

**APPENDIX U**  
**ASSESSMENT OF ALTERNATIVES SUPPORTING DOCUMENTATION**



**APPENDIX U1  
MINE ROCK AREA (MRA) ALTERNATIVES ASSESSMENT REPORT –  
KNIGHT PIÉSOLD CONSULTANTS**



**IAMGOLD CORPORATION  
CÔTÉ GOLD PROJECT**



**MINE ROCK AREA ALTERNATIVES ASSESSMENT**

**PREPARED FOR:**

IAMGOLD Corporation  
401 Bay Street, Suite 3200  
Toronto, Ontario, M5H 2Y4

**PREPARED BY:**

Knight Piésold Ltd.  
1650 Main Street West  
North Bay, ON P1B 8G5 Canada  
p. +1.705.476.2165 | f. +1.705.474.8095

NB101-497/3-2  
Rev 0  
March 5, 2013

***Knight Piésold***  
CONSULTING  
[www.knightpiesold.com](http://www.knightpiesold.com)



ISO 9001 - FS 64925  
ISO 14001 - EMS 550121  
OHSAS 18001 - OHS 550122

# IAMGOLD CORPORATION CÔTÉ GOLD PROJECT

## MINE ROCK AREA ALTERNATIVES ASSESSMENT NB101-497/3-2

Rev	Description	Date	Approved
0	Issued in Final	March 5, 2013	

***Knight Piésold Ltd.***  
1650 Main Street West  
North Bay, Ontario Canada P1B 8G5  
Telephone: (705) 476-2165  
Facsimile: (705) 474-8095  
[www.knightpiesold.com](http://www.knightpiesold.com)

***Knight Piésold***  
**CONSULTING**

## EXECUTIVE SUMMARY

This report presents an assessment of alternatives for the Mine Rock Storage Area (MRA) for the Côté Gold Project. The selection of the preferred MRA options is the focus of this report. Environmental, socio-economic, technical and economic criteria were considered to determine the preferred Options.

An initial site selection and pre-screening review process identified six MRA Options as suitable candidates for mine rock storage. Six Options were carried forward to be evaluated further using a Multiple Accounts Analysis (MAA) to rank the options and select the preferred MRA options.

The MAA was completed by establishing accounts, sub-accounts and indicators to compare and rank the identified MRA Options. The MAA was completed by maintaining account weighting factors consistent with the recommendations suggested in Environment Canada's guidelines. Sub-account and indicator weighting factors were established based on discussions with IAMGOLD and input from a multidisciplinary team to ensure that the evaluation accurately reflected the project parameters. A multi-step matrix type evaluation was used to establish a numerical rating for each Option. The MAA was completed to limit bias towards any of the MRA Options that were considered.

The results of the MAA indicate that MRA 1, 2 and 3 are the preferred MRA Options for the Project. The results of the sensitivity analyses support the selection of MRA 1, 2 and 3.

**TABLE OF CONTENTS**

	PAGE
EXECUTIVE SUMMARY.....	I
TABLE OF CONTENTS .....	i
1 – INTRODUCTION.....	1
1.1 PROJECT LOCATION.....	1
1.2 SITE DESCRIPTION .....	1
1.3 PROJECT DESCRIPTION.....	1
1.4 SCOPE OF REPORT .....	4
1.5 BACKGROUND .....	4
2 – MINE ROCK STORAGE .....	5
2.1 GENERAL.....	5
2.2 SUMMARY OF MRA OPTIONS .....	6
2.2.1 Option MRA 1 .....	6
2.2.2 Option MRA 2 .....	6
2.2.3 Option MRA 3 .....	9
2.2.4 Option MRA 4 .....	9
2.2.5 Option MRA 6 .....	10
2.2.6 Option MRA 7 .....	10
3 – ALTERNATIVES ASSESSMENT METHODOLOGY .....	11
3.1 MULTIPLE ACCOUNTS ANALYSIS METHOD.....	11
3.2 ACCOUNTS, SUB-ACCOUNTS AND INDICATORS.....	11
3.3 VALUE-BASED DECISION PROCESS.....	13
3.4 MAA METHOD OF ANALYSIS.....	21
3.5 SENSITIVITY ANALYSIS .....	21
4 – RESULTS AND SENSITIVITY ANALYSIS .....	23
4.1 MAA RESULTS.....	23
4.2 SENSITIVITY ANALYSIS .....	24
4.2.1 Sensitivity Analysis 1 - Economics Excluded.....	24
4.2.2 Sensitivity Analysis 2 – Land Acquisition Screening.....	24
4.2.3 Sensitivity Analysis 3: Terrestrial Ecology Screening.....	25
4.2.4 Sensitivity Analysis 4: Technical Screening.....	25
4.2.5 Sensitivity Analysis 5: Indicators Set to Unity.....	26
5 – CONCLUSIONS AND RECOMMENDATIONS.....	27
5.1 CONCLUSION .....	27
5.2 RECOMMENDATIONS.....	27
6 – REFERENCES.....	28
7 – CERTIFICATION.....	29



## TABLES

Table 2.1	Summary of Mine Rock Area Option Details.....	8
Table 3.1	Account, Sub-Account and Indicator Rationale.....	12
Table 3.2	Account, Sub-Account and Indicator Weights.....	14
Table 3.3	Summary of Indicator Values.....	15
Table 3.4	Summary of Indicator Value Scales.....	16
Table 3.5	Scoring Summary.....	19
Table 4.1	Ranking Summary - Base Case.....	23
Table 4.2	Ranking Summary - Sensitivity Analysis 1: Economics Excluded.....	24
Table 4.3	Ranking Summary - Sensitivity Analysis 2: Land Acquisition Screening.....	24
Table 4.4	Ranking Summary - Sensitivity Analysis 3: Terrestrial Ecology Screening.....	25
Table 4.5	Ranking Summary - Sensitivity Analysis 4: Technical Screening.....	25
Table 4.6	Ranking Summary - Sensitivity Analysis 5: Indicators Set to Unity.....	26

## FIGURES

Figure 1.1	Project Location Map.....	2
Figure 1.2	Overall Site Layout.....	3
Figure 2.1	Mine Rock Areas.....	7

## APPENDICES

Appendix A Description of Indicators

**ABBREVIATIONS**

EC .....	Environment Canada
ha .....	hectare
IAMGOLD .....	IAMGOLD Corporation
km .....	kilometre
KPL .....	Knight Piésold Ltd
m .....	metre
MAA .....	multiple accounts analysis
MRA .....	mine rock storage areas
m <sup>3</sup> .....	cubic metres
NAG .....	non-acid generating
O.Reg.....	Ontario Regulation
PAG .....	potentially acid generating
TMF.....	tailings management facility

## 1 – INTRODUCTION

### 1.1 PROJECT LOCATION

IAMGOLD Corporation (IAMGOLD) is in the process of developing the Côté Gold Project (the Project), which includes a large tonnage, low to medium grade gold deposit within Chester and Neville Townships, District of Sudbury, approximately 20 kilometres (km) southwest of Gogama, Ontario. The Project area is situated just west of Highway 144, approximately 200 km by road northwest of Sudbury. Work is currently being completed to support upcoming pre-feasibility design and permitting. Figure 1.1 shows the location of the Côté Gold Project and the nearby communities.

### 1.2 SITE DESCRIPTION

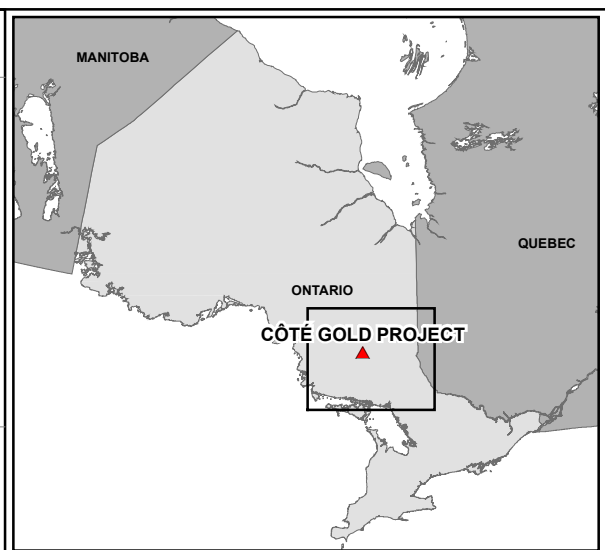
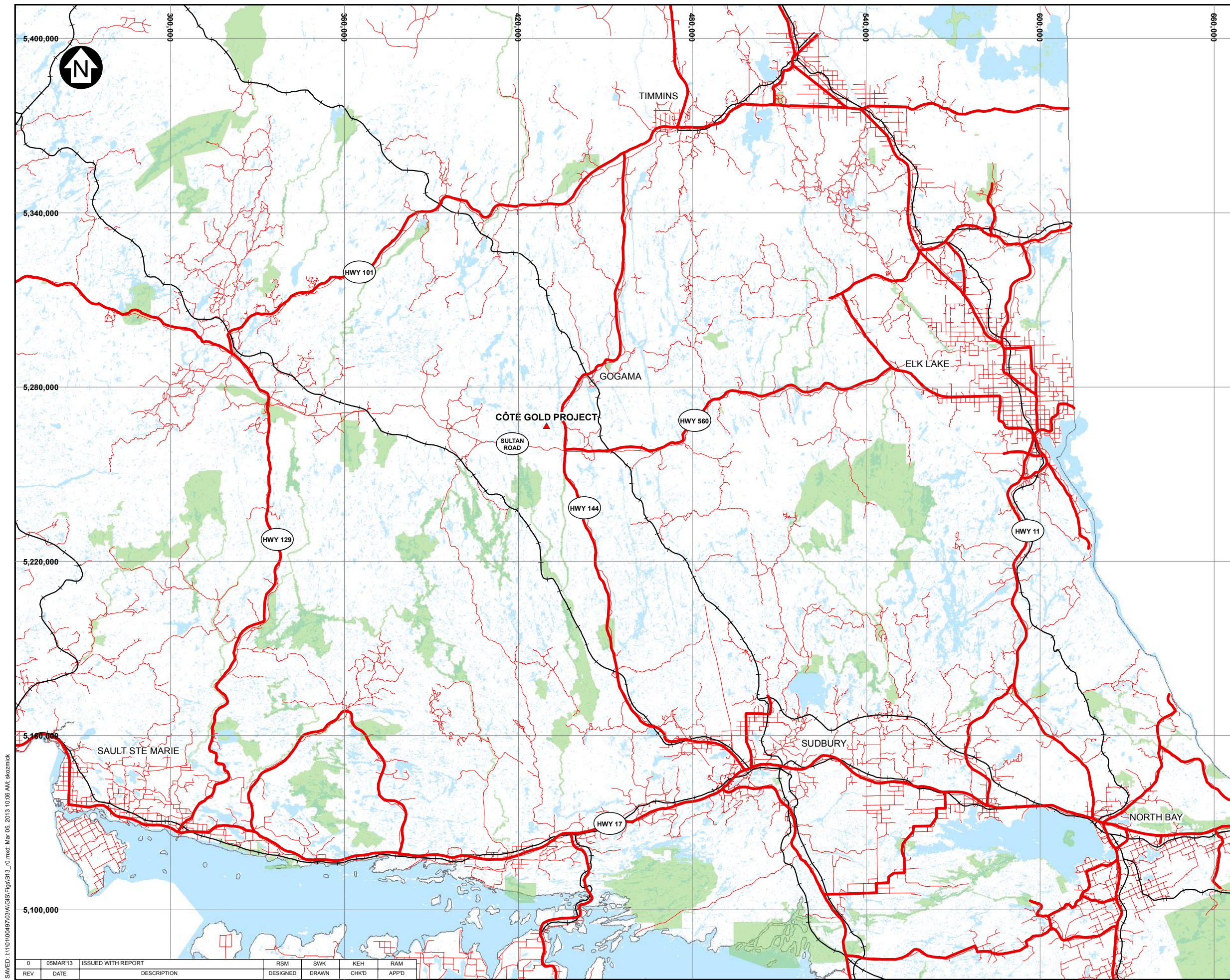
Topography at the project site is characterized by gentle to steep hilly terrain with ground surface elevations ranging from approximately El. 365 m to greater than El. 450 m. Low lying areas are characterized by abundant water bodies, including small to medium lakes, streams and swamps/boggy areas. Bedrock is exposed or very close to surface in most areas, with the exception of valley floors and low lying wet areas. The Project site is located within the Upper Mattagami River Watershed, which drains northward through the City of Timmins to James Bay. The site is located on two main sub-watersheds, the Mollie River system and the Mesomikenda River system. The intercontinental watershed divide is located south of the Project property. Surface water flows at the Project site are controlled by a number of lakes and creeks. The vegetation is generally dense in areas where the forest has not been historically harvested. The climate of this area is typical of northern areas within the Canadian Shield, with long cold winters, short warm summers and a moderate amount of precipitation throughout the year.

### 1.3 PROJECT DESCRIPTION

The Côté Gold Project will consist of a large open pit, Tailing Management Facility (TMF), Mine Rock and Overburden Storage Areas (MRA), Process Plant and ancillary facilities. A conceptual general site layout, detailing the proposed locations for the Project infrastructure, is shown on Figure 1.2.

Ore will be processed (crushed, ground, concentrated) at an on-site processing facility. During the operations phase of the Project, ore will be fed to the mill at an average rate of approximately 55,000 tonnes per day. The operating life of the mine is estimated to be approximately 15 years.

Disturbed areas within the Project footprint will be reclaimed in a progressive manner during all Project phases. Natural drainage patterns will be restored as much as possible. The ultimate goal of mine decommissioning will be to reclaim land within the Project footprint to allow future use by resident biota and as determined through consultation with the public, Aboriginal peoples and government. A certified Closure Plan for the Project will be prepared as required by Ontario Regulation (O.Reg.) 240/00 as amended by O.Reg. 307/12 (Ministry of the Northern Development and Mines, 2006)

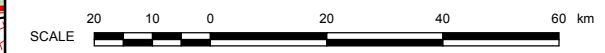


**LEGEND:**

- ▲ CÔTÉ GOLD PROJECT LOCATION
- COMMUNITY/SERVICE CENTRE
- ROAD
- +— RAILWAY
- WATER
- PARK

**NOTES:**

1. BASE MAP: © HER MAJESTY THE QUEEN IN RIGHTS OF CANADA DEPARTMENT OF NATURAL RESOURCES (2009). ALL RIGHTS RESERVED.
2. CO-ORDINATE GRID IS IN METRES.  
DATUM: NAD83  
PROJECTION: UTM ZONE 17

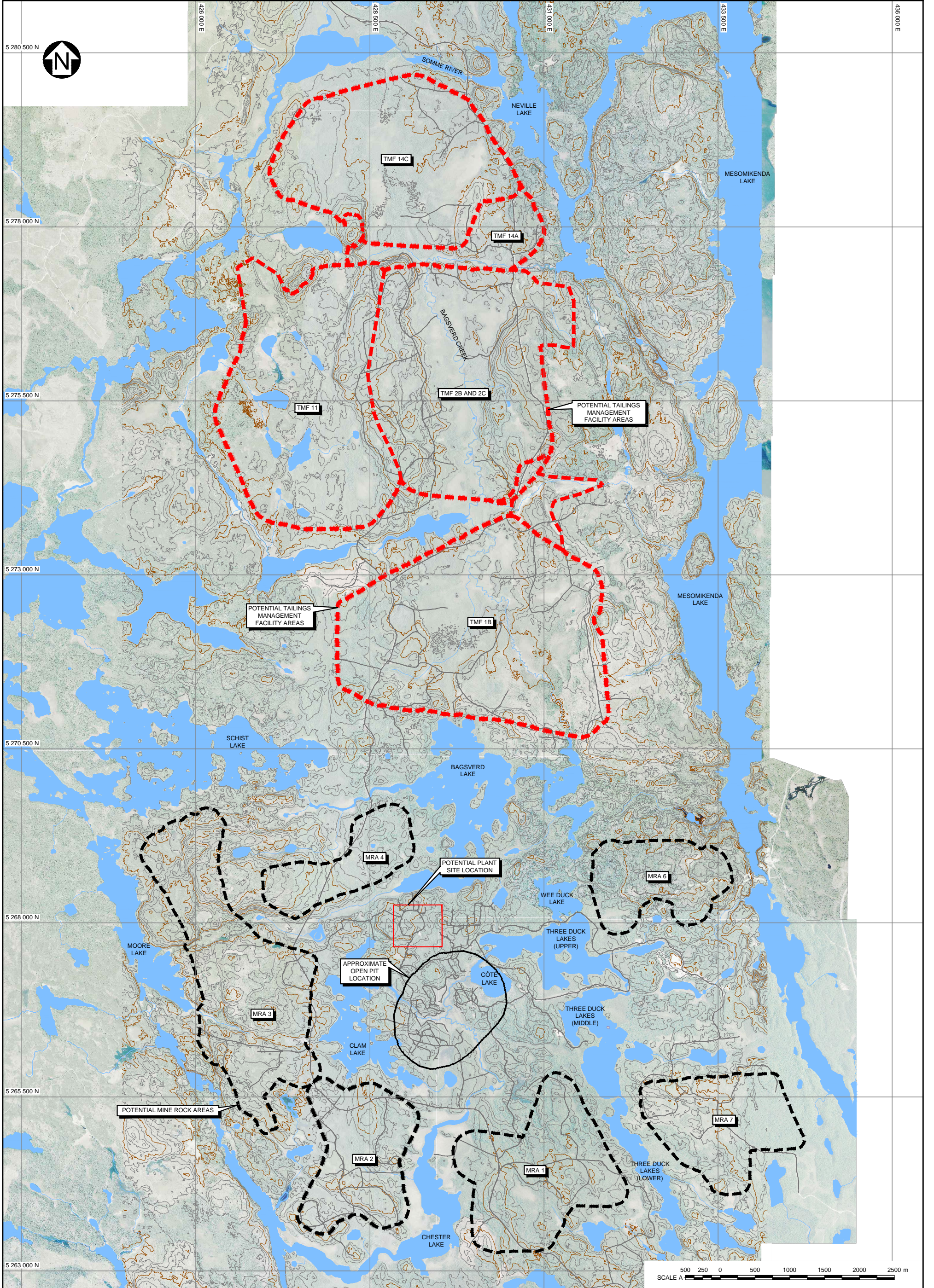


IAMGOLD CORPORATION  
 CÔTÉ GOLD PROJECT  
 PROJECT LOCATION MAP

<b>Knight Piésold</b> CONSULTING	PIA NO. NB101-497/3	REF NO. 2
	<b>FIGURE 1.1</b>	

SAVED: I:\11010497\03\GIS\Fig\B13\_0.mxd, Mar 05, 2013 10:06 AM, skozmick

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	CHKD	APPD
0	05MAR13	ISSUED WITH REPORT	RSM	SWK	KEH	RAM



- LEGEND:**
- POTENTIAL PLANT SITE LOCATION
  - EXISTING TRAIL/ATV/TRUCK ROADS
  - POTENTIAL TAILINGS MANAGEMENT FACILITY AREAS
  - POTENTIAL MINE ROCK AREAS

- NOTES:**
1. COORDINATE GRID IS UTM NAD83, ZONE 17.
  2. PLAN BASED ON INFORMATION PROVIDED BY IAMGOLD CORPORATION, RECEIVED AUGUST, 2012.
  3. CONTOUR INTERVAL IS 5 METRES.
  4. ELEVATIONS ARE IN METRES.

IAMGOLD CORPORATION  
 CÔTÉ GOLD PROJECT  
 OVERALL SITE LAYOUT

**Knight Piésold**  
 CONSULTING

P/A NO. NB101-497/3	REF NO. 2
<b>FIGURE 1.2</b>	
	REV 0

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	CHKD	APPD
0	05MAR'13	ISSUED WITH REPORT	RSM	MMD	KEH	RAM

#### 1.4 SCOPE OF REPORT

Knight Piésold Ltd. (KPL) has been retained by IAMGOLD to complete the MRA alternatives assessment for the Project. The objective of this work is to identify the most appropriate locations to store the mine rock based on environmental, socio-economic, technical and economic considerations. The most appropriate areas shall have a minimal adverse effect on the environment and be technically sound with minimal potential for physical and economic failure. The alternatives assessment has been completed following Environment Canada's guideline (Environment Canada, 2011).

This report summarizes the results of the multiple accounts analysis used to rank the MRA Options for mine rock storage. The following items are addressed in this report:

1. Review and summary of the MRA Options evaluated.
2. A discussion of the multiple accounts assessment methodology, approach to value-based analysis, and subsequent sensitivity analyses.
3. Summary of the indicator values, scales and scoring.
4. Results of the Multiple Accounts Analysis and sensitivity analysis for the MRA Options.

#### 1.5 BACKGROUND

A pre-screening assessment has been completed whereby a total of 12 candidate MRA sites were identified and investigated as part of an initial pre-screening assessment (KPL, 2013).

A pre-screening assessment, employing fatal flaw analysis included the identification of factors or elements that are so severe or unfavourable that they would eliminate the site as a candidate MRA Option. A comparative analyses of the remaining sites was employed to optimize the decision making process and allow the Options that have a reasonable likelihood of success to be focussed upon.

The screening and comparative evaluations carried out identified Sites 1, 2, 3, 4, 6 and 7 as suitable candidates for mine rock storage for further analysis. The general location of the MRA Options (Options MRA 1, 2, 3, 4, 6 and 7) are shown on Figure 1.2.

## 2 – MINE ROCK STORAGE

### 2.1 GENERAL

The MRA will be required to store approximately 840 million tonnes of mine rock and 13 million tonnes of overburden over a period of approximately 15 years based on the current mine plan. The required storage volume for the mine rock is approximately 442.1 million m<sup>3</sup> based on an estimated average in situ placed dry density of 1.9 tonnes/m<sup>3</sup>.

The MRA will be founded on competent bedrock or surficial soils suitable to support the pile and provide long term stability. Foundation preparation will include, at a minimum, the removal of unsuitable materials to achieve the appropriate foundation conditions. The MRA foundation will be inspected during construction to confirm suitable foundation conditions exist.

The mine rock pile will be constructed with an overall slope of approximately 2.5H:1V. The slope will include 10 m tall benches with mid slopes at 2H:1V and 7 m wide mid-slope benches. The mine rock pile slopes will provide long term stability and allow for concurrent reclamation of the slope.

Based on the work completed to date, the potential for acid rock drainage and metal leaching from the MRA is low (KPL, 2012).

The mine rock stored in the MRA will consist of NAG rock. Geochemical test results to date indicates that approximately 10 % of the mine rock is PAG and that the PAG rock is associated with specific rock deposits in the open pit (KPL, 2012). PAG mine rock will be managed on surface during mine operations in segregated stockpiles to facilitate collection and treatment of runoff from the piles, as/if needed.

Water management is an integral part of the management and operation of the MRA. The MRA design will include runoff water management measures within the MRA catchment areas. If required, provisions will be included for collection, monitoring and controlled release of treated surface runoff.

Water quality will be monitored at runoff collection points for the MRA during initial construction, throughout operations and after closure. The majority of mine rock and overburden piles are expected to be relatively inert and the runoff likely suitable for direct discharge to the environment. Any water requiring treatment from the mine rock areas (i.e., including the PAG mine rock pile) will be collected and pumped to a runoff collection pond located near the plant site and ultimately managed in the TMF for eventual reclamation in the milling process. Excess water not needed in the process will be treated (as necessary) and discharged. Collection details will include site grading, ditches, catch basins and pipeworks.

Closure and reclamation are important considerations in the evaluation of the MRA alternatives. Closure of the facilities will address long-term physical and chemical stability and potential impacts to the surrounding environment. The fundamental considerations are for the physical stability of the mine rock piles, prevention of fugitive dust emissions from the mine rock surfaces and appropriate post-closure water management. An additional requirement is to ensure that water quality objectives will continue to be met after closure. Although a significant amount of further testing is required, results to date indicates that the mine rock is relatively inert and is not expected to produce acid rock drainage (ARD) or significant metal leaching after closure.

Specific reclamation activities will include physical stabilization measures, select capping and vegetation measures to meet closure objectives, surface water management details and implementation of appropriate water management and water quality measures.

## 2.2 SUMMARY OF MRA OPTIONS

The MRA options have been identified and preliminary concepts have been developed for each location. Various assumptions have been made with respect to foundation conditions and stability. It should be noted that no detailed analyses (stability, hydrology, hydrogeology, etc.) have been completed.

The general arrangement of the MRA Options is shown on Figure 2.1. Pertinent details of MRA Options 1, 2, 3, 4, 6 and 7 are summarized on Table 2.1 and described in the following sections.

### 2.2.1 Option MRA 1

MRA 1 is located south-southeast of the open pit, directly east of Chester Lake and west of Three Duck Lakes (lower) in the Mollie River sub-watershed. The mine rock pile at this location has an approximate footprint area of 372 ha with a final elevation of 481 m (assuming a pile height of 100 m). Based on these dimensions, MRA 1 has the capacity to store 54 % (i.e., 240 million m<sup>3</sup>) of the total planned mine rock production volume.

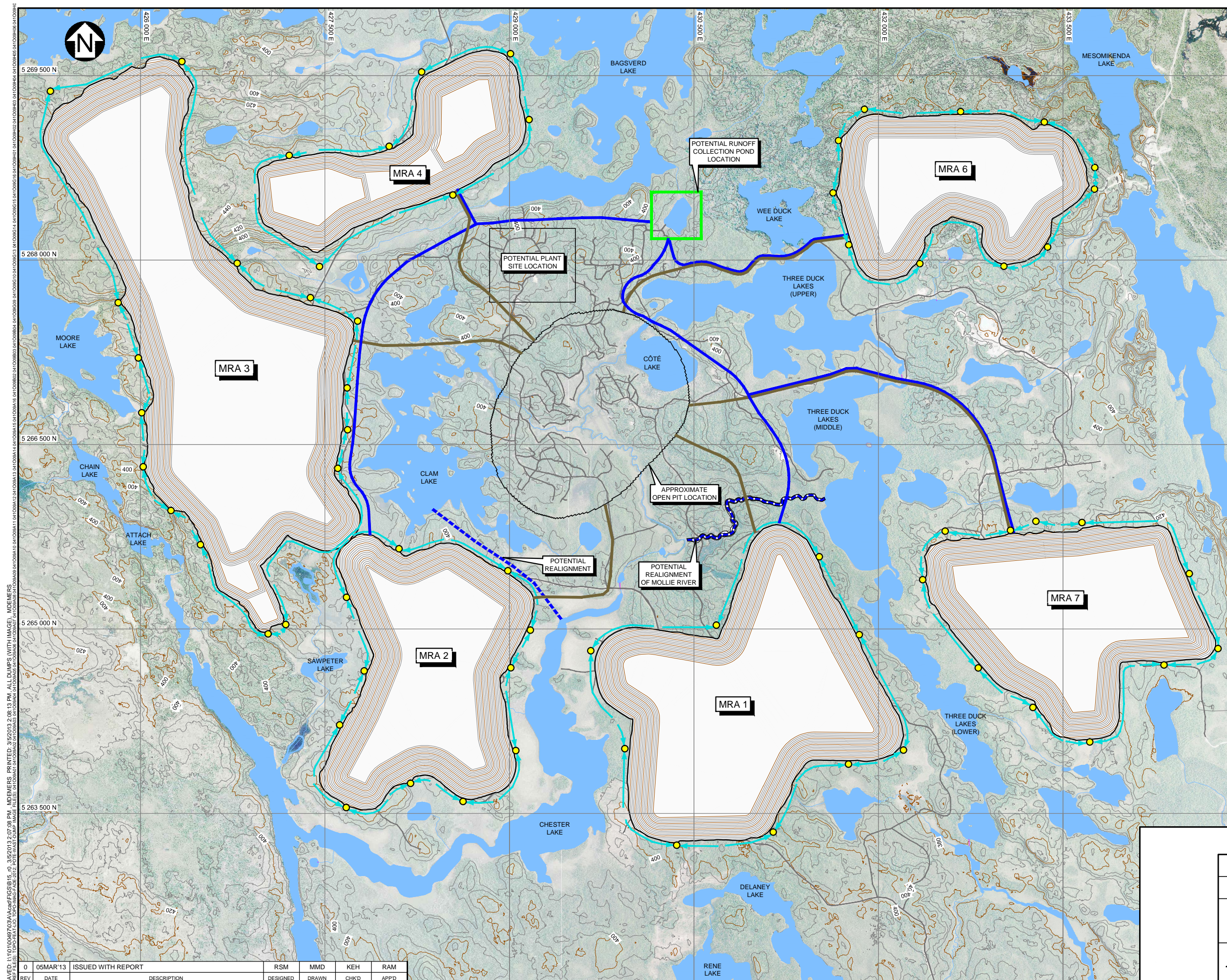
Specific comments on Option MRA 1 are provided below:

- Located close to the open pit
- Located entirely on IAMGOLD mine claims
- Some geotechnical investigations have been completed and this option is considered to possess moderate foundation conditions along the perimeter of the MRA
- Condemnation drilling has been carried out in the area and a reserve of ore is potentially present within the site
- One water crossing will be required for the haul road
- Insufficient storage capacity to store the total planned mine rock production volume
- Additional capacity can be achieved by expanding the pile from a height of 100 m to 150 m, which would store 72% (i.e., 319 million m<sup>3</sup>) of the total planned mine rock production volume

### 2.2.2 Option MRA 2

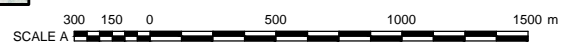
MRA 2 is located south-southwest of the open pit, directly northwest of Chester Lake and south of Clam Lake in the Mollie River sub-watershed. The mine rock pile at this location has an approximate footprint area of 269 ha with a final elevation of 487 m (assuming a pile height of 100 m). Based on these dimensions, MRA 2 has the capacity to store 39 % (i.e., 174 million m<sup>3</sup>) of the total planned mine rock production volume.





- LEGEND:**
- WATER
  - EXISTING TRAIL/ATV/TRUCK ROADS
  - POTENTIAL PLANT SITE LOCATION
  - APPROXIMATE PIT LOCATION
  - POTENTIAL RUNOFF COLLECTION POND
  - POTENTIAL HAUL ROAD
  - RUNOFF COLLECTION PIPELINE (IF REQUIRED)
  - POTENTIAL RUNOFF COLLECTION DITCHING (IF REQUIRED)
  - REALIGNMENT
  - RUNOFF COLLECTION POINT (IF REQUIRED)

- NOTES:**
1. COORDINATE GRID IS UTM NAD83, ZONE 17 AND IS IN METRES.
  2. PLAN BASED ON INFORMATION PROVIDED BY IAMGOLD CORPORATION (AUGUST 2012).
  3. CONTOURS ARE IN METRES. CONTOUR INTERVAL IS 5 METRES.
  4. DIMENSIONS AND ELEVATIONS ARE IN METRES, UNLESS NOTED OTHERWISE.
  5. REALIGNMENT SECTION OF THE MOLLIE RIVER WAS PROVIDED BY CALDER ENGINEERING LTD. (DECEMBER 12, 2012).



IAMGOLD CORPORATION	
CÔTÉ GOLD PROJECT	
MINE ROCK AREAS	
<b><i>Knight Piésold</i></b> CONSULTING	<small>P/A NO.</small> NB101-497/3  <small>REF NO.</small> 2  <small>REV</small> 0
<b>FIGURE 2.1</b>	

0 05MAR'13 ISSUED WITH REPORT RSM MMD KEH RAM  
 DESIGNED DRAWN CHK'D APP'D  
 SAV: 11/10/049703/AVA/CH/FCS/B15\_10\_3/2013 2:07:08 PM MDEMERS PRINTED: 3/5/2013 2:08:13 PM ALL DUMPS (WITH IMAGE) MDEMERS  
 XREF FILE(S): TOPC-REALLOC\_TOPC-MAP.PAGE.2012\_POTE-VAST-DUMP\_IMAGE\_FILE(S): 141.D00A10 141.D00A11 141.D00A12 141.D00A13 141.D00A14 141.D00A15 141.D00A16 141.D00A17 141.D00A18 141.D00A19 141.D00A20 141.D00A21 141.D00A22 141.D00A23 141.D00A24 141.D00A25 141.D00A26 141.D00A27 141.D00A28 141.D00A29 141.D00A30 141.D00A31 141.D00A32 141.D00A33 141.D00A34 141.D00A35 141.D00A36 141.D00A37 141.D00A38 141.D00A39 141.D00A40 141.D00A41 141.D00A42 141.D00A43 141.D00A44 141.D00A45 141.D00A46 141.D00A47 141.D00A48 141.D00A49 141.D00A50 141.D00A51 141.D00A52 141.D00A53 141.D00A54 141.D00A55 141.D00A56 141.D00A57 141.D00A58 141.D00A59 141.D00A60 141.D00A61 141.D00A62 141.D00A63 141.D00A64 141.D00A65 141.D00A66 141.D00A67 141.D00A68 141.D00A69 141.D00A70 141.D00A71 141.D00A72 141.D00A73 141.D00A74 141.D00A75 141.D00A76 141.D00A77 141.D00A78 141.D00A79 141.D00A80 141.D00A81 141.D00A82 141.D00A83 141.D00A84 141.D00A85 141.D00A86 141.D00A87 141.D00A88 141.D00A89 141.D00A90 141.D00A91 141.D00A92 141.D00A93 141.D00A94 141.D00A95 141.D00A96 141.D00A97 141.D00A98 141.D00A99 141.D00A100

TABLE 2.1

IAMGOLD CORPORATION  
CÔTÉ GOLD PROJECT  
MINE ROCK AREA ALTERNATIVES ASSESSMENT  
SUMMARY OF MINE ROCK AREA OPTION DETAILS

Print Mar/05/13 15:21:29

Criteria	Option					
	MRA 1	MRA 2	MRA 3	MRA 4	MRA 6	MRA 7
<b>Land Ownership and Mineral Rights</b>						
Within Mine/Claim Boundary	Yes	Partially	Partially	Partially	Yes	Yes
Condemnation Drilling Completed	Yes	No	No	No	No	No
Underlain by Potential Ore	Potentially	Potentially	Potentially	Potentially	Potentially	Potentially
<b>Watershed Considerations</b>						
Number of Watersheds Within MRA Footprint	1	1	2	1	2	2
Requires Surface Water Realignment	No	No	No	No	No	No
Runoff Water Management (number of collection points)	9	11	16	7	12	11
<b>Social</b>						
First Nations / Métis Interests	Yes	Yes	Yes	Yes	Yes	Yes
Residences within MRA Footprint	No	No	No	No	No	No
Residences in Proximity to MRA	Yes	Yes	Yes	Yes	Yes	Yes
Visible from Residences	Yes	Yes	Yes	Yes	Yes	Yes
<b>Environmental</b>						
Potential Fisheries Compensation	Not Likely	Not Likely	Not Likely	Not Likely	No	No
Site Contains a Waterbody and/or Watercourse	Potentially (headwater stream)	Potentially (headwater stream)	Potentially (headwater stream)	Potentially (2 very small)	No	No
<b>Mine Rock Pile Configuration</b>						
Approximate Footprint Area (ha)	371.7	268.7	520.3	162.4	201.5	266.0
Approximate Stockpile Capacity (at a stockpile height of 100m) (Million m <sup>3</sup> )	240.4	173.8	318.5	79.0	110.4	159.9
Storage Efficiency (at a stockpile height of 100 m or less) (Note 1 and 2)	54%	39%	72%	18%	25%	36%
Estimated Maximum Stockpile Elevation (at a stockpile height of 100 m or less) (m)	481	487	487	482	475	481
Sufficient Volume to Store Planned Mine Rock Volumes (at a stockpile height of 100 m or less)	No	No	No	No	No	No
Expandable (additional storage capacity if the pile is expanded from a height of 100 m to 150 m) (Million m <sup>3</sup> )	78.4	40.8	110.4	10.7 <sup>(1)</sup>	30.7	54.0
Foundation Conditions	Moderate	Suspect Moderate	Suspect Good	Suspect Good	Suspect Good	Suspect Good
Straight Line Distance from the Pit to Centre of Area (km)	2.4	2.4	3.0	2.5	3.6	4.2
Elevation Difference - Pit Rim (El. 390 m) to Final Height (m)	91	97	97	92	85	91
Haul Distance from Pit Rim (min/max) (km)	1.1 / 3.5	1.3 / 2.4	1.5 / 4.2	1.5 / 2.9	2.1 / 4.1	3.4 / 5.2
Runoff Water Management - Pipeline Length (km)	12	12	16	8	8	12
Runoff Water Management - Pumping Requirements (m)	12	9	10	13	21	14

I:\11\0100497\03\A\Report\Report 2, Rev 0 - MRA MAA\Tables\Table 2.1.xlsx\Table 2.1

**NOTES:**

1. MAXIMUM HEIGHT OF MRA 4 PILE IS 138 m.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	03/04/13	ISSUED WITH REPORT N8101-4873-2	RSM	KEH	RAM

Specific comments on Option MRA 2 are provided below:

- Located close to the open pit
- Not entirely located on IAMGOLD mine claims
- Condemnation drilling has not been carried out in the area; however, a reserve of ore is potentially present within the site
- One water crossing will be required for the haul road
- Insufficient storage capacity to store the total planned mine rock production volume
- Additional capacity can be achieved by expanding the pile from a height of 100 m to 150 m, which would store 48% (i.e., 215 million m<sup>3</sup>) of the total planned mine rock production volume

### 2.2.3 Option MRA 3

MRA 3 is located west of the open pit and Clam Lake and east of Moore Lake in the Mollie River and Mesomikenda River sub-watersheds. The mine rock pile at this location has the largest footprint area of the options at approximately 520 ha with a final elevation of 487 m (assuming a pile height of 100 m). Based on these dimensions, MRA 3 is capable of storing 72 % (i.e., 318 million m<sup>3</sup>) of the total planned mine rock production volume.

Specific comments on Option MRA 3 are provided below:

- Located moderately close to the open pit
- Not entirely located on IAMGOLD mine claims
- Condemnation drilling has not been carried out in the area; however, a reserve of ore is potentially present within the site
- Potentially no water crossings required for the haul road
- Insufficient storage capacity to store the total planned mine rock production volume
- Additional capacity can be achieved by expanding the pile from a height of 100 m to 150 m, which would store 97% (i.e., 429 million m<sup>3</sup>) of the total planned mine rock production volume

### 2.2.4 Option MRA 4

MRA 4 is located northwest of the open pit and directly west of Bagsverd Lake in the Mesomikenda River sub-watershed. The mine rock pile at this location has the smallest footprint area of the options at approximately 162 ha with a final elevation of 482 m (assuming a pile height of 100 m). Based on these dimensions, MRA 4 has the capacity to store 18 % (i.e., 79 million m<sup>3</sup>) of the total planned mine rock production volume.

Specific comments on Option MRA 4 are provided below:

- Located close to the open pit
- Not entirely located on IAMGOLD mine claims
- Condemnation drilling has not been carried out in the area; however, a reserve of ore is potentially present within the site
- One water crossing will be required for the haul road
- Insufficient storage capacity to store the total planned mine rock production volume
- Additional capacity can be achieved by expanding the pile from a height of 100 m to 138 m, which would store 20% (i.e., 90 million m<sup>3</sup>) of the total planned mine rock production volume

### 2.2.5 Option MRA 6

MRA 6 is located northeast of the open pit, directly east Wee Duck Lake and west of Mesomikenda Lake in the Mollie River and Mesomikenda River sub-watersheds. The mine rock pile at this location has an approximate footprint area of 201 ha with a final elevation of 475 m (assuming a pile height of 100 m). Based on these dimensions, MRA 6 has the capacity to store 25 % (i.e., 110 million m<sup>3</sup>) of the total planned mine rock production volume.

Specific comments on Option MRA 6 are provided below:

- Located moderately close to the open pit
- Located entirely on IAMGOLD mine claims
- Condemnation drilling has not been carried out in the area; however, a reserve of ore is potentially present within the site
- Potentially no water crossings required for the haul road
- Insufficient storage capacity to store the total planned mine rock production volume
- Additional capacity can be achieved by expanding the pile from a height of 100 m to 150 m, which would store 32% (i.e., 141 million m<sup>3</sup>) of the total planned mine rock production volume

### 2.2.6 Option MRA 7

MRA 7 is located southeast of the open pit, directly east Three Duck Lakes (lower) and west of Mesomikenda Lake in the Mollie River and Mesomikenda River sub-watersheds. The mine rock pile at this location has an approximate footprint area of 266 ha with a final elevation of 481 m (assuming a pile height of 100 m). Based on these dimensions, MRA 7 has the capacity to store 36% (i.e., 160 million m<sup>3</sup>) of the total planned mine rock production volume.

Specific comments on Option MRA 7 are provided below:

- Furthest from the open pit of the options
- Located entirely on IAMGOLD mine claims
- Condemnation drilling has not been carried out in the area; however, a reserve of ore is potentially present within the site
- Potentially two water crossings required for the haul road
- Insufficient storage capacity to store the total planned mine rock production volume
- Additional capacity can be achieved by expanding the pile from a height of 100 m to 150 m, which would store 48% (i.e., 214 million m<sup>3</sup>) of the total planned mine rock production volume

### 3 – ALTERNATIVES ASSESSMENT METHODOLOGY

#### 3.1 MULTIPLE ACCOUNTS ANALYSIS METHOD

A Multiple Accounts Analysis (MAA) has been developed for the MRA Options. The purpose of the MAA is to provide a clear and transparent evaluation methodology to compare the Options and select the preferred alternative(s).

The MAA is a multi-step process that develops a matrix to provide a numerical rating for each Option. The approach is set out in Environment Canada's guidelines (Environment Canada, 2011).

#### 3.2 ACCOUNTS, SUB-ACCOUNTS AND INDICATORS

The MAA employs a three-tiered approach, starting with generalized accounts, specific sub-accounts, and measurable indicators.

- **Accounts:** These are basic elements that encompass and integrate comprehensive specific qualities developed through the scoring and evaluation of focused sub-accounts and measurable indicators.

The accounts used to evaluate the Options include:

- Environmental (water quality and impacts to fisheries, vegetation and wildlife)
  - Socio-Economic (effects to the population)
  - Technical (complexity of the design, construction and operating considerations)
  - Economics (basic cost factors)
- **Sub-Accounts:** These utilize factual characterization criteria and are developed independently of any consideration of the MRA Options that will be evaluated in the subsequent MAA process. Evaluation criteria consider the benefit or loss (material impact) associated with the evaluated Options.
  - **Indicators:** These allow for the qualitative or quantitative measurement of impacts associated with any given sub-account. Indicators tend to be measureable; whereas sub-accounts cannot be measured directly. For this reason, indicators need to be focused, deconstructed components that inform their respective parent sub-account. The indicators are grouped by parent accounts and sub-accounts and are described briefly in Appendix A.

The accounts, sub-accounts and indicators selected to evaluate the MRA Options at Côté Gold are summarized on Table 3.1.

TABLE 3.1

IAMGOLD CORPORATION  
CÔTÉ GOLD PROJECT  
MINE ROCK AREA ALTERNATIVES ASSESSMENT  
ACCOUNT, SUB-ACCOUNT AND INDICATOR RATIONALE

Print Mar/05/13 15:23:47

Account	Sub-Account	Rationale	Indicator	Comments
Environmental	Hydrology	A greater hydrological footprint implies a greater potential for water resources to be potentially affected.	Number of Watersheds	A greater number of watersheds in the catchment area may allow for a greater distribution of potentially impacted runoff from the mine rock piles.
			Stream Length Removed	Disrupting stream flows is less desirable due to the potential impact on aquatic life and downstream waterbodies. Some MRA Options overly low order streams. This indicator is a direct quantitative measure of stream lengths affected under the MRA Options.
			Loss of Waterbodies	Disruption of existing waterbodies (excluding streams) and wetlands is less desirable due to potential loss of aquatic habitat.
			Flow Change	Minimizing changes in the hydrologic flow regime is desirable. Small headwater waterbodies and wetlands adjacent to the MRA and reliant on the catchment area of the MRA are the most susceptible to hydrologic flow impacts.
	Water Quality	Adverse changes to water quality is not desirable.	Potential for Negative Influence on Surface Water Quality from Groundwater Seepage	Disruption of waterbodies from groundwater seepage from the MRA is not desirable. Small waterbodies are the most susceptible to impacts from groundwater seepage from the MRA. The ratio of the mine rock perimeter length overlying subsoils with high seepage potential and adjacent to small waterbodies, to the total perimeter length is compared.
	Aquatic	Removal or adverse impact to fish communities is not desirable.	Loss of Fish Bearing Water	The loss of aquatic habitat (quantity and quality) under the MRA Options has been estimated.
			Adjacent Fish Ecology	The potential change to aquatic habitat (quantity and quality) adjacent to the MRA Options has been estimated.
	Terrestrial	Removal or reduction in vegetation and wildlife habitat is less desirable.	Habitat of Species of Special Concern Altered/Lost	The loss of habitat preferred by species of special concern under the MRA Options has been estimated.
			Total Moose Winter Habitat Altered/Lost	Moose winter habitat is considered significant wildlife habitat and is designated by MNR. The loss of moose winter habitat under the MRA Options has been estimated.
			Total Moose Aquatic Feeding Habitat Altered/Lost	Moose aquatic feeding habitat is considered significant wildlife habitat and is designated by MNR. The loss of moose aquatic feeding habitat under the MRA Options has been estimated.
			Total Vegetative Habitat Altered/Lost	The smaller the MRA footprint the least adverse effect on the persistence of vegetative populations and communities.
	Total Wetland Area Altered/Lost	The loss of wetland area under the MRA Options has been estimated.		
	Closure	Adverse changes to water quality post-closure is not desirable	Post-Closure Chemical Stability	Runoff from the closed out mine rock and overburden piles is likely suitable for direct discharge to the environment. Should development of a segregated PAG mine rock pile be required, runoff water quality monitoring will be required to ensure compatibility with the surrounding environment. Closure of the facilities will address long-term physical and chemical stability and impacts to the surrounding environment.
Socio-Economic	Human Health	Adverse effects on human health are not desirable.	Human Health (Direct Exposure)	The potential likelihood for the MRA to affect human health due to exposure to emissions or other releases to the environment, including dust generation and potential for groundwater seepage were included in the assessment of the direct exposure indicator. The measurement is a receptor-based qualitative assessment considering wind direction, receptors in the path of the wind, potential for seepage, etc.
			Human Health (Indirect Exposure)	The potential likelihood for the MRA to affect human health, including the consumption of impacted fish, wildlife, berries, etc. was included in the assessment of the indirect exposure indicator.
	Existing Communities and Human (Current and Historic) Land Uses	Adverse effects to the existing communities and land uses are not desirable. Sites with less impact on the existing communities and land uses are preferred.	Aboriginal Peoples Interests and Current Land Use	Adverse effect to Aboriginal Peoples interests is not desirable. The relative value of the potential effects to Aboriginal Peoples interests is estimated.
			Presence of Archaeological Sites	The archaeological potential of the MRA footprint is important to consider. Potential disturbance or destruction of sites without prior examination, recording and mitigation is not permitted. This ranking is based on preliminary field work. High scores are applied to MRA's that have no sites or the effects on the site can be mitigated.
			Proximity to Existing Permanent or Temporary Residences	Number of residences (e.g. temporary camp sites, trapper cabins, seasonal residences, permanent residences and outfitter establishments) in proximity of the MRA.
			Recreational Access	Reduction in recreational access is less desirable. The value of the potential effect on recreational access is estimated. A recreation area is defined as a provincial park, a cottage, fishing lakes, hunting grounds, etc.
			Visibility and Aesthetics	Reduced visibility of the MRA is preferred. Visual effects are qualitatively assessed to capture the effect on the visual aesthetic from receptor locations such as major routes, communities and existing temporary or permanent residences.
Technical	Mine Rock Pile Layout	Larger and higher mine rock piles are generally more complicated and less desirable.	Storage Efficiency (at pile height of 100 m)	Multiple areas may be required to store the planned mine rock volume. The storage efficiency in terms of the maximum storage volume possible within a given MRA to the total planned mine rock production volume is calculated.
			Vertical Expansion Capacity	MRA sites that can accommodate additional mine rock storage is preferred. The additional storage capacity if the pile is expanded from a height of 100 m to 150 m is compared.
	Mine Rock Pile Construction	Straightforward mine rock pile construction is preferred so that the piles can be constructed efficiently and safely.	Site Preparation	Less site preparation is preferred. This would include construction of haul roads, runoff collection systems, water crossings, and any other earthworks required in order to prepare the area.
			Haul Distance from Open Pit	A shorter haul road is preferred to simplify the haul road design details.
			Geotechnical Conditions	Good geotechnical conditions are preferred for ease of construction and to ensure long-term stability. The geotechnical indicator provides a measure of the inherent risk to stockpile stability of siting the MRA on deep overburden soils, weak bearing soils or potentially liquefiable soils, etc.
	Land Acquisition	Acquisition of land may present challenges. It is preferred that all development is on existing property rights.	Land Area and Title Holders	It is advantageous to locate as much of the MRA on existing mine property as possible. MRA Options that require the least amount of land acquisition are ranked higher.
	Water Management	Water management is an important component of the overall operations and simpler operating systems are preferred.	MRA Catchment Area	A smaller MRA footprint generally simplifies water management which is preferred.
			Pipeline Length	A shorter runoff and seepage pipeline (if required) is preferred to simplify design, reduce the risk of failure, and reduce monitoring and maintenance requirements.
			Pumping Requirements	Less pumping simplifies the design and decreases the risks for delays due to maintenance and problems during operations.
	Monitoring and Maintenance	Complex monitoring and maintenance of the mine rock pile is less desirable.	Ease of Runoff Management	A lower number of sump locations around the perimeter of the mine rock pile is desirable and an indicator of the estimated level of monitoring required.
Consequence of Operational Error			A lower consequence of error is preferred. The relative value of operational error is estimated.	
Economics	Capital Costs	Lower capital costs are preferred to reduce the pre-production cash flow requirements.	Foundation Preparation and Access Construction	Simpler and less foundation preparation and access construction is preferred.
			Water Management	Simpler water management details are preferred. The cost will be a function of the estimated number of water management locations.
	Operational Costs	Higher operational costs are less desirable.	Haul Distance	A shorter haul distance is preferred to reduce the cost to haul the mine rock to the storage area.
			Operational Costs	Managing runoff is used as an indicator of operational costs and is a function of the total catchment area that intercepts water. Lower operational costs are preferred.
	Closure and Post Closure Costs	Closure and post closure costs should be reduced as much possible to reduce long term liabilities.	Reclamation	Lower reclamation costs are preferred. The costs will be a function of the final surface area to be reclaimed after operations. The ratio of final surface area to the mass of mine rock stored in the pile is compared.
Monitoring and Maintenance			Less monitoring and maintenance is preferred. The cost is estimated based on the number of monitoring locations.	

