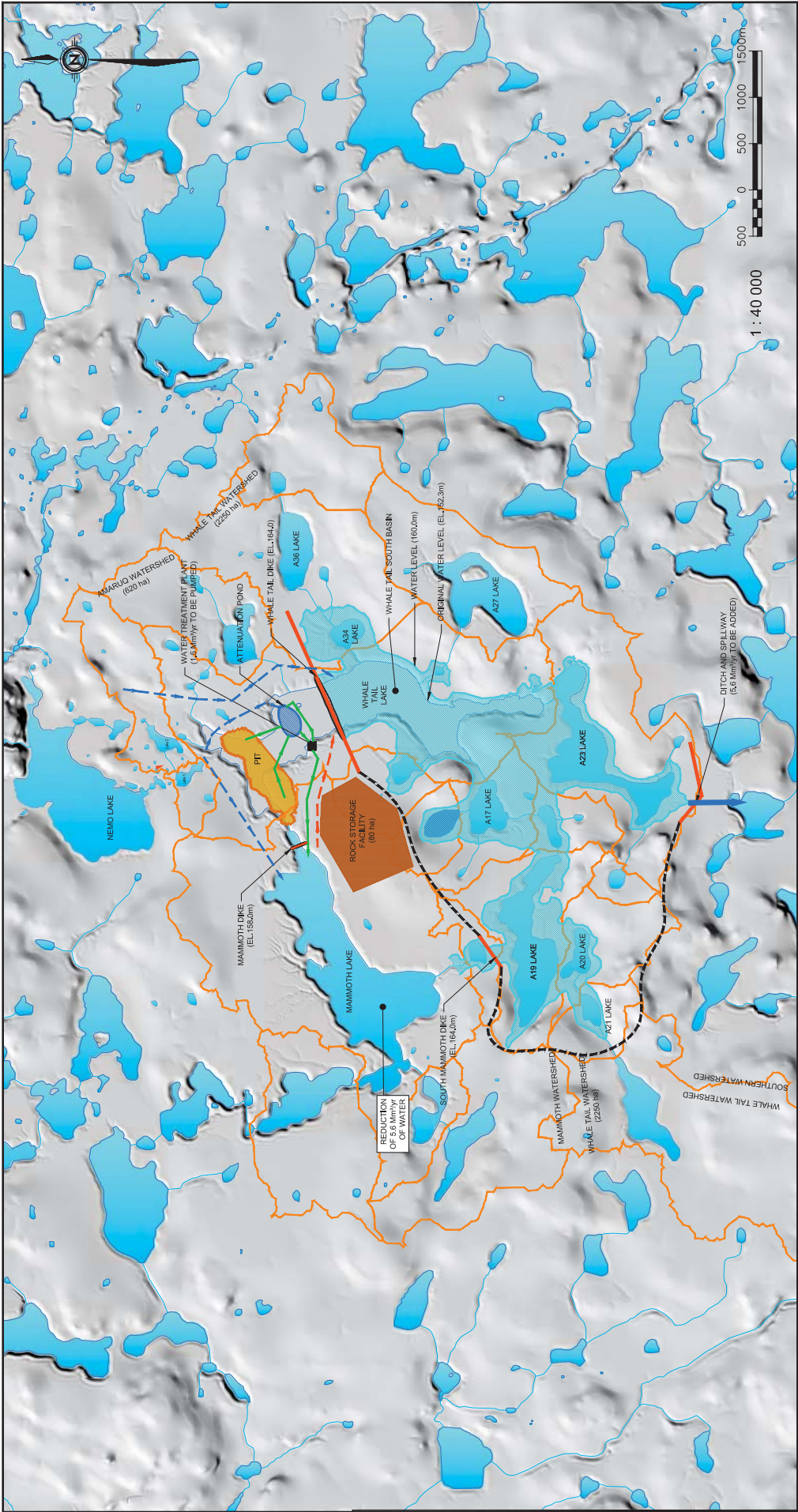
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Préparé par:

**SNC-LAVALIN**
Développement minier durable
Mines et Métallurgie
5500, boul. des Galeries, bur. 200, Québec (Québec), Canada G2K 2E2
Téléphone: (418) 621-5500, Télécopieur: (418) 621-8887

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- PROPOSED COLLECTION DITCH
- PROPOSED PIPELINES
- ACCESS ROAD




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		WHALE TAIL PIT PROJECT	
Titre du dessin:		OPTION TO BE DEVELOPED	
		OPTION 4 - REROUTING TOWARDS SOUTHERN WATERSHED	
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Y.J.	Date:	2015-12-01	Figure no:
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**AGNICO EAGLE**

Préparé par:

**SNC-LAVALIN**

Développement minier durable
Mines et Métallurgie
5500, boul. des Galeries, bur. 200, Québec (Québec), Canada G2K 2E2
Téléphone: (418) 621-5500, Télécopieur: (418) 621-8887

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