I:\10100497\03\A\Report\Report 2, Rev 0 - MRA MAA\Tables\Table 3.1 to 3.5 - MRA MAA.xlsx\Table 3.1\_Rationale

0	05MAR13	ISSUED WITH REPORT NB101-497/3-2	RSM	KEH	RAM
REV	DATE	DESCRIPTION	PREPD	CHKD	APPD

### 3.3 VALUE-BASED DECISION PROCESS

The value-based decision process is an essential component of the overall MAA. The process assesses the combined impacts of a given option by scoring and weighing all indicators, sub-accounts, and accounts. The results of weighting and scoring are then aggregated into an overall merit rating for each option.

The details of the weighting and scoring procedures are discussed below.

- **Weighting:** Weighting factors allow the analyst to introduce bias given a perceived relative importance of a given indicator or sub-account. Weighting factors are inherently subjective - often based on the perceptions of the Proponent or the outcomes of a potentially limited sampling from the public consultation process. As such, the selection of weighting factors is a value-based process.

Weighting factors are applied to each indicator, implying the relative significance or importance associated with each indicator. The weighting factors have been bracketed to range from 1 (least important) to 6 (most important).

The MAA was completed by maintaining account weighting factors consistent with the recommendations suggested in Environment Canada's guidelines. The sub-account and indicator weightings and relative importance were defined based on discussions with IAMGOLD and input from a multidisciplinary team to ensure that the evaluation accurately reflects the project parameters. Higher weightings indicate greater relative importance and reflect the issues relative to the Project and the site conditions. The selected weightings are summarized on Table 3.2.

- **Indicator Values:** Values for the indicators are defined based on the characteristics of each of the MRA Options. Indicator values were selected based on input from a multidisciplinary team specific to their area of expertise. The indicator values for the MRA Options are summarized on Table 3.3.
- **Indicator Value Scales:** It is important that the indicators be deconstructed to elements that can be measured and compared without bias. Building on this concept, 6-point qualitative scales that are specific to each indicator are developed. Quantifying the measurable differences between options allows for the systematic comparison of options. The indicator value scales are summarized on Table 3.4.
- **Scoring:** Using 6-point qualitative scales that have been developed for each indicator and the indicator values, scores are assigned using measurable quantities or parameters. A score of 6 is considered the most favourable, while a score of 1 is considered least favourable. The individual indicator scores are shown on Table 3.5.

TABLE 3.2

IAMGOLD CORPORATION  
CÔTÉ GOLD PROJECT

MINE ROCK AREA ALTERNATIVES ASSESSMENT  
ACCOUNT, SUB-ACCOUNT AND INDICATOR WEIGHTS

Print Mar/05/13 15:26:02

Account	Sub-Account	Indicator	Account Weight (W <sub>A</sub> )	Sub-Account Weight (W <sub>SA</sub> )	Indicator Weight (W <sub>I</sub> )	
Environmental	Hydrology	Number of Watersheds	6	4	3	
		Stream Length Removed			4	
		Loss of Waterbodies			4	
		Flow Change			5	
	Water Quality	Potential for Negative Influence on Surface Water Quality from Groundwater Seepage		5	5	
	Aquatic	Loss of Fish Bearing Water		5	5	
		Adjacent Fish Ecology				3
	Terrestrial	Habitat of Species of Special Concern Altered/Lost		4	4	5
		Total Moose Winter Habitat Altered/Lost				5
		Total Moose Aquatic Feeding Habitat Altered/Lost				5
		Total Vegetative Habitat Altered/Lost				4
	Closure	Total Wetland Area Altered/Lost		6	6	4
		Post-Closure Chemical Stability				6
Socio-Economic	Human Health	Human Health (Direct Exposure)	3	6	6	
		Human Health (Indirect Exposure)			4	
	Existing Communities and Human (Current and Historic) Land Uses	Aboriginal Peoples Interests and Current Land Use		3	3	6
		Presence of Archaeological Sites				4
		Proximity to Existing Permanent or Temporary Residences				4
		Recreational Access				4
Visibility and Aesthetics	3					
Technical	Mine Rock Pile Layout	Storage Efficiency (at pile height of 100 m)	3	5	6	
		Vertical Expansion Capacity			4	
	Mine Rock Pile Construction	Site Preparation		5	5	4
		Haul Distance from Open Pit				5
	Land Acquisition	Geotechnical Conditions		1	1	1
		Land Area and Title Holders				1
	Water Management	MRA Catchment Area		2	2	4
		Pipeline Length				2
	Monitoring and Maintenance	Pumping Requirements		3	3	3
		Ease of Runoff Management				3
Economics	Capital Costs	Consequence of Operational Error	1.5	5	5	
		Foundation Preparation and Access Construction			5	
	Operational Costs	Water Management		6	6	5
		Haul Distance				6
	Closure and Post Closure Costs	Operational Costs		3	3	5
		Reclamation				3
	Monitoring and Maintenance		2			

I:\10100497\03\A\Report\Report 2, Rev 0 - MRA MAA\Tables\Table 3.1 to 3.5 - MRA MAA.xlsx\Table 3.2\_Weighting Summary

**NOTES:**

1. GREATER WEIGHTS INDICATE GREATER RELATIVE IMPORTANCE.
2. POSSIBLE ACCOUNT, SUB-ACCOUNT AND INDICATOR WEIGHTS RANGE FROM 1 TO 6.

0	05MAR'13	ISSUED WITH REPORT NB101-497/3-2	RSM	KEH	RAM
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



**TABLE 3.3**  
**IAMGOLD CORPORATION**  
**CÔTÉ GOLD PROJECT**  
**MINE ROCK AREA ALTERNATIVES ASSESSMENT**  
**SUMMARY OF INDICATOR VALUES**

Print Mar/05/13 15:28:25

Account	Sub-Account	Indicator	Parameter	Unit	Indicator Value					
					MRA 1	MRA 2	MRA 3	MRA 4	MRA 6	MRA 7
Environmental	Hydrology	Number of Watersheds	Quantity	No.	1	1	2	1	2	2
		Stream Length Removed	Length	m	300	530	450	0	0	0
		Loss of Waterbodies	Area	ha	0	0	8.6	0.2	0	0.9
		Flow Change	Area	ha	20	9	18	9	15	20
	Water Quality	Potential for Negative Influence on Surface Water Quality from Groundwater Seepage	Ratio	%	9	42	8	5	9	6
	Aquatic	Loss of Fish Bearing Water	Value	-	None	None	Few habitats of limited quality	Few habitats of limited quality	None	None
		Adjacent Fish Ecology	Value	-	Many habitats of higher quality	Many habitats of higher quality	Many habitats of higher quality	Many habitats of higher quality	Many habitats of higher quality	Many habitats of higher quality
	Terrestrial	Habitat of Species of Special Concern Altered/Lost	Area	ha	372	61	526	162	200	266
		Total Moose Winter Habitat Altered/Lost	Area	ha	None	None	None	None	None	None
		Total Moose Aquatic Feeding Habitat Altered/Lost	Area	ha	None	None	None	None	None	None
		Total Vegetative Habitat Altered/Lost	Area	ha	372	269	520	162	202	266
	Closure	Total Wetland Area Altered/Lost	Area	ha	16.4	7.5	6.4	0.4	0.5	0.5
		Post-Closure Chemical Stability	Value	-	Stable	Stable	Stable	Stable	Stable	Stable
Socio-Economic	Human Health	Human Health (Direct Exposure)	Value	-	Low Potential	Low Potential	Low Potential	Low Potential	Moderate Potential (Mesomikenda Lake and Hwy 144)	Moderate Potential (Mesomikenda Lake and Hwy 144)
		Human Health (Indirect Exposure)	Value	-	Low Potential	Low Potential	Low Potential	Low Potential	Low Potential	Low Potential
	Existing Communities and Human (Current and Historic) Land Uses	Aboriginal Peoples Interests and Current Land Use	Value	-	No data on relative Aboriginal values or current uses	No data on relative Aboriginal values or current uses	No data on relative Aboriginal values or current uses	No data on relative Aboriginal values or current uses	No data on relative Aboriginal values or current uses	No data on relative Aboriginal values or current uses
		Presence of Archaeological Sites	Value	-	Sites mitigatable	Sites mitigatable	Sites mitigatable	Sites mitigatable	Sites mitigatable	Sites mitigatable
		Proximity to Existing Permanent or Temporary Residences	Value	-	None	None	Less than 5	Less than 5	Less than 5	None
		Recreational Access	Value	-	Permanent loss of access	Permanent loss of access	Permanent loss of access	Permanent loss of access	Permanent loss of access	Permanent loss of access
		Visibility and Aesthetics	Value	-	Highly visible and is considered a major change in landscape from baseline conditions	Partially visible and is considered a major change in landscape from baseline conditions	Partially visible and is considered a major change in landscape from baseline conditions	Partially visible and is considered a major change in landscape from baseline conditions	Highly visible and is considered a major change in landscape from baseline conditions	Highly visible and is considered a major change in landscape from baseline conditions
Technical	Mine Rock Pile Layout	Storage Efficiency (at pile height of 100 m)	Percent	%	54	39	72	18	25	36
		Vertical Expansion Capacity	Volume	million m <sup>3</sup>	78.4	40.8	110.4	10.7 <sup>(1)</sup>	30.7	54.0
	Mine Rock Pile Construction	Site Preparation	Value	-	Moderate ease	Moderate ease	Moderate difficulty	Moderate ease	Moderate difficulty	Moderate difficulty
		Haul Distance from Open Pit	Distance	km	2.3	2.0	2.9	2.2	3.1	4.3
		Geotechnical Conditions	Value	-	Small area in suspected poor foundations	Small area in suspected poor foundations	Small area in suspected poor foundations	Small area in suspected poor foundations	Small area in suspected poor foundations	Small area in suspected poor foundations
	Land Acquisition	Land Area and Title Holders	Percent	%	0	69	83	72	0	0
		Water Management	MRA Catchment Area	Area per million tonne	ha/million tonne	0.81	0.81	0.86	1.08	0.96
	Pipeline Length		Length	km	12	12	16	8	8	12
	Pumping Requirements		Head	m	12	9	10	13	21	14
	Monitoring and Maintenance	Ease of Runoff Management	Quantity per km	No./km	1.1	1.5	1.2	1.1	1.9	1.6
Consequence of Operational Error		Value	-	Low	Low	Low	Low	Low	Low	
Economics	Capital Costs	Foundation Preparation and Access Construction	Value	-	Moderate ease	Moderate ease	Moderate difficulty	Moderate ease	Moderate difficulty	Moderate difficulty
		Water Management	Quantity per km	No./km	1.1	1.5	1.2	1.1	1.9	1.6
	Operational Costs	Haul Distance	Distance	km	1.1 to 3.5	1.3 to 2.4	1.5 to 4.2	1.5 to 2.9	2.1 to 4.1	3.4 to 5.2
		Operational Costs	Area per million tonne	ha/million tonne	0.81	0.81	0.86	1.08	0.96	0.88
	Closure and Post Closure Costs	Reclamation	Area per million tonne	ha/million tonne	0.84	0.85	0.89	1.14	1.00	0.91
		Monitoring and Maintenance	Quantity per km	No./km	1.1	1.5	1.2	1.1	1.9	1.6

I:\110100497\03\AR\Report\Report 2, Rev 0 - MRA MAA\Tables\Table 3.1 to 3.5 - MRA MAA.xlsx\Table 3.3\_Indicator Values

**NOTES:**

1. MAXIMUM HEIGHT OF MRA 4 PILE IS 138 m.

0	09MAR13	ISSUED WITH REPORT N8101-89732	RSM	KEH	RAM
REV	DATE	DESCRIPTION	PREP'D	CHEK'D	APP'D

TABLE 3.4  
IAMGOLD CORPORATION  
CÔTÉ GOLD PROJECT  
MINE ROCK AREA ALTERNATIVES ASSESSMENT  
SUMMARY OF INDICATOR VALUE SCALES

Print Mar/05/13 15:33:15

Account, Sub-Account	Indicator	Value	Descriptor
Environmental, Hydrology	Number of Watersheds	6 (Best)	1 Watershed
		5	2 Watersheds
		4	3 Watersheds
		3	4 Watersheds
		2	5 Watersheds
		1 (Worst)	Greater than 5 Watersheds
	Stream Length Removed	6 (Best)	None
		5	Between 0 and 1.5 km
		4	Between 1.6 and 3.0 km
		3	Between 3.1 and 4.5 km
		2	Between 4.6 and 6.0 km
		1 (Worst)	Greater than 6.0 km
	Loss of Waterbodies	6 (Best)	None
		5	Between 0 and 15 ha of waterbodies (including wetlands) removed
		4	Between 15 and 50 ha of waterbodies (including wetlands) removed
		3	Between 50 and 125 ha of waterbodies (including wetlands) removed
		2	Between 125 and 250 ha of waterbodies (including wetlands) removed
		1 (Worst)	Greater than 250 ha of waterbodies (including wetlands) removed
	Flow Change	6 (Best)	No small waterbodies (including wetlands) adjacent to the MRA and reliant on the catchment area of the MRA
		5	Between 0 and 5 ha of small waterbodies (including wetlands) adjacent to the MRA and reliant on the catchment area of the MRA
4		Between 5 and 10 ha of small waterbodies (including wetlands) adjacent to the MRA and reliant on the catchment area of the MRA	
3		Between 10 and 30 ha of small waterbodies (including wetlands) adjacent to the MRA and reliant on the catchment area of the MRA	
2		Between 30 and 70 ha of small waterbodies (including wetlands) adjacent to the MRA and reliant on the catchment area of the MRA	
1 (Worst)		Greater than 70 ha of small waterbodies (including wetlands) adjacent to the MRA and reliant on the catchment area of the MRA	
Environmental, Water Quality	Potential for Negative Influence on Surface Water Quality from Groundwater Seepage	6 (Best)	Very Low (i.e. the ratio of the mine rock area perimeter length overlying subsols with high seepage potential adjacent to small waterbodies to the total perimeter length is less than 15 %)
		5	Low (i.e. the ratio of the mine rock area perimeter length overlying subsols with high seepage potential adjacent to small waterbodies to the total perimeter length is between 16 and 30 %)
		4	Low-Moderate (i.e. the ratio of the mine rock area perimeter length overlying subsols with high seepage potential adjacent to small waterbodies to the total perimeter length is between 31 and 45 %)
		3	Moderate (i.e. the ratio of the mine rock area perimeter length overlying subsols with high seepage potential adjacent to small waterbodies to the total perimeter length is between 46 and 60 %)
		2	Moderate-High (i.e. the ratio of the mine rock area perimeter length overlying subsols with high seepage potential adjacent to small waterbodies to the total perimeter length is between 61 and 75 %)
		1 (Worst)	High (i.e. the ratio of the mine rock area perimeter length overlying subsols with high seepage potential adjacent to small waterbodies to the total perimeter length is greater than 75 %)
Environmental, Aquatic	Loss of Fish Bearing Water	6 (Best)	None
		5	Few habitats of limited quality
		4	Many habitats of limited quality
		3	Few habitats of higher quality
		2	Many habitats of higher quality
		1 (Worst)	Loss of significant habitat
	Adjacent Fish Ecology	6 (Best)	None
		5	Few habitats of limited quality
		4	Many habitats of limited quality
		3	Few habitats of higher quality
		2	Many habitats of higher quality
		1 (Worst)	Loss of significant habitat
Environmental, Terrestrial	Habitat of Species of Special Concern Altered/Lost	6 (Best)	No habitat affected
		5	1 - 105 ha altered or lost
		4	106 - 210 ha altered or lost
		3	211 - 315 ha altered or lost
		2	316 - 420 ha altered or lost
		1 (Worst)	Greater than 421 ha altered or lost
	Total Moose Winter Habitat Altered/Lost	6 (Best)	No habitat affected
		5	(Scale not defined since there is no moose winter habitat present in the MRA Options)
		4	(Scale not defined since there is no moose winter habitat present in the MRA Options)
		3	(Scale not defined since there is no moose winter habitat present in the MRA Options)
		2	(Scale not defined since there is no moose winter habitat present in the MRA Options)
		1 (Worst)	Maximum available moose winter habitat altered or lost
	Total Moose Aquatic Feeding Habitat Altered/Lost	6 (Best)	No habitat affected
		5	(Scale not defined since there is no moose aquatic feeding habitat present in the MRA Options)
		4	(Scale not defined since there is no moose aquatic feeding habitat present in the MRA Options)
		3	(Scale not defined since there is no moose aquatic feeding habitat present in the MRA Options)
		2	(Scale not defined since there is no moose aquatic feeding habitat present in the MRA Options)
		1 (Worst)	Maximum available moose winter habitat altered or lost
	Total Vegetative Habitat Altered/Lost	6 (Best)	No habitat affected
		5	1 - 105 ha altered or lost
		4	106 - 210 ha altered or lost
		3	211 - 315 ha altered or lost
		2	316 - 420 ha altered or lost
		1 (Worst)	Greater than 421 ha altered or lost
Total Wetland Area Altered/Lost	6 (Best)	Less than 1 ha altered or lost	
	5	1 - 7.5 ha altered or lost	
	4	7.6 - 15 ha altered or lost	
	3	15.1 - 22.5 ha altered or lost	
	2	22.6 - 30 ha altered or lost	
	1 (Worst)	Greater than 30 ha altered or lost	
Environmental, Closure	Post-Closure Chemical Stability	6 (Best)	Very stable
		5	Stable
		4	Moderate-high stability
		3	Moderately stable
		2	Low-moderate stability
		1 (Worst)	Unstable
Socio-Economic, Human Health	Human Health (Direct Exposure)	6 (Best)	No potential for MRA to affect human health through exposure to emissions (air, noise) or other releases to the environment (water, etc.)
		5	Very low potential for MRA to affect human health through exposure to emissions (air, noise) or other releases to the environment (water, etc.)
		4	Low potential for MRA to affect human health through exposure to emissions (air, noise) or other releases to the environment (water, etc.)
		3	Moderate potential for MRA to affect human health through exposure to emissions (air, noise) or other releases to the environment (water, etc.)
		2	High potential for MRA to affect human health through exposure to emissions (air, noise) or other releases to the environment (water, etc.)
		1 (Worst)	Very High potential for MRA to affect human health through exposure to emissions (air, noise) or other releases to the environment (water, etc.)
	Human Health (Indirect Exposure)	6 (Best)	No potential for MRA to affect human health through exposure to emissions (air) or other releases to the environment (water) via consumption of impacted fish, wildlife, berries, etc.
		5	Very low potential for MRA to affect human health through exposure to emissions (air) or other releases to the environment (water) via consumption of impacted fish, wildlife, berries, etc.
		4	Low potential for MRA to affect human health through exposure to emissions (air) or other releases to the environment (water) via consumption of impacted fish, wildlife, berries, etc.
		3	Moderate potential for MRA to affect human health through exposure to emissions (air) or other releases to the environment (water) via consumption of impacted fish, wildlife, berries, etc.
		2	High potential for MRA to affect human health through exposure to emissions (air) or other releases to the environment (water) via consumption of impacted fish, wildlife, berries, etc.
		1 (Worst)	Very High potential for MRA to affect human health through exposure to emissions (air) or other releases to the environment (water) via consumption of impacted fish, wildlife, berries, etc.

TABLE 3.4  
IAMGOLD CORPORATION  
CÔTÉ GOLD PROJECT  
MINE ROCK AREA ALTERNATIVES ASSESSMENT  
SUMMARY OF INDICATOR VALUE SCALES

Print Mar/05/13 15:33:15

Account, Sub-Account	Indicator	Value	Descriptor
Socio-Economic, Existing Communities and Human (Current and Historic) Land Uses	Aboriginal Peoples Interests and Current Land Use	6 (Best)	Proposed area has no importance to Aboriginal Peoples community (no current or historic uses)
		5	Proposed area has limited importance to Aboriginal Peoples interests (historic trail used by a few that is no longer used)
		4	Proposed area has low importance to the Aboriginal Peoples interests (seasonal trail to hunting or fishing area that could be re-routed)
		3	Proposed area has moderate importance to the Aboriginal Peoples interests (historic fishing, hunting or agricultural area no longer used)
		2	Proposed area has high importance to Aboriginal Peoples interests (regularly used for fishing, hunting, agriculture and is culturally significant )
		1 (Worst)	Proposed area has significant importance to Aboriginal Peoples interests (spiritual or burial grounds) and is currently heavily used to exercise Aboriginal or Treaty rights.
	Presence of Archaeological Sites	6 (Best)	No sites present
		5	Individual sites present but mitigatable
		4	Less than 5% of lands assessed as having moderate to high archaeological potential
		3	Less than 15% of lands assessed as having moderate to high archaeological potential
		2	More than 30% of lands assessed as having moderate to high archaeological potential
		1 (Worst)	Multiple high importance sites
	Proximity to Existing Permanent or Temporary Residences	6 (Best)	No residences (e.g. temporary camp sites, trapper cabins, seasonal residences, permanent residences and outfitter establishments) in proximity to TMF
		5	Less than 5 residences (e.g. temporary camp sites, trapper cabins, seasonal residences, permanent residences and outfitter establishments) in proximity to TMF
		4	6 to 10 residences (e.g. temporary camp sites, trapper cabins, seasonal residences, permanent residences and outfitter establishments) in proximity to TMF
		3	11 to 20 residences (e.g. temporary camp sites, trapper cabins, seasonal residences, permanent residences and outfitter establishments) in proximity to TMF
		2	21 to 30 residences (e.g. temporary camp sites, trapper cabins, seasonal residences, permanent residences and outfitter establishments) in proximity to TMF
		1 (Worst)	Over 30 residences (e.g. temporary camp sites, trapper cabins, seasonal residences, permanent residences and outfitter establishments) in proximity to TMF
	Recreational Access	6 (Best)	No reduction in public access to recreation areas (i.e. provincial park, cottages, favourite fishing lake accessible only by ATV, etc.)
		5	Short term loss (initial construction) of access to recreation areas (i.e. provincial park, cottages, favourite fishing lake accessible only by ATV, etc.)
		4	Temporary loss (mine life) of access to a periodically used recreation area (i.e. provincial park, cottages, favourite fishing lake accessible only by ATV, etc.)
3		Temporary loss (mine life) of access to a heavily used public recreation area (i.e. provincial park, cottages, favourite fishing lake accessible only by ATV, etc.)	
2		Permanent loss of access to a periodically used public recreation areas (i.e. provincial park, cottages, favourite fishing lake accessible only by ATV, etc.)	
1 (Worst)		Permanent loss of access to a heavily used public recreation area (i.e. provincial park, cottages, favourite fishing lake accessible only by ATV, etc.)	
Visibility and Aesthetics	6 (Best)	Not visible or partially visible (no noise emissions) from receptors and is considered a minor change in landscape from baseline conditions	
	5	Highly visible from receptors and is considered a minor change in landscape from baseline conditions	
	4	Partially visible from receptors and is considered a moderate change in landscape from baseline conditions	
	3	Highly visible from receptors and is considered a moderate change in landscape from baseline conditions	
	2	Partially visible from receptors and is considered a major change in landscape from baseline conditions	
	1 (Worst)	Highly visible from receptors and is considered a major change in landscape from baseline conditions	
Technical, Mine Rock Pile Layout	Storage Efficiency (at pile height of 100 m)	6 (Best)	Over 80 %
		5	Between 65 and 80 %
		4	Between 50 and 65 %
		3	Between 35 and 50 %
		2	Between 25 and 35 %
		1 (Worst)	Less than 20 %
	Vertical Expansion Capacity	6 (Best)	Greater than 100 million m <sup>3</sup> of additional capacity if mine rock pile expanded from a height of 100 m to 150 m
		5	80 to 100 million m <sup>3</sup> of additional capacity if mine rock pile expanded from a height of 100 m to 150 m
		4	60 to 80 million m <sup>3</sup> of additional capacity if mine rock pile expanded from a height of 100 m to 150 m
		3	40 to 60 million m <sup>3</sup> of additional capacity if mine rock pile expanded from a height of 100 m to 150 m
		2	20 to 40 million m <sup>3</sup> of additional capacity if mine rock pile expanded from a height of 100 m to 150 m
		1 (Worst)	Less than 20 million m <sup>3</sup> of additional capacity if mine rock pile expanded from a height of 100 m to 150 m
Technical, Mine Rock Pile Construction	Site Preparation	6 (Best)	Very easy
		5	Easy
		4	Moderate ease
		3	Moderate difficulty
		2	Difficult
		1 (Worst)	Very difficult
	Haul Distance from Open Pit	6 (Best)	Average haul distance is less than 2 km
		5	Average haul distance is between 2 and 3 km
		4	Average haul distance is between 3 and 4 km
		3	Average haul distance is between 4 and 5 km
		2	Average haul distance is between 5 and 6 km
		1 (Worst)	Average haul distance is greater than 6 km
	Geotechnical Conditions	6 (Best)	No risk of geotechnical conditions and/or hazards
		5	Low risk of geotechnical conditions and/or hazards that can be mitigated during design and construction
		4	Moderate risk of geotechnical conditions and/or hazards that can be mitigated during design and construction
3		Significant risk of geotechnical conditions and hazards that can be mitigated during design and construction	
2		Moderate risk of geotechnical conditions and/or hazards that cannot be mitigated during design and construction	
1 (Worst)		Significant risk of geotechnical conditions and/or hazards that cannot be mitigated during design and construction	
Technical, Land Acquisition	Land Area and Title Holders	6 (Best)	No land required for acquisition
		5	Between 0 and 10 % of MRA footprint area not on land controlled by IAMGOLD.
		4	Between 10% and 20% of MRA footprint area not on land controlled by IAMGOLD.
		3	Between 20% and 30% of MRA footprint area not on land controlled by IAMGOLD.
		2	Between 30% and 40% of MRA footprint area not on land controlled by IAMGOLD.
		1 (Worst)	Greater than 40% of MRA footprint area not on land controlled by IAMGOLD.
Technical, Water Management	MRA Catchment Area	6 (Best)	Ratio of the footprint area (ha) to the mass (million tonne) of mine rock stored is less than 0.75 ha/million tonne
		5	Ratio of the footprint area (ha) to the mass (million tonne) of mine rock stored is between 0.75 and 0.85 ha/million tonne
		4	Ratio of the footprint area (ha) to the mass (million tonne) of mine rock stored is between 0.86 and 0.95 ha/million tonne
		3	Ratio of the footprint area (ha) to the mass (million tonne) of mine rock stored is between 0.96 and 1.05 ha/million tonne
		2	Ratio of the footprint area (ha) to the mass (million tonne) of mine rock stored is between 1.06 and 1.15 ha/million tonne
		1 (Worst)	Ratio of the footprint area (ha) to the mass (million tonne) of mine rock stored is greater than 1.15 ha/million tonne
	Pipeline Length	6 (Best)	Less than 5 km
		5	Between 5 and 10 km
		4	Between 10 and 15 km
		3	Between 15 and 20 km
		2	Between 20 and 25 km
		1 (Worst)	Greater than 25 km
	Pumping Requirements	6 (Best)	7.5 m of head or less
		5	7.5 to 15 m of head
		4	15 and 22.5 m of head
3		22.5 and 30 m of head	
2		30 and 37.5 m of head	
1 (Worst)		Greater than 37.5 m of head	
Technical, Monitoring and Maintenance	Ease of Runoff Management	6 (Best)	Less than 0.5 monitoring and collection points per km of perimeter length
		5	Between 0.5 and 1.5 monitoring and collection points per km of perimeter length
		4	Between 1.5 and 2.5 monitoring and collection points per km of perimeter length
		3	Between 2.5 and 3.5 monitoring and collection points per km of perimeter length
		2	Between 3.5 and 4.5 monitoring and collection points per km of perimeter length
		1 (Worst)	Greater than 4.5 monitoring and collection points per km of perimeter length
	Consequence of Operational Error	6 (Best)	No measureable impact
		5	Re-grading of mine rock pile required
		4	Relocation of some mine rock required
		3	Low risk to people and environment, relocation of some mine rock required
		2	Moderate risk to people and environment, relocation of some mine rock required
		1 (Worst)	Significant risk to people and environment, relocation of some mine rock required

TABLE 3.4  
IAMGOLD CORPORATION  
CÔTÉ GOLD PROJECT  
MINE ROCK AREA ALTERNATIVES ASSESSMENT  
SUMMARY OF INDICATOR VALUE SCALES

Print Mar/05/13 15:33:15

Account, Sub-Account	Indicator	Value	Descriptor
Economics, Capital Costs	Foundation Preparation and Access Construction	6 (Best)	Very easy
		5	Easy
		4	Moderate ease
		3	Moderate difficulty
		2	Difficult
	1 (Worst)	Very difficult	
	Water Management	6 (Best)	Less than 0.5 monitoring and collection points per km of perimeter length
		5	Between 0.5 and 1.5 monitoring and collection points per km of perimeter length
		4	Between 1.5 and 2.5 monitoring and collection points per km of perimeter length
		3	Between 2.5 and 3.5 monitoring and collection points per km of perimeter length
		2	Between 3.5 and 4.5 monitoring and collection points per km of perimeter length
1 (Worst)		Greater than 4.5 monitoring and collection points per km of perimeter length	
Economics, Operational Costs	Haul Distance	6 (Best)	Maximum haul distance is less than 2 km
		5	Maximum haul distance is between 2 and 3 km
		4	Maximum haul distance is between 3 and 4 km
		3	Maximum haul distance is between 4 and 5 km
		2	Maximum haul distance is between 5 and 6 km
	1 (Worst)	Maximum haul distance is greater than 6 km	
	Operational Costs	6 (Best)	Ratio of the total footprint area to the total storage capacity (million tonnes) is less than 0.75 ha/million tonne
		5	Ratio of the total footprint area to the total storage capacity (million tonnes) is between 0.75 and 0.85 ha/million tonne
		4	Ratio of the total footprint area to the total storage capacity (million tonnes) is between 0.86 and 0.95 ha/million tonne
		3	Ratio of the total footprint area to the total storage capacity (million tonnes) is between 0.96 and 1.05 ha/million tonne
		2	Ratio of the total footprint area to the total storage capacity (million tonnes) is between 1.06 and 1.15 ha/million tonne
1 (Worst)		Ratio of the total footprint area to the total storage capacity (million tonnes) is greater than 1.15 ha/million tonne	
Economics, Closure and Post Closure Costs	Reclamation	6 (Best)	Less than 0.75 ha of surface area to reclaim per million tonnes of mine rock stored
		5	Between 0.75 and 0.85 ha of surface area to reclaim per million tonnes of mine rock stored
		4	Between 0.86 and 0.95 ha of surface area to reclaim per million tonnes of mine rock stored
		3	Between 0.96 and 1.05 ha of surface area to reclaim per million tonnes of mine rock stored
		2	Between 1.06 and 1.15 ha of surface area to reclaim per million tonnes of mine rock stored
	1 (Worst)	Greater than 1.15 ha of surface area to reclaim per million tonnes of mine rock stored	
	Monitoring and Maintenance	6 (Best)	Less than 0.5 monitoring and collection points per km of perimeter length
		5	Between 0.5 and 1.5 monitoring and collection points per km of perimeter length
		4	Between 1.5 and 2.5 monitoring and collection points per km of perimeter length
		3	Between 2.5 and 3.5 monitoring and collection points per km of perimeter length
		2	Between 3.5 and 4.5 monitoring and collection points per km of perimeter length
1 (Worst)		Greater than 4.5 monitoring and collection points per km of perimeter length	

I:\1101\00497\03A\Report\Report 2, Rev 0 - MRA MAA\Tables\Table 3.1 to 3.5 - MRA MAA.xlsx\Table 3.4 Indicator Value Scale

0	05MAR13	ISSUED WITH REPORT N8101-4973-2	RSM	KEN	RAM
REV	DATE	DESCRIPTION	PREPD	CHKD	APPD

TABLE 3.5  
IAMGOLD CORPORATION  
CÔTÉ GOLD PROJECT  
MINE ROCK AREA ALTERNATIVES ASSESSMENT  
SCORING SUMMARY

Print Mar/05/13 15:36:38

Account	Account Weight (W <sub>A</sub> )	Sub-Account	Sub-Account Weight (W <sub>SA</sub> )	Indicator	Indicator Weight (W <sub>I</sub> )	Indicator Values and Merit Scores													
						MRA 1		MRA 2		MRA 3		MRA 4		MRA 6		MRA 7			
						Value (S)	Merit Score (S*W <sub>I</sub> )	Value (S)	Merit Score (S*W <sub>I</sub> )	Value (S)	Merit Score (S*W <sub>I</sub> )	Value (S)	Merit Score (S*W <sub>I</sub> )	Value (S)	Merit Score (S*W <sub>I</sub> )	Value (S)	Merit Score (S*W <sub>I</sub> )		
Environmental	6	Hydrology	4	Number of Watersheds	3	6	18	6	18	5	15	6	18	5	15	5	15		
				Stream Length Removed	4	5	20	5	20	5	20	6	24	6	24	6	24	6	24
				Loss of Waterbodies	4	6	24	6	24	5	20	5	20	6	24	5	20	5	20
				Flow Change	5	3	15	4	20	3	15	4	20	3	15	3	15	3	15
				<b>Sub-Account Merit Score (Σ(S*W<sub>I</sub>))</b>					77		82		70		82		78		74
				<b>Sub-Account Merit Rating (R<sub>S</sub> = Σ(S*W<sub>I</sub>)/ΣW<sub>I</sub>)</b>					4.8		5.1		4.4		5.1		4.9		4.6
		Water Quality	5	Potential for Negative Influence on Surface Water Quality from Groundwater Seepage	5	6	30	4	20	6	30	6	30	6	30	6	30	6	30
				<b>Sub-Account Merit Score (Σ(S*W<sub>I</sub>))</b>					30		20		30		30		30		30
				<b>Sub-Account Merit Rating (R<sub>S</sub> = Σ(S*W<sub>I</sub>)/ΣW<sub>I</sub>)</b>					6.0		4.0		6.0		6.0		6.0		6.0
		Aquatic	5	Loss of Fish Bearing Water	5	6	30	6	30	5	25	5	25	6	30	6	30	6	30
				Adjacent Fish Ecology	3	2	6	2	6	2	6	2	6	2	6	2	6	2	6
				<b>Sub-Account Merit Score (Σ(S*W<sub>I</sub>))</b>					36		36		31		31		36		36
				<b>Sub-Account Merit Rating (R<sub>S</sub> = Σ(S*W<sub>I</sub>)/ΣW<sub>I</sub>)</b>					4.5		4.5		3.9		3.9		4.5		4.5
		Terrestrial	4	Habitat of Species of Special Concern Altered/Lost	5	2	10	5	25	1	5	4	20	4	20	3	15	3	15
				Total Moose Winter Habitat Altered/Lost	5	6	30	6	30	6	30	6	30	6	30	6	30	6	30
				Total Moose Aquatic Feeding Habitat Altered/Lost	5	6	30	6	30	6	30	6	30	6	30	6	30	6	30
				Total Vegetative Habitat Altered/Lost	4	2	8	3	12	1	4	4	16	4	16	4	16	3	12
				Total Wetland Area Altered/Lost	4	3	12	5	20	5	20	5	20	6	24	6	24	6	24
				<b>Sub-Account Merit Score (Σ(S*W<sub>I</sub>))</b>					90		117		89		120		120		111
		<b>Sub-Account Merit Rating (R<sub>S</sub> = Σ(S*W<sub>I</sub>)/ΣW<sub>I</sub>)</b>					3.9		5.1		3.9		5.2		5.2		4.8		
		Closure	6	Post-Closure Chemical Stability	4	5	20	5	20	5	20	5	20	5	20	5	20	5	20
				<b>Sub-Account Merit Score (Σ(S*W<sub>I</sub>))</b>					20		20		20		20		20		20
				<b>Sub-Account Merit Rating (R<sub>S</sub> = Σ(S*W<sub>I</sub>)/ΣW<sub>I</sub>)</b>					5.0		5.0		5.0		5.0		5.0		5.0
		<b>Account Merit Score (Σ(R<sub>S</sub>*W<sub>SA</sub>))</b>					117		113		112		121		123		120		
<b>Account Merit Rating (R<sub>A</sub> = Σ(R<sub>S</sub>*W<sub>SA</sub>)/ΣW<sub>SA</sub>)</b>					4.9		4.7		4.7		5.0		5.1		5.0				
Socio-Economic	3	Human Health	6	Human Health (Direct Exposure)	6	4	24	4	24	4	24	4	24	3	18	3	18		
				Human Health (Indirect Exposure)	4	4	16	4	16	4	16	4	16	4	16	4	16		
				<b>Sub-Account Merit Score (Σ(S*W<sub>I</sub>))</b>					40		40		40		40		34		34
				<b>Sub-Account Merit Rating (R<sub>S</sub> = Σ(S*W<sub>I</sub>)/ΣW<sub>I</sub>)</b>					4.0		4.0		4.0		4.0		3.4		3.4
		Existing Communities and Human (Current and Historic) Land Uses	3	Aboriginal Peoples Interests and Current Land Use	6	1	6	1	6	1	6	1	6	1	6	1	6	1	6
				Presence of Archaeological Sites	4	5	20	5	20	5	20	5	20	5	20	5	20	5	20
				Proximity to Existing Permanent or Temporary Residences	4	6	24	6	24	5	20	5	20	5	20	5	20	6	24
				Recreational Access	4	2	8	2	8	2	8	2	8	2	8	2	8	2	8
				Visibility and Aesthetics	3	1	3	2	6	2	6	2	6	2	6	1	3	1	3
				<b>Sub-Account Merit Score (Σ(S*W<sub>I</sub>))</b>					61		64		60		60		57		61
				<b>Sub-Account Merit Rating (R<sub>S</sub> = Σ(S*W<sub>I</sub>)/ΣW<sub>I</sub>)</b>					2.9		3.0		2.9		2.9		2.7		2.9
				<b>Account Merit Score (Σ(R<sub>S</sub>*W<sub>SA</sub>))</b>					33		33		33		33		29		29
<b>Account Merit Rating (R<sub>A</sub> = Σ(R<sub>S</sub>*W<sub>SA</sub>)/ΣW<sub>SA</sub>)</b>					3.6		3.7		3.6		3.6		3.2		3.2				

TABLE 3.5  
IAMGOLD CORPORATION  
CÔTÉ GOLD PROJECT  
MINE ROCK AREA ALTERNATIVES ASSESSMENT  
SCORING SUMMARY

Print Mar/05/13 15:36:38

Account	Account Weight (W <sub>A</sub> )	Sub-Account	Sub-Account Weight (W <sub>SA</sub> )	Indicator	Indicator Weight (W <sub>I</sub> )	Indicator Values and Merit Scores													
						MRA 1		MRA 2		MRA 3		MRA 4		MRA 6		MRA 7			
						Value (S)	Merit Score (S*W <sub>I</sub> )	Value (S)	Merit Score (S*W <sub>I</sub> )	Value (S)	Merit Score (S*W <sub>I</sub> )	Value (S)	Merit Score (S*W <sub>I</sub> )	Value (S)	Merit Score (S*W <sub>I</sub> )	Value (S)	Merit Score (S*W <sub>I</sub> )		
Technical	3	Mine Rock Pile Layout	5	Storage Efficiency (at pile height of 100 m)	6	4	24	3	18	5	30	1	6	2	12	3	18		
				Vertical Expansion Capacity	4	5	20	3	12	6	24	1	4	2	8	3	12		
				Sub-Account Merit Score (Σ(S*W <sub>I</sub> ))				44		30		54		10		20		30	
				Sub-Account Merit Rating (R <sub>S</sub> = Σ(S*W <sub>I</sub> )/ΣW <sub>I</sub> )				4.4		3.0		5.4		1.0		2.0		3.0	
				Sub-Account Merit Rating (R <sub>S</sub> = Σ(S*W <sub>I</sub> )/ΣW <sub>I</sub> )															
		Mine Rock Pile Construction	5	Site Preparation	4	4	16	4	16	3	12	4	16	3	12	3	12		
				Haul Distance from Open Pit	5	5	25	5	25	5	25	5	25	4	20	3	15		
				Geotechnical Conditions	5	5	25	5	25	5	25	5	25	5	25	5	25		
				Sub-Account Merit Score (Σ(S*W <sub>I</sub> ))				66		66		62		66		57		52	
				Sub-Account Merit Rating (R <sub>S</sub> = Σ(S*W <sub>I</sub> )/ΣW <sub>I</sub> )				4.7		4.7		4.4		4.7		4.1		3.7	
		Land Acquisition	1	Land Area and Title Holders	1	6	6	1	1	1	1	1	1	6	6	6	6		
				Sub-Account Merit Score (Σ(S*W <sub>I</sub> ))				6		1		1		1		6		6	
				Sub-Account Merit Rating (R <sub>S</sub> = Σ(S*W <sub>I</sub> )/ΣW <sub>I</sub> )				6.0		1.0		1.0		1.0		6.0		6.0	
		Water Management	2	MRA Catchment Area	4	5	20	5	20	4	16	2	8	3	12	4	16		
				Pipeline Length	2	4	8	4	8	3	6	5	10	5	10	4	8		
				Pumping Requirements	3	5	15	5	15	5	15	5	15	4	12	5	15		
				Sub-Account Merit Score (Σ(S*W <sub>I</sub> ))				43		43		37		33		34		39	
				Sub-Account Merit Rating (R <sub>S</sub> = Σ(S*W <sub>I</sub> )/ΣW <sub>I</sub> )				4.8		4.8		4.1		3.7		3.8		4.3	
		Monitoring and Maintenance	3	Ease of Runoff Management	3	5	15	5	15	5	15	5	15	4	12	4	12		
				Consequence of Operational Error	5	3	15	3	15	3	15	3	15	3	15	3	15		
Sub-Account Merit Score (Σ(S*W <sub>I</sub> ))						30		30		30		30		27		27			
Sub-Account Merit Rating (R <sub>S</sub> = Σ(S*W <sub>I</sub> )/ΣW <sub>I</sub> )						3.8		3.8		3.8		3.8		3.4		3.4			
Sub-Account Merit Rating (R <sub>S</sub> = Σ(S*W <sub>I</sub> )/ΣW <sub>I</sub> )																			
Account Merit Score (Σ(R <sub>S</sub> *W <sub>SA</sub> ))				72		60		70		48		54		58					
Account Merit Rating (R <sub>A</sub> = Σ(R <sub>S</sub> *W <sub>SA</sub> )/ΣW <sub>SA</sub> )				4.5		3.8		4.4		3.0		3.4		3.6					
Economics	1.5	Capital Costs	5	Foundation Preparation and Access Construction	3	4	12	4	12	3	9	4	12	3	9				
				Water Management	5	5	25	5	25	5	25	5	25	4	20				
				Sub-Account Merit Score (Σ(S*W <sub>I</sub> ))				37		37		34		37		29			
				Sub-Account Merit Rating (R <sub>S</sub> = Σ(S*W <sub>I</sub> )/ΣW <sub>I</sub> )				4.6		4.6		4.3		4.6		3.6			
				Sub-Account Merit Rating (R <sub>S</sub> = Σ(S*W <sub>I</sub> )/ΣW <sub>I</sub> )															
		Operational Costs	6	Haul Distance	6	4	24	5	30	3	18	5	30	4	24	3	18		
				Operational Costs	5	5	25	5	25	4	20	2	10	3	15	4	20		
				Sub-Account Merit Score (Σ(S*W <sub>I</sub> ))				49		55		38		40		39		38	
				Sub-Account Merit Rating (R <sub>S</sub> = Σ(S*W <sub>I</sub> )/ΣW <sub>I</sub> )				4.5		5.0		3.5		3.6		3.5		3.5	
				Sub-Account Merit Rating (R <sub>S</sub> = Σ(S*W <sub>I</sub> )/ΣW <sub>I</sub> )															
		Closure and Post Closure Costs	3	Reclamation	3	5	15	5	15	4	12	2	6	3	9	4	12		
				Monitoring and Maintenance	2	5	10	5	10	5	10	5	10	4	8	4	8		
				Sub-Account Merit Score (Σ(S*W <sub>I</sub> ))				25		25		22		16		17		20	
				Sub-Account Merit Rating (R <sub>S</sub> = Σ(S*W <sub>I</sub> )/ΣW <sub>I</sub> )				5.0		5.0		4.4		3.2		3.4		4.0	
				Sub-Account Merit Rating (R <sub>S</sub> = Σ(S*W <sub>I</sub> )/ΣW <sub>I</sub> )															
Account Merit Score (Σ(R <sub>S</sub> *W <sub>SA</sub> ))				64.9		68.1		55.2		54.5		49.6		50.9					
Account Merit Rating (R <sub>A</sub> = Σ(R <sub>S</sub> *W <sub>SA</sub> )/ΣW <sub>SA</sub> )				4.6		4.9		3.9		3.9		3.5		3.6					
Alternative Merit Rating (A = Σ(R <sub>A</sub> *W <sub>A</sub> )/ΣW <sub>A</sub> )				4.5		4.3		4.3		4.1		4.1		4.2					

I:\110100497\03\IA\Report\Report 2, Rev 0 - MRA MAA\Tables\Table 3.1 to 3.5 - MRA MAA.xlsx\Table 3.5 Scoring Summary

REV	DATE	DESCRIPTION	RSM PREP'D	KEH CHK'D	RAM APP'D
0	09MAR13	ISSUED WITH REPORT N8101-0073-2			

### 3.4 MAA METHOD OF ANALYSIS

The methodology for completing the MAA is outlined below.

- The total weighted scores for each indicator within its specific sub-account are multiplied by the sub-account weighting factor and summed to determine the total weighted score for each sub-account. The maximum possible score is 6 and the minimum possible score is 1 for each sub-account. The individual indicator scores are shown on Table 3.5.
- The combined total weighted score for each indicator within its specific sub-account is multiplied by the sub-account weighting factor and summed to determine the total weighted score for each sub-account.
- The combined total weighted scores for each sub-account within its specific account are multiplied by the account weighting factor and summed to determine the total weighted score for each account.
- The final score for each Option is calculated by summing the total weighted score for each account to produce a final score. The highest value of these scores represents the highest ranked Option.

### 3.5 SENSITIVITY ANALYSIS

The weightings defined for the accounts, sub-accounts and indicators have been selected based on their perceived relative importance and will, therefore, introduce bias into the analysis. To understand the impact of this bias on the results of the analysis a sensitivity analysis has been completed by adjusting the weightings of accounts, sub-accounts and indicators. The scenarios evaluated are summarized as follows:

- **Sensitivity Analysis 1 - Economics Excluded:** The economics account, sub-account and indicator weightings was decreased to zero (0) to remove all project economic influences. This analysis tends to favour alternatives that protect the environment without being influenced by the cost of environmental controls or mitigation measures.
- **Sensitivity Analysis 2 – Land Acquisition Screening:** The land acquisition sub-account weight and indicator weight are decreased to zero (0) to remove land acquisition influences.
- **Sensitivity Analysis 3 - Terrestrial Ecology Screening:** The general account weighting factors for sensitivity analysis 3 are consistent with the Environment Canada base case recommendations; however, the project terrestrial sub-account weights and the corresponding indicator weights were all increased to 6 to increase the importance of the terrestrial habitat area on the final result.
- **Sensitivity Analysis 4 - Technical Screening:** This analysis evaluates each alternative from a technical perspective in the absence of consideration for the environment or socio-economic impacts. The technical account weighting was given full-weighting (6) while the project economics account was given a moderate weighting factor (3) to ground the assessment from a financial perspective (i.e., the best possible technical merits tempered by the comparative impact of cost). This analysis favours alternatives that are both technically sound and economically feasible.

- **Sensitivity Analysis 5 - Indicators Set to Unity:** All accounts, sub-accounts and indicator weightings were reduced to 1 to remove any factors or bias associated with the weighting factors and to compare the MRA Options relative to the indicator values.



## 4 – RESULTS AND SENSITIVITY ANALYSIS

### 4.1 MAA RESULTS

The MAA base case analysis was completed by maintaining account weighting factors consistent with the recommendations suggested in the Guidelines (EC, 2011), as follows:

- Environment: 6
- Socio-economic: 3
- Technical: 3
- Project Economics: 1.5

The weighting factors for all Accounts, Sub-accounts and Indicators are summarized on Table 3.2.

The Base Case account scores, total scores and ranking for each Option are summarized below:

**Table 4.1 Ranking Summary - Base Case**

Account	MRA 1	MRA 2	MRA 3	MRA 4	MRA 6	MRA 7
Environmental	4.9	4.7	4.7	5.0	5.1	5.0
Socio-Economic	3.6	3.7	3.6	3.6	3.2	3.2
Technical	4.5	3.8	4.4	3.0	3.4	3.6
Economics	4.6	4.9	3.9	3.9	3.5	3.6
<b>WEIGHTED TOTAL</b>	4.50	4.30	4.29	4.14	4.12	4.16
<b>RANKING</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>5</b>	<b>6</b>	<b>4</b>

- **Environmental** – MRA 6 ranked higher than the other Options. This Option benefited from limited wetland area altered/lost, less habitat of species of special concern altered/lost, less total vegetative habitat altered/lost, no loss of streams under the MRA.
- **Socio-economic** – MRA 2, 3 and 4 are located further away from potential receptors (i.e., residences) than the other Options and therefore ranked higher in this account than the other Options.
- **Technical** – MRA 1 ranked higher than the other Options. The main indicators contributing to MRA 1 scoring higher included, MRA on IAMGOLD mine claims, short haul distance, relatively good storage efficiency ratios and available capacity for vertical expansion.
- **Economics** – MRA 2 ranked higher than the other Options. MRA 2 scored highest due the lower haul distance and operating costs.

The results of the MRA MAA indicate that MRA 1, 2 and 3 are the preferred Options.

## 4.2 SENSITIVITY ANALYSIS

### 4.2.1 Sensitivity Analysis 1 - Economics Excluded

The account scores, total scores and ranking for each Option for Sensitivity Analysis 1 are summarized below:

**Table 4.2 Ranking Summary - Sensitivity Analysis 1: Economics Excluded**

<b>Account</b>	<b>MRA 1</b>	<b>MRA 2</b>	<b>MRA 3</b>	<b>MRA 4</b>	<b>MRA 6</b>	<b>MRA 7</b>
Environmental	4.9	4.7	4.7	5.0	5.1	5.0
Socio-Economic	3.6	3.7	3.6	3.6	3.2	3.2
Technical	4.5	3.8	4.4	3.0	3.4	3.6
Economics	0.0	0.0	0.0	0.0	0.0	0.0
<b>WEIGHTED TOTAL</b>	4.49	4.23	4.33	4.17	4.20	4.23
<b>RANKING</b>	<b>1</b>	<b>4</b>	<b>2</b>	<b>6</b>	<b>5</b>	<b>3</b>

As shown above, under Sensitivity Analysis 1, MRA 1, 3 and 7 are the preferred Options.

### 4.2.2 Sensitivity Analysis 2 – Land Acquisition Screening

The Account scores, total scores and ranking each Option for Sensitivity Analysis 2 are summarized below:

**Table 4.3 Ranking Summary - Sensitivity Analysis 2: Land Acquisition Screening**

<b>Account</b>	<b>MRA 1</b>	<b>MRA 2</b>	<b>MRA 3</b>	<b>MRA 4</b>	<b>MRA 6</b>	<b>MRA 7</b>
Environmental	4.9	4.7	4.7	5.0	5.1	5.0
Socio-Economic	3.6	3.7	3.6	3.6	3.2	3.2
Technical	4.4	4.0	4.6	3.1	3.2	3.5
Economics	4.6	4.9	3.9	3.9	3.5	3.6
<b>WEIGHTED TOTAL</b>	4.48	4.34	4.34	4.17	4.09	4.13
<b>RANKING</b>	<b>1</b>	<b>3</b>	<b>2</b>	<b>4</b>	<b>6</b>	<b>5</b>

As shown above, under Sensitivity Analysis 2, MRA 1, 3 and 2 remain the preferred Options.

#### 4.2.3 Sensitivity Analysis 3: Terrestrial Ecology Screening

The Account scores, total scores and ranking for each Option for sensitivity analysis 3 are summarized below:

**Table 4.4 Ranking Summary - Sensitivity Analysis 3: Terrestrial Ecology Screening**

Account	MRA 1	MRA 2	MRA 3	MRA 4	MRA 6	MRA 7
Environmental	4.8	4.7	4.6	5.0	5.1	5.0
Socio-Economic	3.6	3.7	3.6	3.6	3.2	3.2
Technical	4.5	3.8	4.4	3.0	3.4	3.6
Economics	4.6	4.9	3.9	3.9	3.5	3.6
<b>WEIGHTED TOTAL</b>	4.46	4.30	4.25	4.15	4.13	4.15
<b>RANKING</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>5</b>	<b>6</b>	<b>4</b>

As shown above, under Sensitivity Analysis 3, MRA 1, 2 and 3 remain the preferred Options.

#### 4.2.4 Sensitivity Analysis 4: Technical Screening

The Account scores, total scores and ranking each Option for Sensitivity Analysis 4 are summarized below:

**Table 4.5 Ranking Summary - Sensitivity Analysis 4: Technical Screening**

Account	MRA 1	MRA 2	MRA 3	MRA 4	MRA 6	MRA 7
Environmental	0.0	0.0	0.0	0.0	0.0	0.0
Socio-Economic	0.0	0.0	0.0	0.0	0.0	0.0
Technical	4.5	3.8	4.4	3.0	3.4	3.6
Economics	4.6	4.9	3.9	3.9	3.5	3.6
<b>WEIGHTED TOTAL</b>	4.56	4.14	4.21	3.31	3.43	3.64
<b>RANKING</b>	<b>1</b>	<b>3</b>	<b>2</b>	<b>6</b>	<b>5</b>	<b>4</b>

As shown above, under Sensitivity Analysis 4, MRA 1, 3 and 2 remain the preferred Options.

4.2.5 Sensitivity Analysis 5: Indicators Set to Unity

The Account scores, total scores and ranking for each Option for Sensitivity Analysis 6 are summarized below:

**Table 4.6 Ranking Summary - Sensitivity Analysis 5: Indicators Set to Unity**

<b>Account</b>	<b>MRA 1</b>	<b>MRA 2</b>	<b>MRA 3</b>	<b>MRA 4</b>	<b>MRA 6</b>	<b>MRA 7</b>
Environmental	4.8	4.7	4.6	5.0	5.0	4.9
Socio-Economic	3.5	3.6	3.5	3.5	3.2	3.3
Technical	4.8	3.5	3.8	2.9	3.9	4.1
Economics	4.7	4.8	4.0	3.8	3.5	3.7
<b>WEIGHTED TOTAL</b>	4.42	4.14	3.96	3.81	3.90	3.98
<b>RANKING</b>	<b>1</b>	<b>2</b>	<b>4</b>	<b>6</b>	<b>5</b>	<b>3</b>

The analysis favoured MRA 1, 2 and 7. The result suggests that the assigned weighting factors did marginally bias the results towards MRA 3 being the more favorable than MRA 7. MRA 7 compared to MRA 3, had lower indicator values for human health (direct exposure), vertical expansion capacity and storage efficiency, haul distance from open pit, and visibility and aesthetics which marginally bias the results for MRA 3 when the weightings are applied.

## 5 – CONCLUSIONS AND RECOMMENDATIONS

### 5.1 CONCLUSION

An alternatives assessment has been completed for the mine rock storage areas required for the Côté Gold Project. The analysis was based on the relative consideration of the environmental, socio-economic and technical merits and costs to develop each Option.

Six MRA Options were evaluated using a multiple accounts analysis to rank the options and select the preferred options for mine rock storage. The MAA was completed by establishing accounts, sub-accounts and indicators to compare and rank the identified MRA Options.

The results of the MAA indicate that MRA 1, 2 and 3 are the preferred MRA Options for the Project. The results of the sensitivity analyses support the selection of MRA 1, 2 and 3.

It should be noted that if land tenure is a significant issue and it can't easily be overcome, then MRA 1, 6 and 7 are the only options completely on IAMGOLD mine claims.

### 5.2 RECOMMENDATIONS

Recommendations based on the results of the MAA are as follows:

1. Additional site investigations carried out for MRA 2, 3, 4, 6 and 7 would verify geotechnical assumptions used in the alternatives assessment.
2. Initiate pre-feasibility level design for mine rock management.

## 6 – REFERENCES


- Environment Canada. September, 2011. *Guidelines for the Assessment of Alternatives for Mine Waste Disposal*.
- Knight Piésold. January 14, 2013. *IAMGOLD Corporation - Côté Gold Project Mine Rock and Overburden Storage Areas - Site Selection and Initial Screening*. Ref. No. NB12-00610. North Bay: Knight Piésold.
- Knight Piésold. October 31, 2012. *IAMGOLD Corporation - Côté Gold Project – Phase I Geochemical Characterization Summary Report*. Ref. No. NB101-497/1-3. North Bay: Knight Piésold.
- Ontario. Ministry of the Northern Development and Mines. 2006. *Mine Development and Closure Under Part VII of the Mining Act and Mine Rehabilitation Code of Ontario*. (O.Reg 240/00 as amended by O.Reg. 307/12) Queen’s Printer for Ontario.


**7 – CERTIFICATION**

This report was prepared, reviewed and approved by the undersigned.



Prepared:   
Reagan McIsaac, Ph.D., P.Eng.  
Senior Engineer

Reviewed:   
Kevin Hawton, P.Eng.  
Specialist Engineer/Project Manager

Approved:   
Robert A. Mercer, Ph.D., P.Eng.  
Managing Principal, North Bay

This report was prepared by Knight Piésold Ltd. for the account of IAMGOLD Corporation. Report content reflects Knight Piésold's best judgement based on the information available at the time of preparation. Any use a third party makes of this report, or any reliance on or decisions made based on it is the responsibility of such third parties. Knight Piésold Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This numbered report is a controlled document. Any reproductions of this report are uncontrolled and might not be the most recent revision.

**APPENDIX A**  
**DESCRIPTION OF INDICATORS**

(Pages A-1 to A-8)



**APPENDIX A**

**1 – DESCRIPTION OF INDICATORS**

1.1 ENVIRONMENTAL ACCOUNT

The environmental account encompasses a range of issues pertaining to the direct and indirect influences on the surrounding environment as a result of developing each MRA option.

The environmental account is subdivided into a number of sub-accounts. Each sub-account is evaluated on the basis of a series of indicators. The environmental sub-accounts and indicators are summarized in the following table.

**Table A.1 Environmental Sub-accounts and Indicators**

Account	Sub-Account	Indicator
Environmental	Hydrology	Number of Watersheds
		Stream Length Removed
		Loss of Waterbodies
		Flow Change
	Water Quality	Potential for Negative Influence on Surface Water Quality from Groundwater Seepage
	Aquatic	Loss of Fish Bearing Water
		Adjacent Fish Ecology
	Terrestrial	Habitat of Species of Special Concern Altered/Lost
		Total Moose Winter Habitat Altered/Lost
		Total Moose Aquatic Feeding Habitat Altered/Lost
		Total Vegetative Habitat Altered/Lost
		Total Wetland Area Altered/Lost
	Closure	Post-Closure Chemical Stability

The indicators for the Environmental Account are described briefly below.

- **Number of Watersheds:** Alternatives that minimize the number of catchments and/or watersheds directly impacted may have fewer potential cumulative effects on the environment. It is preferable for a MRA to be located within a single watershed area in order to minimize risk for a greater distribution of potentially affected runoff from the MRA.
- **Stream Length Removed:** Disrupting stream flows is less desirable due to the potential impact on downstream waterbodies and aquatic life. This indicator is a direct quantitative measure of stream lengths affected under the MRA Options.
- **Loss of Waterbodies:** It is desirable to minimize disruption of existing waterbodies and wetlands due to potential loss of aquatic habitat. While wetlands do not offer discrete fish habitat, the hydrological contributions to larger waterbodies create linkages between the

wetlands and aquatic species habitat provided by larger associated waterbodies. Wetlands play an integral role in maintaining the water balance of the local environment through groundwater recharge, and flood flow alteration. The ranking is based on the relative area of waterbodies and wetlands that would be lost with each of the MRA Options. The total area of all waterbodies and wetlands within the MRA Option was used to assign the relative scores for this indicator. An option that does not disrupt a waterbody or wetland within the MRA footprint would receive a relative higher score than an Option with waterbodies and wetlands.

- **Flow Change:** It is desirable to locate the MRA sites such that there are minimal hydrologic impacts. Small headwater waterbodies and wetlands adjacent to the MRA piles and reliant on the catchment area of the MRA are the most susceptible to hydrologic flow impacts and the areas are compared.
- **Potential for Negative Influence on Surface Water Quality from Groundwater Seepage:** The potential for negative influence on surface water quality from groundwater seepage is assessed considering the seepage potential and the size and/or flow conditions in surrounding surface waterbodies. MRA Options with surrounding waterbodies that are smaller or have limited catchment areas with low flow are sensitive to influence from groundwater seepage from the MRA. The ratio of the mine rock perimeter length overlying subsoils with high seepage potential and adjacent to small waterbodies to the total perimeter length is compared. MRA Options with smaller percentages are preferred.
- **Loss of Fish Bearing Water:** The expected quality and quantity of fish habitat potentially lost under the MRA Options was used to assign relative scores as a measure of the impact of each option for this indicator. An option overlying many habitats of higher quality would receive a lower score than an option that overlies few habitats of limited quality.
- **Adjacent Fish Ecology:** The expected quality and quantity of adjacent fish habitat that could potentially be impacted by each MRA Option was considered to assign relative scores for each option. An option impacting many habitats of higher quality would receive a lower score than an option with few impacts on habitats of limited quality.
- **Habitat of Species of Special Concern Altered/Lost:** Four bird species, including the bald eagle (*Haliaeetus leucocephalus*), Canada warbler (*Wilsonia canadensis*), common nighthawk (*Chordeiles minor*), and olive-sided flycatcher (*Contopus cooperi*), designated provincially as Special Concern and one bird species, rusty blackbird (*Euphagus carolinus*), designated federally as Special Concern were identified during the Baseline Terrestrial Studies completed for the Project (Golder, 2012). For the purpose of this alternatives assessment it is assumed that each of the five bird species has an equal potential to occur in their associated habitats identified throughout the Mine Site. The loss of habitat preferred by these species under the MRA Options has been estimated.
- **Total Moose Winter Habitat Altered/Lost:** Moose winter habitat (i.e. dense stands of coniferous trees) is considered significant wildlife habitat and is designated by MNR. No moose wintering habitat is present in the proposed MRAs.
- **Total Moose Aquatic Feeding Habitat Altered/Lost:** Moose aquatic feeding habitat (i.e. abundant food with adjacent stands of lowland conifers) is considered significant wildlife

habitat and is designated by MNR. No moose aquatic feeding habitat is present in the proposed MRAs.

- **Total Vegetative Habitat Altered/Lost:** Plant communities are distributed across the Mine Site and no plant species at risk were identified on the Mine Site (Golders, 2012). A smaller MRA footprint will have the least adverse effect on the persistence of vegetative populations and communities which is preferred. Options with smaller footprints are assigned higher relative scores.
- **Total Wetland Area Removed:** Wetlands serve several ecological functions. They increase vegetation and wildlife diversity by offering a greater variety of habitats and forage. The diversity of habitat types offered in an area is a good indicator of the wildlife diversity likely present within it. This indicator is a direct quantitative measure of loss of wetland area under the mine rock storage areas.
- **Post-Closure Chemical Stability:** Runoff from the closed out mine rock and overburden piles is expected to be relatively inert and likely suitable for direct discharge to the environment. Should development of a segregated PAG mine rock pile be required, runoff water quality monitoring will be required to ensure compatibility with the surrounding environment. Treatment would be provided if/as needed. Closure of the facilities will address long-term physical and chemical stability and impacts to the surrounding environment. A requirement of closure is to ensure that water quality objectives will continue to be met after closure. Specific reclamation activities will include physical stabilization measures, select capping and vegetation measures to meet closure objectives and implementation of an appropriate water management and water quality measures. All options have been deemed to be equally chemically stable post-closure.

1.2 SOCIO-ECONOMIC ACCOUNT

The socio-economic account addresses the social and cultural influences of the alternatives.

The socio-economic account is subdivided into a number of sub-accounts. Each sub-account is evaluated on the basis of a series of indicators. The socio-economic sub-accounts and indicators are summarized in the following table.

**Table A.2 Socio-Economic Sub-accounts and Indicators**

Account	Sub-Account	Indicator
Socio-Economic	Human Health	Human Health (Direct Exposure)
		Human Health (Indirect Exposure)
	Existing Communities and Human (Current and Historic) Land Uses	Aboriginal Peoples Interests and Current Land Use
		Presence of Archaeological Sites
		Proximity to Existing Permanent or Temporary Residences
		Recreational Access
		Visibility and Aesthetics

The indicators for the socio-economic account are described briefly below.

- **Human Health (Direct Exposure):** Fugitive dust may be released from vehicle and heavy equipment travel on gravel roads and from wind entrainment from the mine rock piles and other exposed earth materials. For the most part, dust can be adequately controlled on roads with water and other Provincially-approved dust suppressants. At the Project site the prevailing wind direction is primarily from the south or southwest during the summer months, and from the north or northwest during the winter months. The potential likelihood for the MRA to affect human health due to exposure to emissions or other releases to the environment, including dust generation and potential for groundwater seepage were included in the assessment of the direct exposure indicator. The measurement is a receptor-based qualitative assessment considering wind direction, receptors in the path of the wind, potential for seepage, etc.
- **Human Health (Indirect Exposure):** Dust can affect vegetation and subsequently affect forage availability and wildlife species. The potential likelihood for the MRA to affect human health, including the consumption of impacted fish, wildlife, berries, etc. was included in the assessment of the indirect exposure indicator. It is preferred to have a facility with reduced on-going dust generation and down-wind dispersion over water and land.
- **Aboriginal Peoples Interests and Current Land Use:** Adverse effect to Aboriginal Peoples interests is not desirable. The potential for the proposed Project to affect Aboriginal Peoples interests and current land use has not yet been determined. Traditional land use studies still need to be conducted to identify historic and current land uses in order to identify potential impacts to recent or ongoing traditional practices. All options have been given the lowest possible ranking until such studies have been completed.
- **Presence of Archaeological Sites:** Archaeological and historic heritage are non-renewable resources whose locations consist of the physical remains of past human activity. Unrecorded sites may be identified at any of the MRA Options; however, individual sites are assumed to be mitigatable for all options. Studies are ongoing to determine if archaeological, paleontological or historic structures have the potential to be affected.
- **Proximity to Existing Permanent or Temporary Residences:** It is desirable to maximize the distance of the MRA from potential receptors. This indicator represents the number of existing residences (e.g. temporary camp sites, trapper cabins, seasonal residences, permanent residences and outfitter establishments) in proximity (i.e., approximately 3 km) of the MRA.
- **Recreational Access:** Recreational use is generally a function of accessibility and opportunity. The expected duration (i.e., none, short-term (initial construction), temporary (mine life), permanent or loss of access and use (i.e., periodically, heavily) of public recreation areas (i.e. provincial park, cottages, favourite fishing lake accessible only by ATV, etc.) due to the MRA was used to assign relative scores as a measure of the impact of each option. An option with permanent loss of access to a heavily used public recreation area would receive a lower score than an option that impacts no reduction in access.
- **Visibility and Aesthetics:** Reduced visibility of the MRA is preferred. Visual effects are qualitatively assessed to capture the effect on the visual aesthetic from receptor locations such as major transportation routes, communities and existing temporary or permanent residences.

This indicator considered such items as height, shape, and contrast with the surrounding terrain. All options are assumed to cause a major change in landscape from baseline conditions.

### 1.3 TECHNICAL ACCOUNT

The technical account assesses the technical merits of each of the alternatives.

The technical account is subdivided into a number of sub-accounts. Each sub-account is evaluated on the basis of a series of indicators. The technical sub-accounts and indicators are summarized in the following table:

**Table A.3 Technical Sub-accounts and Indicators**

Account	Sub-Account	Indicator
Technical	Mine Rock Pile Layout	Storage Efficiency (at pile height of 100 m)
		Vertical Expansion Capacity
	Mine Rock Pile Construction	Site Preparation
		Haul Distance from Open Pit
		Geotechnical Conditions
	Land Acquisition	Land Area and Title Holders
	Water Management	MRA Catchment Area
		Pipeline Length
		Pumping Requirements
	Monitoring and Maintenance	Ease of Runoff Management
		Consequence of Operational Error

The indicators for the technical are described briefly below.

- Storage Efficiency (at pile height of 100 m):** Multiple mine rock piles may be required to store the planned mine rock volume. Fewer but larger piles can be managed more efficiently, rather than having many smaller, scattered piles. The storage efficiency in terms of the maximum storage volume possible within a given mine rock area to the total planned mine rock production volume is calculated. MRA Options with higher storage efficiencies are assigned higher relative scores.
- Vertical Expansion Capacity:** Depending on the nature of the orebody and potential for expansion of reserves, flexibility of the MRA site to accommodate additional volumes of mine rock is an important consideration. The additional storage capacity if the stockpile is expanded from a height of 100 m to 150 m is calculated. MRA Options with higher storage capacity are assigned higher relative scores.
- Site Preparation:** This indicator is a qualitative measure of the need for and complexity of site preparation required for each MRA Option. Less site preparation is preferred. This would include construction of haul roads, runoff collection systems, and any other earthworks required in order to prepare the area.

- **Haul Distance from Open Pit:** A shorter haul road is preferred to simplify the haul road design details. MRA within reasonably close proximity to the open pit also minimize the overall Project environmental footprint, reduce greenhouse emissions and achieve economic efficiencies of operation. MRA Options with shorter haul distances are assigned higher relative scores.
- **Geotechnical Conditions:** The stability of a mine rock pile depends on a variety of site-specific factors, including topography of the site, foundation conditions, nature of the mine rock materials, regional seismicity, climate conditions and hydrology. Stability considerations will affect the design of the MRA either by lowering the ultimate height or reducing the overall slope. Good geotechnical conditions are preferred for ease of construction and to ensure long-term stability. The geotechnical indicator provides a measure of the inherent risk to mine rock pile stability of siting the stockpiles on deep overburden soils, weak bearing soils or potentially liquefiable soils, etc. The relative value of the geotechnical conditions is estimated.
- **Land Area and Title Holders:** It is advantageous to locate as much of the MRA on existing mine property as possible. Additional property would need to be obtained if the MRA footprints extended beyond the current limits of the IAMGOLD land tenure. Acquisition of land may present challenges. The area of land requiring further land acquisition for each MRA Option is calculated. MRA Options on lands that do not require any further land acquisition are ranked higher.
- **MRA Catchment Area:** The mine rock pile design will include measures to manage storm water and runoff. A smaller MRA footprint generally simplifies water management which is preferred. The ratio of the footprint area in hectares to the mass (million tonnes) of mine rock stored is compared. MRA Options with a smaller ratio are assigned higher relative scores.
- **Pipeline Length:** A shorter runoff water and seepage management pipeline (if required) is preferred to simplify design, reduce pipe maintenance and reduce the risk of potential spills. It is also recognized that shorter distances from the mill allows more frequent inspections and facilitates maintenance. MRA Options with the shortest pipeline lengths are assigned the highest relative score.
- **Pumping Requirements:** Less pumping simplifies the design and decreases the risks for delays due to maintenance and problems during operations. MRA Options with the smallest head difference between the runoff collection pond located near the plant site and the MRA are assigned the highest relative score.
- **Ease of Runoff Management:** The amount of monitoring and maintenance will be a function of the catchment area of the MRA, the number of collection points around the perimeter, the perimeter ditching (if required) length, the distance from the plant site, etc. Less monitoring and maintenance requirements are preferred. A lower number of sump locations around the perimeter of the pile per kilometer of perimeter length is desirable and an indicator of the estimated level of runoff management required.
- **Consequence of Operational Error:** The consequence of operational error indicator provides an estimated measure of the severity (i.e. minor or significant) of impact to the environment and duration (i.e. temporary or permanent) should the mine rock pile fail during operations. A lower consequence of error is preferred. The relative value of operational error is estimated.

1.4 ECONOMICS ACCOUNT

The project economics account considers issues pertaining to the direct and indirect costs associated with the development of each alternative MRA option.

The economics account is subdivided into a number of sub-accounts. Each sub-account is evaluated on the basis of a series of indicators. The economic sub-accounts and indicators are summarized in the following table:

**Table A.4 Economics Sub-accounts and Indicators**

Account	Sub-Account	Indicator
Economics	Capital Costs	Foundation Preparation and Access Construction
		Water Management
	Operational Costs	Haul Distance
		Operational Costs
	Closure and Post Closure Costs	Reclamation
		Monitoring and Maintenance

The indicators for the economics account are described briefly below.

- **Foundation Preparation and Access Construction:** Simpler and less foundation preparation and access construction is preferred. The cost is qualitatively assessed based on footprint areas overlying suspected deep unsuitable overburden material, seepage control measures (if required) and access construction.
- **Water Management:** Where runoff collected from the mine rock piles is unable to meet applicable final effluent discharge requirements directly, collected runoff and/or seepage from these areas will be pumped to a central runoff collection pond for use in the milling process. The cost to construct and manage the runoff will depend on a number of factors including; the pile perimeter length, number of collection sumps, pipeline distance to the plant, elevation difference between plant and MRA, amount of runoff collected, etc. The estimated number of water management locations per kilometer of perimeter length is used as an indicator of initial capital cost for runoff collection measures.
- **Haul Distance:** Material transport is often the largest proportion of the mine rock storage costs. As such, it is generally desirable to locate the MRA as close as possible to the open pit. MRA Options with shorter haul distances are assigned higher relative scores.
- **Operational Costs:** Lower operational costs are preferred. Managing runoff is used as an indicator of operational costs and is a function of the total catchment area that intercepts water. The ratio of the total catchment area to the total storage capacity (million tonnes) is compared.
- **Reclamation:** Specific reclamation activities will include physical stabilization measures, select capping and vegetation measures to meet closure objectives and implementation of an appropriate water management and water quality measures. Lower reclamation costs are preferred. The costs will be a function of the final surface area to be reclaimed after operations.

The ratio of final surface area to reclaim to the mass (million tonnes) of mine rock stored is compared.

- **Monitoring and Maintenance:** Less monitoring and maintenance is preferred. The cost is estimated based on the number of monitoring locations per kilometer of perimeter length.

## 2 – REFERENCES

Golder Associates. January 29, 2013. *Draft Summary of the Mine Rock Area Alternatives Selection Process Côté Gold Project, Chester Township, Ontario*. Ref. No. 12-1197-0005R. Sudbury, Ontario.



**APPENDIX U2  
PROCESS EFFLUENT TREATMENT ALTERNATIVES ASSESSMENT**



APPENDIX U2

Process Effluent Treatment			
Performance Objective / Criteria	Indicator	Alternatives	
		A In-plant cyanide recycling and destruction using the SO <sub>2</sub> /Air process	B Process effluent discharge to the TMF with natural degradation for the destruction of cyanide with supplemental hydrogen peroxide destruction of residual cyanide
<b>Cost Effectiveness</b>			
Côté Gold Project Financing	Investor attractiveness or risk	<u>Advantages</u> <ul style="list-style-type: none"> <li>Provides the best and most secure method of effluent treatment with minimal environmental risk, including risks associated with potential TMF catastrophic failure</li> <li>Reduced TMF storage requirements compared with other option lowering capital and operating costs</li> <li>Proven and generally considered best available technology</li> <li>Reduces Project EA and permitting risk</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Reduced reagent costs, as natural degradation processes remove much of the cyanide and metals prior to H<sub>2</sub>O<sub>2</sub> chemical treatment, lowering operating costs</li> <li>Proven technology</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Higher processing plant capital and operating costs</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Higher environmental risk associated with potential for TMF dam failure / unintended release</li> <li>Potential for wildlife exposure and seepage concerns</li> <li>Likely to be viewed by investors as not being the best available technology</li> <li>Greater EA acceptance and permitting risks</li> </ul>

**APPENDIX U2**

<b>Process Effluent Treatment</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A In-plant cyanide recycling and destruction using the SO<sub>2</sub>/Air process</b>	<b>B Process effluent discharge to the TMF with natural degradation for the destruction of cyanide with supplemental hydrogen peroxide destruction of residual cyanide</b>
Return on investment (ROI)	Provides a competitive or acceptable ROI	<u>Advantages</u> <ul style="list-style-type: none"> <li>Reduced TMF dam storage requirements may offset higher treatment reagent costs</li> <li>Greater operational TMF water management flexibility, reducing overall operating costs</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Higher ROI than alternative due to reduced operating costs</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Long-term seepage containment costs likely, due to elevated concentrations of cyanide and metals in the tailings pore water</li> </ul>
Financial Risk	Provides, or is associated with, a preferred, manageable or acceptable financial risk	<u>Advantages</u> <ul style="list-style-type: none"> <li>Alternative best able to comply with anticipated, stringent final effluent standards</li> <li>Greater operational TMF management flexibility, translating to lower overall operating costs</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Higher potential for non-compliance with final effluent standards compared with SO<sub>2</sub>/Air alternative</li> <li>Increased potential for liability costs in the event of TMF dam failure / unintended release</li> </ul>

**APPENDIX U2**

<b>Process Effluent Treatment</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A In-plant cyanide recycling and destruction using the SO<sub>2</sub>/Air process</b>	<b>B Process effluent discharge to the TMF with natural degradation for the destruction of cyanide with supplemental hydrogen peroxide destruction of residual cyanide</b>
Cost Effectiveness Summary Evaluation and Rating		<p>The SO<sub>2</sub>/Air treatment alternative is an industry best practice process and cost-effective. It presents a lower overall environmental risk, increasing the likelihood of obtaining financial backing.</p> <p><b>Summary Rating: Preferred</b></p>	<p>The natural degradation and H<sub>2</sub>O<sub>2</sub> alternative is capable of generating an acceptable final effluent, but has additional environmental risks. This may be less attractive to potential investors as well as for regulators and the public, compared to the alternative.</p> <p><b>Summary Rating: Acceptable</b></p>
<b>Technical Applicability and/or System Integrity and Reliability</b>			
Available Technology	Used elsewhere in similar circumstances, and is predictably effective with contingencies if and as required	<p><u>Advantages</u></p> <ul style="list-style-type: none"> <li>• Used widely within the gold mining industry for over 20 years, with predictable success</li> <li>• This alternative renders metals in solid phase, increasing metal removal efficiency in the TMF through precipitation</li> <li>• Extended aging in TMF ponds allows for further removal of cyanide destruction breakdown products (cyanate and ammonia)</li> </ul>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> <li>• The natural degradation of cyanide by volatilization and subsequent breakdown in the atmosphere limits the generation of cyanide breakdown products (cyanate and ammonia) within the TMF</li> <li>• Use of H<sub>2</sub>O<sub>2</sub> in TMF ponds reduces residual cyanide concentration, but not to the levels achieved by the alternative</li> </ul>
		<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> <li>• TMF pore water and tailings would contain higher concentrations of cyanide, potentially resulting in lower quality seepage</li> <li>• Increased environmental risk in the event of TMF dam failure / unintended release</li> </ul>
	New technologies supported by pilot plant or strong theoretical investigations or testing, with contingencies if and as required	n/a	n/a

**APPENDIX U2**

<b>Process Effluent Treatment</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A In-plant cyanide recycling and destruction using the SO<sub>2</sub>/Air process</b>	<b>B Process effluent discharge to the TMF with natural degradation for the destruction of cyanide with supplemental hydrogen peroxide destruction of residual cyanide</b>
Technical Applicability and/or System Integrity and Reliability Summary Evaluation and Rating		As an industry best practice process, this alternative is both applicable and reliable to the Project.  <b>Summary Rating: Preferred</b>	Natural degradation is applicable to the Project, and a reliable alternative to destroy residual cyanide.  <b>Summary Rating: Acceptable</b>
<b>Ability to Service the Site Effectively</b>			
Service	Provides a guaranteed supply to the site with manageable potential for supply disruption, and/or contingencies available	n/a	n/a
Accessibility	Accessible land base or infrastructure needed to support component development and operation	n/a	n/a
Ability to Service the Site Effectively Summary Evaluation and Rating		<b>n/a</b>	<b>n/a</b>
<b>Effects to the Physical and Biological Environments</b>			
Effect on air quality and climate	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	<u>Advantages</u> • Reduces potential of free cyanide emissions to the atmosphere	<u>Advantages</u> • None apparent
		<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • Increased potential for release of free cyanide to the atmosphere through volatilization
Effect on air quality and climate	Emission rates of greenhouse gases (GHGs)	n/a	n/a

**APPENDIX U2**

<b>Process Effluent Treatment</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A In-plant cyanide recycling and destruction using the SO<sub>2</sub>/Air process</b>	<b>B Process effluent discharge to the TMF with natural degradation for the destruction of cyanide with supplemental hydrogen peroxide destruction of residual cyanide</b>
Effect on fish and aquatic habitat	Attainment or maintenance of surface water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	<u>Advantages</u> <ul style="list-style-type: none"> <li>Best alternative able to comply with final effluent standards required to attain or maintain receiving water protection of aquatic life standards, or scientifically defensible alternatives</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Higher risk of non-compliance with final effluent standards, with potential consequential effects on fish and aquatic habitat</li> </ul>
	Maintenance of flows and water levels in streams and lakes suitable to support aquatic species and habitat	<u>Advantages</u> <ul style="list-style-type: none"> <li>Best alternative able to comply with final effluent standards and therefore maintenance of fish habitat</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Higher risk of non-compliance with final effluent standards, with potential consequential effects on fish habitat</li> </ul>
	Maintenance of fish population	<u>Advantages</u> <ul style="list-style-type: none"> <li>Best alternative able to comply with final effluent standards and therefore maintenance of fish population</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Higher risk of non-compliance with final effluent standards, with potential consequential effects on fish population</li> </ul>

APPENDIX U2

Process Effluent Treatment			
Performance Objective / Criteria	Indicator	Alternatives	
		A In-plant cyanide recycling and destruction using the SO <sub>2</sub> /Air process	B Process effluent discharge to the TMF with natural degradation for the destruction of cyanide with supplemental hydrogen peroxide destruction of residual cyanide
Effect on fish and aquatic habitat	Maintenance of groundwater flows, levels and quality	<u>Advantages</u> <ul style="list-style-type: none"> <li>Lower risk of negatively affecting groundwater quality</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Potential effects on groundwater quality as TMF pore water likely to have higher residual cyanide concentration</li> </ul>
Effect on Wetlands	Attainment or maintenance of water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	n/a	n/a
	Area, type and quality (functionality) of terrestrial habitat that would be displaced or altered	n/a	n/a
	Maintenance of wetland connectivity	n/a	n/a
Effect on terrestrial species and habitat	Area, type and quality (functionality) of terrestrial habitat that would be displaced or altered	n/a	n/a
	Potential for noise (or other harm or harassment) related disturbance	n/a	n/a
	Maintenance or provision of plant dispersion and wildlife movement corridors	n/a	n/a



**APPENDIX U2**

<b>Process Effluent Treatment</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A In-plant cyanide recycling and destruction using the SO<sub>2</sub>/Air process</b>	<b>B Process effluent discharge to the TMF with natural degradation for the destruction of cyanide with supplemental hydrogen peroxide destruction of residual cyanide</b>
Effect on terrestrial species and habitat	Maintenance of wildlife population	<u>Advantage</u> • None apparent	<u>Advantage</u> None apparent
		<u>Disadvantages</u> • None apparent	<u>Disadvantage</u> • Potential for wildlife loss due to access to higher residual cyanide concentrations
Effect on Species at Risk (SAR)	Sensitivity level of involved species (Endangered, Threatened, Special Concern)	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent
		<u>Disadvantages</u> • Little brown myotis bats (Endangered – Ontario ESA) have been recorded around the Project site and may persist in the area through to closure	<u>Disadvantages</u> • Little brown myotis bats (Endangered – Ontario ESA) have been recorded around the Project site and may persist in the area through to closure
	Area, type and quality of SAR territories or habitat that would be displaced	n/a	n/a
	Potential for noise (or other harm or harassment) related disturbance	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent
		<u>Disadvantages</u> • Potential for disturbance as part of Project mining activity profile	<u>Disadvantages</u> • Potential for disturbance as part of Project mining activity profile
Maintenance or provision of wildlife movement corridors	n/a	n/a	

**APPENDIX U2**

<b>Process Effluent Treatment</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A In-plant cyanide recycling and destruction using the SO<sub>2</sub>/Air process</b>	<b>B Process effluent discharge to the TMF with natural degradation for the destruction of cyanide with supplemental hydrogen peroxide destruction of residual cyanide</b>
Effects to the Physical and Biological Environments Summary Evaluation and Rating		<p>This alternative presents the best option to comply with final effluent standards to attain or maintain receiving water protection of aquatic life, or scientifically defensible alternatives.</p> <p><b>Summary Rating: Preferred</b></p>	<p>The natural degradation and H<sub>2</sub>O<sub>2</sub> treatment alternative has a higher risk in attaining acceptable final effluent and receiving water quality compared to the alternative. This extends risk in seepage quality and management, with potential effects downstream in the event of TMF dam failure / unintended release. An additional risk exists for wildlife loss due to access to higher residual cyanide concentrations.</p> <p><b>Summary Rating: Acceptable</b></p>
<b>Effects to the Human Environment</b>			
Effect on local residents and recreational users	Maintenance of property values	<u>Advantages</u> <ul style="list-style-type: none"> <li>Use of in-plant cyanide destruction could improve resident perception of the overall Project</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Having tailings ponds with elevated cyanide concentrations beyond those that could be achieved with use of more favourable technologies (such as the alternative) could be viewed negatively by local property owners</li> </ul>
	Maintenance or improvement of income opportunities	n/a	n/a
Maintenance or provision of local access	n/a	n/a	

**APPENDIX U2**

<b>Process Effluent Treatment</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A In-plant cyanide recycling and destruction using the SO<sub>2</sub>/Air process</b>	<b>B Process effluent discharge to the TMF with natural degradation for the destruction of cyanide with supplemental hydrogen peroxide destruction of residual cyanide</b>
Effect on local residents and recreational users	Attainment of noise by-law guidelines, and /or background sound levels if already above the guidelines	n/a	n/a
	Non-interference with water well supply systems	<u>Advantages</u> <ul style="list-style-type: none"> <li>In-plant cyanide destruction and heavy metal precipitation would optimize TMF seepage quality</li> <li>There is no credible risk of well contamination from TMF seepage with any alternative, but perceptions would likely be most favourable with the SO<sub>2</sub>/Air alternative</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>There is no credible risk of well contamination from TMF seepage with any alternative</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Natural degradation, followed by H<sub>2</sub>O<sub>2</sub> treatment, does not address tailings pore water quality, and hence seepage quality; however, there is no credible threat to local, off-property well systems</li> </ul>
	Non-interference with surface water drinking supply	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>In the event of TMF dam failure / unintended release, high cyanide content tailings could potentially reach surface waters which may be used as drinking water supply</li> </ul>
	Potential for general disturbance and adverse affects on aesthetics	n/a	n/a
Potential for adverse health and safety effects	See Public health and safety criteria	See Public health and safety criteria	

APPENDIX U2

Process Effluent Treatment			
Performance Objective / Criteria	Indicator	Alternatives	
		A In-plant cyanide recycling and destruction using the SO <sub>2</sub> /Air process	B Process effluent discharge to the TMF with natural degradation for the destruction of cyanide with supplemental hydrogen peroxide destruction of residual cyanide
Effect on infrastructure	Maintenance or provision of local and regional access	n/a	n/a
	Maintenance and reliability of power supply systems	n/a	n/a
	Maintenance and reliability of pipeline systems	n/a	n/a
Public health and safety	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	<u>Advantages</u> <ul style="list-style-type: none"> <li>Reduces the potential for free cyanide emissions to the atmosphere</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Potential for minor occasional release of free cyanide to the atmosphere – but concentrations are expected to be low and non-hazardous</li> </ul>
	Maintenance or attainment of the quality of drinking water supply systems	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>In the event of unintentional TMF dam failure / unintended release, higher cyanide concentrations in TMF pore water provides a potential for effects on surface water</li> </ul>
	Managing the potential for adverse electromagnetic exposure	n/a	n/a
	Maintaining safe road traffic conditions that are within the domain of IAMGOLD control	n/a	n/a
	Maintenance or provision of health services	n/a	n/a

APPENDIX U2

Process Effluent Treatment			
Performance Objective / Criteria	Indicator	Alternatives	
		A In-plant cyanide recycling and destruction using the SO <sub>2</sub> /Air process	B Process effluent discharge to the TMF with natural degradation for the destruction of cyanide with supplemental hydrogen peroxide destruction of residual cyanide
Effect on local businesses and economy	Maintenance or improvement of local business and economic opportunities (including commercial bait harvesters and trappers)	n/a	n/a
	Continued access to areas used for natural resource harvesting by tourism operators	n/a	n/a
Effect on tourism and recreation	Maintenance or improvement of tourism and recreational opportunities	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>
			<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• In the event of TMF dam failure / unintentional release, tourism and recreation may be adversely affected</li> <li>• Area surrounding TMF may be perceived as unsafe, affecting land use activities such as hunting and fishing</li> </ul>
Regional economy	Maintenance or improvement of the regional economy	n/a	n/a
Effect on government services	Maintenance or improvement on the capacity of existing health, education and family support services	n/a	n/a

APPENDIX U2

Process Effluent Treatment			
Performance Objective / Criteria	Indicator	Alternatives	
		A In-plant cyanide recycling and destruction using the SO <sub>2</sub> /Air process	B Process effluent discharge to the TMF with natural degradation for the destruction of cyanide with supplemental hydrogen peroxide destruction of residual cyanide
Effect on resource management objectives	Consistency with established and planned resource management objectives such as Bear Management Areas and Sustainable Forest Management units	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Due to use of recycled water in ore processing plant, volume or flow effects to local water features are not anticipated.</li> <li>• Effluent only be discharged when in compliance with final effluent standards, in line with the Mattagami Conservation Authority and Provincial Drinking Water Source Protection Programs</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Higher risk of non-compliance with final effluent standards</li> </ul>
Excessive waste materials	Limiting the generation of unnecessary waste materials	n/a	n/a
	Potential for material to be recycled/reused	n/a	n/a
Effect on built heritage and cultural heritage landscapes	Destruction of any, or part of any, built heritage resources, cultural heritage landscapes, heritage attributes or features	n/a	n/a
	Alteration that is not sympathetic or is incompatible, with the historic fabric and appearance of cultural heritage resources	n/a	n/a
	Shadows created that alter the appearance of a built heritage resource, cultural heritage landscape, heritage attribute or change the viability of a natural feature or plantings, such as a garden	n/a	n/a

APPENDIX U2

Process Effluent Treatment			
Performance Objective / Criteria	Indicator	Alternatives	
		A In-plant cyanide recycling and destruction using the SO <sub>2</sub> /Air process	B Process effluent discharge to the TMF with natural degradation for the destruction of cyanide with supplemental hydrogen peroxide destruction of residual cyanide
Effect on built heritage and cultural heritage landscapes	Isolation of a built heritage resource or heritage attribute from its surrounding environment, context or a significant relationship	n/a	n/a
	Direct or indirect obstruction of significant views or vistas within, from or of built heritage resources or cultural heritage landscapes	n/a	n/a
	A change in land use such as rezoning a battlefield from open space to residential use, allowing new development or site alteration to fill in the formerly open spaces	n/a	n/a
	Avoidance of damage to built heritage resources or cultural heritage landscapes, or document cultural resources if damage or relocation cannot be reasonably avoided	n/a	n/a

**APPENDIX U2**

<b>Process Effluent Treatment</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A In-plant cyanide recycling and destruction using the SO<sub>2</sub>/Air process</b>	<b>B Process effluent discharge to the TMF with natural degradation for the destruction of cyanide with supplemental hydrogen peroxide destruction of residual cyanide</b>
Effect on archaeological resources	Land disturbances (such as a change in grade that alters soils and drainage patterns that adversely affect an archaeological resource)	n/a	n/a
	Avoidance of archaeological sites, or mitigation through excavation of the site, if avoidance is not possible, as per the Standards and Guidelines for Consultant Archaeologists (2010), including other forms of mitigation through engagement with Aboriginal communities	n/a	n/a
Effects on First Nation reserves and communities	Maintenance or improvement of First Nation reserve and community conditions (subject to the limitations of Company capacity and community members' personal choice)	n/a	n/a
Effect on spiritual, ceremonial sites	Avoidance of damage or disturbance to known spiritual and ceremonial sites; or implement other forms protection/preservation supported by Aboriginal communities	n/a	n/a



APPENDIX U2

Process Effluent Treatment			
Performance Objective / Criteria	Indicator	Alternatives	
		A In-plant cyanide recycling and destruction using the SO <sub>2</sub> /Air process	B Process effluent discharge to the TMF with natural degradation for the destruction of cyanide with supplemental hydrogen peroxide destruction of residual cyanide
Effects on traditional land use	Maintain access to traditional lands for current traditional land uses, except as otherwise agreed to with local First Nations and Métis	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Potential for impacts on hunting and fishing in the event of TMF dam failure / unintentional release</li> <li>• Area surrounding TMF may be perceived as unsafe, affecting land use activities such as hunting and fishing</li> </ul>
Effects on Aboriginal and Treaty Rights	Avoid infringement of Aboriginal and Treaty Rights, except as otherwise agreed to with local First Nations and Métis	n/a	n/a
Effects to the Human Environment Summary Evaluation and Rating		<p>This alternative provides the highest degree of environmental protection and the lowest risk in the event of TMF dam failure / unintentional release. It is likely to be perceived as a safer alternative for the protection of water resources and land use activities such as hunting and fishing.</p> <p><b>Summary Rating: Preferred</b></p>	<p>This alternative has a higher, albeit manageable, risk to the human environment. Local residents may consider this to be a less safe alternative, negatively affecting the perception of public safety, and consequently land use activities, in the area.</p> <p><b>Summary Rating: Unacceptable</b></p>

**APPENDIX U2**

<b>Process Effluent Treatment</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A In-plant cyanide recycling and destruction using the SO<sub>2</sub>/Air process</b>	<b>B Process effluent discharge to the TMF with natural degradation for the destruction of cyanide with supplemental hydrogen peroxide destruction of residual cyanide</b>
<b>Amenability to Reclamation</b>			
Effect on public safety and security	Avoidance of safety and security risks to the general public	n/a	n/a
Effect on environmental health and sustainability	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	n/a	n/a
	Attainment or maintenance of water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	n/a	n/a
	Restoration of passive drainage systems	n/a	n/a
	Provision of habitats for vegetation and wildlife species, including SAR	n/a	n/a
Effect on land use	Provide opportunities for productive land uses following the completion of mining activities	n/a	n/a
	Provide for an aesthetically pleasing site	n/a	n/a
Amenability to Reclamation Summary Evaluation and Rating		<b>n/a</b>	<b>n/a</b>

APPENDIX U2

Process Effluent Treatment			
Performance Objective / Criteria	Indicator	Alternatives	
		A In-plant cyanide recycling and destruction using the SO <sub>2</sub> /Air process	B Process effluent discharge to the TMF with natural degradation for the destruction of cyanide with supplemental hydrogen peroxide destruction of residual cyanide
<b>Overall Summary Rating</b>		<p>The SO<sub>2</sub>/Air alternative presents the greatest advantages for use at the Project. With a lower overall environmental risk compared to the alternative, and a proven industry best practice process, it has a higher likelihood of complying with final effluent standards and of being regarded as the safer alternative.</p> <p><b>Preferred</b></p>	<p>The natural degradation and H<sub>2</sub>O<sub>2</sub> alternative is capable of generating an acceptable final effluent for the Project, but carries a higher environmental risk. This makes the option less likely to be accepted by potential investors and by local residents, who may consider it to be a less safe alternative with potential consequential effects on local activities.</p> <p><b>Unacceptable</b></p>

Source: AMEC (2013).



**APPENDIX U3  
TAILINGS MANAGEMENT FACILITY (TMF) ALTERNATIVES ASSESSMENT REPORT –  
KNIGHT PIÉSOLD CONSULTANTS**



**IAMGOLD CORPORATION  
CÔTÉ GOLD PROJECT**



**TAILINGS MANAGEMENT FACILITY  
ALTERNATIVES ASSESSMENT**

**PREPARED FOR:**

IAMGOLD Corporation  
401 Bay Street, Suite 3200  
Toronto, Ontario, M5H 2Y4

**PREPARED BY:**

Knight Piésold Ltd.  
1650 Main Street West  
North Bay, ON P1B 8G5 Canada  
p. +1.705.476.2165 | f. +1.705.474.8095

NB101-497/3-1  
Rev 0  
March 5, 2013

***Knight Piésold***  
CONSULTING  
[www.knightpiesold.com](http://www.knightpiesold.com)



ISO 9001 - FS 64925  
ISO 14001 - EMS 550121  
OHSAS 18001 - OHS 550122

# IAMGOLD CORPORATION CÔTÉ GOLD PROJECT

## TAILINGS MANAGEMENT FACILITY ALTERNATIVES ASSESSMENT NB101-497/3-1

Rev	Description	Date	Approved
0	Issued in Final	March 5, 2013	

***Knight Piésold Ltd.***  
1650 Main Street West  
North Bay, Ontario Canada P1B 8G5  
Telephone: (705) 476-2165  
Facsimile: (705) 474-8095  
[www.knightpiesold.com](http://www.knightpiesold.com)

***Knight Piésold***  
**CONSULTING**



## EXECUTIVE SUMMARY

This report presents an assessment of alternatives for the Tailings Management Facility (TMF) for the Côté Gold Project. The selection of the preferred TMF Option is the focus of this report. Environmental, socio-economic, technical and economic criteria were considered to determine the preferred Option.

An initial site selection and pre-screening review process identified four TMF Options as suitable candidates for the tailings management facility. Sub-options involving different embankment layouts, surface water realignments and water management methods were developed for some of the Options. Six Options were carried forward to be evaluated further using a Multiple Accounts Analysis (MAA) to select the preferred TMF Option for tailings storage and water management.

The MAA was completed by establishing accounts, sub-accounts and indicators to compare and rank the identified TMF Options. The MAA was completed by maintaining account weighting factors consistent with the recommendations suggested in Environment Canada's guidelines. Sub-account and indicator weighting factors were established based on discussions with IAMGOLD and input from a multidisciplinary team to ensure that the evaluation accurately reflected the project parameters. A multi-step matrix type evaluation was used to establish a numerical rating for each Option. The MAA was completed to limit bias towards any of the TMF Options that were considered.

The results of the MAA indicate that TMF 1B is the preferred TMF Option for the Project. The results of the sensitivity analyses support the selection of TMF 1B.

It is recommended to initiate a pre-feasibility level design of TMF 1B.

**TABLE OF CONTENTS**

	<b>PAGE</b>
EXECUTIVE SUMMARY.....	I
TABLE OF CONTENTS .....	i
1 – INTRODUCTION.....	1
1.1 PROJECT LOCATION.....	1
1.2 SITE DESCRIPTION .....	1
1.3 PROJECT DESCRIPTION.....	1
1.4 SCOPE OF REPORT .....	4
2 – BACKGROUND.....	5
3 – TAILINGS MANAGEMENT .....	6
3.1 GENERAL.....	6
3.2 SUMMARY OF TMF OPTIONS.....	6
3.2.1 Option TMF 1B.....	6
3.2.2 Option TMF 2B.....	9
3.2.3 Option TMF 2C .....	11
3.2.4 Option TMF 11 .....	11
3.2.5 Option TMF 14A.....	14
3.2.6 Option TMF 14C .....	16
4 – ALTERNATIVES ASSESSMENT METHODOLOGY .....	18
4.1 MULTIPLE ACCOUNTS ANALYSIS METHOD.....	18
4.2 ACCOUNTS, SUB-ACCOUNTS AND INDICATORS .....	18
4.3 VALUE-BASED DECISION PROCESS.....	21
4.4 MAA METHOD OF ANALYSIS.....	29
4.5 SENSITIVITY ANALYSIS .....	29
5 – RESULTS AND SENSITIVITY ANALYSIS .....	31
5.1 MAA RESULTS.....	31
5.2 SENSITIVITY ANALYSIS .....	32
5.2.1 Sensitivity Analysis 1 - Economics Excluded.....	32
5.2.2 Sensitivity Analysis 2 - Economics Excluded with Fisheries Bias .....	32
5.2.3 Sensitivity Analysis 3: Terrestrial Ecology Screening.....	33
5.2.4 Sensitivity Analysis 4: Technical Screening.....	33
5.2.5 Sensitivity Analysis 5: Indicators Set to Unity.....	34
6 – CONCLUSIONS AND RECOMMENDATIONS.....	35
6.1 CONCLUSION .....	35
6.2 RECOMMENDATIONS.....	35

8 – REFERENCES.....36

9 – CERTIFICATION.....37

**TABLES**

Table 3.1 Summary of Tailings Management Facility Option Details..... 7

Table 4.1 Account, Sub-Account and Indicator Rationale..... 19

Table 4.2 Account, Sub-Account and Indicator Weights.....22

Table 4.3 Summary of Indicator Values .....23

Table 4.4 Summary of Indicator Value Scales .....24

Table 4.5 Scoring Summary .....27

Table 5.1 Ranking Summary - Base Case .....31

Table 5.2 Ranking Summary - Sensitivity Analysis 1: Economics Excluded .....32

Table 5.3 Ranking Summary - Sensitivity Analysis 2: Economics Excluded with Fisheries  
Bias.....32

Table 5.4 Ranking Summary - Sensitivity Analysis 3: Terrestrial Ecology Screening .....33

Table 5.5 Ranking Summary - Sensitivity Analysis 4: Technical Screening .....33

Table 5.6 Ranking Summary - Sensitivity Analysis 5: Indicators Set to Unity .....34

**FIGURES**

Figure 1.1 Project Location Map.....2

Figure 1.2 Overall Site Layout .....3

Figure 3.1 Option TMF 1B .....8

Figure 3.2 Option TMF 2B .....10

Figure 3.3 Option TMF 2C .....12

Figure 3.4 Option TMF 11.....13

Figure 3.5 Option TMF 14A .....15

Figure 3.6 Option TMF 14C .....17

**APPENDICES**

Appendix A Description of Indicators

**ABBREVIATIONS**

EC .....	Environment Canada
ha .....	hectare
IAMGOLD .....	IAMGOLD Corporation
km .....	kilometre
KPL .....	Knight Piésold Ltd
m .....	metre
MAA .....	multiple accounts analysis
MRA .....	mine rock and overburden storage areas
m <sup>3</sup> .....	cubic metres
NAG .....	non-acid generating
O.Reg.....	Ontario Regulation
PAG .....	potentially acid generating
PWQO.....	Provincial Water Quality Objectives
TMF.....	tailings management facility

## 1 – INTRODUCTION

### 1.1 PROJECT LOCATION

IAMGOLD Corporation (IAMGOLD) is in the process of developing the Côté Gold Project (the Project), which includes a large tonnage, low to medium grade gold deposit within Chester and Neville Townships, District of Sudbury, approximately 20 kilometres (km) southwest of Gogama, Ontario. The Project area is situated just west of Highway 144, approximately 200 km by road northwest of Sudbury. Work is currently being completed to support upcoming pre-feasibility design and permitting. Figure 1.1 shows the location of the Côté Gold Project and the nearby communities.

### 1.2 SITE DESCRIPTION

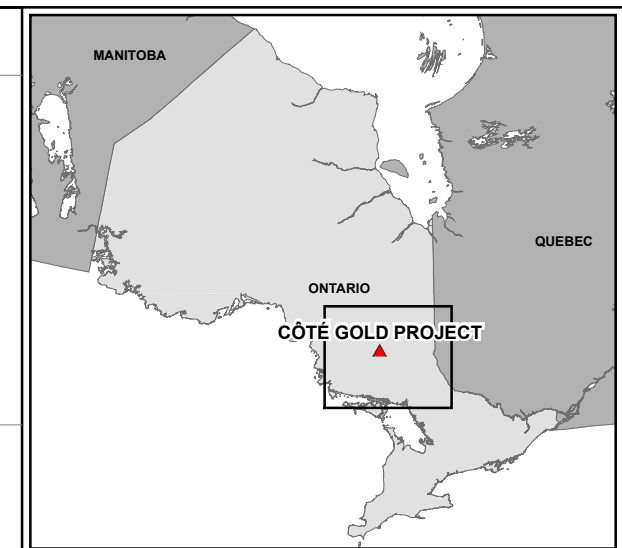
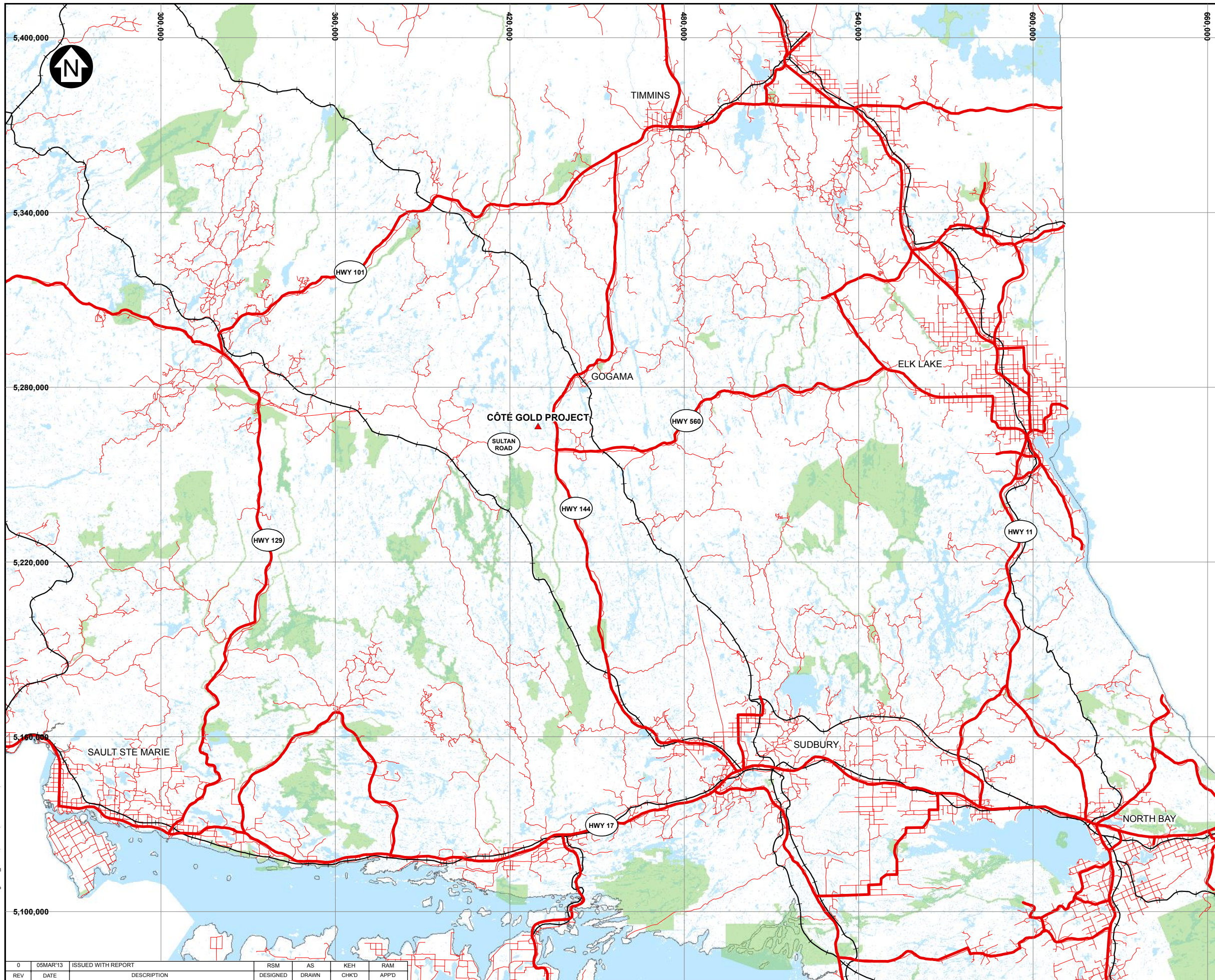
Topography at the project site is characterized by gentle to steep hilly terrain with ground surface elevations ranging from approximately El. 365 m to greater than El. 450 m. Low lying areas are characterized by abundant water bodies, including small to medium lakes, streams and swamps/boggy areas. Bedrock is exposed or very close to surface in most areas, with the exception of valley floors and low lying wet areas. The Project site is located within the Upper Mattagami River Watershed, which drains northward through the City of Timmins to James Bay. The site is located on two main sub-watersheds, the Mollie River system and the Mesomikenda River system. The intercontinental watershed divide is located south of the Project property. Surface water flows at the Project site are controlled by a number of lakes and creeks. The vegetation is generally dense in areas where the forest has not been historically harvested. The climate of this area is typical of northern areas within the Canadian Shield, with long cold winters, short warm summers and a moderate amount of precipitation throughout the year.

### 1.3 PROJECT DESCRIPTION

The Côté Gold Project will consist of a large open pit, Tailing Management Facility (TMF), Mine Rock and Overburden Storage Areas (MRA), Process Plant and ancillary facilities. A conceptual general site layout, detailing the proposed locations for the Project infrastructure, is shown on Figure 1.2.

Ore will be processed (crushed, ground, concentrated) at an on-site processing facility. During the operations phase of the Project, ore will be fed to the mill at an average rate of approximately 55,000 tonnes per day. The operating life of the mine is estimated to be approximately 15 years.

Disturbed areas within the Project footprint will be reclaimed in a progressive manner during all Project phases. Natural drainage patterns will be restored as much as possible. The ultimate goal of mine decommissioning will be to reclaim land within the Project footprint to allow future use by resident biota and as determined through consultation with the public, Aboriginal peoples and government. A certified Closure Plan for the Project will be prepared as required by Ontario Regulation (O.Reg.) 240/00 as amended by O.Reg. 307/12 (Ministry of the Northern Development and Mines, 2006)



- LEGEND:**
- ▲ CÔTÉ GOLD PROJECT LOCATION
  - COMMUNITY/SERVICE CENTRE
  - ROAD
  - +—+— RAILWAY
  - WATER
  - PARK

- NOTES:**
1. BASE MAP: © HER MAJESTY THE QUEEN IN RIGHTS OF CANADA DEPARTMENT OF NATURAL RESOURCES (2009). ALL RIGHTS RESERVED.
  2. CO-ORDINATE GRID IS IN METRES.  
DATUM: NAD83  
PROJECTION: UTM ZONE 17

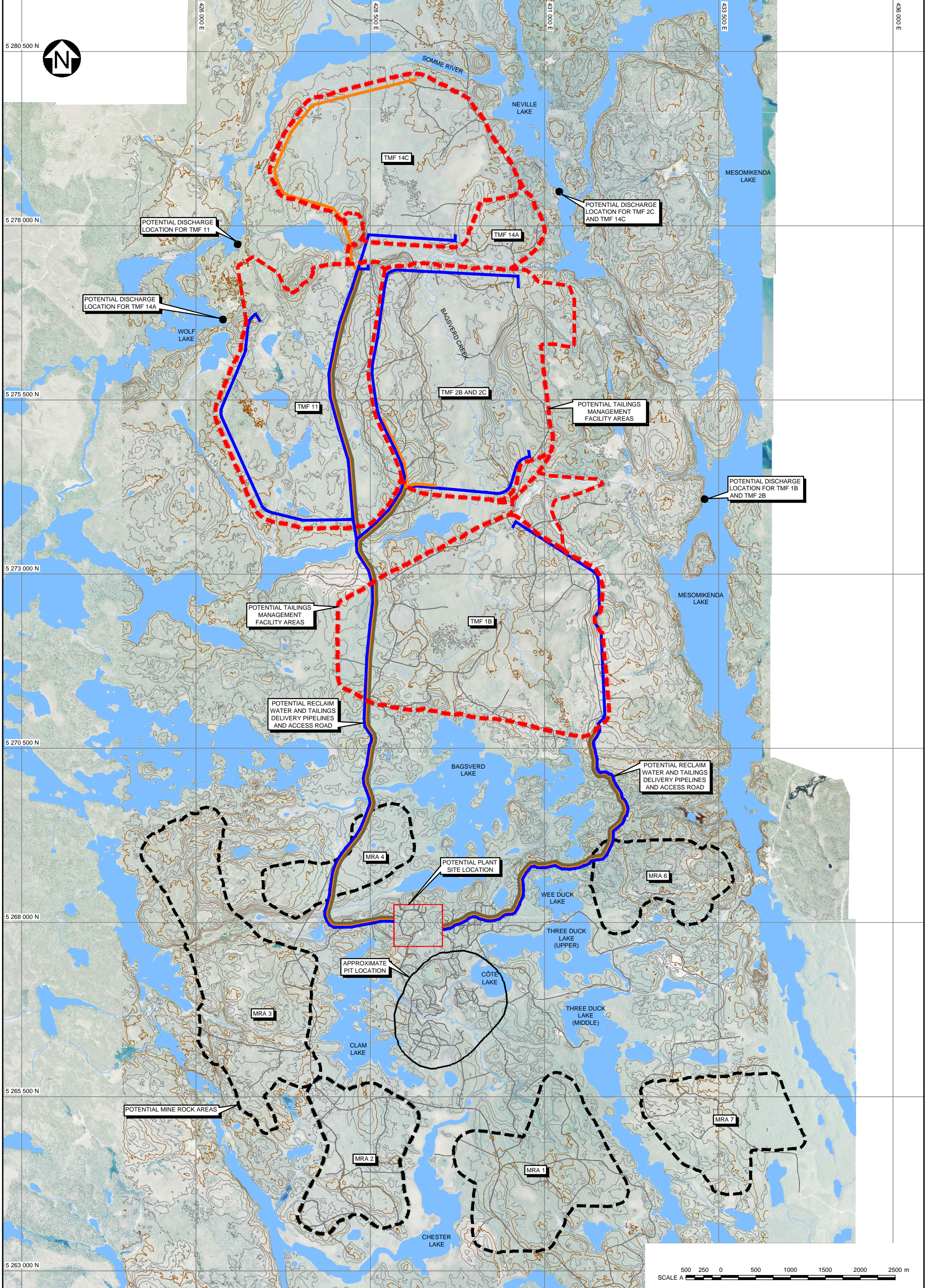


IAMGOLD CORPORATION  
 CÔTÉ GOLD PROJECT  
 PROJECT LOCATION MAP

<b>Knight Piésold</b> CONSULTING	PIA NO. NB101-497/3	REF NO. 1
	<b>FIGURE 1.1</b>	

SAVED: I:\1010497\03\GIS\Fig\B11\_0.mxd, Mar 05, 2013 9:17 AM, akozmick

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	CHKD	APPD
0	05MAR13	ISSUED WITH REPORT	RSM	AS	KEH	RAM



**LEGEND:**

- POTENTIAL PLANT SITE LOCATION
- EXISTING TRAIL/ATV/TRUCK ROADS
- POTENTIAL TAILINGS MANAGEMENT FACILITY AREAS
- POTENTIAL MINE ROCK AREAS
- RECLAIM WATER PIPELINE
- TAILINGS DELIVERY AND DISTRIBUTION PIPELINE TO EMBANKMENT
- ACCESS ROAD
- POTENTIAL DISCHARGE LOCATION

**NOTES:**

1. COORDINATE GRID IS UTM NAD83, ZONE 17.
2. PLAN BASED ON INFORMATION PROVIDED BY IAMGOLD CORPORATION, RECEIVED AUGUST, 2012.
3. CONTOUR INTERVAL IS 5 METRES.
4. ELEVATIONS ARE IN METRES.

IAMGOLD CORPORATION	
CÔTÉ GOLD PROJECT	
OVERALL SITE LAYOUT	
<b><i>Knight Piésold</i></b> CONSULTING	P/A NO. NB101-497/3 REF NO. 1 REV 0
<b>FIGURE 1.2</b>	

REV	DATE	DESCRIPTION	RSM DESIGNED	MMD DRAWN	KEH CHKD	RAM APPD
0	05MAR'13	ISSUED WITH REPORT				

#### 1.4 SCOPE OF REPORT

Knight Piésold Ltd. (KPL) has been retained by IAMGOLD to complete the TMF alternatives assessment for the Project. The objective of this work is to identify the most appropriate locations to store the tailings based on environmental, socio-economic, technical and economic considerations. The most appropriate areas shall have a minimal adverse effect on the environment and be technically sound with minimal potential for physical and economic failure. The alternatives assessment has been completed following Environment Canada's guideline (Environment Canada, 2011).

This report summarizes the results of the multiple accounts analysis used to select the best TMF Option for tailings storage and water management. The following items are addressed in this report:

1. Review and summary of the TMF options evaluated.
2. A discussion of the multiple accounts assessment methodology, approach to value-based analysis, and subsequent sensitivity analyses.
3. Summary of the indicator values, scales and scoring.
4. Results of the Multiple Accounts Analysis and sensitivity analysis for the TMF Options.



## 2 – BACKGROUND

A pre-screening assessment has been completed whereby a total of 14 candidate tailings management sites were identified and investigated as part of an initial pre-screening assessment (KPL, 2012).

A pre-screening assessment, employing fatal flaw analysis included the identification of factors or elements that are so severe or unfavourable that they would eliminate the site as a candidate TMF Option. A comparative analyses of the remaining sites was employed to optimize the decision making process and allow the Options that have a reasonable likelihood of success to be focussed upon.

The screening and comparative evaluations carried out identified Sites 1, 2, 11 and 14 as suitable candidates for the tailings management facility. Sub-options involving different embankment layouts, surface water realignments and water management methods were developed for some of the Options. Six options were identified for further analysis. The general location of the TMF Options (Options TMF 1B, 2A, 2B, 11, 14A and 14C) are shown on Figure 1.2.

An initial trade-off study was also completed to compare different tailings delivery and deposition methods for the project (KPL, 2012). In-process thickened tailings (50% solids content), high rate thickened tailings (60% solids content) and paste thickened tailings (68% solids content) were considered.

Paste tailings may be utilized when there is a significant benefit in reducing the water management requirements or when dry conditions require maximum recovery of process water within the plant. This benefit of paste tailings is not realised at the project due to the large amount of available and collected water associated with the runoff.

The initial evaluation recommended in-process thickened tailings (50% solids content) and it is carried forward for the options assessment. Tailings have been successfully deposited and managed at many other projects in similar climates (i.e., winter conditions) using conventional slurries.

### 3 – TAILINGS MANAGEMENT

#### 3.1 GENERAL

Tailings will be managed in the tailings management facility (TMF). The TMF will need to store approximately 300 million tonnes of tailings, based on current reserves. For this assessment, the required storage volume for the tailings has been determined based on an estimated in-situ settled dry density of 1.3 tonnes/m<sup>3</sup>. The corresponding storage volume required is approximately 231 million m<sup>3</sup>.

The TMF will be designed to contain the tailings through the construction of embankment dams. The conceptual embankment cross-section that has been considered for the TMF consists of a zoned rockfill embankment with a geomembrane layer on the upstream face of the starter embankment and in areas where water ponds are to be maintained for embankment raises. The embankments will be raised in stages during the operations. The upstream slopes will be approximately 2H:1V.

Tailings would be transported to the facility from the plant site in a tailings delivery pipeline. Preliminary tailings delivery pipeline alignments are shown on Figure 1.2 and would be optimized (and potentially rerouted) during detailed design.

Tailings will be spigotted from the crest of the embankment and sub-aerially deposited. Sub-aerial deposition involves the scheduled rotation of the points of active deposition above a well-managed beach to achieve a laminated deposit comprising thin layers of drained tailings. This deposition technique enhances the separation of liquids and solids and produces a clear supernatant pond that can be kept to a minimal size.

Water collected within the TMF, as well as water collected around the mine site and mine rock areas, will be managed in the TMF for eventual reclamation in the milling process. Excess water not needed in the mill will be treated (as necessary) and discharged. The tailings are considered to be non-acid generating, however, further testing is currently ongoing to validate original results.

At closure, reclamation activities will include: physical stabilization measures, capping of the tailings surface (as required) and seeding, removal of pipeworks and ancillary facilities, vegetation of the disturbed areas, and implementation of an appropriate water management and water quality measures.

The location of the TMF Options considered are shown on Figure 1.2. Pertinent details of TMF Options 1B, 2A, 2B, 11, 14A and 14C are summarized on Table 3.1 and described in the following sections.

#### 3.2 SUMMARY OF TMF OPTIONS

##### 3.2.1 Option TMF 1B

TMF 1B is located approximately 4.5 km north of the plant site and has moderate natural containment due to being situated in a natural bowl feature with the height of land located on the east embankment. The general arrangement for this Option is shown on Figure 3.1.

TABLE 3.1

IAMGOLD CORPORATION  
CÔTÉ GOLD PROJECT

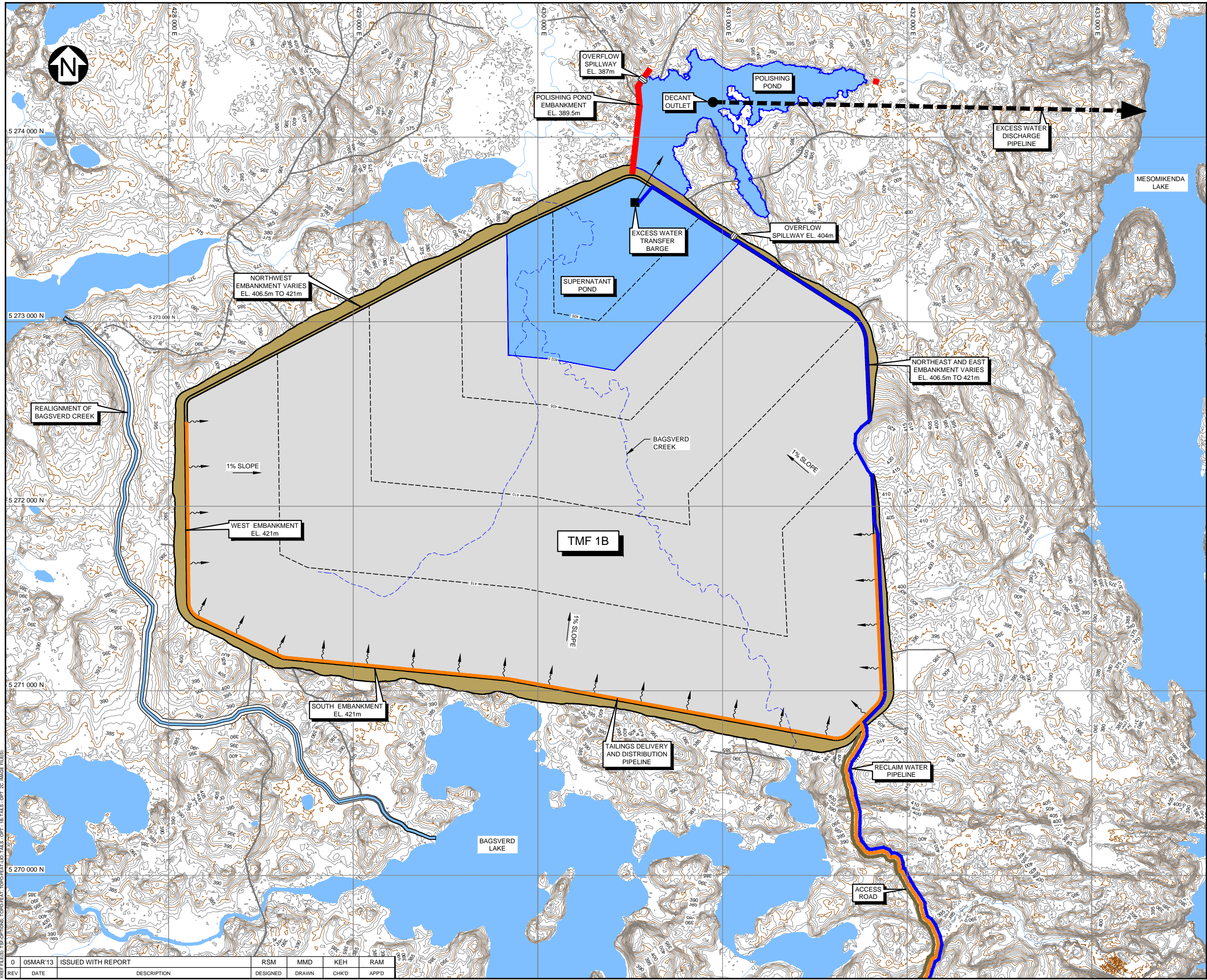
TAILINGS MANAGEMENT FACILITY ALTERNATIVES ASSESSMENT  
SUMMARY OF TAILINGS MANAGEMENT FACILITY OPTION DETAILS

Print Mar/05/13 14:49:50

Criteria	Option					
	TMF 1B	TMF 2B	TMF 2C	TMF 11	TMF 14A	TMF 14C
<b>Land Ownership and Mineral Rights</b>						
Within Mine/Claim Boundary	No (Surface Rights Only)	Partially (surface rights only on a portion)	Partially (surface rights only on a portion)	Yes	Yes	Yes
Condemnation Drilling Completed	Yes	Yes	Yes	No	No	No
Underlain by Potential Ore	No	No	No	Unknown	Unknown	Unknown
Impact on Existing Hydro Corridor (i.e. on a hydro corridor or adjacent to)	No	No	No	No	No	No
Impact on Existing Roads (i.e. on a road or adjacent to a road)	No	No	No	No	No	No
<b>Watershed Considerations</b>						
Number of Watersheds Within TMF Footprint	1	1	1	1	1	1
Requires Surface Water Realignment	Portion of Bagsverd Creek	Complete realignment of Bagsverd Creek	Complete realignment of Bagsverd Creek	No realignment of surface water required	Portion of Bagsverd Creek	No realignment of surface water required
<b>Social</b>						
First Nations / Métis Interests	Yes	Yes	Yes	Yes	Yes	Yes
Residences within TMF Footprint	No	No	No	No	No	No
Residences in Proximity to TMF	Yes	Yes	Yes	Yes	Yes	Yes
<b>Environmental</b>						
Potential Fisheries Compensation	Yes	Yes	Yes	Yes	Yes	Yes
Site Contains a Waterbody and/or Watercourse	Yes (Bagsverd Creek and wetlands)	Yes (Bagsverd Creek and wetlands)	Yes (Bagsverd Creek and wetlands)	Yes (many headwater waterbodies and wetlands)	Yes (Bagsverd Creek and wetlands)	Yes (very small and wetlands)
<b>Basin Capacity</b>						
Topographic Containment	Moderate	Good	Good	Moderate	Moderate	Poor
Approximate Footprint Area (ha)	899	763	774	749	786	637
Final Embankment Crest Length (m)	11,000	10,046	9,990	9,886	10,204	9,065
Maximum Embankment Height (m)	44	57	57	58	50	61
Maximum Tailings Elevation (m)	420	429	429	439	424	435
Final Embankment Volume (m <sup>3</sup> )	20,300,000	26,900,000	25,300,000	34,100,000	32,100,000	43,600,000
Contains All Tailings	Yes	Yes	Yes	Yes	Yes	Yes
Storage Efficiency (ratio)	11.8	8.8	9.4	6.9	7.5	5.5
Potential for Staged Embankment Construction	Yes	Yes	Yes	Yes	Yes	Yes
Expandable	Conducive to expansion to the north	Minor dam raises and conducive to expansion to the south	Minor dam raises and conducive to expansion to the south	Not conducive to expansion	Not conducive to expansion	Not conducive to expansion
<b>Infrastructure Development</b>						
Straight Line Distance from the Mill to Centre of Basin (km)	4.5	8.0	8.0	7.8	11.0	11.0
Tailings Delivery Pipeline Length (km)	5.5	8.7	7.9	7.9	13.7	12.7
Water Reclaim Pipeline Length (km)	9.2	10.3	13.0	11.4	10.8	12.7
Access and Pipeline Roads (km)	5.5	8.7	7.9	7.9	13.7	12.7
Approximate Elevation Difference - Mill (El. 397 m) to Final Embankment Elevation (m)	24	33	33	43	28	39
Potential Number of Water Crossings	0	1 - 3	1 - 3	1 - 3	1 - 3	1 - 3
<b>Investments</b>						
Initial Investment (Million \$)	84	98	91	125	142	150
Long term Investment (Million \$)	157	212	196	249	260	348
Unit Cost (\$/m <sup>3</sup> tailings)	1.04	1.34	1.24	1.62	1.74	2.16

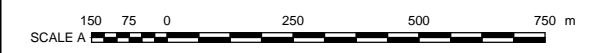
I:\10100497\03\A\Report\Report 1, Rev 0 - TMF MAA\Tables\Table 3.1.xlsx\Table 3.1

0	05MAR13	ISSUED WITH REPORT N8101-897/3-1	RSM	JAM	RAM
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



- LEGEND:**
- WATER
  - TAILINGS
  - EMBANKMENT
  - EXISTING ATV ROAD/TRUCK ROAD/TRAIL
  - EXISTING CREEK
  - TAILINGS DELIVERY AND DISTRIBUTION PIPELINE
  - RECLAIM WATER PIPELINE
  - ACCESS ROAD
  - EXCESS WATER DISCHARGE PIPELINE
  - PROPOSED POLISHING POND EMBANKMENT
  - TAILINGS CONTOURS

- NOTES:**
1. COORDINATE GRID IS UTM NAD83, ZONE 17.
  2. PLAN BASED ON INFORMATION PROVIDED BY IAMGOLD CORPORATION, RECEIVED AUGUST, 2012.
  3. CONTOUR INTERVAL IS 1 METRE.
  4. ELEVATIONS ARE IN METRES.
  5. REALIGNMENT SECTION PROVIDED BY CALDER ENGINEERING LTD. (DEC 12, 2012).



IAMGOLD CORPORATION  
CÔTÉ GOLD PROJECT  
OPTION TMF 1B

<b>Knight Piésold</b> CONSULTING	PIA NO. NB101-497/3	REF. NO. 1
	FIGURE 3.1	

0 05MAR'13 ISSUED WITH REPORT RSM MMD KEH RAM  
 REV DATE DESCRIPTION DESIGNED DRAWN CHK'D APP'D  
 SAVED: I:\1010049703\A\A\CH\PICSB12\_10\_3152013\_21\_36 PM - MDEMERS PRINTED: 3/5/2013 2:33:19 PM, TSF 1B, MDEMERS  
 XREF FILES: I:\1010049703\A\A\CH\PICSB12\_10\_3152013\_21\_36 PM - MDEMERS PRINTED: 3/5/2013 2:33:19 PM, TSF 1B, MDEMERS

Tailings in this case would be deposited primarily from south to north to form a gently sloping beach. This arrangement will, ultimately, force runoff and supernatant to collect at the north side of the facility. The supernatant water will be reclaimed back to the plant for process make-up, as required. Any excess water will be treated (if required) and pumped via a pipeline for discharge to Mesomikenda Lake (Figure 1.2).

TMF 1B is situated over a portion of Bagsverd Creek, which will result in the loss of high quality fish habitat. A realignment of the creek will be required around the southwest corner of TMF 1B from Bagsverd Lake, which reconnects back into Bagsverd Creek downstream of the TMF. It is anticipated that fish habitat compensation measures will be incorporated in the realignment works. The new alignment of Bagsverd Creek will naturalize over the life of the Project and will form the permanent creek after closure.

Specific comments on Option TMF 1B are provided below:

- The footprint area is approximately 899 ha
- It is the closest Option to the plant site
- Some geotechnical investigations have been completed and this option is considered to possess good foundation conditions along the embankment alignments
- Condemnation drilling has been carried out in the area and a reserve of ore is not suspected within the site
- Relatively low embankment heights are required
- The final rockfill embankment crest will be at a maximum El. 421 m
- This Option has the most favorable elevation difference from the plant site
- There are potentially no water crossings required for the tailings transport and water reclaim pipelines
- Additional capacity can be achieved by expanding to the north and/or by completing minor dam raises
- This option is likely to be the least expensive, due to smaller embankment volumes and ease of tailings transport

### 3.2.2 Option TMF 2B

TMF 2B is located approximately 8 km north of the plant site and has relatively good natural containment due to its location within a valley with heights of land on the east and west sides. The general arrangement for this Option is shown on Figure 3.2.

Tailings will be deposited primarily from the north and west to form a gently sloping beach. This arrangement will, ultimately force all runoff and supernatant to collect at the southeast corner of the facility. The supernatant water will be reclaimed back to the plant for process make-up, as required. Any excess water will be treated (if required) and pumped via a pipeline for discharge to Mesomikenda Lake (Figure 1.2).



TMF 2B is situated over a portion of Bagsverd Creek, which will result in the loss of high quality fish habitat. A realignment of the creek will be required that will involve the flooding of Bagsverd Creek to an approximate elevation of 375 m to redirect the flow to Wolf Lake. It is anticipated that fish habitat compensation measures will be incorporated in the realignment works. The new alignment of Bagsverd Creek will naturalize over the life of the Project and will form the permanent creek after closure.

Specific comments on Option TMF 2B are provided below:

- The footprint area is approximately 763 ha
- The tailings discharge pipeline from the plant to the embankment is approximately 8.7 km
- Some geotechnical investigations have been completed for this option and it is considered to possess good foundation conditions along the east, west and north embankment alignments. A portion of the south embankment alignment overlies thick overburden (approximately 12.8 m to bedrock).
- Condemnation drilling has been carried out in the area and a reserve of ore is not suspected within the site
- This Option has relatively low embankment heights
- The final rockfill embankment crest will be at a maximum El. 430 m
- Additional capacity can be achieved by expanding to the south and/or by completing minor dam raises

### 3.2.3 Option TMF 2C

TMF 2C is similar to TMF 2B. The general arrangement for this Option is shown on Figure 3.3. The following revisions are made to the comments provided to TMF 2B:

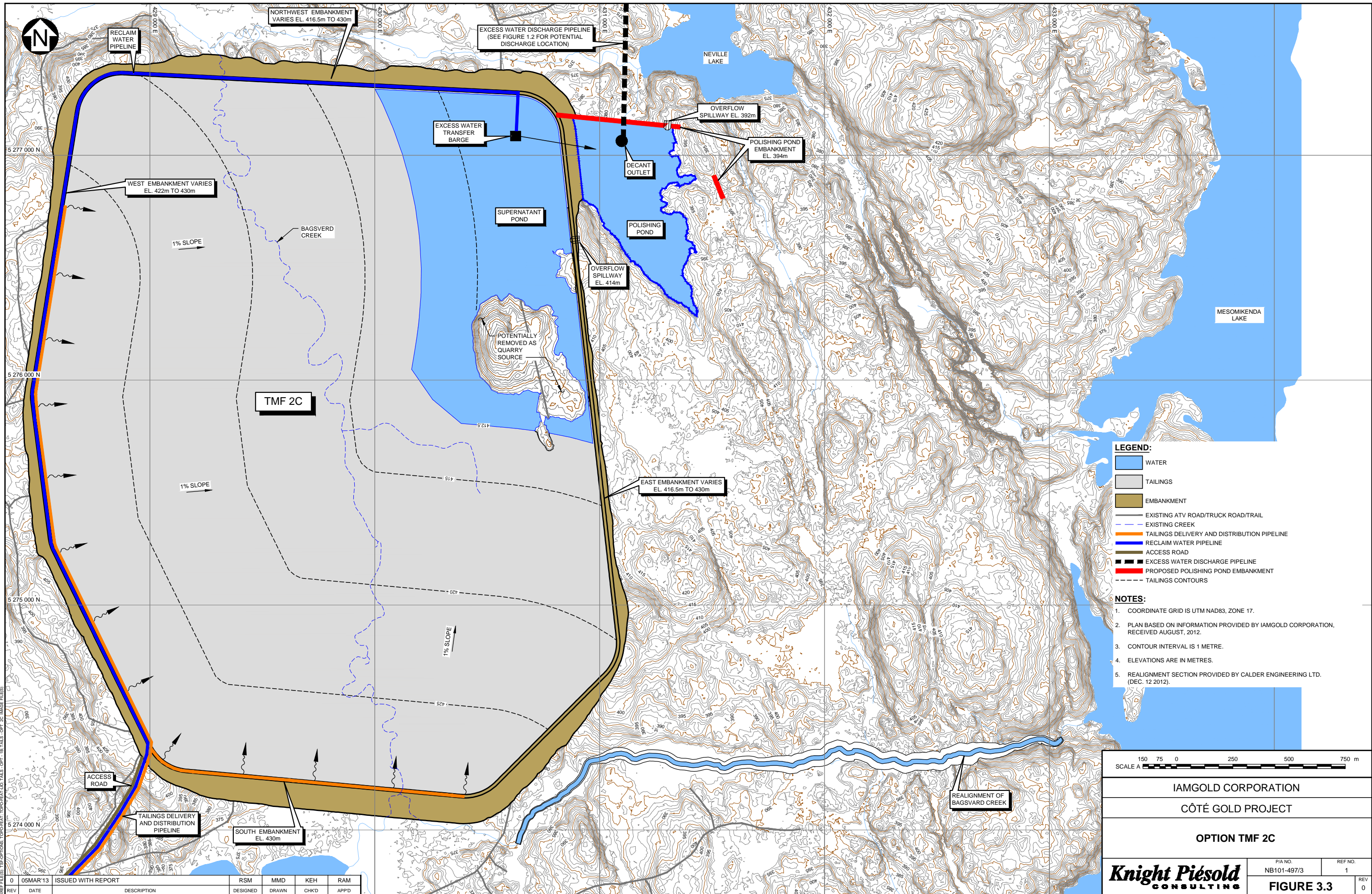
- Tailings will be deposited primarily from the south and west to form a gentle sloping beach. The arrangement will, ultimately, force all runoff and supernatant to collect at the northeast corner of the facility.
- Any excess water will be treated (if required) and pumped via a pipeline for discharge to Neville Lake (Figure 1.2)
- A realignment of Bagsverd creek will be required to the east to Mesomikenda Lake

Specific comments on Option TMF 2C are provided below:

- The footprint area is approximately 774 ha
- The tailings discharge pipeline from the plant to the embankment is approximately 7.9 km
- The final rockfill embankment crest will be at a maximum El. 430 m

### 3.2.4 Option TMF 11

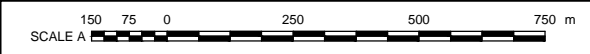
TMF 11 is located approximately 7.8 km north of the plant site with the height of land located on the east embankment. The lack of natural containment along the west and south embankment alignments result in relatively high embankment heights along these sections. The general arrangement for this Option is shown on Figure 3.4.



**LEGEND:**

- WATER
- TAILINGS
- EMBANKMENT
- EXISTING ATV ROAD/TRUCK ROAD/TRAIL
- EXISTING CREEK
- TAILINGS DELIVERY AND DISTRIBUTION PIPELINE
- RECLAIM WATER PIPELINE
- ACCESS ROAD
- EXCESS WATER DISCHARGE PIPELINE
- PROPOSED POLISHING POND EMBANKMENT
- TAILINGS CONTOURS

- NOTES:**
1. COORDINATE GRID IS UTM NAD83, ZONE 17.
  2. PLAN BASED ON INFORMATION PROVIDED BY IAMGOLD CORPORATION, RECEIVED AUGUST, 2012.
  3. CONTOUR INTERVAL IS 1 METRE.
  4. ELEVATIONS ARE IN METRES.
  5. REALIGNMENT SECTION PROVIDED BY CALDER ENGINEERING LTD. (DEC. 12 2012).



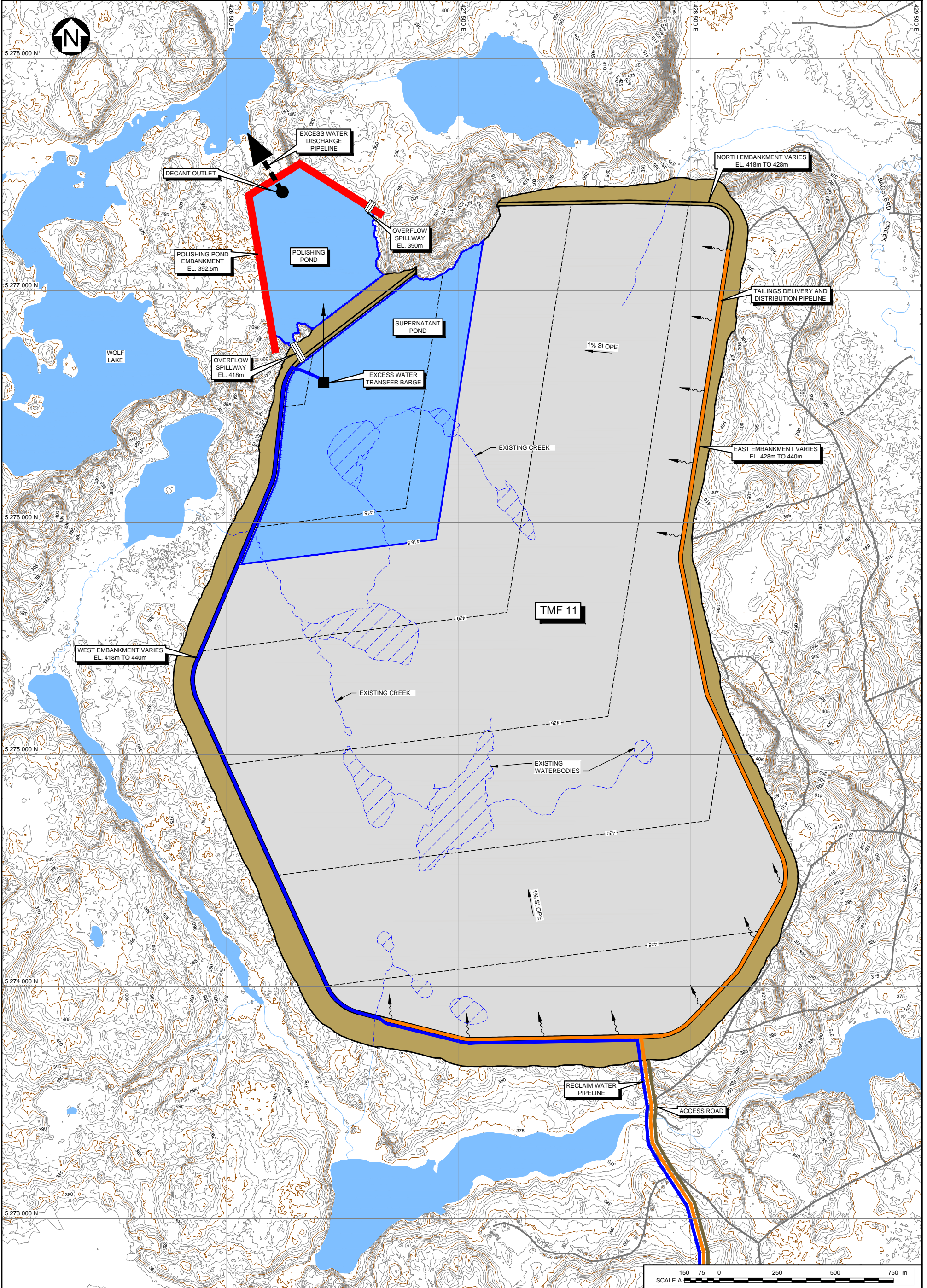
IAMGOLD CORPORATION  
CÔTÉ GOLD PROJECT  
OPTION TMF 2C

<b>Knight Piésold</b> CONSULTING	P/A NO. NB101-497/3	REF. NO. 1
<b>FIGURE 3.3</b>		REV 0

SAVED: 11/01/2013 03:04:40 AM C:\P\CSB12\_10\_3\2013 2:31:36 PM - MDEMERS PRINTED: 3/5/2013 2:36:13 PM - TSF 2C - MDEMERS  
 XREF FILES: T:\PROJECTS\TOPOTEXT\TOPOTEXT.LID TAIL OFF 18 TAILS OPT 20 IMAGE FILES

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	CHK'D	APP'D
0	05MAR'13	ISSUED WITH REPORT	RSM	MMD	KEH	RAM





LEGEND:					
	WATER		EMBANKMENT		EXCESS WATER DISCHARGE PIPELINE
	TAILINGS		ORIGINAL LAKE LIMITS		PROPOSED POLISHING POND EMBANKMENT
	EXISTING ATV ROAD/TRUCK ROAD/TRAIL		TAILINGS CONTOURS		
	EXISTING CREEK				
	TAILINGS DELIVERY AND DISTRIBUTION PIPELINE				
	RECLAIM WATER PIPELINE				

- NOTES:**
- COORDINATE GRID IS UTM NAD83, ZONE 17.
  - PLAN BASED ON INFORMATION PROVIDED BY IAMGOLD CORPORATION, RECEIVED AUGUST, 2012.
  - CONTOUR INTERVAL IS 1 METRE.
  - ELEVATIONS ARE IN METRES.

SCALE 150 75 0 250 500 750 m

IAMGOLD CORPORATION  
 CÔTÉ GOLD PROJECT  
 OPTION TMF 11

<b>Knight Piésold</b> CONSULTING	P/A NO. NB101-497/3	REF NO. 1
	REV 0	

**FIGURE 3.4**

REV	DATE	DESCRIPTION	RSM DESIGNED	MMD DRAWN	KEH CHKD	RAM APPD
0	05MAR'13	ISSUED WITH REPORT				

Tailings in this case would be deposited primarily from south and east to form a gently sloping beach. This arrangement will, ultimately, force all runoff and supernatant to collect at the northwest corner of the facility. The supernatant water will be reclaimed back to the plant for process make-up, as required. Any excess water will be treated (if required) and pumped via a pipeline for discharge to Wolf Lake (Figure 1.2).

TMF 11 is situated on approximately 11 small headwater waterbodies, which includes creeks, lakes and ponds. This arrangement will result in the loss of high quality fish habitat. No realignment of surface water is required.

Specific comments on Option TMF 11 are provided below:

- The footprint area is approximately 749 ha
- Some geotechnical investigations have been completed along the east embankment alignment. Foundation conditions along the east alignment are good. Foundation conditions along the south and west embankment are unknown and will need to be investigated. Moderate foundation conditions are expected.
- Condemnation drilling has not been carried out in the area
- This option has relatively high embankment heights
- The final rockfill embankment crest will be at a maximum El. 440 m

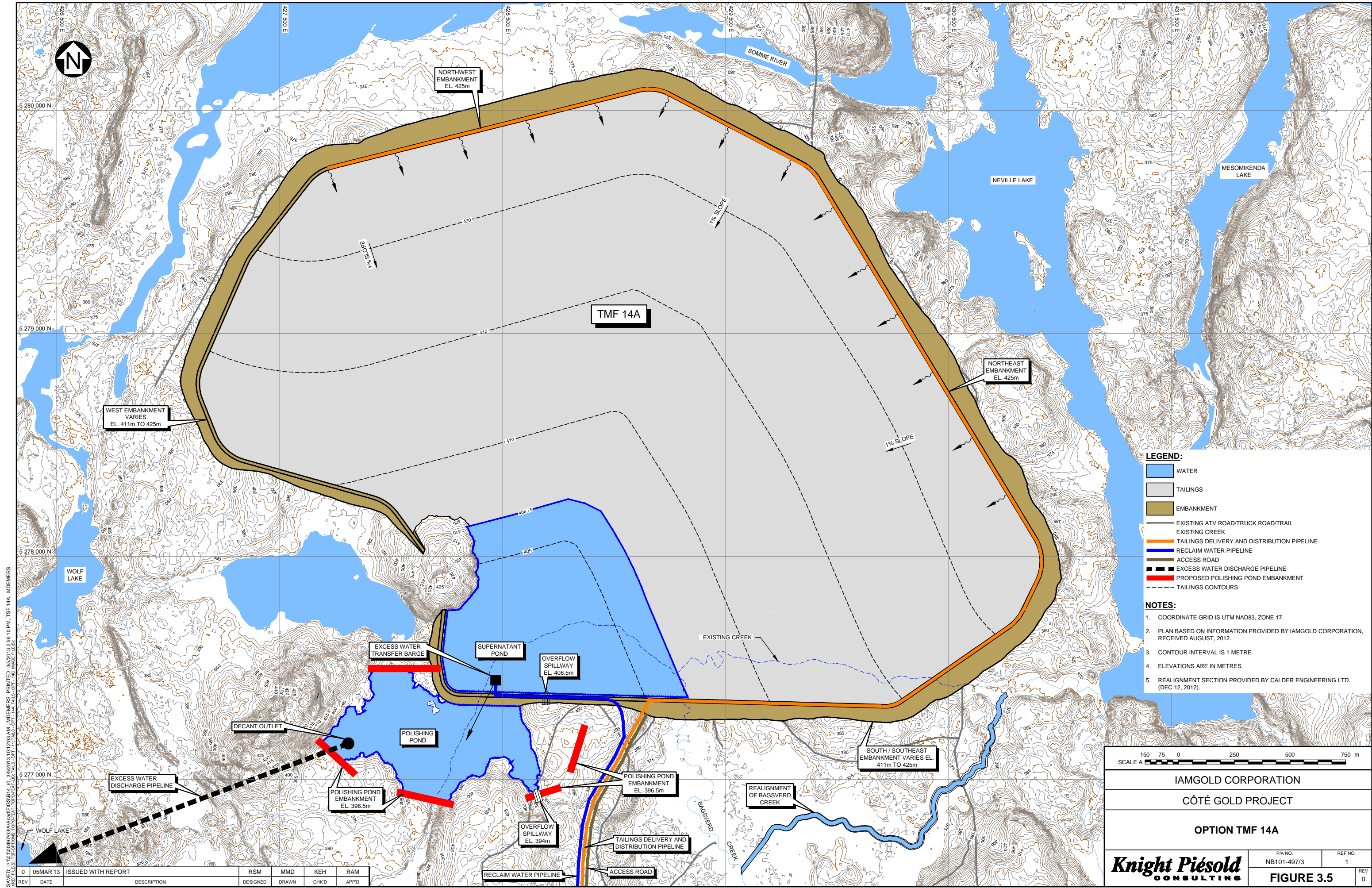
### 3.2.5 Option TMF 14A

TMF 14A is located approximately 11 km north of the plant site with a height of land located in the southwest. Natural containment only exists along the south embankment alignment and embankments will be required around most of the perimeter. The general arrangement for this Option is shown on Figure 3.5.

Tailings will be deposited primarily from the north and east to form a gently sloping beach. This arrangement will, ultimately, force all runoff and supernatant to collect at the southwest corner of the facility. The supernatant water will be reclaimed back to the plant for process make-up, as required. Any excess water will be treated (if required) and pumped via a pipeline for discharge to Wolf Lake (Figure 1.2).

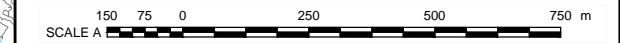
The site is bounded by waterbodies to the west, north and east including Wolf Lake, Somme River and Neville Lake. Wetlands are situated within the footprint of TMF 14A.

TMF 14A is situated over a portion of Bagsverd Creek and will result in the loss of a few fish habitats of limited quality. A realignment of the creek will be required around the southeast corner of TMF 14A. It is anticipated that fish habitat compensation measures will be incorporated in the realignment works. The new alignment of Bagsverd Creek will naturalize over the life of the Project and will form the permanent creek after closure.



- LEGEND:**
- WATER
  - TAILINGS
  - EMBANKMENT
  - EXISTING ATV ROAD/TRUCK ROAD/TRAIL
  - EXISTING CREEK
  - TAILINGS DELIVERY AND DISTRIBUTION PIPELINE
  - RECLAIM WATER PIPELINE
  - ACCESS ROAD
  - EXCESS WATER DISCHARGE PIPELINE
  - PROPOSED POLISHING POND EMBANKMENT
  - TAILINGS CONTOURS

- NOTES:**
1. COORDINATE GRID IS UTM NAD83, ZONE 17.
  2. PLAN BASED ON INFORMATION PROVIDED BY IAMGOLD CORPORATION, RECEIVED AUGUST, 2012.
  3. CONTOUR INTERVAL IS 1 METRE.
  4. ELEVATIONS ARE IN METRES.
  5. REALIGNMENT SECTION PROVIDED BY CALDER ENGINEERING LTD. (DEC 12, 2012).



IAMGOLD CORPORATION  
CÔTÉ GOLD PROJECT  
OPTION TMF 14A

<b>Knight Piésold</b> CONSULTING	PIA NO. NB101-497/3	REF NO. 1
	FIGURE 3.5	

05MAR'13 ISSUED WITH REPORT  
 RSM MMD KEH RAM  
 DESIGNED DRAWN CHK'D APP'D  
 SAVFED: I:\1010049703\A\CH\PICSB14\_10\_3162013\_101203 AM\_MDEIERS.PRTD: 3/6/2013 2:56:10 PM, TSF: 14A, MDEIERS  
 XREF FILES: T:\PROJECTS\TOP\FEAT\TOP\FEAT\LOC\TAILS\OPT\1\TAILS\OPT\_14A\_TAILS\_OPT\_14A\_MAKE\_FILE.DWG

Specific comments on Option TMF 14A are provided below:

- The footprint area is approximately 786 ha
- TMF 14A has the longest tailings discharge pipeline from the plant to the embankment of the options under consideration (approximately 13.7 km). This is approximately 1.6 to 2.5 times longer than TMF 2B and TMF 1B Options, respectively.
- Limited geotechnical investigations have been completed along the south embankment alignment. Foundation conditions along the south alignment are generally good. Foundation conditions along the west, north and east embankment are unknown and will need to be investigated. Unfavorable conditions over significant portions of these embankments is expected.
- Condemnation drilling has not been carried out in the area
- The final rockfill embankment crest will be at a maximum El. 425 m
- This Option has limited potential for expansion, due to lack of natural containment and adjacent waterbodies

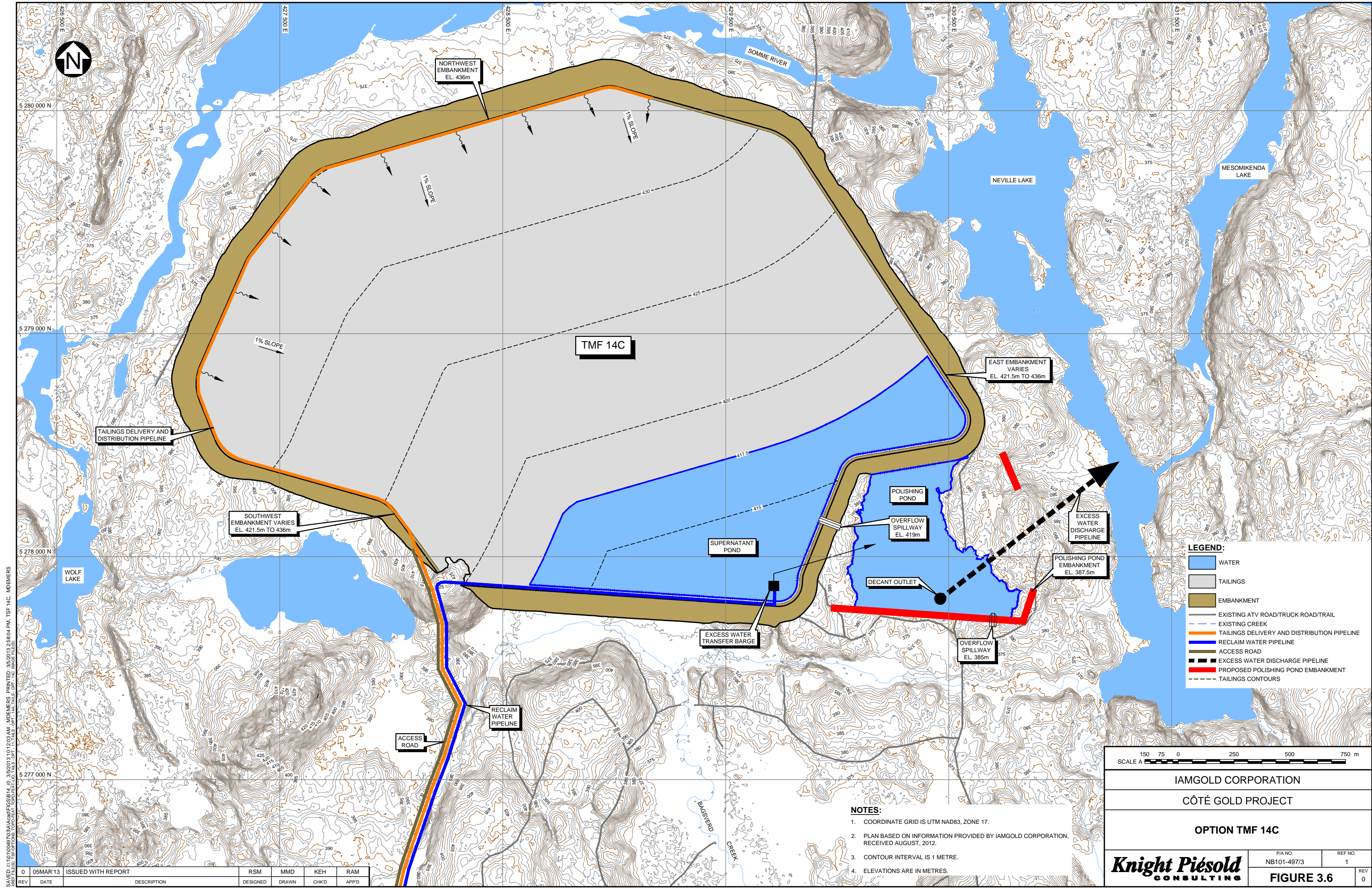
### 3.2.6 Option TMF 14C

TMF 14C is similar to TMF 14A. The general arrangement for this Option is shown on Figure 3.6. The following revisions are made to the comments provided to TMF 14A:

- The south embankment is moved north so as to not interfere with Bagsverd Creek, this will eliminate the need for any realignments
- Tailings will be deposited primarily from the west and north to form a gentle sloping beach. This arrangement will, ultimately, force all runoff and supernatant to collect at the southeast corner of the facility.
- Any excess water will be treated (if required) and pumped via a pipeline for discharge to Neville Lake (Figure 1.2)

Specific comments on Option TMF 14C are provided below:

- The footprint area is the smallest area of all the options (approximately 637 ha)
- The tailings discharge pipeline from the plant to the embankment of TMF 14C is approximately 12.7 km
- There are only wetlands within TMF 14C and this option would require no realignments of streams
- There is essentially no natural containment and significant embankment construction would be required over unfavorable foundations. TMF 14C will require approximately 30 % to 210 % more material to construct the embankments compared to TMF 11 and TMF 1B, respectively. The total embankment quantity is approximately 43,600,000 m<sup>3</sup>.
- The final rockfill embankment crest will be at a maximum El. 436 m
- This option is expected to be the most expensive, due to large embankment volumes, longest length of access roads, tailings discharge pipeline, water reclaim pipeline and pumping costs, etc.



SAV: 11010049703AVACM\FCSB14\_10\_3152013 10:12:03 AM MDEMERS PRINTED: 3/5/2013 2:58:04 PM TSF 14C MDEMERS  
 XREF FILES: T:\PROJECTS\TOP\FEAT\LOC\TAIL\OPT 11\TAILS\OPT 14A\TAILS\OPT 14C\IMAGE FILES

REV	DATE	DESCRIPTION	RSM	MMD	KEH	RAM
DESIGNED	DRAWN	CHK'D	APP'D			
0	05MAR'13	ISSUED WITH REPORT				

150 75 0 250 500 750 m  
SCALE A

IAMGOLD CORPORATION  
CÔTÉ GOLD PROJECT  
OPTION TMF 14C

<b>Knight Piésold</b> CONSULTING	P/A NO. NB101-497/3	REF NO. 1
	<b>FIGURE 3.6</b>	
		REV 0

## 4 – ALTERNATIVES ASSESSMENT METHODOLOGY

### 4.1 MULTIPLE ACCOUNTS ANALYSIS METHOD

A Multiple Accounts Analysis (MAA) has been developed for the TMF Options. The purpose of the MAA is to provide a clear and transparent evaluation methodology to compare the Options and select the preferred alternative(s).

The MAA is a multi-step process that develops a matrix to provide a numerical rating for each Option. The approach is set out in Environment Canada's guidelines (Environment Canada, 2011).

### 4.2 ACCOUNTS, SUB-ACCOUNTS AND INDICATORS

The MAA employs a three-tiered approach, starting with generalized accounts, specific sub-accounts, and measurable indicators.

- **Accounts:** These are basic elements that encompass and integrate comprehensive specific qualities developed through the scoring and evaluation of focused sub-accounts and measurable indicators.

The accounts used to evaluate the Options include:

- Environmental (water quality and impacts to fisheries, vegetation and wildlife)
  - Socio-Economic (effects to the population)
  - Technical (complexity of the design, construction and operating considerations)
  - Economics (basic cost factors)
- **Sub-Accounts:** These utilize factual characterization criteria and are developed independently of any consideration of the tailings disposal options that will be evaluated in the subsequent MAA process. Evaluation criteria consider the benefit or loss (material impact) associated with the evaluated Options.
  - **Indicators:** These allow for the qualitative or quantitative measurement of impacts associated with any given sub-account. Indicators tend to be measureable; whereas sub-accounts cannot be measured directly. For this reason, indicators need to be focused, deconstructed components that inform their respective parent sub-account. The indicators are grouped by parent accounts and sub-accounts and are described briefly in Appendix A.

The accounts, sub-accounts and indicators selected to evaluate the TMF Options at Côté Gold are summarized on Table 4.1.

TABLE 4.1

IAMGOLD CORPORATION  
CÔTÉ GOLD PROJECT

TAILINGS MANAGEMENT FACILITY ALTERNATIVES ASSESSMENT  
ACCOUNT, SUB-ACCOUNT AND INDICATOR RATIONALE

Print Mar/05/13 14:52:02

Account	Sub-Account	Rationale	Indicator	Comments	
Environmental	Hydrology	A greater hydrological footprint implies a greater potential for water resources to be potentially affected.	Total Catchment Area	The total catchment area affects the amount of water intercepted by the TMF that may be potentially impacted.	
			Number of Watersheds	A greater number of watersheds in the catchment area may allow for a greater distribution of potentially impacted runoff from the TMF, including seepage.	
			Stream Length Removed	Disrupting stream flows is less desirable due to the potential impact on downstream waterbodies and aquatic life. This indicator is a direct quantitative measure of stream lengths affected under the TMF Options.	
			Loss of Waterbodies	Disruption of existing waterbodies (excluding streams) and wetlands is less desirable due to potential loss of aquatic habitat.	
			Requires Surface Water Realignment	It is desirable to locate a tailings management facility such that there is minimal requirement for surface flow realignments.	
			Flow Change	Minimizing changes in the hydrologic flow regime is desirable. The change in flows downstream of the TMF due to the TMF and the associated realignment of surface water flows have been estimated.	
	Water Quality	Adverse changes to water quality is not desirable.	Change in Receiving Water Quality	The potential for a change in the water quality at the discharge location is less desirable.	
			Potential for Seepage	The TMF will include measures to reduce seepage. TMF options judged to have conditions where effective seepage control can be established with relative ease (i.e., low permeability bedrock close to surface) are rated higher for this indicator.	
			Potential for Negative Influence on Surface Water Quality from Groundwater Seepage	Disruption of waterbodies from groundwater seepage from the TMF is not desirable.	
	Aquatic	Removal or adverse impact to fish communities is not desirable.	Loss of Fish Bearing Water	The loss of aquatic habitat (quantity and quality) under the TMF Options has been estimated.	
			Adjacent Fish Ecology	The potential change to aquatic habitat (quantity and quality) adjacent to the TMF Options has been estimated.	
	Terrestrial	Removal or reduction in vegetation and wildlife habitat is less desirable.	Habitat of Species of Concern Removed	The loss of habitat of species of special concern under the TMF Options has been estimated.	
			Total Moose Winter Habitat Removed	Moose winter habitat is considered significant wildlife habitat and is designated by MNR. The loss of moose winter habitat under the TMF Options has been estimated.	
			Total Vegetative Habitat Removed	The smaller the TMF footprint the least adverse effect on the persistence of vegetative populations and communities.	
	Closure	Adverse changes to water quality post-closure is not desirable.	Post-Closure Chemical Stability	The tailings are expected to be relatively inert and not produce acid rock drainage or significant metal leaching after closure. Closure of the facilities will address long-term physical and chemical stability and impacts to the surrounding environment.	
			Post-Closure Flow Change	Changes to the flow regime post-closure is not desirable. The impact to the flow regime has been qualitatively ranked by considering the changes to the flows within the surrounding waterbodies and whether or not there is a change in the receiver (i.e. Neville Lake).	
	Socio-Economic	Human Health	Adverse effects on human health are not desirable.	Human Health (Direct Exposure)	The potential likelihood for the TMF to affect human health due to exposure to emissions or other releases to the environment, including dust generation and potential for groundwater seepage were included in the assessment of the direct exposure indicator. The measurement is a receptor-based qualitative assessment considering wind direction, receptors in the path of the wind, wet versus dry beach area, location of the supernatant pond, prevailing location of spigots during operation, potential for seepage, etc.
				Human Health (Indirect Exposure)	The potential likelihood for the TMF to affect human health, including the consumption of impacted fish, wildlife, berries, etc. was included in the assessment of the indirect exposure indicator.
Existing Communities and Human (Current and Historic) Land Uses		Adverse effects to the existing communities and land uses are not desirable. Sites with less impact on the existing communities and land uses are preferred.	Aboriginal Peoples Interests and Current Land Use	Adverse effect to Aboriginal Peoples interests is not desirable. The relative value of the potential effects to Aboriginal Peoples interests is estimated.	
			Presence of Archaeological Sites	The archaeological potential of the footprint of options is important to consider. Potential disturbance or destruction of sites without prior examination, recording and mitigation is not permitted. This ranking is based on preliminary field work. High scores are applied to TMF sites that have no sites or the effects on the site can be mitigated.	
			Proximity to Existing Permanent or Temporary Residences	Number of residences (e.g. temporary camp sites, trapper cabins, seasonal residences, permanent residences and outfitter establishments) in proximity of the TMF.	
			Recreational Access	Reduction in recreational access is less desirable. The value of the potential effect on recreational access is estimated. A recreation area is defined as a provincial park, a cottage, fishing lakes, hunting grounds, etc.	
Visibility and Aesthetics	Reduced visibility of the TMF is preferred. Visual effects are qualitatively assessed to capture the effect on the visual aesthetic from receptor locations such as major routes, communities and existing temporary or permanent residences.				

TABLE 4.1

**IAMGOLD CORPORATION  
CÔTÉ GOLD PROJECT**

**TAILINGS MANAGEMENT FACILITY ALTERNATIVES ASSESSMENT  
ACCOUNT, SUB-ACCOUNT AND INDICATOR RATIONALE**

Print Mar/05/13 14:52:02

Account	Sub-Account	Rationale	Indicator	Comments	
Technical	Tailings Management Facility Layout	A smaller tailings facility is generally less complex and more easily managed and therefore is preferred.	Maximum Embankment Height	For a given location, embankments which are higher generally are more complex, require more construction effort and carry more risk than lower dams. The maximum height of the embankment provides a quantitative measure for relative comparison of risks between the TMF Options.	
			Average Embankment Height	A lower embankment is generally less complex, more easily managed, require less construction effort and have less overall risk associated with them and is preferred.	
			Expansion Capacity	A number of factors can influence the required storage capacity of a tailings facility over the life of a mine. A TMF Option that can store additional tailings with minor dam raises and/or is located adjacent to suitable land conducive to expansion is preferred.	
	Tailings Delivery and Deposition System	A shorter less complex delivery system is preferred to simplify design and reduce the risk of spills.	Pipeline Length	A shorter pipeline is preferred to simplify design, reduce pipe maintenance and reduce the risk of potential spills, and pipe blockage due to freezing or sanding up.	
			Pumping Requirements	Large topographical relief presents technical and operational challenges with respect to pumping tailings and increases risk due to higher pipeline pressures. Less pumping simplifies the design and decreases the risks for delays due to maintenance and problems during operations.	
			Ease of Operation During Start-up	Setting up pipelines and discharging of tailings from along the embankment during start-up is easier than discharging from natural ground and is preferred.	
	Embankment Construction	Straightforward embankment construction is preferred to simplify the construction details and reduce the potential for construction errors.	Starter Embankment Volume	A smaller embankment volume to commission the facility is preferred to simplify construction and reduce risk to the project start-up schedule.	
			Final Embankment Volume	Smaller and lower final embankments are preferred to simplify and reduce overall embankment construction. A smaller annual embankment volume for dam raises reduces the construction effort and subsequently the risk to efficient construction scheduling and transport of large fill quantities over a significant distance.	
			Ultimate Storage Efficiency	The TMF storage efficiency indicator is a ratio of the TMF storage capacity (volume) to the volume of fill material required to construct the embankment that confines the tailings (based on downstream construction).	
			Foundation Preparation	Less foundation preparation requirements are preferred to simplify construction and reduce risk to construction and project schedules.	
			Geotechnical Conditions	Good geotechnical conditions are preferred for ease of construction and to ensure long-term stability. The geotechnical indicator provides a measure of the inherent risk to embankment stability of siting TMFs on deep overburden soils, weak bearing soils or potentially liquefiable soils, etc.	
	Land Acquisition	Acquisition of land may present challenges. It is preferred that all development is on existing property rights.	Land Area and Title Holders	Area of land and quantity of title/mineral holders that need to be negotiated and acquired.	
	Water Management	Water management is an important component of the overall operations and simpler operating systems are preferred.	TMF Catchment Area	Tailing facilities require provisions for management of runoff from large storm events which typically include overflow spillways, decant structures or additional freeboard for storage. A smaller facility footprint generally simplifies water management and reduces freeboard requirements which are preferred.	
			Reclaim Pipeline	A shorter reclaim pipeline is preferred to simplify design, reduce the risk of failure, and reduce monitoring and maintenance requirements.	
			Reclaim Pumping Requirements	Less pumping simplifies the design.	
			Ease of Water Management Including Polishing Pond	A qualitative measure of the need for and complexity of water management required during the operations.	
			Ease of Seepage Management	Less seepage management generally simplifies water management and is preferred.	
	Monitoring and Maintenance	Complex monitoring and maintenance is less desirable.	Monitoring and Maintenance Requirements	The amount of monitoring and maintenance will be a function of the size and extent of the embankments including distance from the plant site.	
			Consequence of Operational Error	A lower consequence of error is preferred. The relative value of operational error is estimated.	
	Closure	Complex closure measures are less desirable.	Ease of Decommissioning and Closure	Qualitative measure of the relative ease of closing the mine. If progressive reclamation is practicable through operations, the relative ease of closure will be higher. Additionally, waste deposits that exhibit greater storage efficiency and have less embankment areas and heights to reclaim will also score higher.	
			Post Closure Landform Stability	Landform stability is a key criterion for mine closure. Tailings management facilities should be left in a stable state following closure such that they are not subject to mobilization through erosion, mass movement, or other natural processes.	
	Economics	Capital Costs	Lower capital costs are preferred to reduce the pre-production cash flow requirements.	Initial Capital Cost	Initial capital cost is estimated for each option.
				Surface Water Realignments and Fish Habitat Compensation Costs	Cost to construct surface water realignments and to compensate for the loss of fish habitat for each option is estimated.
Operational Costs		Higher operational costs are less desirable.	Embankment Raises	On-going capital costs are estimated for the staged construction for each option.	
			Operational Costs	Operational costs are based on operating the tailings delivery and reclaim water systems during the life of the mine. Lower operational costs are preferred.	
Closure and Post Closure Costs		Closure and post closure costs should be reduced as much possible to reduce long term liabilities.	Reclamation	Lower reclamation costs are preferred. The costs will be a function of the final area to be reclaimed after operations.	
			Monitoring and Maintenance	Less monitoring and maintenance is preferred. The cost is estimated based on the number of monitoring locations.	

I:\11\01\00497\03\AI\Report\Report 1, Rev 0 - TMF MAA\Tables\Table 4.1 to 4.5 - TMF MAA.xlsx\Table 4.1\_Rationale

0	05MAR13	ISSUED WITH REPORT N8101-4973-1	RSM	NEH	RAM
REV	DATE	DESCRIPTION	PREPD	CHKD	APPD



#### 4.3 VALUE-BASED DECISION PROCESS

The value-based decision process is an essential component of the overall MAA. The process assesses the combined impacts of a given option by scoring and weighing all indicators, sub-accounts, and accounts. The results of weighting and scoring are then aggregated into an overall merit rating for each option.

The details of the weighting and scoring procedures are discussed below.

- **Weighting:** Weighting factors allow the analyst to introduce bias given a perceived relative importance of a given indicator or sub-account. Weighting factors are inherently subjective - often based on the perceptions of the Proponent or the outcomes of a potentially limited sampling from the public consultation process. As such, the selection of weighting factors is a value-based process.

Weighting factors are applied to each indicator, implying the relative significance or importance associated with each indicator. The weighting factors have been bracketed to range from 1 (least important) to 6 (most important).

The MAA was completed by maintaining account weighting factors consistent with the recommendations suggested in Environment Canada's guidelines. The sub-account and indicator weightings and relative importance were defined based on discussions with IAMGOLD and input from a multidisciplinary team to ensure that the evaluation accurately reflects the project parameters. Higher weightings indicate greater relative importance and reflect the issues relative to the Project and the site conditions. The selected weightings are summarized on Table 4.2.

- **Indicator Values:** Values for the indicators are defined based on the characteristics of each of the TMF Options. Indicator values were selected based on input from a multidisciplinary team specific to their area of expertise. The indicator values for the TMF Options are summarized on Table 4.3. Costs presented are relative and based on limited detail and analysis and do not represent actual estimated costs.
- **Indicator Value Scales:** It is important that the indicators be deconstructed to elements that can be measured and compared without bias. Building on this concept, 6-point qualitative scales that are specific to each indicator are developed. Quantifying the measurable differences between options allows for the systematic comparison of options. The indicator value scales are summarized on Table 4.4.
- **Scoring:** Using 6-point qualitative scales that have been developed for each indicator and the indicator values, scores are assigned using measurable quantities or parameters. A score of 6 is considered the most favourable, while a score of 1 is considered least favourable. The individual indicator scores are shown on Table 4.5.

TABLE 4.2

IAMGOLD CORPORATION  
CÔTÉ GOLD PROJECT

TAILINGS MANAGEMENT FACILITY ALTERNATIVES ASSESSMENT  
ACCOUNT, SUB-ACCOUNT AND INDICATOR WEIGHTS

Print Mar/05/13 14:53:23

Account	Sub-Account	Indicator	Account Weight (W <sub>A</sub> )	Sub-Account Weight (W <sub>SA</sub> )	Indicator Weight (W <sub>I</sub> )	
Environmental	Hydrology	Total Catchment Area	6	4	3	
		Number of Watersheds			3	
		Stream Length Removed			4	
		Loss of Waterbodies			4	
		Requires Surface Water Realignment			5	
		Flow Change			5	
	Water Quality	Change in Receiving Water Quality		5	5	
		Potential for Seepage			5	
		Potential for Negative Influence on Surface Water Quality from Groundwater Seepage			5	
	Aquatic	Loss of Fish Bearing Water		5	5	
		Adjacent Fish Ecology			3	
	Terrestrial	Habitat of Species of Concern Removed		4	5	
		Total Moose Winter Habitat Removed			5	
		Total Vegetative Habitat Removed			4	
		Total Wetland Area Removed			4	
Closure	Post-Closure Chemical Stability	6	6			
	Post-Closure Flow Change		4			
Socio-Economic	Human Health	Human Health (Direct Exposure)	3	6	6	
		Human Health (Indirect Exposure)			4	
	Existing Communities and Human (Current and Historic) Land Uses	Aboriginal Peoples Interests and Current Land Use		3	3	6
		Presence of Archaeological Sites				4
		Proximity to Existing Permanent or Temporary Residences				4
		Recreational Access				4
		Visibility and Aesthetics				3
Technical	Tailings Management Facility Layout	Maximum Embankment Height	3	3	5	
		Average Embankment Height			3	
		Expansion Capacity			3	
	Tailings Delivery and Deposition System	Pipeline Length		3	3	3
		Pumping Requirements				3
		Ease of Operation During Start-up				3
	Embankment Construction	Starter Embankment Volume		5	5	5
		Final Embankment Volume				4
		Ultimate Storage Efficiency				4
		Foundation Preparation				2
		Geotechnical Conditions				3
	Land Acquisition	Land Area and Title Holders		2	2	
	Water Management	TMF Catchment Area		5	5	3
		Reclaim Pipeline				3
		Reclaim Pumping Requirements				3
		Ease of Water Management Including Polishing Pond				4
		Ease of Seepage Management				2
	Monitoring and Maintenance	Monitoring and Maintenance Requirements		2	2	5
		Consequence of Operational Error				3
	Closure	Ease of Decommissioning and Closure		6	6	3
Post Closure Landform Stability		6				
Economics	Capital Costs	Initial Capital Cost	1.5	5	5	
		Surface Water Realignments and Fish Habitat Compensation Costs			3	
	Operational Costs	Embankment Raises		3	3	5
		Operational Costs				4
	Closure and Post Closure Costs	Reclamation		2	2	4
Monitoring and Maintenance		6				

I:\1101\00497\03\A\Report\Report 1, Rev 0 - TMF MAA\Tables\Table 4.1 to 4.5 - TMF MAA.xlsx\Table 4.2\_Weighting Summary

**NOTES:**

1. GREATER WEIGHTS INDICATE GREATER RELATIVE IMPORTANCE.
2. POSSIBLE ACCOUNT, SUB-ACCOUNT AND INDICATOR WEIGHTS RANGE FROM 1 TO 6.

#	05MAR'13	ISSUED WITH REPORT NB101-497/3-1	RSM	NEH	RAM
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

TABLE 4.3

IAMGOLD CORPORATION  
CÔTÉ GOLD PROJECT

TAILINGS MANAGEMENT FACILITY ALTERNATIVES ASSESSMENT  
SUMMARY OF INDICATOR VALUES

Print Mar/05/13 14:54:52

Account	Sub-Account	Indicator	Parameter	Unit	Indicator Value						
					TMF 1B	TMF 2B	TMF 2C	TMF 11	TMF 14A	TMF 14C	
Environmental	Hydrology	Total Catchment Area	Area	ha	899	763	774	749	786	637	
		Number of Watersheds	Quantity	No.	1	1	1	1	1	1	
		Stream Length Removed	Length	km	9.2	7.2	7.2	3.9	3.2	0	
		Loss of Waterbodies	Area	ha	112.0	146.6	148.2	73.3	94.6	80.6	
		Requires Surface Water Realignment	Value	-	Portion of Bagsverd Creek	Complete realignment of Bagsverd Creek	Complete realignment of Bagsverd Creek	No realignment of surface water required	Portion of Bagsverd Creek	No realignment of surface water required	
		Flow Change	Value	-	Very Low	Very Low	Moderate (portion of Bagsverd Creek diverted to Lake Mesomikenda)	Very Low	Very Low	Very Low	
	Water Quality	Change in Receiving Water Quality	Value	-	Between baseline and PWQO	Between baseline and PWQO	Between baseline and PWQO	Between baseline and PWQO	Between baseline and PWQO	Between baseline and PWQO	
		Potential for Seepage	Value	-	Low	Low-Moderate	Low-Moderate	Moderate	Moderate-High	Moderate-High	
		Potential for Negative Influence on Surface Water Quality from Groundwater Seepage	Value	-	Low	Moderate	Moderate	Moderate	Moderate-High	High	
	Aquatic	Loss of Fish Bearing Water	Value	-	Portion of Bagsverd Creek	Portion of Bagsverd Creek	Portion of Bagsverd Creek	Many headwater waterbodies	Few habitats of limited quality	Few habitats of limited quality	
		Adjacent Fish Ecology	Value	-	Many habitats of higher quality	Few habitats of limited quality	Few habitats of limited quality	Few habitats of limited quality	Few habitats of limited quality	None	
	Terrestrial	Habitat of Species of Concern Removed	Area	ha	540.0	415.3	431.7	162.9	298.4	191.1	
		Total Moose Winter Habitat Removed	Area	ha	Moderate	Moderate	Moderate	None	Moderate	Moderate	
		Total Vegetative Habitat Removed	Area	ha	899	763	774	749	786	637	
		Total Wetland Area Removed	Area	ha	112.0	146.6	148.2	43.6	94.6	80.6	
	Closure	Post-Closure Chemical Stability	Value	-	Stable	Stable	Stable	Stable	Stable	Stable	
		Post-Closure Flow Change	Value	-	Low	Moderate	High	None	Very Low	Very Low	
	Socio-Economic	Human Health	Human Health (Direct Exposure)	Value	-	Low potential	Low potential	Low potential	Low potential	Low potential	Low potential
			Human Health (Indirect Exposure)	Value	-	Low potential	Low potential	Low potential	Low potential	Low potential	Low potential
		Existing Communities and Human (Current and Historic) Land Uses	Aboriginal Peoples Interests and Current Land Use	Value	-	No data on relative Aboriginal values or current uses	No data on relative Aboriginal values or current uses	No data on relative Aboriginal values or current uses	No data on relative Aboriginal values or current uses	No data on relative Aboriginal values or current uses	No data on relative Aboriginal values or current uses
Presence of Archaeological Sites			Value	-	Sites mitigatable	Sites mitigatable	Sites mitigatable	Sites mitigatable	Sites mitigatable	Sites mitigatable	
Proximity to Existing Permanent or Temporary Residences			Value	-	20 to 25 potential residences	Over 30 potential residences	Over 30 potential residences	One potential residence near Wolf Lake	Over 30 potential residences	Over 30 potential residences	
Recreational Access			Value	-	Temporary loss of access	Temporary loss of access	Temporary loss of access	Temporary loss of access	Temporary loss of access	Temporary loss of access	
Visibility and Aesthetics	Value	-	Major change in landscape from baseline conditions	Major change in landscape from baseline conditions	Major change in landscape from baseline conditions	Major change in landscape from baseline conditions	Major change in landscape from baseline conditions	Major change in landscape from baseline conditions			
Technical	Tailings Management Facility Layout	Maximum Embankment Height	Height	m	44	57	57	58	50	61	
		Average Embankment Height	Height	m	25.3	29.7	28.6	35.8	34.2	44.1	
		Expansion Capacity	Value	-	Conducive to expansion to the north	Minor dam raises and conducive to expansion to the south	Minor dam raises and conducive to expansion to the south	Not conducive to expansion (lack of natural containment and waterbodies surround TMF)	Not conducive to expansion (lack of natural containment and waterbodies surround TMF)	Not conducive to expansion (lack of natural containment and waterbodies surround TMF)	
	Tailings Delivery and Deposition System	Pipeline Length	Length	km	5.5	8.7	7.9	7.9	13.7	12.7	
		Pumping Requirements	Height	m	24	33	33	43	28	39	
		Ease of Operation During Start-up	Value	-	Moderate ease	Moderate difficulty	Moderate difficulty	Moderate difficulty	Easy	Easy	
	Embankment Construction	Starter Embankment Volume	Volume	Million m <sup>3</sup>	2.1	3.2	3.0	4.9	4.3	5.2	
		Final Embankment Volume	Volume	Million m <sup>3</sup>	20.3	26.9	25.3	34.1	32.1	43.6	
		Ultimate Storage Efficiency	Ratio	-	11.8	8.8	9.4	6.9	7.5	5.5	
		Foundation Preparation	Area	ha	7.6	28.8	28.8	28.5	61.7	78.4	
		Geotechnical Conditions	Value	-	Majority of embankment founded on competent bedrock	Majority of embankment founded on competent bedrock	Majority of embankment founded on competent bedrock	Unknown foundation conditions but suspect moderate area of poor foundations	Moderate area in suspected poor foundations	Large area in suspected poor foundations	
	Land Acquisition	Land Area and Title Holders	Value	-	0	0	0	0	0	0	
	Water Management	TMF Catchment Area	Area	ha	899	763	774	749	786	637	
		Reclaim Pipeline	Length	km	9.2	10.3	13	11.4	10.8	12.7	
		Reclaim Pumping Requirements	Head	m	-9	-20	-19.5	-23.5	-14	-24.5	
		Ease of Water Management Including Polishing Pond	Value	-	Moderate ease	Moderate ease	Easy	Moderate difficulty	Moderate difficulty	Easy	
		Ease of Seepage Management	Value	-	Very easy	Moderate ease	Moderate ease	Moderate difficulty	Moderate difficulty	Moderate difficulty	
	Monitoring and Maintenance	Monitoring and Maintenance Requirements	Value	-	Easy	Moderate ease	Moderate ease	Moderate difficulty	Difficult	Difficult	
		Consequence of Operational Error	Value	-	Potentially permanent and significant	Likely temporary but significant	Likely temporary but significant	Potentially permanent and significant	Potentially permanent and significant	Potentially permanent and significant	
	Closure	Ease of Decommissioning and Closure	Value	-	Easy	Easy	Easy	Moderate ease	Moderate ease	Moderate ease	
Post Closure Landform Stability		Value	-	Very Stable	Moderate-High stability	Moderate-High stability	Moderate-High stability	Moderate-High stability	Moderately stable		
Economics	Capital Costs	Initial Capital Cost	Value	Million \$	84 <sup>(1)</sup>	98 <sup>(1)</sup>	91 <sup>(1)</sup>	125 <sup>(1)</sup>	142 <sup>(1)</sup>	150 <sup>(1)</sup>	
		Surface Water Realignments and Fish Habitat Compensation Costs	Value	Million \$	20 <sup>(1)</sup>	10 <sup>(1)</sup>	22.5 <sup>(1)</sup>	< 5 <sup>(1)</sup>	5 <sup>(1)</sup>	< 5 <sup>(1)</sup>	
	Operational Costs	Embankment Raises	Value	Million \$	157 <sup>(1)</sup>	212 <sup>(1)</sup>	196 <sup>(1)</sup>	249 <sup>(1)</sup>	260 <sup>(1)</sup>	348 <sup>(1)</sup>	
		Operational Costs	Value	Million \$	41 <sup>(1)</sup>	64 <sup>(1)</sup>	58 <sup>(1)</sup>	58 <sup>(1)</sup>	101 <sup>(1)</sup>	94 <sup>(1)</sup>	
	Closure and Post Closure Costs	Reclamation	Area	ha	899	763	774	749	786	637	
		Monitoring and Maintenance	Value	\$	250,000	250,000	250,000	250,000	250,000	250,000	

I:\101\00497\03\A\Report\Report 1, Rev 0 - TMF MAA\Tables\Table 4.1 to 4.5 - TMF MAA.xlsx\Table 4.3\_Indicator Values

**NOTES:**

1. COSTS PRESENTED ARE RELATIVE BASED ON LIMITED DETAIL AND ANALYSIS AND DO NOT REPRESENT ACTUAL ESTIMATED COSTS.

0	ISSUED WITH REPORT	RSM	KEH	RAM
REV	DATE	PREP'D	CHK'D	APP'D
	13 MAR 2013			

TABLE 4.4  
IAMGOLD CORPORATION  
CÔTÉ GOLD PROJECT  
TAILINGS MANAGEMENT FACILITY ALTERNATIVES ASSESSMENT  
SUMMARY OF INDICATOR VALUE SCALES

Print Mar/05/13 14:56:47

Account, Sub-Account	Indicator	Value	Descriptor
Environmental, Hydrology	Total Catchment Area	6 (Best)	Less than 600 ha
		5	Between 600 and 700 ha
		4	Between 700 and 800 ha
		3	Between 800 and 900 ha
		2	Between 900 and 1000 ha
		1 (Worst)	Greater than 1000 ha
	Number of Watersheds	6 (Best)	1 Watershed
		5	2 Watersheds
		4	3 Watersheds
		3	4 Watersheds
		2	5 Watersheds
		1 (Worst)	Greater than 5 Watersheds
	Stream Length Removed	6 (Best)	None
		5	Between 0 and 3 km
		4	Between 3 and 6 km
		3	Between 6 and 9 km
		2	Between 9 and 12 km
		1 (Worst)	Greater than 12 km
	Loss of Waterbodies	6 (Best)	None
		5	Between 0 and 50 ha of waterbodies (including wetlands) removed
		4	Between 50 and 125 ha of waterbodies (including wetlands) removed
		3	Between 125 and 250 ha of waterbodies (including wetlands) removed
		2	Between 250 and 500 ha of waterbodies (including wetlands) removed
		1 (Worst)	Greater than 500 ha of waterbodies (including wetlands) removed
Requires Surface Water Realignment	6 (Best)	None	
	5	Very Low - minor diversion of ephemeral water flows	
	4	Low - partial diversion of minor surface water systems	
	3	Moderate - complete diversion of minor surface water systems	
	2	High - Partial diversion of major surface water systems	
	1 (Worst)	Very High - Complete diversion of major surface water systems	
Flow Change	6 (Best)	None	
	5	Very Low - Less than 5% change to flows at the outlet from Neville Lake	
	4	Low - 5 to 10% change to flows at the outlet from Neville Lake	
	3	Moderate - 10 to 20% change to flows at the outlet from Neville Lake	
	2	High - 20 to 100% change to flows at the outlet from Neville Lake	
	1 (Worst)	Very High - Greater than 100% change to flows at the outlet from Neville Lake	
Environmental, Water Quality	Change in Receiving Water Quality	6 (Best)	Less than baseline
		5	Between baseline and PWQO
		4	PWQO or site specific water quality objectives
		3	Less than chronic toxicity thresholds
		2	Less than acute toxicity thresholds
		1 (Worst)	Greater than acute
	Potential for Seepage	6 (Best)	Very Low
		5	Low
		4	Low-Moderate
		3	Moderate
		2	Moderate-High
		1 (Worst)	High
Potential for Negative Influence on Surface Water Quality from Groundwater Seepage	6 (Best)	Very Low - relatively low seepage potential and surrounding waterbodies are large/high flow	
	5	Low - relatively low seepage potential and surrounding waterbodies are small/low flow	
	4	Low-Moderate - relatively moderate seepage potential and surrounding waterbodies are large/high flow	
	3	Moderate - relatively moderate seepage potential and surrounding waterbodies are small/low flow	
	2	Moderate-High - relatively high seepage potential and surrounding waterbodies are large/high flow	
	1 (Worst)	High - relatively high seepage potential and surrounding waterbodies are small/low flow	
Environmental, Aquatic	Loss of Fish Bearing Water	6 (Best)	None
		5	Few habitats of limited quality
		4	Many habitats of limited quality
		3	Few habitats of higher quality
		2	Many habitats of higher quality
		1 (Worst)	Loss of significant habitat
	Adjacent Fish Ecology	6 (Best)	None
		5	Few habitats of limited quality
		4	Many habitats of limited quality
		3	Few habitats of higher quality
		2	Many habitats of higher quality
		1 (Worst)	Loss of significant habitat
Environmental, Terrestrial	Habitat of Species of Concern Removed	6 (Best)	0 ha altered or removed
		5	1-108 ha altered or removed
		4	109-216 ha altered or removed
		3	217-324 ha altered or removed
		2	324-432 ha altered or removed
		1 (Worst)	>432 ha altered or removed
	Total Moose Winter Habitat Removed	6 (Best)	None
		5	Very Low
		4	Low
		3	Moderate
		2	High
		1 (Worst)	Very High
	Total Vegetative Habitat Removed	6 (Best)	0 ha altered or removed
		5	1-180 ha altered or removed
		4	181-360 ha altered or removed
		3	361-540 ha altered or removed
2		541-720 ha altered or removed	
1 (Worst)		>720 ha altered or removed	
Total Wetland Area Removed	6 (Best)	0 ha altered or removed	
	5	1-30 ha altered or removed	
	4	31-60 ha altered or removed	
	3	61-90 ha altered or removed	
	2	91-120 ha altered or removed	
	1 (Worst)	>121 ha altered or removed	
Environmental, Closure	Post-Closure Chemical Stability	6 (Best)	Very stable
		5	Stable
		4	Moderate-high stability
		3	Moderately stable
		2	Low-moderate stability
		1 (Worst)	Unstable
	Post-Closure Flow Change	6 (Best)	None
		5	Very Low - small change to surface water systems with no change in receiver (i.e. Neville Lake)
		4	Low - moderate change to surface water systems with no change in receiver
		3	Moderate - large change to surface water systems with no change in receiver
		2	High - moderate change to surface water system with change in receiver
		1 (Worst)	Very High - large change to surface water system with change in receiver

TABLE 4.4  
IAMGOLD CORPORATION  
CÔTÉ GOLD PROJECT  
TAILINGS MANAGEMENT FACILITY ALTERNATIVES ASSESSMENT  
SUMMARY OF INDICATOR VALUE SCALES

Print Mar/05/13 14:56:47

Account, Sub-Account	Indicator	Value	Descriptor
Socio-Economic, Human Health	Human Health (Direct Exposure)	6 (Best)	No potential for TMF to affect human health through exposure to emissions (air, noise) or other releases to the environment (water, etc.)
		5	Very low potential for TMF to affect human health through exposure to emissions (air, noise) or other releases to the environment (water, etc.)
		4	Low potential for TMF to affect human health through exposure to emissions (air, noise) or other releases to the environment (water, etc.)
		3	Moderate potential for TMF to affect human health through exposure to emissions (air, noise) or other releases to the environment (water, etc.)
		2	High potential for TMF to affect human health through exposure to emissions (air, noise) or other releases to the environment (water, etc.)
		1 (Worst)	Very High potential for TMF to affect human health through exposure to emissions (air, noise) or other releases to the environment (water, etc.)
	Human Health (Indirect Exposure)	6 (Best)	No potential for TMF to affect human health through exposure to emissions (air) or other releases to the environment (water) via consumption of impacted fish, wildlife, berries, etc.
		5	Very low potential for TMF to affect human health through exposure to emissions (air) or other releases to the environment (water) via consumption of impacted fish, wildlife, berries, etc.
		4	Low potential for TMF to affect human health through exposure to emissions (air) or other releases to the environment (water) via consumption of impacted fish, wildlife, berries, etc.
		3	Moderate potential for TMF to affect human health through exposure to emissions (air) or other releases to the environment (water) via consumption of impacted fish, wildlife, berries, etc.
		2	High potential for TMF to affect human health through exposure to emissions (air) or other releases to the environment (water) via consumption of impacted fish, wildlife, berries, etc.
		1 (Worst)	Very High potential for TMF to affect human health through exposure to emissions (air) or other releases to the environment (water) via consumption of impacted fish, wildlife, berries, etc.
Socio-Economic, Existing Communities and Human (Current and Historic) Land Uses	Aboriginal Peoples Interests and Current Land Use	6 (Best)	Proposed area has no importance to Aboriginal Peoples community (no current or historic uses)
		5	Proposed area has limited importance to Aboriginal Peoples interests (historic trail used by a few that is no longer used)
		4	Proposed area has low importance to the Aboriginal Peoples interests (seasonal trail to hunting or fishing area that could be re-routed)
		3	Proposed area has moderate importance to the Aboriginal Peoples interests (historic fishing, hunting or agricultural area no longer used)
		2	Proposed area has high importance to Aboriginal Peoples interests (regularly used for fishing, hunting, agriculture and is culturally significant)
		1 (Worst)	Proposed area has significant importance to Aboriginal Peoples interests (spiritual or burial grounds) and is currently heavily used to exercise Aboriginal or Treaty rights.
	Presence of Archaeological Sites	6 (Best)	No sites present
		5	Individual sites present but mitigatable
		4	Less than 5% of lands assessed as having moderate to high archaeological potential
		3	Less than 15% of lands assessed as having moderate to high archaeological potential
		2	More than 30% of lands assessed as having moderate to high archaeological potential
		1 (Worst)	Multiple high importance sites
	Proximity to Existing Permanent or Temporary Residences	6 (Best)	No residences (e.g. temporary camp sites, trapper cabins, seasonal residences, permanent residences and outfitter establishments) in proximity to TMF
		5	Less than 5 residences (e.g. temporary camp sites, trapper cabins, seasonal residences, permanent residences and outfitter establishments) in proximity to TMF
		4	6 to 10 residences (e.g. temporary camp sites, trapper cabins, seasonal residences, permanent residences and outfitter establishments) in proximity to TMF
		3	11 to 20 residences (e.g. temporary camp sites, trapper cabins, seasonal residences, permanent residences and outfitter establishments) in proximity to TMF
		2	21 to 30 residences (e.g. temporary camp sites, trapper cabins, seasonal residences, permanent residences and outfitter establishments) in proximity to TMF
		1 (Worst)	Over 30 residences (e.g. temporary camp sites, trapper cabins, seasonal residences, permanent residences and outfitter establishments) in proximity to TMF
	Recreational Access	6 (Best)	No reduction in public access to recreation areas (i.e. provincial park, cottages, favourite fishing lake accessible only by ATV, etc.)
		5	Short term loss (initial construction) of access to recreation areas (i.e. provincial park, cottages, favourite fishing lake accessible only by ATV, etc.)
		4	Temporary loss (mine life) of access to a periodically used recreation area (i.e. provincial park, cottages, favourite fishing lake accessible only by ATV, etc.)
		3	Temporary loss (mine life) of access to a heavily used public recreation area (i.e. provincial park, cottages, favourite fishing lake accessible only by ATV, etc.)
		2	Permanent loss of access to a periodically used public recreation areas (i.e. provincial park, cottages, favourite fishing lake accessible only by ATV, etc.)
		1 (Worst)	Permanent loss of access to a heavily used public recreation area (i.e. provincial park, cottages, favourite fishing lake accessible only by ATV, etc.)
Visibility and Aesthetics	6 (Best)	Not visible or visible (no noise emissions) for less than 5 receptors but is considered a minor change in landscape from baseline conditions	
	5	Visible/noise emissions for more than 5 receptors but is considered a minor change in landscape from baseline conditions	
	4	Visible for less than 5 receptors but is considered a moderate change in landscape from baseline conditions	
	3	Visible for more than 5 receptors but is considered a moderate change in landscape from baseline conditions	
	2	Visible for less than 5 receptors and is considered a major change in landscape from baseline conditions	
	1 (Worst)	Visible for more than 5 receptors and is considered a major change in landscape from baseline conditions	
Technical, Tailings Management Facility Layout	Maximum Embankment Height	6 (Best)	Less than 30 m
		5	Between 30 to 50 m
		4	Between 50 to 60 m
		3	Between 60 to 70 m
		2	Between 70 to 90 m
		1 (Worst)	Greater than 90 m
	Average Embankment Height	6 (Best)	Less than 25 m
		5	Between 25 to 30 m
		4	Between 30 to 35 m
		3	Between 35 to 40 m
		2	Between 40 to 45 m
		1 (Worst)	Greater than 45 m
Expansion Capacity	6 (Best)	Very High - Additional capacity achievable with minor dam raises	
	5	High - Additional capacity achievable with minor dam raises and/or is located adjacent to suitable land conducive to expansion	
	4	Moderate - Additional capacity achievable with moderate dam raises and is located adjacent to suitable land conducive to expansion	
	3	Low - Additional capacity achievable with moderate dam raises and land adjacent to TMF is not suitable or conducive to expansion	
	2	Very Low - Additional capacity achievable with significant dam raises and land adjacent to TMF is not suitable or conducive to expansion	
	1 (Worst)	No Potential	
Technical, Tailings Delivery and Deposition System	Pipeline Length	6 (Best)	Less than 5 km
		5	Between 5 and 7 km
		4	Between 7 and 9 km
		3	Between 9 and 11 km
		2	Between 11 and 13 km
		1 (Worst)	Greater than 13 km
	Pumping Requirements	6 (Best)	25 m of head or less
		5	25 to 30 m of head
		4	30 and 35 m of head
		3	35 and 40 m of head
		2	40 and 45 m of head
		1 (Worst)	Greater than 45 m of head
Ease of Operation During Start-up	6 (Best)	Very easy	
	5	Easy	
	4	Moderate ease	
	3	Moderate difficulty	
	2	Difficult	
	1 (Worst)	Very difficult	
Technical, Embankment Construction	Starter Embankment Volume	6 (Best)	Less than 2.5 million m <sup>3</sup>
		5	2.5 to 3.5 million m <sup>3</sup>
		4	3.5 to 4.5 million m <sup>3</sup>
		3	4.5 to 6.5 million m <sup>3</sup>
		2	6.5 to 8.5 million m <sup>3</sup>
		1 (Worst)	Greater than 8.5 million m <sup>3</sup>
	Final Embankment Volume	6 (Best)	Less than 20 million m <sup>3</sup>
		5	20 to 25 million m <sup>3</sup>
		4	25 to 30 million m <sup>3</sup>
		3	30 to 35 million m <sup>3</sup>
		2	35 to 40 million m <sup>3</sup>
		1 (Worst)	Greater than 40 million m <sup>3</sup>
	Ultimate Storage Efficiency	6 (Best)	>10
		5	9 to 10
		4	8 to 9
		3	7 to 8
		2	6 to 7
		1 (Worst)	< 6
	Foundation Preparation	6 (Best)	Less than 20 ha
		5	Between 20 and 35 ha
		4	Between 35 and 50 ha
		3	Between 50 and 65 ha
		2	Between 65 and 80 ha
		1 (Worst)	Greater than 80 ha
Geotechnical Conditions	6 (Best)	No risk of geotechnical conditions and/or hazards	
	5	Low risk of geotechnical conditions and/or hazards that can be mitigated during design and construction	
	4	Moderate risk of geotechnical conditions and/or hazards that can be mitigated during design and construction	
	3	Significant risk of geotechnical conditions and hazards that can be mitigated during design and construction	
	2	Moderate risk of geotechnical conditions and/or hazards that cannot be mitigated during design and construction	
	1 (Worst)	Significant risk of geotechnical conditions and/or hazards that cannot be mitigated during design and construction	

TABLE 4.4  
IAMGOLD CORPORATION  
CÔTÉ GOLD PROJECT  
TAILINGS MANAGEMENT FACILITY ALTERNATIVES ASSESSMENT  
SUMMARY OF INDICATOR VALUE SCALES

Print Mar/05/13 14:56:47

Account, Sub-Account	Indicator	Value	Descriptor
Technical, Land Acquisition	Land Area and Title Holders	6 (Best)	Less than 20 ha of land required for acquisition and/or 1 registered land user to compensate
		5	Between 20 and 40 ha of land required for acquisition and/or 2 - 3 registered land users to compensate
		4	Between 40 and 60 ha of land required for acquisition and/or 4 - 5 registered land users to compensate
		3	Between 60 and 80 ha of land required for acquisition and/or 6 - 7 registered land users to compensate
		2	Between 80 and 100 ha of land required for acquisition and/or 8 - 9 registered land users to compensate
		1 (Worst)	Greater than 100 ha of land required for acquisition and/or greater than 10 registered land users to compensate
Technical, Water Management	TMF Catchment Area	6 (Best)	Less than 250 ha
		5	Between 250 and 450 ha
		4	Between 450 and 650 ha
		3	Between 650 and 850 ha
		2	Between 850 and 1050 ha
		1 (Worst)	Greater than 1050 ha
	Reclaim Pipeline	6 (Best)	Less than 5 km
		5	Between 5 and 8 km
		4	Between 8 and 11 km
		3	Between 11 and 14 km
		2	Between 14 and 17 km
		1 (Worst)	Greater than 17 km
	Reclaim Pumping Requirements	6 (Best)	less than 0 m of head
		5	0 to 10 m of head
		4	10 to 20 m of head
		3	20 to 30 m of head
		2	30 to 40 m of head
		1 (Worst)	Greater than 40 m of head
	Ease of Water Management Including Polishing Pond	6 (Best)	Very easy
		5	Easy
4		Moderate ease	
3		Moderate difficulty	
2		Difficult	
1 (Worst)		Very difficult	
Ease of Seepage Management	6 (Best)	Very easy	
	5	Easy	
	4	Moderate ease	
	3	Moderate difficulty	
	2	Difficult	
	1 (Worst)	Very difficult	
Technical, Monitoring and Maintenance	Monitoring and Maintenance Requirements	6 (Best)	Very easy
		5	Easy
		4	Moderate ease
		3	Moderate difficulty
		2	Difficult
	1 (Worst)	Very difficult	
	Consequence of Operational Error	6 (Best)	No measureable impact
		5	Temporary minor environmental degradation
		4	Temporary significant environmental degradation
		3	Permanent minor environmental degradation
2		Permanent significant environmental degradation	
1 (Worst)	Loss of life		
Technical, Closure	Ease of Decommissioning and Closure	6 (Best)	Very easy
		5	Easy
		4	Moderate ease
		3	Moderate difficulty
		2	Difficult
	1 (Worst)	Very difficult	
	Post Closure Landform Stability	6 (Best)	Very stable
		5	Stable
		4	Moderate-high stability
		3	Moderately stable
2		Low-moderate stability	
1 (Worst)	Unstable		
Economics, Capital Costs	Initial Capital Cost	6 (Best)	Less than \$85,000,000
		5	Between \$85,000,000 and \$95,000,000
		4	Between \$95,000,000 and \$105,000,000
		3	Between \$105,000,000 and \$115,000,000
		2	Between \$115,000,000 and \$125,000,000
		1 (Worst)	Greater than \$125,000,000
	Surface Water Realignments and Fish Habitat Compensation Costs	6 (Best)	Less than \$4,000,000
		5	Between \$4,000,000 and \$9,000,000
		4	Between \$9,000,000 and \$14,000,000
		3	Between \$14,000,000 and \$19,000,000
2	Between \$19,000,000 and \$24,000,000		
1 (Worst)	Greater than \$24,000,000		
Economics, Operational Costs	Embankment Raises	6 (Best)	Less than \$160,000,000
		5	Between \$160,000,000 and \$180,000,000
		4	Between \$180,000,000 and \$200,000,000
		3	Between \$200,000,000 and \$220,000,000
		2	Between \$220,000,000 and \$240,000,000
		1 (Worst)	Greater than \$240,000,000
	Operational Costs	6 (Best)	Less than \$45,000,000
		5	Between \$45,000,000 and \$55,000,000
		4	Between \$55,000,000 and \$65,000,000
		3	Between \$65,000,000 and \$75,000,000
2	Between \$75,000,000 and \$85,000,000		
1 (Worst)	Greater than \$85,000,000		
Economics, Closure and Post Closure Costs	Reclamation	6 (Best)	Less than 250 ha
		5	Between 250 and 450 ha
		4	Between 450 and 650 ha
		3	Between 650 and 850 ha
		2	Between 850 and 1050 ha
		1 (Worst)	Greater than 1050 ha
	Monitoring and Maintenance	6 (Best)	Less than \$100,000
		5	Between \$100,000 and \$200,000
		4	Between \$200,000 and \$300,000
		3	Between \$300,000 and \$400,000
2	Between \$400,000 and \$500,000		
1 (Worst)	Greater than \$500,000		

I:\10100497\03\IA\Report\Report 1, Rev 0 - TMF MAA\Tables\Table 4.1 to 4.5 - TMF MAA.xlsx\Table 4.4 Indicator Value Scale

REV	DATE	ISSUED WITH REPORT	DESCRIPTION	RSM PREP	KEH CHKD	RAM APPD
0	09MAR13	ISSUED WITH REPORT NB101-0973-1				

TABLE 4.5  
IAMGOLD CORPORATION  
CÔTÉ GOLD PROJECT  
TAILINGS MANAGEMENT FACILITY ALTERNATIVES ASSESSMENT  
SCORING SUMMARY

Print Mar/05/13 14:58:23

Account	Account Weight (W <sub>A</sub> )	Sub-Account	Sub-Account Weight (W <sub>SA</sub> )	Indicator	Indicator Weight (W <sub>I</sub> )	Indicator Values and Merit Scores											
						TMF 1B		TMF 2B		TMF 2C		TMF 11		TMF 14A		TMF 14C	
						Value (S)	Merit Score (S*W <sub>I</sub> )	Value (S)	Merit Score (S*W <sub>I</sub> )	Value (S)	Merit Score (S*W <sub>I</sub> )	Value (S)	Merit Score (S*W <sub>I</sub> )	Value (S)	Merit Score (S*W <sub>I</sub> )	Value (S)	Merit Score (S*W <sub>I</sub> )
Environmental	6	Hydrology	4	Total Catchment Area	3	2	6	4	12	4	12	4	12	4	12	5	15
				Number of Watersheds	3	6	18	6	18	6	18	6	18	6	18	6	18
				Stream Length Removed	4	2	8	3	12	3	12	4	16	4	16	6	24
				Loss of Waterbodies	4	4	16	3	12	3	12	4	16	4	16	4	16
				Requires Surface Water Realignment	5	2	10	1	5	1	5	6	30	2	10	6	30
				Flow Change	5	5	25	5	25	3	15	5	25	5	25	5	25
				<b>Sub-Account Merit Score (Σ(S*W<sub>I</sub>))</b>			83		84		74		117		97		128
		<b>Sub-Account Merit Rating (R<sub>S</sub> = Σ(S*W<sub>I</sub>)/ΣW<sub>I</sub>)</b>			3.5		3.5		3.1		4.9		4.0		5.3		
		Water Quality	5	Change in Receiving Water Quality	5	5	25	5	25	5	25	5	25	5	25	5	25
				Potential for Seepage	5	5	25	4	20	4	20	3	15	2	10	2	10
				Potential for Negative Influence on Surface Water Quality from Groundwater Seepage	5	5	25	3	15	3	15	3	15	2	10	1	5
				<b>Sub-Account Merit Score (Σ(S*W<sub>I</sub>))</b>			75		60		60		55		45		40
		<b>Sub-Account Merit Rating (R<sub>S</sub> = Σ(S*W<sub>I</sub>)/ΣW<sub>I</sub>)</b>			5.0		4.0		4.0		3.7		3.0		2.7		
		Aquatic	5	Loss of Fish Bearing Water	5	2	10	2	10	2	10	2	10	5	25	5	25
				Adjacent Fish Ecology	3	5	15	5	15	5	15	5	15	5	15	6	18
				<b>Sub-Account Merit Score (Σ(S*W<sub>I</sub>))</b>			25		25		25		25		40		43
		<b>Sub-Account Merit Rating (R<sub>S</sub> = Σ(S*W<sub>I</sub>)/ΣW<sub>I</sub>)</b>			3.1		3.1		3.1		3.1		5.0		5.4		
		Terrestrial	4	Habitat of Species of Concern Removed	5	1	5	2	10	2	10	4	20	3	15	4	20
				Total Moose Winter Habitat Removed	5	3	15	3	15	3	15	6	30	3	15	3	15
				Total Vegetative Habitat Removed	4	1	4	1	4	1	4	1	4	1	4	2	8
				Total Wetland Area Removed	4	2	8	1	4	1	4	4	16	2	8	3	12
				<b>Sub-Account Merit Score (Σ(S*W<sub>I</sub>))</b>			32		33		33		70		42		55
		<b>Sub-Account Merit Rating (R<sub>S</sub> = Σ(S*W<sub>I</sub>)/ΣW<sub>I</sub>)</b>			1.8		1.8		1.8		3.9		2.3		3.1		
		Closure	6	Post-Closure Chemical Stability	6	5	30	5	30	5	30	5	30	5	30	5	30
Post-Closure Flow Change	4			4	16	2	8	3	12	6	24	5	20	5	20		
<b>Sub-Account Merit Score (Σ(S*W<sub>I</sub>))</b>					46		38		42		54		50		50		
<b>Sub-Account Merit Rating (R<sub>S</sub> = Σ(S*W<sub>I</sub>)/ΣW<sub>I</sub>)</b>			4.6		3.8		4.2		5.4		5.0		5.0				
<b>Account Merit Score (Σ(R<sub>S</sub>*W<sub>SA</sub>))</b>			89		80		80		101		96		104				
<b>Account Merit Rating (R<sub>A</sub> = Σ(R<sub>S</sub>*W<sub>SA</sub>)/ΣW<sub>SA</sub>)</b>			3.7		3.3		3.4		4.2		4.0		4.3				
Socio-Economic	3	Human Health	6	Human Health (Direct Exposure)	6	4	24	4	24	4	24	4	24	4	24		
				Human Health (Indirect Exposure)	4	4	16	4	16	4	16	4	16	4	16		
				<b>Sub-Account Merit Score (Σ(S*W<sub>I</sub>))</b>			40		40		40		40		40		
		<b>Sub-Account Merit Rating (R<sub>S</sub> = Σ(S*W<sub>I</sub>)/ΣW<sub>I</sub>)</b>			4.0		4.0		4.0		4.0		4.0				
		Existing Communities and Human (Current and Historic) Land Uses	3	Aboriginal Peoples Interests and Current Land Use	6	1	6	1	6	1	6	1	6	1	6	1	6
				Presence of Archaeological Sites	4	5	20	5	20	5	20	5	20	5	20	5	20
				Proximity to Existing Permanent or Temporary Residences	4	2	8	1	4	1	4	5	20	1	4	1	4
				Recreational Access	4	4	16	4	16	4	16	4	16	4	16	4	16
				Visibility and Aesthetics	3	1	3	1	3	1	3	2	6	1	3	1	3
		<b>Sub-Account Merit Score (Σ(S*W<sub>I</sub>))</b>			53		49		49		68		49		49		
		<b>Sub-Account Merit Rating (R<sub>S</sub> = Σ(S*W<sub>I</sub>)/ΣW<sub>I</sub>)</b>			2.5		2.3		2.3		3.2		2.3		2.3		
<b>Account Merit Score (Σ(R<sub>S</sub>*W<sub>SA</sub>))</b>			32		31		31		34		31		31				
<b>Account Merit Rating (R<sub>A</sub> = Σ(R<sub>S</sub>*W<sub>SA</sub>)/ΣW<sub>SA</sub>)</b>			3.5		3.4		3.4		3.7		3.4		3.4				

TABLE 4.5  
IAMGOLD CORPORATION  
CÔTÉ GOLD PROJECT  
TAILINGS MANAGEMENT FACILITY ALTERNATIVES ASSESSMENT  
SCORING SUMMARY

Print Mar/05/13 14:58:23

Account	Account Weight (W <sub>A</sub> )	Sub-Account	Sub-Account Weight (W <sub>SA</sub> )	Indicator	Indicator Weight (W <sub>I</sub> )	Indicator Values and Merit Scores														
						TMF 1B		TMF 2B		TMF 2C		TMF 11		TMF 14A		TMF 14C				
						Value (S)	Merit Score (S*W <sub>I</sub> )	Value (S)	Merit Score (S*W <sub>I</sub> )	Value (S)	Merit Score (S*W <sub>I</sub> )	Value (S)	Merit Score (S*W <sub>I</sub> )	Value (S)	Merit Score (S*W <sub>I</sub> )	Value (S)	Merit Score (S*W <sub>I</sub> )			
Technical	3	Tailings Management Facility Layout	3	Maximum Embankment Height	5	5	25	4	20	4	20	4	20	4	20	3	15			
				Average Embankment Height	3	5	15	5	15	5	15	3	9	4	12	2	6			
				Expansion Capacity	3	6	18	6	18	6	18	3	9	3	9	2	6			
				Sub-Account Merit Score (Σ(S*W <sub>I</sub> ))				58			53			38			41			27
				Sub-Account Merit Rating (R <sub>S</sub> = Σ(S*W <sub>I</sub> )/ΣW <sub>I</sub> )				5.3			4.8			3.5			3.7			2.5
		Tailings Delivery and Deposition System	3	Pipeline Length	3	5	15	4	12	4	12	4	12	1	3	2	6			
				Pumping Requirements	3	6	18	4	12	4	12	2	6	4	12	3	9			
				Ease of Operation During Start-up	3	4	12	3	9	3	9	3	9	5	15	5	15			
				Sub-Account Merit Score (Σ(S*W <sub>I</sub> ))				45			33			27			30			30
				Sub-Account Merit Rating (R <sub>S</sub> = Σ(S*W <sub>I</sub> )/ΣW <sub>I</sub> )				5.0			3.7			3.0			3.3			3.3
		Embankment Construction	5	Starter Embankment Volume	5	6	30	5	25	5	25	3	15	4	20	3	15			
				Final Embankment Volume	4	5	20	4	16	4	16	3	12	3	12	1	4			
				Ultimate Storage Efficiency	4	6	24	4	16	5	20	2	8	3	12	1	4			
				Foundation Preparation	2	6	12	5	10	5	10	5	10	3	6	2	4			
				Geotechnical Conditions	3	5	15	4	12	4	12	3	9	3	9	2	6			
				Sub-Account Merit Score (Σ(S*W <sub>I</sub> ))				101			79			54			59			33
		Sub-Account Merit Rating (R <sub>S</sub> = Σ(S*W <sub>I</sub> )/ΣW <sub>I</sub> )				5.6			4.4			3.0			3.3			1.8		
		Land Acquisition	2	Land Area and Title Holders	2	6	12	6	12	6	12	6	12	6	12	6	12			
				Sub-Account Merit Score (Σ(S*W <sub>I</sub> ))				12			12			12			12			12
				Sub-Account Merit Rating (R <sub>S</sub> = Σ(S*W <sub>I</sub> )/ΣW <sub>I</sub> )				6.0			6.0			6.0			6.0			6.0
		Water Management	5	TMF Catchment Area	3	2	6	3	9	3	9	3	9	3	9	4	12			
				Reclaim Pipeline	3	4	12	4	12	3	9	3	9	4	12	3	9			
				Reclaim Pumping Requirements	3	6	18	6	18	6	18	6	18	6	18	6	18			
				Ease of Water Management Including Polishing Pond	4	4	16	4	16	5	20	3	12	3	12	5	20			
				Ease of Seepage Management	2	6	12	4	8	4	8	3	6	3	6	3	6			
				Sub-Account Merit Score (Σ(S*W <sub>I</sub> ))				64			63			54			57			65
		Sub-Account Merit Rating (R <sub>S</sub> = Σ(S*W <sub>I</sub> )/ΣW <sub>I</sub> )				4.3			4.2			3.6			3.8			4.3		
		Monitoring and Maintenance	2	Monitoring and Maintenance Requirements	5	5	25	4	20	4	20	3	15	2	10	2	10			
				Consequence of Operational Error	3	2	6	4	12	4	12	2	6	2	6	2	6			
				Sub-Account Merit Score (Σ(S*W <sub>I</sub> ))				31			32			21			16			16
Sub-Account Merit Rating (R <sub>S</sub> = Σ(S*W <sub>I</sub> )/ΣW <sub>I</sub> )				3.9			4.0			2.6			2.0			2.0				
Closure	6	Ease of Decommissioning and Closure	3	5	15	5	15	5	15	4	12	4	12	4	12					
		Post Closure Landform Stability	6	6	36	4	24	4	24	4	24	4	24	3	18					
		Sub-Account Merit Score (Σ(S*W <sub>I</sub> ))				51			39			36			36			30		
		Sub-Account Merit Rating (R <sub>S</sub> = Σ(S*W <sub>I</sub> )/ΣW <sub>I</sub> )				5.7			4.3			4.0			4.0			3.3		
		Account Merit Score (Σ(R <sub>S</sub> *W <sub>SA</sub> ))				134			114			94			97			84		
Account Merit Rating (R <sub>A</sub> = Σ(R <sub>S</sub> *W <sub>SA</sub> )/ΣW <sub>SA</sub> )				5.2			4.4			4.5			3.6			3.2				
Economics	1.5	Capital Costs	5	Initial Capital Cost	5	6	30	4	20	5	25	2	10	1	5	1	5			
				Surface Water Realignment and Fish Habitat Compensation Costs	3	2	6	4	12	2	6	6	18	5	15	6	18			
				Sub-Account Merit Score (Σ(S*W <sub>I</sub> ))				36			32			31			20			23
				Sub-Account Merit Rating (R <sub>S</sub> = Σ(S*W <sub>I</sub> )/ΣW <sub>I</sub> )				4.5			4.0			3.9			2.5			2.9
				Account Merit Score (Σ(R <sub>S</sub> *W <sub>SA</sub> ))				46.9			37.5			38.6			31.7			25.4
		Operational Costs	3	Embankment Raises	5	6	30	3	15	4	20	1	5	1	5	1	5			
				Operational Costs	4	6	24	4	16	4	16	4	16	1	4	1	4			
				Sub-Account Merit Score (Σ(S*W <sub>I</sub> ))				54			31			36			9			9
				Sub-Account Merit Rating (R <sub>S</sub> = Σ(S*W <sub>I</sub> )/ΣW <sub>I</sub> )				6.0			3.4			4.0			1.0			1.0
				Account Merit Score (Σ(R <sub>S</sub> *W <sub>SA</sub> ))				46.9			37.5			38.6			31.7			25.4
		Closure and Post Closure Costs	2	Reclamation	4	2	8	3	12	3	12	3	12	3	12	4	16			
				Monitoring and Maintenance	6	4	24	4	24	4	24	4	24	4	24	4	24			
				Sub-Account Merit Score (Σ(S*W <sub>I</sub> ))				32			36			36			36			40
				Sub-Account Merit Rating (R <sub>S</sub> = Σ(S*W <sub>I</sub> )/ΣW <sub>I</sub> )				3.2			3.6			3.6			3.6			4.0
				Account Merit Score (Σ(R <sub>S</sub> *W <sub>SA</sub> ))				46.9			37.5			38.6			31.7			25.4
Account Merit Rating (R <sub>A</sub> = Σ(R <sub>S</sub> *W <sub>SA</sub> )/ΣW <sub>SA</sub> )				4.7			3.8			3.9			3.2			2.5				
Alternative Merit Rating (A = Σ(R <sub>A</sub> *W <sub>A</sub> )/ΣW <sub>A</sub> )				4.1			3.6			3.7			3.6			3.7				

I:\110100497\03\A\Report\Report 1, Rev 0 - TMF MAA\Tables\Table 4.1 to 4.5 - TMF MAA.xlsx\Table 4.5 Scoring Summary

0	05MAR13	ISSUED WITH REPORT NB101-497/3-1	RSM	KEH	RAM
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



#### 4.4 MAA METHOD OF ANALYSIS

The methodology for completing the MAA is outlined below.

- The total weighted scores for each indicator within its specific sub-account are multiplied by the sub-account weighting factor and summed to determine the total weighted score for each sub-account. The maximum possible score is 6 and the minimum possible score is 1 for each sub-account. The individual indicator scores are shown on Table 4.5.
- The combined total weighted score for each indicator within its specific sub-account is multiplied by the sub-account weighting factor and summed to determine the total weighted score for each sub-account.
- The combined total weighted scores for each sub-account within its specific account are multiplied by the account weighting factor and summed to determine the total weighted score for each account.
- The final score for each Option is calculated by summing the total weighted score for each account to produce a final score. The highest value of these scores represents the highest ranked Option.

#### 4.5 SENSITIVITY ANALYSIS

The weightings defined for the accounts, sub-accounts and indicators have been selected based on their perceived relative importance and will, therefore, introduce bias into the analysis. To understand the impact of this bias on the results of the analysis a sensitivity analysis has been completed by adjusting the weightings of accounts, sub-accounts and indicators. The scenarios evaluated are summarized as follows:

- **Sensitivity Analysis 1 - Economics Excluded:** The economics account, sub-account and indicator weightings was decreased to zero (0) to remove all project economic influences. This analysis tends to favour alternatives that protect the environment without being influenced by the cost of environmental controls or mitigation measures.
- **Sensitivity Analysis 2 - Economics Excluded with Fisheries Bias:** The economics account, sub-account and indicator weightings was decreased to zero (0) to remove all project economic influences and the importance of aquatics sub-accounts and indicators are increased (weighting factors set to 6). All other accounts, sub-accounts and indicators are moderated with weighting factors set to 3. This analysis favours alternatives that present the lowest possible loss of fish habitat under and adjacent to the TMF.
- **Sensitivity Analysis 3 - Terrestrial Ecology Screening:** The general account weighting factors for sensitivity analysis 3 are consistent with the Environment Canada base case recommendations; however, the project terrestrial sub-account weights and the corresponding indicator weights were all increased to 6 to increase the importance of the terrestrial habitat area on the final result.
- **Sensitivity Analysis 4 - Technical Screening:** This analysis evaluates each alternative from a technical perspective in the absence of consideration for the environment or socio-economic impacts. The technical account weighting was given full-weighting (6) while the project economics account was given a moderate weighting factor (3) to ground the assessment from a

financial perspective (i.e., the best possible technical merits tempered by the comparative impact of cost). This analysis favours alternatives that are both technically sound and economically feasible.

- **Sensitivity Analysis 5 - Indicators Set to Unity:** All accounts, sub-accounts and indicator weightings were reduced to 1 to remove any factors or bias associated with the weighting factors and to compare the TMF Options relative to the indicator values.

## 5 – RESULTS AND SENSITIVITY ANALYSIS

### 5.1 MAA RESULTS

The MAA base case analysis was completed by maintaining account weighting factors consistent with the recommendations suggested in the Guidelines (EC, 2011), as follows:

- Environment: 6
- Socio-economic: 3
- Technical: 3
- Project Economics: 1.5

The weighting factors for all Accounts, Sub-accounts and Indicators are summarized on Table 4.2.

The Base Case account scores, total scores and ranking for each Option are summarized below:

**Table 5.1 Ranking Summary - Base Case**

Account	TSF 1B	TSB 2B	TSF 2C	TSF 11	TSF 14A	TSF 14C
Environmental	3.7	3.3	3.4	4.2	4.0	4.3
Socio-Economic	3.5	3.4	3.4	3.7	3.4	3.4
Technical	5.2	4.4	4.5	3.6	3.7	3.2
Economics	4.7	3.8	3.9	3.2	2.3	2.5
<b>WEIGHTED TOTAL</b>	4.10	3.64	3.67	3.86	3.61	3.69
<b>RANKING</b>	<b>1</b>	<b>5</b>	<b>4</b>	<b>2</b>	<b>6</b>	<b>3</b>

- **Environmental** - TMF 14C ranked higher than the other Options. This Option benefited from limited loss of fish bearing habitat under and adjacent to the TMF, no requirement for realignment of surface water systems, no loss of streams under the TMF and a smaller catchment area.
- **Socio-economic** - TMF 11 is located further away from potential receptors (i.e., residences) than the other Options and therefore ranked higher in this account than the other Options.
- **Technical** - TMF 1B ranked higher than the other Options. The main indicators contributing to TMF 1B scoring higher included, superior storage efficiency ratios, smaller starter and final embankment volumes, available capacity for expansion, shorter pipeline lengths and reduced pumping requirements, better foundations, and lower dams.
- **Economics** - TMF 1B ranked higher than the other Options. TMF 1B scored highest due the lower initial and ongoing capital and operating costs.

The results of the TMF MAA indicate that TMF 1B is the preferred Option.

## 5.2 SENSITIVITY ANALYSIS

### 5.2.1 Sensitivity Analysis 1 - Economics Excluded

The account scores, total scores and ranking for each Option for Sensitivity Analysis 1 are summarized below:

**Table 5.2 Ranking Summary - Sensitivity Analysis 1: Economics Excluded**

<b>Account</b>	<b>TSF 1B</b>	<b>TSB 2B</b>	<b>TSF 2C</b>	<b>TSF 11</b>	<b>TSF 14A</b>	<b>TSF 14C</b>
Environmental	3.7	3.3	3.4	4.2	4.0	4.3
Socio-Economic	3.5	3.4	3.4	3.7	3.4	3.4
Technical	5.2	4.4	4.5	3.6	3.7	3.2
Economics	-	-	-	-	-	-
<b>WEIGHTED TOTAL</b>	4.02	3.62	3.65	3.95	3.78	3.83
<b>RANKING</b>	<b>1</b>	<b>6</b>	<b>5</b>	<b>2</b>	<b>4</b>	<b>3</b>

As shown above, under Sensitivity Analysis 1, TMF 1B remains the preferred Option for tailings management.

### 5.2.2 Sensitivity Analysis 2 - Economics Excluded with Fisheries Bias

The Account scores, total scores and ranking each Option for Sensitivity Analysis 2 are summarized below:

**Table 5.3 Ranking Summary - Sensitivity Analysis 2: Economics Excluded with Fisheries Bias**

<b>Account</b>	<b>TSF 1B</b>	<b>TSB 2B</b>	<b>TSF 2C</b>	<b>TSF 11</b>	<b>TSF 14A</b>	<b>TSF 14C</b>
Environmental	3.5	3.3	3.4	3.7	4.5	4.9
Socio-Economic	3.3	3.2	3.2	3.7	3.2	3.2
Technical	5.0	4.5	4.6	3.7	3.7	3.3
Economics	-	-	-	-	-	-
<b>WEIGHTED TOTAL</b>	3.84	3.57	3.59	3.73	3.83	3.96
<b>RANKING</b>	<b>2</b>	<b>6</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>1</b>

As shown above, under Sensitivity Analysis 2, TMF 14C marginally exceeds TMF 1B as the preferred Option for tailings management.

### 5.2.3 Sensitivity Analysis 3: Terrestrial Ecology Screening

The Account scores, total scores and ranking for each Option for sensitivity analysis 3 are summarized below:

**Table 5.4 Ranking Summary - Sensitivity Analysis 3: Terrestrial Ecology Screening**

<b>Account</b>	<b>TSF 1B</b>	<b>TSB 2B</b>	<b>TSF 2C</b>	<b>TSF 11</b>	<b>TSF 14A</b>	<b>TSF 14C</b>
Environmental	3.6	3.2	3.2	4.2	3.8	4.2
Socio-Economic	3.5	3.4	3.4	3.7	3.4	3.4
Technical	5.2	4.4	4.5	3.6	3.7	3.2
Economics	4.7	3.8	3.9	3.2	2.3	2.5
<b>WEIGHTED TOTAL</b>	4.03	3.58	3.61	3.84	3.55	3.64
<b>RANKING</b>	<b>1</b>	<b>5</b>	<b>4</b>	<b>2</b>	<b>6</b>	<b>3</b>

As shown above, under Sensitivity Analysis 3, TMF 1B remains the preferred Option for tailings management.

### 5.2.4 Sensitivity Analysis 4: Technical Screening

The Account scores, total scores and ranking each Option for Sensitivity Analysis 4 are summarized below:

**Table 5.5 Ranking Summary - Sensitivity Analysis 4: Technical Screening**

<b>Account</b>	<b>TSF 1B</b>	<b>TSB 2B</b>	<b>TSF 2C</b>	<b>TSF 11</b>	<b>TSF 14A</b>	<b>TSF 14C</b>
Environmental	-	-	-	-	-	-
Socio-Economic	-	-	-	-	-	-
Technical	5.2	4.4	4.5	3.6	3.7	3.2
Economics	4.7	3.8	3.9	3.2	2.3	2.5
<b>WEIGHTED TOTAL</b>	5.00	4.18	4.26	3.46	3.23	3.00
<b>RANKING</b>	<b>1</b>	<b>3</b>	<b>2</b>	<b>4</b>	<b>5</b>	<b>6</b>

As shown above, under Sensitivity Analysis 4, TMF 1B remains the preferred Option for tailings management.

5.2.5 Sensitivity Analysis 5: Indicators Set to Unity

The Account scores, total scores and ranking for each Option for Sensitivity Analysis 6 are summarized below:

**Table 5.6 Ranking Summary - Sensitivity Analysis 5: Indicators Set to Unity**

<b>Account</b>	<b>TSF 1B</b>	<b>TSB 2B</b>	<b>TSF 2C</b>	<b>TSF 11</b>	<b>TSF 14A</b>	<b>TSF 14C</b>
Environmental	3.7	3.3	3.3	4.3	3.9	4.3
Socio-Economic	3.3	3.2	3.2	3.7	3.2	3.2
Technical	5.0	4.5	4.6	3.7	3.7	3.3
Economics	4.3	3.7	3.7	3.3	2.5	2.8
<b>WEIGHTED TOTAL</b>	4.08	3.67	3.69	3.74	3.32	3.41
<b>RANKING</b>	<b>1</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>6</b>	<b>5</b>

The analysis favoured TMF 1B. This result suggests that the assigned weighting factors did not bias the results towards TMF 1B being the more favorable Option.

## 6 – CONCLUSIONS AND RECOMMENDATIONS

### 6.1 CONCLUSION

An alternatives assessment for the tailings management facility needed for the Côté Gold Project has been completed. The analysis was based on the relative consideration of the environmental, socio-economic and technical merits and costs to develop each Option.

Six TMF Options were evaluated using a multiple accounts analysis to select the preferred Option for tailings storage and water management. The MAA was completed by establishing accounts, sub-accounts and indicators to compare and rank the identified TMF Options.

The results of the MAA indicate that TMF 1B is the preferred TMF Option for the Project. The results of the sensitivity analyses support the selection of TMF 1B.

### 6.2 RECOMMENDATIONS

Recommendations based on the results of the MAA are as follows:

1. Additional site investigations carried out for TMF 11, TMF 14A and TMF 14C would verify geotechnical assumptions used in the alternatives assessment.
2. Initiate pre-feasibility level design of TMF 1B.

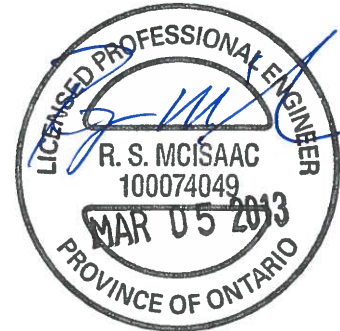
## 8 – REFERENCES

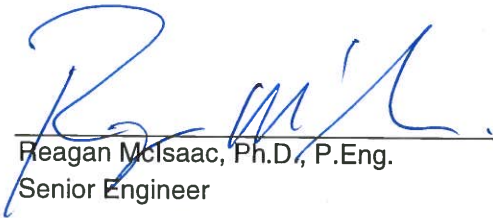
- Environment Canada. September, 2011. *Guidelines for the Assessment of Alternatives for Mine Waste Disposal.*
- Knight Piésold. November 29, 2012. *IAMGOLD Corporation - Côté Gold Project Tailings Storage Facility - Site Selection and Initial Screening. Ref. No. NB12-00521.* North Bay: Knight Piésold.
- Knight Piésold. January 28, 2013. *IAMGOLD Corporation - Results from Tailings Delivery Trade-Off Study. Ref. No. NB12-00660.* North Bay: Knight Piésold.
- Ontario. Ministry of the Northern Development and Mines. 2006. *Mine Development and Closure Under Part VII of the Mining Act and Mine Rehabilitation Code of Ontario.* (O.Reg 240/00 as amended by O.Reg. 307/12) Queen's Printer for Ontario.

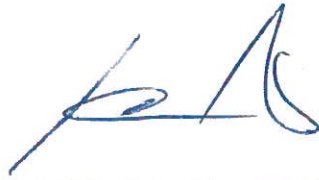



**9 – CERTIFICATION**

This report was prepared, reviewed and approved by the undersigned.



Prepared:   
Reagan McIsaac, Ph.D., P.Eng.  
Senior Engineer

Reviewed:   
Kevin Hawton, P.Eng.  
Specialist Engineer/Project Manager

Approved:   
Robert A. Mercer, Ph.D., P.Eng.  
Managing Principal, North Bay

This report was prepared by Knight Piésold Ltd. for the account of IAMGOLD CORPORATION. Report content reflects Knight Piésold's best judgement based on the information available at the time of preparation. Any use a third party makes of this report, or any reliance on or decisions made based on it is the responsibility of such third parties. Knight Piésold Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This numbered report is a controlled document. Any reproductions of this report are uncontrolled and might not be the most recent revision.

**APPENDIX A**  
**DESCRIPTION OF INDICATORS**

(Pages A-1 to A-11)

**APPENDIX A  
DESCRIPTION OF INDICATORS**

1.1 ENVIRONMENTAL ACCOUNT

The environmental account encompasses a range of issues pertaining to the direct and indirect influences on the surrounding environment as a result of developing each TMF option.

The environmental account is subdivided into a number of sub-accounts. Each sub-account is evaluated on the basis of a series of indicators. The environmental sub-accounts and indicators are summarized in the following table.

**Table A.1 Environmental Sub-accounts and Indicators**

Account	Sub-Account	Indicator
Environmental	Hydrology	Total Catchment Area
		Number of Watersheds
		Stream Length Removed
		Loss of Waterbodies
		Requires Surface Water Realignment
		Flow Change
	Water Quality	Change in Receiving Water Quality
		Potential for Seepage
		Potential for Negative Influence on Surface Water Quality from Groundwater Seepage
	Aquatic	Loss of Fish Bearing Water
		Adjacent Fish Ecology
	Terrestrial	Habitat of Species of Concern Removed
		Total Moose Winter Habitat Removed
		Total Vegetative Habitat Removed
		Total Wetland Area Removed
	Closure	Post-Closure Chemical Stability
		Post-Closure Flow Change

The indicators for the Environmental Account are described briefly below.

- **Total Catchment Area:** The TMF catchment area affects the amount of water intercepted that may be potentially impacted. Options having smaller catchment areas result in reduced intercepted water, and hence were assigned relatively higher scores.

- **Number of Watersheds:** Alternatives that minimize the number of catchments and/or watersheds directly impacted may have fewer potential cumulative effects on the environment. It is preferable for a tailings management facility to be located within a single watershed area in order to minimize risk for a greater distribution of potentially affected runoff from the TMF.
- **Stream Length Removed:** Disrupting stream flows is less desirable due to the potential impact on downstream waterbodies and aquatic life. This indicator is a direct quantitative measure of stream lengths affected under the TMF options.
- **Loss of Waterbodies:** It is desirable to minimize disruption of existing waterbodies and wetlands due to potential loss of aquatic habitat. While wetlands do not offer discrete fish habitat, the hydrological contributions to larger waterbodies create linkages between the wetlands and aquatic species habitat provided by larger associated waterbodies. Wetlands play an integral role in maintaining the water balance of the local environment through groundwater recharge, and flood flow alteration. The ranking is based on the relative area of waterbodies and wetlands that would be lost with each of the TMF options. The total area of all waterbodies and wetlands within the TMF option was used to assign the relative scores for this indicator. An option that does not disrupt a waterbody or wetland within the TMF footprint would receive a relative higher score than an option with waterbodies and wetlands.
- **Requires Surface Water Realignment:** The preservation of natural drainage patterns is preferred; however, as is common with construction of tailings management facilities realignment of surface water systems is typically required. Options that require partial realignment of minor surface water systems are scored more favourably than those that require complete diversion of major water systems.
- **Flow Change:** This indicator represents the potential relative flow reductions at the outlet from Neville Lake due to the TMF and the associated realignment of surface water flows for average annual conditions. Available regional data was used so the estimate is approximate of on-site conditions. Options that result in minimal changes in the hydrologic flow regime are more desirable.
- **Change in Receiving Water Quality:** The largest source of potential impacts to water quality is the ultimate release of water from the TMF. The potential for a change in the water quality at the discharge location is less desirable.

Excess water not required in the process will be discharged, (following treatment as is necessary), to the environment. Construction of polishing ponds and a water treatment plant may be required for discharging excess water from all TMF options to the environment.

The intent is that all options will release water at a quality that is between baseline and Provincial Water Quality Objectives (PWQO).

- **Potential for Seepage:** The TMF will include measures to reduce seepage. This indicator is primarily dependent on the anticipated ease with which effective seepage control can be established based on anticipated overburden depths and characteristics of the TMF dam sites. TMF options judged to have conditions where effective seepage control can be established with relative ease (i.e., low permeability bedrock close to surface) are rated higher for this indicator.

- **Potential for Negative Influence on Surface Water Quality from Groundwater Seepage:** The potential for negative influence on surface water quality from groundwater seepage is qualitatively assessed considering the seepage potential and the size and/or flow conditions in surrounding surface waterbodies. TMF options with surrounding waterbodies that are smaller or have limited catchment areas with low flow are more sensitive to influence from groundwater seepage from the TMF and are therefore ranked lower for this indicator.
- **Loss of Fish Bearing Water:** The expected quality and quantity of fish habitat potentially lost under the TMF options was used to assign relative scores as a measure of the impact of each option for this indicator. An option overlying many habitats of higher quality would receive a lower score than an option that overlies few habitats of limited quality.
- **Adjacent Fish Ecology:** The expected quality and quantity of adjacent fish habitat that could potentially be impacted by each TMF option, considering any surface water realignments, was considered to assign relative scores for each option. An option impacting many habitats of higher quality would receive a lower score than an option with few impacts on habitats of limited quality.
- **Habitat of Species of Concern Removed:** Four bird species, including the bald eagle (*Haliaeetus leucocephalus*), Canada warbler (*Wilsonia canadensis*), common nighthawk (*Chordeiles minor*), and olive-sided flycatcher (*Contopus cooperi*), designated provincially as Special Concern and one bird species, rusty blackbird (*Euphagus carolinus*), designated federally as Special Concern were identified during the Baseline Terrestrial Studies completed for the Project (Golder, 2012). For the purpose of this alternatives assessment it is assumed that each of the five bird species has an equal potential to occur in their associated habitats identified throughout the Mine Site. The loss of habitat of species of special concern under the TMF Options has been estimated.
- **Total Moose Winter Habitat Removed:** Moose winter habitat (i.e. dense coniferous forest greater than 4 hectares) is considered significant wildlife habitat and is designated by MNR. TMF Options with less moose winter habitat are preferred. This indicator is a qualitative measure of the moose winter habitat based on land cover data and topography under each TMF Option.
- **Total Vegetative Habitat Removed:** Plant communities are distributed across the Mine Site and no plant species at risk were identified on the Mine Site (Golders, 2012). A smaller facility footprint will have the least adverse effect on the persistence of vegetative populations and communities which is preferred. Options with smaller footprints are assigned higher relative scores.
- **Total Wetland Area Removed:** Wetlands serve several ecological functions. They increase vegetation and wildlife diversity by offering a greater variety of habitats and forage. The diversity of habitat types offered in an area is a good indicator of the wildlife diversity likely present within it. This indicator is a direct quantitative measure of loss of wetland area under the tailings management facilities.
- **Post-Closure Chemical Stability:** The tailings are expected to be relatively inert and not produce acid rock drainage or significant metal leaching after closure. Closure of the facilities

will address long-term physical and chemical stability and impacts to the surrounding environment. A requirement of closure is to ensure that water quality objectives will continue to be met after closure. Specific reclamation activities will include physical stabilization measures, capping of the tailings surface (as required) and seeding, removal of pipeworks and ancillary facilities, vegetation of the disturbed areas and implementation of an appropriate water management and water quality measures. All options have been deemed to be equally chemically stable post-closure.

- **Post-Closure Flow Change:** Changes to the flow regime post-closure is not desirable. The impact to the flow regime has been qualitatively ranked by considering anticipated changes to the flows within the surrounding waterbodies at closure and if there is a change in the receiver (i.e. Neville Lake). Options that result in minimal changes in the flow regime post-closure from baseline with no change in receiver (i.e. Neville Lake) are more desirable.

## 1.2 SOCIO-ECONOMIC ACCOUNT

The socio-economic account addresses the social and cultural influences of the alternatives.

The socio-economic account is subdivided into a number of sub-accounts. Each sub-account is evaluated on the basis of a series of indicators. The socio-economic sub-accounts and indicators are summarized in the following table.

**Table A.2 Socio-Economic Sub-accounts and Indicators**

Account	Sub-Account	Indicator
Socio-Economic	Human Health	Human Health (Direct Exposure)
		Human Health (Indirect Exposure)
	Existing Communities and Human (Current and Historic) Land Uses	Aboriginal Peoples Interests and Current Land Use
		Presence of Archaeological Sites
		Proximity to Existing Permanent or Temporary Residences
		Recreational Access
		Visibility and Aesthetics

The indicators for the socio-economic account are described briefly below.

- **Human Health (Direct Exposure):** Fugitive dust may be released from vehicle and heavy equipment travel on gravel roads and from wind entrainment from stockpiles and other exposed earth materials. For the most part, dust can be adequately controlled on slurry TMF facilities and on roads with water and other Provincially-approved dust suppressants. At the Project site the prevailing wind direction is primarily from the south or southwest during the summer months, and from the north or northwest during the winter months. The potential likelihood for the TMF to affect human health due to exposure to emissions or other releases to the environment, including dust generation and potential for groundwater seepage were included in the

assessment of the direct exposure indicator. The measurement is a receptor-based qualitative assessment considering wind direction, receptors in the path of the wind, wet versus dry beach area, location of the supernatant pond, prevailing location of spigots during operation, potential for seepage, etc.

- **Human Health (Indirect Exposure):** Dust can affect vegetation and subsequently affect forage availability and wildlife species. The potential likelihood for the TMF to affect human health, including the consumption of impacted fish, wildlife, berries, etc. was included in the assessment of the indirect exposure indicator. It is preferred to have a facility with reduced ongoing dust generation and down-wind dispersion over water and land.
- **Aboriginal Peoples Interests and Current Land Use:** Adverse effect to Aboriginal Peoples interests is not desirable. The potential for the proposed Project to affect Aboriginal Peoples interests and current land use has not yet been determined. Traditional land use studies still need to be conducted to identify historic and current land uses in order to identify potential impacts to recent or ongoing traditional practices. All options have been given the lowest possible ranking until such studies have been completed.
- **Presence of Archaeological Sites:** Archaeological and historic heritage are non-renewable resources whose locations consist of the physical remains of past human activity. Unrecorded sites may be identified at any of the TMF options; however, individual sites are assumed to be mitigatable for all options. Studies are ongoing to determine if archaeological, paleontological or historic structures have the potential to be affected.
- **Proximity to Existing Permanent or Temporary Residences:** It is desirable to maximize the distance of the TMF from potential receptors. This indicator represents the number of existing residences (e.g. temporary camp sites, trapper cabins, seasonal residences, permanent residences and outfitter establishments) in proximity (i.e., approximately 5 km) of the TMF. A number of seasonal residences exist in proximity to the TMFs, primarily on Mesomikenda Lake.
- **Recreational Access:** Recreational use is generally a function of accessibility and opportunity. The expected duration (i.e., none, short-term (initial construction), temporary (mine life), permanent or loss of access and use (i.e., periodically, heavily) of public recreation areas (i.e. provincial park, cottages, favourite fishing lake accessible only by ATV, etc.) due to the TMF was used to assign relative scores as a measure of the impact of each option. An option with permanent loss of access to a heavily used public recreation area would receive a lower score than an option that impacts no reduction in access.
- **Visibility and Aesthetics:** Reduced visibility of the TMF is preferred. Visual effects are qualitatively assessed to capture the effect on the visual aesthetic from receptor locations such as major transportation routes, communities and existing temporary or permanent residences. This indicator considered such items as height, shape, and contrast with the surrounding terrain. All options are assumed to cause a major change in landscape from baseline conditions.

1.3 TECHNICAL ACCOUNT

The technical account assesses the technical merits of each of the alternatives.

The technical account is subdivided into a number of sub-accounts. Each sub-account is evaluated on the basis of a series of indicators. The technical sub-accounts and indicators are summarized in the following table:

**Table A.3 Technical Sub-accounts and Indicators**

Account	Sub-Account	Indicator
Technical	Tailings Management Facility Layout	Maximum Embankment Height
		Average Embankment Height
		Expansion Capacity
	Tailings Delivery and Deposition System	Pipeline Length
		Pumping Requirements
		Ease of Operation During Startup
	Embankment Construction	Starter Embankment Volume
		Final Embankment Volume
		Ultimate Storage Efficiency
		Foundation Preparation
		Geotechnical Conditions
	Land Acquisition	Land Area and Title Holders
	Water Management	TMF Catchment Area
		Reclaim Pipeline
		Reclaim Pumping Requirements
		Ease of Water Management Including Polishing Pond
		Ease of Seepage Management
	Monitoring and Maintenance	Monitoring and Maintenance Requirements
		Consequence of Operational Error
	Closure	Ease of Decommissioning and Closure
Post Closure Landform Stability		

The indicators for the technical are described briefly below.

- **Maximum Embankment Height:** The maximum height of the embankments provides a quantitative measure for relative comparison of risks between different options. For a given



location, embankments which are higher generally are more complex, require more construction effort and carry more risk than lower dams. TMF Options with lower embankment heights are assigned the highest relative score.

- **Average Embankment Height:** The average height of the embankments provides a quantitative measure for relative comparison of risks between different options. For a given location, embankments which are higher generally are more complex, are more difficult to manage, require more construction effort and carry more risk than lower dams. TMF Options with lower average embankment heights are assigned the highest relative score.
- **Expansion Capacity:** A number of factors can influence the required storage capacity of a tailings facility over the life of a mine. These may include climatic variations that impact water storage requirements, economic conditions that result in changes to pit designs and schedules. Scoring for this indicator is qualitative and based on local topography to reasonably allow additional tailings with dam raises and the availability of additional land adjacent to the TMF for expansion. A TMF is ranked higher if it can store additional tailings with minor dam raises and/or is located adjacent to suitable land conducive to expansion; and ranked lower where there is no or limited potential for expansion.
- **Pipeline Length:** A shorter pipeline is preferred to simplify design, reduce pipe maintenance and reduce the risk of potential spills, and pipe blockage due to freezing or sanding up. It is also recognized that shorter distances from the mill allows more frequent inspections and facilitates maintenance. TMF Options with shortest pipeline lengths are assigned the highest relative score.
- **Pumping Requirements:** Large topographical relief presents technical and operational challenges with respect to pumping tailings and increases risk due to higher pipeline pressures. Less pumping simplifies the design and decreases the risks for delays due to maintenance and problems during operations. TMF Options with the smallest head difference, pipeline length, and thus less pumping stations between the plant and the TMF are assigned the highest relative score.
- **Ease of Operation during Start-up:** This indicator provides a qualitative measure of the relative ease of operating the tailings storage facility at start-up. It is primarily based on topography and basin characteristics. Setting up pipelines and discharging of tailings from along the embankment during start-up is easier than discharging from natural ground.
- **Starter Embankment Volume:** A smaller embankment volume to commission the facility is preferred to simplify construction and reduce risk to the project start-up schedule. TMF Options with smaller embankment volumes are assigned higher relative scores. Smaller starter embankment volumes reduce the risk of not having enough embankment construction material while building other things at the same time.
- **Final Embankment Volume:** Smaller and lower final embankments are preferred to simplify and reduce overall embankment construction. A smaller annual embankment volume for dam raises reduces the construction effort and subsequently the risk to efficient construction scheduling and transport of large fill quantities over a significant distance. TMF Options with smaller embankment volumes are assigned higher relative scores.

- **Ultimate Storage Efficiency:** The TMF storage efficiency indicator is a ratio of the TMF storage capacity (volume) to the volume of fill material required to construct the embankment that confines the tailings (based on downstream construction). TMF Options with higher storage efficiencies require less embankment fill to contain the equivalent volume of tailings and are assigned higher relative scores.
- **Foundation Preparation:** Foundation preparation is expected to include at a minimum, the excavation of unsuitable soils below the embankment footprint and excavation of the key-in trench to bedrock to provide a suitable liner tie-in and to ensure long term stability of the embankment. Less foundation preparation requirements are preferred to simplify construction and reduce risk to construction and project schedules. TMF Options with larger embankment footprint areas overlying suspected deep unsuitable overburden material are assigned lower relative scores.
- **Geotechnical Conditions:** Tailings are deposited behind dams that are engineered structures constructed with processed materials. The performance and stability of these structures will depend on the foundation conditions, foundation preparation, fill materials, and quality of the construction. Good geotechnical conditions are preferred for ease of construction and to ensure long-term stability. The geotechnical indicator provides a measure of the inherent risk to embankment stability of siting TMFs on deep overburden soils, weak bearing soils or potentially liquefiable soils, etc. The relative value of the geotechnical conditions is estimated.
- **Land Area and Title Holders:** All TMF options are on lands that do not require any further land acquisitions.
- **TMF Catchment Area:** The TMF design will include measures to manage storm water and runoff within the affected catchment areas. Tailing facilities require provisions for management of runoff from large storm events which typically include overflow spillways, decant structures or additional freeboard for storage. Embankment freeboard is selected such that there is sufficient capacity within the facility to contain virtually all anticipated storm events during the operating period. A smaller facility footprint generally simplifies water management and reduces freeboard requirements which are preferred. TMF Options with smaller catchment areas are assigned higher relative scores.
- **Reclaim Pipeline:** The primary objective for water management at the TMF is to recycle process water to the maximum extent. A shorter reclaim pipeline is preferred to simplify design, reduce the risk of failure, and reduce monitoring and maintenance requirements. TMF Options with shorter reclaim pipeline lengths are assigned higher relative scores.
- **Reclaim Pumping Requirements:** Less pumping simplifies the design. Options with the smallest head difference between the plant and the TMF are assigned the highest relative score.
- **Ease of Water Management Including Polishing Pond:** Water management is an integral part of the management and operation of the TMF. The main considerations for water management at the TMF include storm water management (surface runoff), water quality and water supply. This indicator is a qualitative measure of the need for and complexity of water management required during the operations.

- **Ease of Seepage Management:** Less seepage management generally simplifies water management and is preferred. This indicator considers the measures that may be required to collect and control seepage from the TMF should seepage be deemed to adversely affect groundwater quality.
- **Monitoring and Maintenance Requirements:** The amount of monitoring and maintenance will be a function of the size and extent of the embankments including distance from the plant site. Less monitoring and maintenance requirements are preferred. The relative value of the amount and ease of monitoring and maintenance for each TMF option is estimated.
- **Consequence of Operational Error:** The consequence of operational error indicator provides an estimated measure of the severity (i.e. minor or significant) of impact to the environment and duration (i.e. temporary or permanent) should an embankment fail during operations. A lower consequence of error is preferred. The relative value of operational error is estimated.
- **Ease of Decommissioning and Closure:** This indicator is a qualitative measure of the relative ease of closing the mine. If progressive reclamation is practicable through operations, the relative ease of closure will be higher. Additionally, TMFs that exhibit greater storage efficiency and have less embankment areas and heights to reclaim will also score higher.
- **Post Closure Landform Stability:** Landform stability is a key criterion for mine closure. Tailings management facilities should be left in a stable state following closure such that they are not subject to mobilization through erosion, mass movement, or other natural processes. The relative post closure stability of the TMFs has been estimated based on the size and extent of the embankments and siting TMFs on deep overburden soils, weak bearing soils or potentially liquefiable soils, etc.

#### 1.4 ECONOMICS ACCOUNT

The project economics account considers issues pertaining to the direct and indirect costs associated with the development of each alternative TMF option.

The economics account is subdivided into a number of sub-accounts. Each sub-account is evaluated on the basis of a series of indicators. The economic sub-accounts and indicators are summarized in the following table:

**Table A.4 Economics Sub-accounts and Indicators**

Account	Sub-Account	Indicator
Economics	Capital Costs	Initial Capital Cost
		Surface Water Realignments and Fish Habitat Compensation Costs
	Operational Costs	Embankment Raises
		Operational Costs
	Closure and Post Closure Costs	Reclamation
		Monitoring and Maintenance

The indicators for the economics account are described briefly below.

- **Initial Capital Cost:** Initial capital cost is estimated for each option including starter embankment construction and tailings distribution works, road construction, and water management infrastructure. TMF options with lower initial capital cost are ranked higher.
- **Surface Water Realignments and Fish Habitat Compensation Costs:** Compensation measures for lost stream length and productive capacity will be determined. The realignment of surface waters and fish habitat compensation cost indicator captures costs that may be required to construct realignments and place “compensation” aquatic habitat along new channels/ditches and flooded lake margins.
- **Embankment Raises:** Sustaining capital costs refer to any costs associated with the expansion or addition of facilities once mine operations have commenced (i.e. embankment raises). Sustaining capital cost is estimated for each option.
- **Operational Costs:** Operational costs are based on operating the tailings delivery and reclaim water systems during the life of the mine.
- **Reclamation:** Specific reclamation activities will include physical stabilization measures, capping of the tailings surface (as required) and seeding, removal of pipeworks and ancillary facilities, vegetation of the disturbed areas and implementation of an appropriate water management and water quality measures. Lower reclamation costs are preferred. The costs will be a function of the final area to be reclaimed after operations.
- **Monitoring and Maintenance:** Less monitoring and maintenance is preferred. The cost is estimated based on the number of monitoring locations.

## 2 – REFERENCES

Golder Associates. December 19, 2012. *Draft Summary of the Tailings Storage Facility Alternatives Selection Process Côté Gold Project. Ref. No. 12-1197-0005.* Sudbury, Ontario.



**APPENDIX U4  
WATER SUPPLY ALTERNATIVES ASSESSMENT**





**APPENDIX U4**

<b>Water Supply Alternatives</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Mesomikenda Lake</b>	<b>B Other watercourse(s)/lake(s) and pond(s)</b>	<b>C Groundwater Well(s)</b>
<b>Cost Effectiveness</b>				
Côté Gold Project Financing	Investor attractiveness or risk	<u>Advantages</u> <ul style="list-style-type: none"> <li>Water supply is essential for proposed operations, and noteworthy for investor confidence. Mesomikenda Lake, on its own, or in combination with other water supply sources, has the potential to meet the Project's water supply needs, when used in combination with extensive site water recycling and storage</li> <li>Close proximity of Mesomikenda Lake to the Project reduces water supply infrastructure needs and associated costs and risks</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Area lakes having the capacity to provide for site potable and operational water needs are largely limited to Mesomikenda and Bagsverd Lakes</li> <li>Close proximity of Bagsverd Lake to the Project reduces water supply infrastructure needs and associated costs and risks</li> <li>Potable water needs may potentially be met or supplemented by interim uptakes from other water bodies adjacent to the Project site</li> <li>Water bodies immediately adjacent to the Project site do not support water needs for local cottages or other recreational facilities</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Groundwater has the potential to provide for limited, interim potable water needs, and therefore could potentially form part of an integrated water supply system</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Mesomikenda Lake is a water-level controlled lake</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Groundwater supplies are too small to provide a major water source for Project operations</li> </ul>

**APPENDIX U4**

<b>Water Supply Alternatives</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Mesomikenda Lake</b>	<b>B Other watercourse(s)/lake(s) and pond(s)</b>	<b>C Groundwater Well(s)</b>
Return on investment (ROI)	Provides a competitive or acceptable ROI	<u>Advantages</u> <ul style="list-style-type: none"> <li>The Mesomikenda Lake is in close proximity to the site, thereby limiting infrastructure costs for this alternative</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Water supplies are adequate for the Project's needs</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Water supply would be adequate for short term potable needs only</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Infrastructure costs for developing both Mesomikenda and Bagsverd Lakes, or other water bodies, would be greater than for Mesomikenda Lake alone</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Inadequate supply for substantive water demands</li> <li>Wells would have to be developed, requiring capital for development as well as closure</li> </ul>
Financial Risk	Provides, or is associated with, a preferred, manageable or acceptable financial risk	<u>Advantages</u> <ul style="list-style-type: none"> <li>Alternative able to provide for water supply needs when coupled with extensive water recycling and storage capacity</li> <li>Due to the lake's large volume, controlled water uptake is not expected to appreciably affect water levels</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Alternative able to provide for water supply needs when coupled with extensive water recycling and storage capacity</li> <li>No cottages / recreational facilities located along Bagsverd Creek, which reduces the chance of EA / permitting delays</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Mesomikenda Lake, downstream of the Project, supports cottages and other recreational facilities, which may cause EA / permitting delays</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Low potential for EA / permitting delays due to local cottages and tourism operators in the area</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Major supply constraints</li> </ul>

**APPENDIX U4**

<b>Water Supply Alternatives</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Mesomikenda Lake</b>	<b>B Other watercourse(s)/lake(s) and pond(s)</b>	<b>C Groundwater Well(s)</b>
Cost Effectiveness Summary Evaluation and Rating		<p>Mesomikenda Lake is capable of supplying the Project water supply needs, and due to its large volume, controlled water uptake would not appreciably affect water levels. Use of Mesomikenda Lake as an initial short-term resource to generate the start-up water supply for operations, and interim make-up supply, is essential for Project economics and scheduling. There is a potential risk for EA / permitting delays because of potential interests from cottage owners and tourism operators downstream from the Project along Mesomikenda Lake.</p> <p><b>Summary Rating: Preferred</b></p>	<p>Infrastructure associated with this alternative may be more expensive to develop compared with other alternatives. Though no lakes or water bodies immediately adjacent to the Project site support any local cottages or recreational facilities, there is a low potential for EA / permitting delays may still occur due to potential interests from cottage owners and tourism operators in the area.</p> <p><b>Summary Rating: Acceptable</b></p>	<p>Groundwater supplies are inadequate to provide for mine water supply needs, except possibly for the short term supply of potable water, prior to open pit development. Once open pit development occurs, groundwater sources that could provide for site potable water needs would no longer be available.</p> <p><b>Summary Rating: Acceptable – construction phase only</b></p>
<b>Technical Applicability and/or System Integrity and Reliability</b>				
Available Technology	Used elsewhere in similar circumstances, and is predictably effective with contingencies if and as required	<p><u>Advantages</u></p> <ul style="list-style-type: none"> <li>Seasonal use of lakes to provide water for mine and process plant use is a common industry practice</li> </ul>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> <li>Seasonal use of lakes to provide water for mine and process plant use is a common industry practice</li> </ul>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> <li>Groundwater extraction for water supply is an industry standard practice, where supplies are adequate</li> </ul>
		<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
	New technologies supported by pilot plant or strong theoretical investigations or testing, with contingencies if and as required	n/a	n/a	n/a

**APPENDIX U4**

<b>Water Supply Alternatives</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Mesomikenda Lake</b>	<b>B Other watercourse(s)/lake(s) and pond(s)</b>	<b>C Groundwater Well(s)</b>
Technical Applicability and/or System Integrity and Reliability Summary Evaluation and Rating		Seasonal use of lakes to provide water for mine and process plant use is a common industry practice.  <b>Summary Rating: Acceptable</b>	Seasonal use of lakes to provide water for mine and process plant use is a common industry practice.  <b>Summary Rating: Acceptable</b>	Groundwater extraction for water supply is an industry standard practice, where supplies are adequate.  <b>Summary Rating: Acceptable – short-term</b>
<b>Ability to Service the Site Effectively</b>				
Service	Provides a guaranteed supply to the site with manageable potential for supply disruption, and/or contingencies available	<u>Advantages</u> <ul style="list-style-type: none"> <li>Water supply is adequate to meet supply needs when used in combination with extensive site water recycle</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Water supply is adequate to meet supply needs when used in combination with extensive site water recycle</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent, except as a short term supply for potable water use only</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Mesomikenda Lake is a water-level controlled lake, though uptake is not expected to adversely affect flow or water levels</li> <li>Potential for EA / permitting delays because of potential interests from cottage owners and tourism operators</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Low potential for EA / permitting delays due to local cottagers and tourism operators in the area</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Inadequate supply for main water uses</li> </ul>
Accessibility	Accessible land base or infrastructure needed to support component development and operation	<u>Advantages</u> <ul style="list-style-type: none"> <li>Relatively short distances to proposed Project components</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Relatively short distances to proposed Project components or within the proposed Project site area</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Water supply components are within the proposed Project site area</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>

**APPENDIX U4**

<b>Water Supply Alternatives</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Mesomikenda Lake</b>	<b>B Other watercourse(s)/lake(s) and pond(s)</b>	<b>C Groundwater Well(s)</b>
Ability to Service the Site Effectively Summary Evaluation and Rating		Use of Mesomikenda Lake to generate the start-up water supply for operations, maintain sufficient water during dry years and provide potable water is adequate.	Use of the area lakes in the Project's vicinity to generate the start-up water supply for operations, maintain sufficient water during dry years and provide potable water is adequate.	Groundwater supplies are inadequate to provide for mine water supply needs, except possibly for the short term supply of potable water, prior to open pit development. Once open pit development occurs, groundwater sources that could provide for site potable water needs would no longer be available.
		<b>Summary Rating: Preferred</b>	<b>Summary Rating: Acceptable</b>	<b>Summary Rating: Acceptable – short-term</b>
<b>Effects to the Physical and Biological Environments</b>				
Effect on air quality and climate	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	n/a	n/a	n/a
	Emission rates of greenhouse gases (GHGs)	<u>Advantages</u> • Potentially lower power demand compared with other alternatives (one intake point compared to two or more with other alternatives)	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent
		<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent

**APPENDIX U4**

<b>Water Supply Alternatives</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Mesomikenda Lake</b>	<b>B Other watercourse(s)/lake(s) and pond(s)</b>	<b>C Groundwater Well(s)</b>
Effect on fish and aquatic habitat	Attainment or maintenance of surface water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	<u>Advantages</u> <ul style="list-style-type: none"> <li>Water taking from Mesomikenda Lake in preparation for Project start up would be confined to not more than 20% of the spring flow, and 15% of the flow during summer into autumn (non-winter period)</li> <li>Water takings to support Project start up would be of short duration – approximately 2 years</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Flow reductions due to water taking could be seasonally offset by avoiding or reducing water taking during low flow periods</li> <li>Water taking would have minimal effects on lake water levels</li> </ul>	n/a
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Water taking could result in a minor or negligible reduction in river water levels</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Water taking from Bagsverd Lake and / or other water bodies could reduce volume and flow to other water bodies</li> </ul>	n/a
	Maintenance of flows and water levels in streams and lakes suitable to support aquatic species and habitat	<u>Advantages</u> <ul style="list-style-type: none"> <li>As above</li> <li>No perceivable changes to aquatic or other habitats are anticipated with this alternative</li> <li>Water taking would be controlled during low flow periods so as not to disrupt the potential for fish movement in Mesomikenda Lake, as necessary or applicable</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>As above</li> <li>No perceivable changes to aquatic or other habitats are anticipated with this alternative</li> <li>Water taking can be timed to avoid potential adverse effects to fish passage, as necessary or applicable</li> </ul>	n/a
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>As above</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>As above</li> </ul>	n/a

**APPENDIX U4**

<b>Water Supply Alternatives</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Mesomikenda Lake</b>	<b>B Other watercourse(s)/lake(s) and pond(s)</b>	<b>C Groundwater Well(s)</b>
Effect on fish and aquatic habitat	Maintenance of fish population	<u>Advantages</u> • None apparent – flow reductions during water intake periods are not expected to affect fish populations	<u>Advantages</u> • None apparent – flow reductions during water intake periods are not expected to affect fish populations	n/a
		<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent	n/a
	Maintenance of groundwater flows, levels and quality	Local surface and groundwater systems are not functionally connected as far as fish habitat is concerned	Local surface and groundwater systems are not functionally connected as far as fish habitat is concerned	Local surface and groundwater systems are not functionally connected as far as fish habitat is concerned

APPENDIX U4

Water Supply Alternatives				
Performance Objective / Criteria	Indicator	Alternatives		
		A Mesomikenda Lake	B Other watercourse(s)/lake(s) and pond(s)	C Groundwater Well(s)
Effect on Wetlands	Attainment or maintenance of water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	<u>Advantages</u> <ul style="list-style-type: none"> <li>Generally, water taking from lakes does not cause any appreciable effects on wetlands</li> <li>Water taking from Mesomikenda Lake in preparation for Project start up would be confined to not more than 20% of the spring flow, and 15% of the flow during summer into autumn (non-winter period)</li> <li>Water takings to support Project start up would be of short duration – approximately 2 years</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Generally, water taking from lakes does not cause any appreciable effects on wetlands</li> <li>Flow reductions due to water taking could be seasonally offset by avoiding or reducing water taking during low flow periods</li> <li>Water taking would have minimal effects on lake water levels</li> </ul>	n/a
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Capture of Project site drainage water is required for water management and treatment purposes, so the benefits of introducing additional water from other systems would diminish flows in those systems</li> </ul>	n/a
	Area, type and quality (functionality) of terrestrial habitat that would be displaced or altered	n/a	n/a	n/a
	Maintenance of wetland connectivity	n/a	n/a	n/a



**APPENDIX U4**

<b>Water Supply Alternatives</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Mesomikenda Lake</b>	<b>B Other watercourse(s)/lake(s) and pond(s)</b>	<b>C Groundwater Well(s)</b>
Effect on terrestrial species and habitat	Area, type and quality (functionality) of terrestrial habitat that would be displaced or altered	n/a	n/a	n/a
	Potential for noise (or other harm or harassment) related disturbance	n/a	n/a	n/a
	Maintenance or provision of plant dispersion and wildlife movement corridors	n/a	n/a	n/a
	Maintenance of wildlife population	n/a	n/a	n/a
Effect on Species at Risk (SAR)	Sensitivity level of involved species (Endangered, Threatened, Special Concern)	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent
		<u>Disadvantages</u> • Little brown myotis bats (Endangered – Ontario ESA) have been recorded around the Project site and may persist in the area through to closure	<u>Disadvantages</u> • Little brown myotis bats (Endangered – Ontario ESA) have been recorded around the Project site and may persist in the area through to closure	<u>Disadvantages</u> • Little brown myotis bats (Endangered – Ontario ESA) have been recorded around the Project site and may persist in the area through to closure
	Area, type and quality of SAR territories or habitat that would be displaced	<u>Advantages</u> • No anticipated effects to bats are expected due to water taking activities	<u>Advantages</u> • No anticipated effects to bats are expected due to water taking activities	n/a
		<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent	n/a

**APPENDIX U4**

<b>Water Supply Alternatives</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Mesomikenda Lake</b>	<b>B Other watercourse(s)/lake(s) and pond(s)</b>	<b>C Groundwater Well(s)</b>
Effect on Species at Risk (SAR)	Potential for noise (or other harm or harassment) related disturbance	<u>Advantages</u> <ul style="list-style-type: none"> <li>Limited potential for disturbance during construction and closure phase – as part of Project development profile</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Limited potential for disturbance during construction and closure phase – as part of Project development profile</li> </ul>	n/a
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	
	Maintenance or provision of wildlife movement corridors	n/a	n/a	n/a
Effects to the Physical and Biological Environments Summary Evaluation and Rating		Water taking from Mesomikenda Lake would be restricted to not more than 20% of the spring flow, and not more than 15% of flows during other times of the year, except in winter when no water would be taken. Aquatic and other habitat functions would be maintained.  <b>Summary Rating: Preferred</b>	Water taking from area lakes could be undertaken with limited adverse effects to the natural environment. The Project infrastructure would have to be extended over a larger area for short-term needs.  <b>Summary Rating: Acceptable</b>	Groundwater taking would not be expected to adversely affect the natural environment.  <b>Summary Rating: Acceptable</b>

**APPENDIX U4**

<b>Water Supply Alternatives</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Mesomikenda Lake</b>	<b>B Other watercourse(s)/lake(s) and pond(s)</b>	<b>C Groundwater Well(s)</b>
<b>Effects to the Human Environment</b>				
Effect on local residents and recreational users	Maintenance of property values	<u>Advantages</u> <ul style="list-style-type: none"> <li>Water taking would not adversely affect availability of lake water to local cottage or tourism operators in the area</li> <li>Taking of potable water may reassure local water uses that IAMGOLD is committed to meeting water quality criteria during TMF discharge</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Water taking would not adversely affect availability of lake water to local cottage or tourism operators in the area</li> </ul>	n/a – six water wells within 15 km of Project site, but considered to be outside of the potential extent of potential effects
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Some downstream water users present</li> <li>Industrial water intake from area lakes and water bodies (regardless of controlled management) could be perceived as an infringement / disturbance and potentially impact property values</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Perception of water intake may affect perception and property values</li> </ul>	
	Maintenance or improvement of income opportunities	n/a	n/a	n/a
	Maintenance or provision of local access	<u>Advantages</u> <ul style="list-style-type: none"> <li>Despite any potential water body/watercourse drawdown, all navigable waters must remain navigable, as provided under common law (unless Transport Canada exemptions are in place)</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Despite any potential water body/watercourse drawdown, all navigable waters must remain navigable, as provided under common law (unless Transport Canada exemptions are in place)</li> </ul>	n/a
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	

**APPENDIX U4**

<b>Water Supply Alternatives</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Mesomikenda Lake</b>	<b>B Other watercourse(s)/lake(s) and pond(s)</b>	<b>C Groundwater Well(s)</b>
Effect on local residents and recreational users	Attainment of noise by-law guidelines, and /or background sound levels if already above the guidelines	n/a	n/a	n/a
	Non-interference with water well supply systems	<u>Advantages</u> • No known potential to interfere with area well users during normal operations	<u>Advantages</u> • No known potential to interfere with area well users during normal operations	<u>Advantages</u> • Six water wells within 15 km of Project site, but considered to be outside of the potential extent of potential effects
		<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent
	Non-interference with surface water drinking supply	<u>Advantages</u> • Water taking would not adversely affect availability of lake water to local cottage or tourism operators in the area	<u>Advantages</u> • Water taking would not adversely affect availability of lake water to local cottage or tourism operators in the area	n/a
		<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent	
	Potential for general disturbance and adverse affects on aesthetics	n/a	n/a	n/a
	Potential for adverse health and safety effects	See public health and safety criteria	See public health and safety criteria	See public health and safety criteria
Effect on infrastructure	Maintenance or provision of local and regional access	n/a	n/a	n/a
	Maintenance and reliability of power supply systems	n/a	n/a	n/a
	Maintenance and reliability of pipeline systems	n/a	n/a	n/a

**APPENDIX U4**

<b>Water Supply Alternatives</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Mesomikenda Lake</b>	<b>B Other watercourse(s)/lake(s) and pond(s)</b>	<b>C Groundwater Well(s)</b>
Public health and safety	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	n/a	n/a	n/a
	Maintenance or attainment of the quality of drinking water supply systems	n/a	n/a	n/a
	Managing the potential for adverse electromagnetic exposure	n/a	n/a	n/a
	Maintaining safe road traffic conditions that are within the domain of IAMGOLD control	n/a	n/a	n/a
	Maintenance or provision of health services	n/a	n/a	n/a
Effect on local businesses and economy	Maintenance or improvement of local business and economic opportunities (including commercial bait harvesters and trappers)	n/a	n/a	n/a
	Continued access to areas used for natural resource harvesting by tourism operators	n/a	n/a	n/a

**APPENDIX U4**

<b>Water Supply Alternatives</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Mesomikenda Lake</b>	<b>B Other watercourse(s)/lake(s) and pond(s)</b>	<b>C Groundwater Well(s)</b>
Effect on tourism and recreation	Maintenance or improvement of tourism and recreational opportunities	<u>Advantages</u> <ul style="list-style-type: none"> <li>Restricted volume and duration of water taking from Mesomikenda Lake would limit the potential for adverse effects to fishing and fisheries resources</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Restricted volume and duration of water taking would limit the potential for adverse effects to fishing and fisheries resources</li> </ul>	n/a
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Potential for perceived disruption of recreational use</li> <li>Minor potential to adversely affect fisheries resources</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Potential for perceived disruption of recreational use</li> <li>Minor potential to adversely affect fisheries resources</li> </ul>	n/a
Regional economy	Maintenance or improvement of the regional economy	<u>Advantages</u> <ul style="list-style-type: none"> <li>No known adverse effects</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>No known adverse effects</li> </ul>	n/a
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	n/a
Effect on government services	Maintenance or improvement on the capacity of existing health, education and family support services	n/a	n/a	n/a
Effect on resource management objectives	Consistency with established and planned resource management objectives such as Bear Management Areas and Sustainable Forest Management units	<u>Advantages</u> <ul style="list-style-type: none"> <li>Water taking would be managed and controlled in line with the Mattagami Conservation Authority and Provincial Drinking Water Source Protection Programs</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Water taking would be managed and controlled in line with the Mattagami Conservation Authority and Provincial Drinking Water Source Protection Programs</li> </ul>	n/a
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	

**APPENDIX U4**

<b>Water Supply Alternatives</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Mesomikenda Lake</b>	<b>B Other watercourse(s)/lake(s) and pond(s)</b>	<b>C Groundwater Well(s)</b>
Excessive waste materials	Limiting the generation of unnecessary waste materials	n/a	n/a	n/a
	Potential for material to be recycled/reused	n/a	n/a	n/a
Effect on built heritage and cultural heritage landscapes	Destruction of any, or part of any, built heritage resources, cultural heritage landscapes, heritage attributes or features	n/a	n/a	n/a
	Alteration that is not sympathetic or is incompatible, with the historic fabric and appearance of cultural heritage resources	n/a	n/a	n/a
	Shadows created that alter the appearance of a built heritage resource, cultural heritage landscape, heritage attribute or change the viability of a natural feature or plantings, such as a garden	n/a	n/a	n/a
	Isolation of a built heritage resource or heritage attribute from its surrounding environment, context or a significant relationship	n/a	n/a	n/a

APPENDIX U4

Water Supply Alternatives				
Performance Objective / Criteria	Indicator	Alternatives		
		A Mesomikenda Lake	B Other watercourse(s)/lake(s) and pond(s)	C Groundwater Well(s)
Effect on built heritage and cultural heritage landscapes	Direct or indirect obstruction of significant views or vistas within, from or of built heritage resources or cultural heritage landscapes	n/a	n/a	n/a
	A change in land use such as rezoning a battlefield from open space to residential use, allowing new development or site alteration to fill in the formerly open spaces	n/a	n/a	n/a
	Avoidance of damage to built heritage resources or cultural heritage landscapes, or document cultural resources if damage or relocation cannot be reasonably avoided	n/a	n/a	n/a
Effect on archaeological resources	Land disturbances (such as a change in grade that alters soils and drainage patters that adversely affect an archaeological resource)	n/a	n/a	n/a



**APPENDIX U4**

<b>Water Supply Alternatives</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Mesomikenda Lake</b>	<b>B Other watercourse(s)/lake(s) and pond(s)</b>	<b>C Groundwater Well(s)</b>
Effect on archaeological resources	Avoidance of archaeological sites, or mitigation through excavation of the site, if avoidance is not possible, as per the Standards and Guidelines for Consultant Archaeologists (2010), including other forms of mitigation through engagement with Aboriginal communities	n/a	n/a	n/a
Effects on First Nation reserves and communities	Maintenance or improvement of First Nation reserve and community conditions (subject to the limitations of Company capacity and community members' personal choice)	No known potential for adverse effects	No known potential for adverse effects	No known potential for adverse effects
Effect on spiritual, ceremonial sites	Avoidance of damage or disturbance to known spiritual and ceremonial sites; or implement other forms protection/preservation supported by Aboriginal communities	n/a	n/a	n/a

**APPENDIX U4**

<b>Water Supply Alternatives</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Mesomikenda Lake</b>	<b>B Other watercourse(s)/lake(s) and pond(s)</b>	<b>C Groundwater Well(s)</b>
Effects on traditional land use	Maintain access to traditional lands for current traditional land uses, except as otherwise agreed to with local First Nations and Métis	n/a	n/a	n/a
Effects on Aboriginal and Treaty Rights	Avoid infringement of Aboriginal and Treaty Rights, except as otherwise agreed to with local First Nations and Métis	No anticipated adverse effect	No anticipated adverse effect	No anticipated adverse effect
Effects to the Human Environment Summary Evaluation and Rating		Water taking from Mesomikenda Lake would not be expected to have any notable adverse effects to the human environment. Local cottage and tourism operators may perceive industrial water taking from recreational lakes as an infringement/disturbance to their recreational use, and may resist such action.  <b>Summary Rating: Acceptable</b>	Water takings would not be expected to adversely affect other users in terms of quantities of water taken and water availability. Local cottage and tourism operators may perceive industrial water taking from recreational lakes as an infringement/disturbance to their recreational use, and may resist such action.  <b>Summary Rating: Acceptable</b>	No potential for adverse effect.  <b>Summary Rating: Acceptable</b>

**APPENDIX U4**

<b>Water Supply Alternatives</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Mesomikenda Lake</b>	<b>B Other watercourse(s)/lake(s) and pond(s)</b>	<b>C Groundwater Well(s)</b>
<b>Amenability to Reclamation</b>				
Effect on public safety and security	Avoidance of safety and security risks to the general public	n/a	n/a	n/a
Effect on environmental health and sustainability	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	n/a	n/a	n/a
	Attainment or maintenance of water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	n/a	n/a	n/a
	Restoration of passive drainage systems	n/a	n/a	n/a
	Provision of habitats for vegetation and wildlife species, including SAR	n/a	n/a	n/a
Effect on land use	Provide opportunities for productive land uses following the completion of mining activities	n/a	n/a	n/a
	Provide for an aesthetically pleasing site	n/a	n/a	n/a

**APPENDIX U4**

<b>Water Supply Alternatives</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Mesomikenda Lake</b>	<b>B Other watercourse(s)/lake(s) and pond(s)</b>	<b>C Groundwater Well(s)</b>
<b>Amenability to Reclamation Summary Evaluation and Rating</b>		There are no water taking limitations or liabilities relating to site reclamation at closure.  <b>Summary Rating: Acceptable</b>	There are no water taking limitations or liabilities relating to site reclamation at closure.  <b>Summary Rating: Acceptable</b>	There are no water taking limitations or liabilities relating to site reclamation at closure.  <b>Summary Rating: Acceptable</b>
<b>Overall Summary Rating</b>		Mesomikenda Lake is capable of meeting the Project's water supply needs at start-up and provides a source for interim make-up supply and potable water. It's relatively close proximity to Project components makes it an attractive alternative in terms of cost-effectiveness. It is a reliable source of water for the Project due to its large size and volume. Water uptake would be restricted and controlled and it is not expected to have any notable adverse effects on water level, the aquatic environment or local users. Local and downstream users may perceive water uptake as an infringement or disturbance and may resist such action, which could translate in EA and permitting delays.  <b>Preferred</b>	The local area lakes in the Project's vicinity are capable of meeting the Project's water supply needs at start-up and provide a source for interim make-up supply and potable water. Water uptake would be restricted and controlled and it is not expected to have any notable adverse effects on water level, the aquatic environment or local users. Additional infrastructure may be required for this alternative, which would raise construction costs. Local and downstream users may perceive water uptake as an infringement or disturbance and may resist such action, which could translate in EA and permitting delays.  <b>Acceptable</b>	Groundwater supplies are inadequate to provide for mine water supply needs, but may be able to provide potable water in the short-term, prior to open pit development. No known adverse effects would be expected with this alternative.  <b>Acceptable – short-term</b>

Source: AMEC (2013).

**APPENDIX U5  
WATER DISCHARGE ALTERNATIVES ASSESSMENT**



APPENDIX U5

Water Discharge Location			
Performance Objective / Criteria	Indicator	Alternatives	
		A Mesomikenda Lake	B Bagsverd Creek
<b>Cost Effectiveness</b>			
Côté Gold Project Financing	Investor attractiveness or risk	<u>Advantages</u> <ul style="list-style-type: none"> <li>Water discharge is essential for proposed operations, and noteworthy for investor confidence. Mesomikenda Lake is the largest water body in the vicinity of the Project site</li> <li>Close proximity of Mesomikenda Lake to the Project, particularly the TMF and polishing pond, reduces water discharge infrastructure needs and associated costs and risks</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Bagsverd Creek (and Neville Lake) have the potential to support the Project's water discharge needs</li> <li>Close proximity to the polishing pond for water discharge infrastructure needs</li> <li>Discharge to Bagsverd Creek would yield similar or improved water quality compared to discharging to Mesomikenda Lake</li> <li>Neville Lake has a smaller mixing zone</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Mesomikenda Lake is a water-level controlled lake</li> <li>Cottagers along Mesomikenda Lake</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
Return on investment (ROI)	Provides a competitive or acceptable ROI	<u>Advantages</u> <ul style="list-style-type: none"> <li>Close proximity to the site limits infrastructure costs for this alternative</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Close proximity to the site limits infrastructure costs, though less than the alternative</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>

**APPENDIX U5**

<b>Water Discharge Location</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A Mesomikenda Lake</b>	<b>B Bagsverd Creek</b>
Financial Risk	Provides, or is associated with, a preferred, manageable or acceptable financial risk	<u>Advantages</u> <ul style="list-style-type: none"> <li>Alternative able to support Project water discharge needs</li> <li>Larger volume of Mesomikenda Lake presents an advantage in the event of greater than expected water discharge (greater assimilative capacity)</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Alternative able to support Project water discharge needs</li> <li>No cottages / recreational facilities / water users located along Bagsverd Creek/Neville Lake, which reduces the chance of EA / permitting delays</li> <li>Discharge to Bagsverd Creek/Neville Lake will aid to make-up potential flow deficits due to proposed watercourse realignments</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Mesomikenda Lake, downstream of the Project, supports cottages and other recreational facilities, which may cause EA / permitting delays</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
Cost Effectiveness Summary Evaluation and Rating		<p>Mesomikenda Lake is capable of supporting the Project's water discharge needs. The close proximity of the lake to Project components, particularly the TMF, reduces capital costs. There is a potential risk of EA and permitting delays due to potential interests from downstream cottagers and tourism operators in the area.</p> <p><b>Summary Rating: Acceptable</b></p>	<p>Bagsverd Creek (and Neville Lake) is capable of supporting the Project's water discharge needs and will aid in mitigating potential flow deficits due to proposed watercourse realignments. As there are no cottagers or water users living along either Bagsverd Creek or Neville Lake, the potential risk of EA and permitting delays due to potential interests from cottagers and tourism operators in the area is low. Discharge to Bagsverd Creek can yield similar or improved water quality compared to the alternative, and a smaller mixing zone would occur in the lower basin of Neville Lake.</p> <p><b>Summary Rating: Preferred</b></p>



**APPENDIX U5**

<b>Water Discharge Location</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A Mesomikenda Lake</b>	<b>B Bagsverd Creek</b>
<b>Technical Applicability and/or System Integrity and Reliability</b>			
Available Technology	Used elsewhere in similar circumstances, and is predictably effective with contingencies if and as required	<u>Advantages</u> <ul style="list-style-type: none"> <li>Discharge of excess water and treated effluent to lakes and rivers is an industry common practice</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Discharge of excess water and treated effluent to lakes and rivers is an industry common practice</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
	New technologies supported by pilot plant or strong theoretical investigations or testing, with contingencies if and as required	n/a	n/a
Technical Applicability and/or System Integrity and Reliability Summary Evaluation and Rating		Use of lakes for water discharge is an industry common practice.  <b>Summary Rating: Acceptable</b>	Use of creeks and lakes for water discharge is an industry common practice.  <b>Summary Rating: Acceptable</b>
<b>Ability to Service the Site Effectively</b>			
Service	Provides a guaranteed supply to the site with manageable potential for supply disruption, and/or contingencies available	n/a	n/a
Accessibility	Accessible land base or infrastructure needed to support component development and operation	<u>Advantages</u> <ul style="list-style-type: none"> <li>Relatively short distances to proposed Project components</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Relatively short distances to proposed Project components, though further compared to the alternative</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>

**APPENDIX U5**

<b>Water Discharge Location</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A Mesomikenda Lake</b>	<b>B Bagsverd Creek</b>
Ability to Service the Site Effectively Summary Evaluation and Rating		Discharging to Mesomikenda Lake is an acceptable alternative to meet Project discharge needs, with low risk of potential service disruptions.  <b>Summary Rating: Preferred</b>	Discharging to Bagsverd Creek is an acceptable alternative to meet Project discharge needs.  <b>Summary Rating: Acceptable</b>
<b>Effects to the Physical and Biological Environments</b>			
Effect on air quality and climate	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	n/a	n/a
	Emission rates of greenhouse gases (GHGs)	n/a	n/a
Effect on fish and aquatic habitat	Attainment or maintenance of surface water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	<u>Advantages</u> <ul style="list-style-type: none"> <li>Excess water and treated effluent to be discharged would be in compliance with final Federal and Provincial effluent standards required to attain or maintain receiving water protection of aquatic life standards, or scientifically defensible alternatives</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Excess water and treated effluent to be discharged would be in compliance with final Federal and Provincial effluent standards required to attain or maintain receiving water protection of aquatic life standards, or scientifically defensible alternatives</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Potential for water quality effects in the event of an unintended release</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Potential for water quality effects in the event of an unintended release</li> </ul>

**APPENDIX U5**

<b>Water Discharge Location</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A Mesomikenda Lake</b>	<b>B Bagsverd Creek</b>
Effect on fish and aquatic habitat	Maintenance of flows and water levels in streams and lakes suitable to support aquatic species and habitat	<u>Advantages</u> <ul style="list-style-type: none"> <li>Water discharge during normal operations associated with Mesomikenda Lake is not expected to alter associated aquatic or other habitats</li> <li>Flow increases due to discharge could be seasonally offset by avoiding or minimizing discharge during high flow periods, as required, to comply with water level controls for Mesomikenda Lake</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Water discharge during normal operations associated with Bagsverd Creek is not expected to alter associated aquatic or other habitats</li> <li>Discharge to Bagsverd Creek would result in a smaller mixing zone in Neville Lake's lower basin</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>As above</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>As above</li> </ul>
	Maintenance of fish population	<u>Advantages</u> <ul style="list-style-type: none"> <li>Flow increases during water discharge periods are not expected to affect fish populations</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Flow increases during water discharge periods are not expected to affect fish populations</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
Effect on Wetlands	Maintenance of groundwater flows, levels and quality	Local surface and groundwater systems are not functionally connected	Local surface and groundwater systems are not functionally connected
	Attainment or maintenance of water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	See equivalent indicator in Effect on fish and aquatic habitat	See equivalent indicator in Effect on fish and aquatic habitat
	Area, type and quality (functionality) of terrestrial habitat that would be displaced or altered	n/a	n/a
	Maintenance of wetland connectivity	n/a	n/a

**APPENDIX U5**

<b>Water Discharge Location</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A Mesomikenda Lake</b>	<b>B Bagsverd Creek</b>
Effect on terrestrial species and habitat	Area, type and quality (functionality) of terrestrial habitat that would be displaced or altered	n/a	n/a
	Potential for noise (or other harm or harassment) related disturbance	n/a	n/a
	Maintenance or provision of plant dispersion and wildlife movement corridors	n/a	n/a
	Maintenance of wildlife population	n/a	n/a
Effect on Species at Risk (SAR)	Sensitivity level of involved species (Endangered, Threatened, Special Concern)	Little brown myotis bats (Endangered – Ontario ESA) have been recorded around the Project site and may persist in the area through to closure.	
	Area, type and quality of SAR territories or habitat that would be displaced	<u>Advantages</u> • No bat hibernacula identified prior to Project development	<u>Advantages</u> • No bat hibernacula identified prior to Project development
		<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent

**APPENDIX U5**

<b>Water Discharge Location</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A Mesomikenda Lake</b>	<b>B Bagsverd Creek</b>
Effect on Species at Risk (SAR)	Potential for noise (or other harm or harassment) related disturbance	<u>Advantages</u> <ul style="list-style-type: none"> <li>Limited potential for disturbance during construction and closure phase – as part of Project development profile</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Limited potential for disturbance during construction and closure phase – as part of Project development profile</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
	Maintenance or provision of wildlife movement corridors	n/a	n/a
Effects to the Physical and Biological Environments Summary Evaluation and Rating		Water discharge to Mesomikenda Lake would not alter aquatic and other habitat functions during normal operations, and will meet applicable effluent standards. Because of a greater assimilative capacity, the potential for aquatic impacts during a potential unintended release is less likely to cause aquatic impacts compared to the alternative. Flow would be managed to comply with water level controls for Mesomikenda Lake.  <b>Summary Rating: Acceptable</b>	Water discharge to Bagsverd Creek would not alter aquatic and other habitat functions during normal operations, and will meet applicable effluent standards. It should be noted that discharge to Bagsverd Creek would result in a smaller mixing zone in Neville Lake's lower basin.  <b>Summary Rating: Acceptable</b>
<b>Effects to the Human Environment</b>			
Effect on local residents and recreational users	Maintenance of property values	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Industrial discharge to area lakes and water bodies (regardless of meeting applicable discharge criteria) could potentially be perceived as an infringement / disturbance and potentially impact property values</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Industrial discharge to area creeks and lakes (regardless of meeting applicable discharge criteria) could potentially be perceived as an infringement / disturbance and potentially impact property values</li> </ul>
Effect on local residents and recreational users	Maintenance or improvement of income opportunities	n/a	n/a

**APPENDIX U5**

<b>Water Discharge Location</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A Mesomikenda Lake</b>	<b>B Bagsverd Creek</b>
Effect on local residents and recreational users	Maintenance or provision of local access	n/a	n/a
	Attainment of noise by-law guidelines, and /or background sound levels if already above the guidelines	n/a	n/a
	Non-interference with water well supply systems	<u>Advantages</u> • No known potential to interfere with area well users	<u>Advantages</u> • No known potential to interfere with area well users
		<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent
	Non-interference with surface water drinking supply	<u>Advantages</u> • Water discharge would not adversely affect availability of lake water to local cottage or tourism operators in the area during normal operations • Water quality reporting, and local resident notification procedures could be established to provide up-to-date water quality information to local residents and mitigate risks to drinking water supply	<u>Advantages</u> • No residents or local water users along Bagsverd Creek or Neville Lake • Water discharge would not affect availability of lake water during normal operations
		<u>Disadvantages</u> • Receiving waters may be used for private cottage water supply, as Mesomikenda Lake supports cottages and tourism facilities downstream of the Project • Local cottagers and tourism operators may perceive industrial water discharge to regional lakes as an infringement / disturbance, and resist the action, which may lead to delays in Project EA / permitting schedule	<u>Disadvantages</u> • Local cottagers and tourism operators in the area may perceive industrial water discharge to regional lakes and creeks as an infringement / disturbance, and resist the action, which may lead to delays in Project EA / permitting schedule

**APPENDIX U5**

<b>Water Discharge Location</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A Mesomikenda Lake</b>	<b>B Bagsverd Creek</b>
Effect on local residents and recreational users	Potential for general disturbance and adverse affects on aesthetics	n/a	n/a
	Potential for adverse health and safety effects	See Public health and safety criteria	See Public health and safety criteria
Effect on infrastructure	Maintenance or provision of local and regional access	n/a	n/a
	Maintenance and reliability of power supply systems	n/a	n/a
	Maintenance and reliability of pipeline systems	n/a	n/a
Public health and safety	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	n/a	n/a
	Maintenance or attainment of the quality of drinking water supply systems	<u>Advantages</u> <ul style="list-style-type: none"> <li>Excess water and treated effluent to be discharged would be in compliance with final effluent standards required to attain or maintain receiving water protection of aquatic life standards, or scientifically defensible alternatives</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Excess water and treated effluent to be discharged would be in compliance with final effluent standards required to attain or maintain receiving water protection of aquatic life standards, or scientifically defensible alternatives</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Potential for water quality effects in the event of an unintended release of effluent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Potential for water quality effects in the event of an unintended release of effluent</li> </ul>
	Managing the potential for adverse electromagnetic exposure	n/a	n/a
	Maintaining safe road traffic conditions that are within the domain of IAMGOLD control	n/a	n/a

APPENDIX U5

Water Discharge Location			
Performance Objective / Criteria	Indicator	Alternatives	
		A Mesomikenda Lake	B Bagsverd Creek
Public health and safety	Maintenance or provision of health services	n/a	n/a
Effect on local businesses and economy	Maintenance or improvement of local business and economic opportunities (including commercial bait harvesters and trappers)	n/a	n/a
	Continued access to areas used for natural resource harvesting by tourism operators	n/a	n/a
Effect on tourism and recreation	Maintenance or improvement of tourism and recreational opportunities	<u>Advantages</u> <ul style="list-style-type: none"> <li>Controlled discharge to Mesomikenda Lake would limit the potential for adverse effects to fishing and fisheries resources</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Controlled discharge to Bagsverd Creek would limit the potential for adverse effects to fishing and fisheries resources</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Potential for perceived disruption of recreational use and fisheries</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Potential for perceived disruption of recreational use and fisheries (terrestrial access to Bagsverd Creek will be limited due to Project site security measures regardless of alternative)</li> </ul>
Regional economy	Maintenance or improvement of the regional economy	<u>Advantages</u> <ul style="list-style-type: none"> <li>No known adverse effects</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>No known adverse effects</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>If delays to the Project EA / permitting schedule were to occur as a result of potential cottager and tourism operator interests, there would be a corresponding delay in Project related employment and business opportunities to the region</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>If delays to the Project EA / permitting schedule were to occur as a result of potential cottager and tourism operator interests, there would be a corresponding delay in Project related employment and business opportunities to the region</li> </ul>
Effect on government services	Maintenance or improvement on the capacity of existing health, education and family support services	n/a	n/a



**APPENDIX U5**

<b>Water Discharge Location</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A Mesomikenda Lake</b>	<b>B Bagsverd Creek</b>
Effect on resource management objectives	Consistency with established and planned resource management objectives such as Bear Management Areas and Sustainable Forest Management units	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Greatest potential to assimilate discharge during an unintended discharge event, while maintaining standards set by Mattagami Conservation Authority and Provincial Drinking Water Source Protection Programs</li> <li>• Effluent will only be discharged when in compliance with final effluent standards, in line with the Mattagami Conservation Authority and Provincial Drinking Water Source Protection Programs</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Effluent will only be discharged when in compliance with final effluent standards, in line with the Mattagami Conservation Authority and Provincial Drinking Water Source Protection Programs</li> <li>• Discharging to Bagsverd Creek will result in a smaller mixing zone in Neville Lake's lower basin</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>
Excessive waste materials	Limiting the generation of unnecessary waste materials	n/a	n/a
	Potential for material to be recycled/reused	n/a	n/a
Effect on built heritage and cultural heritage landscapes	Destruction of any, or part of any, built heritage resources, cultural heritage landscapes, heritage attributes or features	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Built heritage resources sites (if any) would be identified and avoided, or otherwise suitably catalogued and managed according to applicable regulations and standards</li> <li>• Any sites discovered during construction can be protected and/or avoided</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Built heritage resources sites (if any) would be identified and avoided, or otherwise suitably catalogued and managed according to applicable regulations and standards</li> <li>• Any sites discovered during construction can be protected and/or avoided</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>

APPENDIX U5

Water Discharge Location			
Performance Objective / Criteria	Indicator	Alternatives	
		A Mesomikenda Lake	B Bagsverd Creek
Effect on built heritage and cultural heritage landscapes	Alteration that is not sympathetic or is incompatible, with the historic fabric and appearance of cultural heritage resources	n/a	n/a
	Shadows created that alter the appearance of a built heritage resource, cultural heritage landscape, heritage attribute or change the viability of a natural feature or plantings, such as a garden	n/a	n/a
	Isolation of a built heritage resource or heritage attribute from its surrounding environment, context or a significant relationship	n/a	n/a
	Direct or indirect obstruction of significant views or vistas within, from or of built heritage resources or cultural heritage landscapes	n/a	n/a
	A change in land use such as rezoning a battlefield from open space to residential use, allowing new development or site alteration to fill in the formerly open spaces	n/a	n/a

APPENDIX U5

Water Discharge Location			
Performance Objective / Criteria	Indicator	Alternatives	
		A Mesomikenda Lake	B Bagsverd Creek
Effect on built heritage and cultural heritage landscapes	Avoidance of damage to built heritage resources or cultural heritage landscapes, or document cultural resources if damage or relocation cannot be reasonably avoided	<u>Advantages</u> <ul style="list-style-type: none"> <li>Archaeological and built heritage resources sites (if any) would be identified and avoided, or otherwise suitable catalogued and managed according to applicable regulations and standards</li> <li>Any sites discovered during construction can be protected and/or avoided</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Archaeological and built heritage resources sites (if any) would be identified and avoided, or otherwise suitable catalogued and managed according to applicable regulations and standards</li> <li>Any sites discovered during construction can be protected and/or avoided</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
Effect on archaeological resources	Land disturbances (such as a change in grade that alters soils and drainage patterns that adversely affect an archaeological resource)	n/a	Same as above
	Avoidance of archaeological sites, or mitigation through excavation of the site, if avoidance is not possible, as per the Standards and Guidelines for Consultant Archaeologists (2010), including other forms of mitigation through engagement with Aboriginal communities	n/a	Same as above
Effects on First Nation reserves and communities	Maintenance or improvement of First Nation reserve and community conditions (subject to the limitations of Company capacity and community members' personal choice)	No known potential for adverse effects	No known potential for adverse effects

**APPENDIX U5**

<b>Water Discharge Location</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A Mesomikenda Lake</b>	<b>B Bagsverd Creek</b>
Effect on spiritual, ceremonial sites	Avoidance of damage or disturbance to known spiritual and ceremonial sites; or implement other forms protection/preservation supported by Aboriginal communities	<u>Advantages</u> <ul style="list-style-type: none"> <li>Spiritual, ceremonial, cultural heritage and archaeological sites (if any) would be identified through TK/TLU and archaeological studies and would be avoided, or otherwise suitably catalogued and managed in accordance with Provincial and First Nation / Métis requirements and commitments</li> <li>Any sites discovered during construction can be protected and avoided</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Spiritual, ceremonial, cultural heritage and archaeological sites (if any) would be identified through TK/TLU and archaeological studies and would be avoided, or otherwise suitably catalogued and managed in accordance with Provincial and First Nation / Métis requirements and commitments</li> <li>Any sites discovered during construction can be protected and avoided</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
Effects on traditional land use	Maintain access to traditional lands for current traditional land uses, except as otherwise agreed to with local First Nations and Métis	<u>Advantages</u> <ul style="list-style-type: none"> <li>Controlled water discharge to Mesomikenda Lake would limit the potential for adverse effects to fishing and fisheries resources</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Controlled water discharge to Bagsverd Creek would limit the potential for adverse effects to fishing and fisheries resources</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
Effects on Aboriginal and Treaty Rights	Avoid infringement of Aboriginal and Treaty Rights, except as otherwise agreed to with local First Nations and Métis	<u>Advantages</u> <ul style="list-style-type: none"> <li>No anticipated adverse effects</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>No anticipated adverse effects</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
Effects to the Human Environment Summary Evaluation and Rating		Water discharge to Mesomikenda Lake would not be expected to have any adverse effects to the human environment during normal operations. Local cottagers, water users and tourism operators along Mesomikenda Lake may perceive industrial water discharge as an infringement / disturbance, and resist the action.  <b>Summary Rating: Acceptable</b>	Water discharge to Bagsverd Creek would not be expected to have any adverse effects to the human environment during normal operations. There are no cottagers or water users along Bagsverd Creek or Neville Lake.  <b>Summary Rating: Preferred</b>

APPENDIX U5

Water Discharge Location			
Performance Objective / Criteria	Indicator	Alternatives	
		A Mesomikenda Lake	B Bagsverd Creek
<b>Amenability to Reclamation</b>			
Effect on public safety and security	Avoidance of safety and security risks to the general public	n/a	n/a
Effect on environmental health and sustainability	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	n/a	n/a
Effect on environmental health and sustainability	Attainment or maintenance of water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	n/a	n/a
	Restoration of passive drainage systems	n/a	n/a
	Provision of habitats for vegetation and wildlife species, including SAR	n/a	n/a
Effect on land use	Provide opportunities for productive land uses following the completion of mining activities	n/a	n/a
	Provide for an aesthetically pleasing site	n/a	n/a
Amenability to Reclamation Summary Evaluation and Rating		There are no water discharge limitations or liabilities relating to site reclamation at closure.  <b>Summary Rating: Acceptable</b>	There are no water discharge limitations or liabilities relating to site reclamation at closure.  <b>Summary Rating: Acceptable</b>

**APPENDIX U5**

<b>Water Discharge Location</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A Mesomikenda Lake</b>	<b>B Bagsverd Creek</b>
<b>Overall Summary Rating</b>		<p>Mesomikenda Lake is capable of meeting the Project's water discharge needs. Water discharge would be treated, restricted and controlled to meet water level controls for Mesomikenda Lake, and it is not expected to have any notable adverse effects. Local and downstream users may perceive water discharge as an infringement / disturbance and may resist such action, which could translate in EA and permitting delays; however, because of the greater assimilative capacity of Mesomikenda Lake, impacts to the aquatic environment and disruptions to the Project are less likely.</p> <p><b>Acceptable</b></p>	<p>Bagsverd Creek, together with Neville Lake, is capable of meeting the Project's water discharge needs. Water discharge would be treated, restricted and controlled and it is not expected to have any notable adverse effects. Discharging to Bagsverd Creek would yield similar or improved water quality, with a smaller mixing zone in Neville lake's lower basin. As there are no cottagers or water users living along either Bagsverd Creek or Neville Lake, the potential risk of EA and permitting delays due to potential interests from cottagers and tourism operators in the area is low.</p> <p><b>Preferred</b></p>

Source: AMEC (2013).

**APPENDIX U6  
AGGREGATE SUPPLY ALTERNATIVES ASSESSMENT**





**APPENDIX U6**

<b>Aggregate Supply</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Overburden / Mine Rock</b>	<b>B Dedicated on-site aggregate pit(s)</b>	<b>C Commercial off-site aggregate pits</b>
<b>Cost Effectiveness</b>				
Côté Gold Project Financing	Investor attractiveness or risk	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Mine rock produced as mining waste in any event</li> <li>• Avoids the need for additional pit sites, reducing capital costs</li> <li>• Production timing meets most Project needs</li> <li>• Close proximity to locations where product is needed</li> <li>• Current indications are that there is negligible potential for PAG rock, and low sulphide content</li> <li>• Low sulphide rock better suited for some types of concrete manufacture</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Two existing aggregate pits on site, reduces capital requirements</li> <li>• Close proximity to locations where product is needed</li> <li>• May not require crushing or additional blasting if largely comprised of glacial deposits and till (sand and gravel)</li> <li>• Current indications are that there is negligible potential for PAG rock, and low sulphide content</li> <li>• Low sulphide rock better suited for some types of concrete manufacture</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Avoid need for development of pits or crushing requirements</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Crushing required</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Crushing may be required</li> <li>• Additional blasting may required</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Likely longer haul distances, depending on location, which could be costly</li> <li>• Dependence on external supplier</li> </ul>

**APPENDIX U6**

<b>Aggregate Supply</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Overburden / Mine Rock</b>	<b>B Dedicated on-site aggregate pit(s)</b>	<b>C Commercial off-site aggregate pits</b>
Return on investment (ROI)	Provides a competitive or acceptable ROI	<u>Advantages</u> <ul style="list-style-type: none"> <li>Lower capital costs would benefit ROI</li> <li>Production timing would meet most Project needs</li> <li>Use of mine rock limits the Project footprint (reduced waste stockpile, no additional pits)</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Two existing aggregate pits on site</li> <li>Aggregate pit rock may be most suitable for construction needs, potentially eliminating the need and cost to obtain material from other sources</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Additional material may be required for concrete manufacture of sulphide content high</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Higher operational costs</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>High hauling costs</li> </ul>
Financial Risk	Provides, or is associated with, a preferred, manageable or acceptable financial risk	<u>Advantages</u> <ul style="list-style-type: none"> <li>No reliance on external resources, which translates to reduced financial risk</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Selected sites would be remote</li> <li>No reliance on external resources, which translates to reduced financial risk</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>If mining plans evolve over time, aggregate supply through this alternative may not be sufficient to meet all construction needs</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Dependence on external supplier</li> <li>Rock would likely have to be hauled over public roads</li> <li>Potential disturbance to local residents from blasting, depending on location</li> <li>Both of the above could generate public concern and possible associated EA delays</li> </ul>

**APPENDIX U6**

<b>Aggregate Supply</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Overburden / Mine Rock</b>	<b>B Dedicated on-site aggregate pit(s)</b>	<b>C Commercial off-site aggregate pits</b>
Cost Effectiveness Summary Evaluation and Rating		<p>Mine rock (NAG) would be available as a mining waste suitable for most aggregate functions, which would avoid the need for additional pit sites; except possibly for some types of concrete manufacture where rock from other sources may be more suitable and/or required to meet construction needs. Low-sulphide material could be used for concrete manufacture. Costs would be incurred for crushing to produce fine aggregate.</p> <p><b>Summary Rating: Preferred</b></p>	<p>The close proximity of an on-site aggregate pit(s) would reduce hauling costs and provide a reliable supply of construction materials, through blasting and crushing costs would be required. Low-sulphide material could be used for concrete manufacture. If the pit(s) are largely comprised of glacial deposits and till, crushing and additional blasting costs may be reduced or not required.</p> <p><b>Summary Rating: Acceptable</b></p>	<p>This alternative has no notable advantages for the Project, unless the resource is not available on site. Costs would be high due to longer haul distances with dependence on the external supplier. There is greater potential for public concern resulting from the use of public roads for haulage and potential blasting disturbance, and hence a potential for EA delays.</p> <p><b>Summary Rating: Acceptable</b></p>
<b>Technical Applicability and/or System Integrity and Reliability</b>				
Available Technology	Used elsewhere in similar circumstances, and is predictably effective with contingencies if and as required	<u>Advantages</u> <ul style="list-style-type: none"> <li>Predictably effective</li> <li>No or reduced reliance on external resources</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Predictably effective</li> <li>No or reduced reliance on external sources</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Predictably effective</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
	New technologies supported by pilot plant or strong theoretical investigations or testing, with contingencies if and as required	n/a	n/a	n/a

**APPENDIX U6**

<b>Aggregate Supply</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Overburden / Mine Rock</b>	<b>B Dedicated on-site aggregate pit(s)</b>	<b>C Commercial off-site aggregate pits</b>
Technical Applicability and/or System Integrity and Reliability Summary Evaluation and Rating		All alternatives are applicable and acceptable, with little to no reliance on external resources.  <b>Summary Rating: Preferred</b>	All alternatives are applicable and acceptable, with little to no reliance on external resources.  <b>Summary Rating: Preferred</b>	All alternatives are applicable and acceptable.  <b>Summary Rating: Acceptable</b>
<b>Ability to Service the Site Effectively</b>				
Service	Provides a guaranteed supply to the site with manageable potential for supply disruption, and/or contingencies available	<u>Advantages</u> • No restrictions	<u>Advantages</u> • No restrictions	<u>Advantages</u> • No restrictions
		<u>Disadvantages</u> • If mining plans evolve over time, aggregate supply through this alternative may not be sufficient to meet all construction needs	<u>Disadvantages</u> • On-site excavated rock with low sulphide content better suited for some types of concrete manufacture	<u>Disadvantages</u> • Reliance on external supplier
Accessibility	Accessible land base or infrastructure needed to support component development and operation	<u>Advantages</u> • IAMGOLD holds/can easily obtain surface and subsurface rights to lands needed to support open pit mining	<u>Advantages</u> • IAMGOLD holds/can easily obtain surface and subsurface rights to lands needed to support open pit mining	<u>Advantages</u> • None apparent
		<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • Contracts would be required with suppliers

**APPENDIX U6**

<b>Aggregate Supply</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Overburden / Mine Rock</b>	<b>B Dedicated on-site aggregate pit(s)</b>	<b>C Commercial off-site aggregate pits</b>
Ability to Service the Site Effectively Summary Evaluation and Rating		This alternative presents a reliable supply with no access limitations. It is possible that supply may not meet construction needs if mining plans evolve over time.	This alternative presents no supply or access limitations.	Accessible; but contracts with existing suppliers would be required.
		<b>Summary Rating: Acceptable</b>	<b>Summary Rating: Preferred</b>	<b>Summary Rating: Acceptable</b>
<b>Effects to the Physical and Biological Environments</b>				
Effect on air quality and climate	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	<u>Advantages</u> • Mitigation measures can be put in place to achieve compliance with air quality point of impingement standards	<u>Advantages</u> • Mitigation measures can be put in place to achieve compliance with air quality point of impingement standards	<u>Advantages</u> • Mitigation measures can be put in place to achieve compliance with air quality point of impingement standards
		<u>Disadvantages</u> • Crushing would generate increased air and dust emissions	<u>Disadvantages</u> • Crushing, if required, would generate increased air and dust emissions	<u>Disadvantages</u> • Crushing, if required, would generate increased air and dust emissions
	Emission rates of greenhouse gases (GHGs)	<u>Advantages</u> • Reduced haul distance	<u>Advantages</u> • Reduced haul distance	<u>Advantages</u> • None apparent
		<u>Disadvantages</u> • Power required for crushing results in increased GHG emissions	<u>Disadvantages</u> • Power for crushing may be required, resulting in increased GHG emissions	<u>Disadvantages</u> • Increased haul distance and potential crushing requirements result in increased GHG emissions

**APPENDIX U6**

<b>Aggregate Supply</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Overburden / Mine Rock</b>	<b>B Dedicated on-site aggregate pit(s)</b>	<b>C Commercial off-site aggregate pits</b>
Effect on fish and aquatic habitat	Attainment or maintenance of surface water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	<u>Advantages</u> • Blasting would be carried out for mining in any event	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent
		<u>Disadvantages</u> • Part of Project development profile - pit discharge water would have ammonia residuals from the use of blasting agents, which would require management	<u>Disadvantages</u> • Pit(s) discharge water would have ammonia residuals from the use of blasting agents, if additional blasting is required, which would require management	<u>Disadvantages</u> • Pit(s) discharge water would have ammonia residuals from the use of blasting agents, if additional blasting is required, which would require management
	Maintenance of flows and water levels in streams and lakes suitable to support aquatic species and habitat	<u>Advantages</u> • Depending on close out alternative, potential for fish and aquatic habitat development	<u>Advantages</u> • Depending on close out alternative, potential for fish and aquatic habitat development	n/a
		<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent	
	Maintenance of fish population	n/a	n/a	n/a
	Maintenance of groundwater flows, levels and quality	n/a	n/a	n/a

**APPENDIX U6**

<b>Aggregate Supply</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Overburden / Mine Rock</b>	<b>B Dedicated on-site aggregate pit(s)</b>	<b>C Commercial off-site aggregate pits</b>
Effect on Wetlands	Attainment or maintenance of water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	See equivalent indicator in Effects on fish and aquatic habitat	See equivalent indicator in Effects on fish and aquatic habitat	See equivalent indicator in Effects on fish and aquatic habitat
	Area, type and quality (functionality) of terrestrial habitat that would be displaced or altered	n/a	n/a	n/a
	Maintenance of wetland connectivity	n/a	n/a	n/a
Effect on terrestrial species and habitat	Area, type and quality (functionality) of terrestrial habitat that would be displaced or altered	<u>Advantages</u> <ul style="list-style-type: none"> <li>Part of Project development profile</li> <li>Use of mine rock limits the Project footprint (reduced waste stockpile, no additional pits)</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Limited habitat disturbance, which can be easily rehabilitated</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Limited habitat disturbance, which can be easily rehabilitated, depending on external supplier's operation</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Some alteration of habitat for pit development or expansion</li> </ul>

APPENDIX U6

Aggregate Supply				
Performance Objective / Criteria	Indicator	Alternatives		
		A Overburden / Mine Rock	B Dedicated on-site aggregate pit(s)	C Commercial off-site aggregate pits
Effect on terrestrial species and habitat	Potential for noise (or other harm or harassment) related disturbance	<u>Advantages</u>	<u>Advantages</u>	<u>Advantages</u>
		<ul style="list-style-type: none"> <li>Part of Project development profile - additional disturbance would be minimal and likely imperceptible</li> </ul>	<ul style="list-style-type: none"> <li>Activity would be minor and temporary</li> </ul>	<ul style="list-style-type: none"> <li>Activity would be within a limited extent and temporary</li> </ul>
	Maintenance or provision of plant dispersion and wildlife movement corridors	<u>Disadvantages</u>	<u>Disadvantages</u>	<u>Disadvantages</u>
		<ul style="list-style-type: none"> <li>Some additional air and dust emissions</li> </ul>	<ul style="list-style-type: none"> <li>Some additional air, dust and noise emissions</li> </ul>	<ul style="list-style-type: none"> <li>Minor dust and noise emissions</li> </ul>
Maintenance of wildlife population	n/a	n/a	n/a	
Effect on Species at Risk (SAR)	Sensitivity level of involved species (Endangered, Threatened, Special Concern)	<u>Advantages</u>	<u>Advantages</u>	<u>Advantages</u>
		<ul style="list-style-type: none"> <li>No impediment to development due to continued use of existing pit(s)</li> </ul>	<ul style="list-style-type: none"> <li>No impediment to development due to continued use of existing pit(s)</li> </ul>	<ul style="list-style-type: none"> <li>Location of pit likely sited away from SAR habitat and managed by external supplier</li> <li>No impediment to development if using an existing pit, or if no SAR detected in a proposed pit development area</li> </ul>
		<u>Disadvantages</u>	<u>Disadvantages</u>	<u>Disadvantages</u>
		<ul style="list-style-type: none"> <li>Part of Project development profile - there is potential for disturbance to SAR species as they have been recorded near the Project site</li> </ul>	<ul style="list-style-type: none"> <li>There is potential for limited disturbance to SAR species as they have been recorded near the Project site</li> </ul>	<ul style="list-style-type: none"> <li>If SAR detected in proposed development area, there is potential for effects and/or impediment to permitting approvals processes</li> </ul>



**APPENDIX U6**

<b>Aggregate Supply</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Overburden / Mine Rock</b>	<b>B Dedicated on-site aggregate pit(s)</b>	<b>C Commercial off-site aggregate pits</b>
Effect on Species at Risk (SAR)	Area, type and quality of SAR territories or habitat that would be displaced	n/a	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>Limited habitat disturbance, which can be easily rehabilitated</li> </ul>
	Potential for noise (or other harm or harassment) related disturbance	<u>Advantages</u> <ul style="list-style-type: none"> <li>Part of Project development profile - additional disturbance would be minimal and likely imperceptible</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Activity would be minor and temporary</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Activity would be within a limited extent and temporary</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Some additional air and dust emissions</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Some additional air, dust and noise emissions</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Minor dust and noise emissions</li> </ul>
	Maintenance or provision of wildlife movement corridors	n/a	n/a	n/a
Effects to the Physical and Biological Environments Summary Evaluation and Rating		<p>Most effects are associated with the open pit development profile. Additional air and dust emissions would be temporary / intermittent and associated solely with crushing. There is potential for fish and aquatic habitat development, depending on open pit closure alternatives.</p> <p><b>Summary Rating: Preferred</b></p>	<p>Air, dust and noise emissions would be temporary / intermittent and associated with both blasting and crushing, if required. There is potential for some additional habitat disturbance, as use of this alternative may include the use of small off site pit(s) to support construction, if more suitable material for concrete is required.</p> <p><b>Summary Rating: Preferred</b></p>	<p>Air, dust and noise emissions would be temporary and associated with both blasting and crushing, if required. GHG emissions are higher with this alternative due to longer haul distance. There is potential for some additional habitat disturbance, but it could be temporary and easily rehabilitated (as managed by others).</p> <p><b>Summary Rating: Acceptable</b></p>

**APPENDIX U6**

<b>Aggregate Supply</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Overburden / Mine Rock</b>	<b>B Dedicated on-site aggregate pit(s)</b>	<b>C Commercial off-site aggregate pits</b>
<b>Effects to the Human Environment</b>				
Effect on local residents and recreational users	Maintenance of property values	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>Existing aggregate pit(s) remotely located</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Temporary activity</li> </ul>
			<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Possible influence of increased truck traffic</li> </ul>
	Maintenance or improvement of income opportunities	<u>Advantages</u> <ul style="list-style-type: none"> <li>Part of Project development profile – potential for employment opportunities</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Potential for employment opportunities</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Possible opportunity if contracted to an existing external supplier</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
	Maintenance or provision of local access	n/a	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>Possible increase in activity</li> </ul>
				<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Possible influence of increased truck traffic</li> </ul>
	Attainment of noise by-law guidelines, and /or background sound levels if already above the guidelines	<u>Advantages</u> <ul style="list-style-type: none"> <li>Part of Project development profile</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Limited and temporary effect</li> <li>Remote (from local residences)</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Limited and temporary effect</li> <li>Likely remote (from local residences)</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>The increase in activity could result in marginally higher levels of noise at the Project site</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>The increase in activity at an off-site pit could result in marginally higher levels of noise at the pit, and along local roads</li> </ul>
	Non-interference with water well supply systems	n/a	n/a	n/a

**APPENDIX U6**

<b>Aggregate Supply</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Overburden / Mine Rock</b>	<b>B Dedicated on-site aggregate pit(s)</b>	<b>C Commercial off-site aggregate pits</b>
Effect on local residents and recreational users	Non-interference with surface water drinking supply	n/a	n/a	n/a
	Potential for general disturbance and adverse affects on aesthetics	<u>Advantages</u> • No additional disturbance beyond mining	<u>Advantages</u> • Limited and temporary effect • Remote from local residences	<u>Advantages</u> • Limited and temporary effect • Likely remote from local residences
		<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • Increased haul truck use on local roads
	Potential for adverse health and safety effects	n/a	n/a	<u>Advantages</u> • None apparent
			<u>Disadvantages</u> • Increased traffic on local roads increases potential for traffic accidents	
Effect on infrastructure	Maintenance or provision of local and regional access	n/a	n/a	<u>Advantages</u> • Possible increase in activity
				<u>Disadvantages</u> • Increased haul truck use on local roads
	Maintenance and reliability of power supply systems	n/a	n/a	n/a
Maintenance and reliability of pipeline systems	n/a	n/a	n/a	

**APPENDIX U6**

<b>Aggregate Supply</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Overburden / Mine Rock</b>	<b>B Dedicated on-site aggregate pit(s)</b>	<b>C Commercial off-site aggregate pits</b>
Public health and safety	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	<u>Advantages</u> <ul style="list-style-type: none"> <li>Mitigation measures can be put in place to achieve compliance with air quality point of impingement standards</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Mitigation measures can be put in place to achieve compliance with air quality point of impingement standards</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Mitigation measures can be put in place to achieve compliance with air quality point of impingement standards</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Crushing would generate increased air emissions</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Crushing, if required, would generate increased air emissions</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Crushing, if required, would generate increased air emissions</li> </ul>
	Maintenance or attainment of the quality of drinking water supply systems	n/a	n/a	n/a
	Managing the potential for adverse electromagnetic exposure	n/a	n/a	n/a
	Maintaining safe road traffic conditions that are within the domain of IAMGOLD control	n/a	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
		n/a	n/a	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Increased traffic on local roads increases potential for traffic accidents (not within the domain of IAMGOLD)</li> </ul>
Maintenance or provision of health services	n/a	n/a	n/a	

**APPENDIX U6**

<b>Aggregate Supply</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Overburden / Mine Rock</b>	<b>B Dedicated on-site aggregate pit(s)</b>	<b>C Commercial off-site aggregate pits</b>
Effect on local businesses and economy	Maintenance or improvement of local business and economic opportunities (including commercial bait harvesters and trappers)	<u>Advantages</u> • Part of Project development profile – potential for employment opportunities	<u>Advantages</u> • Potential for employment opportunities	<u>Advantages</u> • Possible opportunity if contracted to an existing external supplier
		<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent
	Continued access to areas used for natural resource harvesting by tourism operators	n/a	n/a	n/a
Effect on tourism and recreation	Maintenance or improvement of tourism and recreational opportunities	n/a	n/a	n/a
Regional economy	Maintenance or improvement of the regional economy	See equivalent indicator in Effects on local businesses and economy	See equivalent indicator in Effects on local businesses and economy	See equivalent indicator in Effects on local businesses and economy
Effect on government services	Maintenance or improvement on the capacity of existing health, education and family support services	n/a	n/a	n/a
Effect on resource management objectives	Consistency with established and planned resource management objectives such as Bear Management Areas and Sustainable Forest Management units	n/a	n/a	n/a

**APPENDIX U6**

<b>Aggregate Supply</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Overburden / Mine Rock</b>	<b>B Dedicated on-site aggregate pit(s)</b>	<b>C Commercial off-site aggregate pits</b>
Excessive waste materials	Limiting the generation of unnecessary waste materials	<u>Advantages</u> • Use of mine rock limits the Project footprint (reduces the waste stockpile)	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent
		<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent
	Potential for material to be recycled/reused	<u>Advantages</u> • Same as above	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent
		<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent
Effect on built heritage and cultural heritage landscapes	Destruction of any, or part of any, built heritage resources, cultural heritage landscapes, heritage attributes or features	n/a	n/a	n/a
	Alteration that is not sympathetic or is incompatible, with the historic fabric and appearance of cultural heritage resources	n/a	n/a	n/a
	Shadows created that alter the appearance of a built heritage resource, cultural heritage landscape, heritage attribute or change the viability of a natural feature or plantings, such as a garden	n/a	n/a	n/a

APPENDIX U6

Aggregate Supply				
Performance Objective / Criteria	Indicator	Alternatives		
		A Overburden / Mine Rock	B Dedicated on-site aggregate pit(s)	C Commercial off-site aggregate pits
Effect on built heritage and cultural heritage landscapes	Isolation of a built heritage resource or heritage attribute from its surrounding environment, context or a significant relationship	n/a	n/a	n/a
	Direct or indirect obstruction of significant views or vistas within, from or of built heritage resources or cultural heritage landscapes	n/a	n/a	n/a
	A change in land use such as rezoning a battlefield from open space to residential use, allowing new development or site alteration to fill in the formerly open spaces	n/a	n/a	n/a
	Avoidance of damage to built heritage resources or cultural heritage landscapes, or document cultural resources if damage or relocation cannot be reasonably avoided	n/a	n/a	n/a

**APPENDIX U6**

<b>Aggregate Supply</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Overburden / Mine Rock</b>	<b>B Dedicated on-site aggregate pit(s)</b>	<b>C Commercial off-site aggregate pits</b>
Effect on archaeological resources	Land disturbances (such as a change in grade that alters soils and drainage patterns that adversely affect an archaeological resource)	n/a	n/a	n/a
	Avoidance of archaeological sites, or mitigation through excavation of the site, if avoidance is not possible, as per the Standards and Guidelines for Consultant Archaeologists (2010), including other forms of mitigation through engagement with Aboriginal communities	n/a	n/a	n/a
Effects on First Nation reserves and communities	Maintenance or improvement of First Nation reserve and community conditions (subject to the limitations of Company capacity and community members' personal choice)	n/a	n/a	n/a



**APPENDIX U6**

<b>Aggregate Supply</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Overburden / Mine Rock</b>	<b>B Dedicated on-site aggregate pit(s)</b>	<b>C Commercial off-site aggregate pits</b>
Effect on spiritual, ceremonial sites	Avoidance of damage or disturbance to known spiritual and ceremonial sites; or implement other forms protection/preservation supported by Aboriginal communities	<u>Advantages</u> <ul style="list-style-type: none"> <li>Spiritual, ceremonial, cultural heritage and archaeological sites would be identified through TK/TLU and archaeological studies and would be avoided, or otherwise suitably catalogued and managed in accordance with Provincial and First Nation / Métis requirements and commitments</li> <li>Any sites discovered during construction can be protected and avoided</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Spiritual, ceremonial, cultural heritage and archaeological sites would be identified through TK/TLU and archaeological studies and would be avoided, or otherwise suitably catalogued and managed in accordance with Provincial and First Nation / Métis requirements and commitments</li> <li>Any sites discovered during construction can be protected and avoided</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>If an existing off-site aggregate pit is used for supply, it would be permitted with no effects</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>IAMGOLD would not have control on management or mitigation of any potential impacts at off-site pits operated by others</li> </ul>
Effects on traditional land use	Maintain access to traditional lands for current traditional land uses, except as otherwise agreed to with local First Nations and Métis	<u>Advantages</u> <ul style="list-style-type: none"> <li>No anticipated adverse effects</li> <li>Any impacts would be managed and mitigated through impact benefit agreements, or equivalent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>No anticipated adverse effects - existing aggregate pit(s) on site</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>No anticipated adverse effects, particularly if an existing aggregate pit is used</li> <li>Any impacts would be managed and mitigated through impact benefit agreements, or equivalent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>IAMGOLD would not have control on management or mitigation of any potential impacts at off-site pits operated by others</li> </ul>

**APPENDIX U6**

<b>Aggregate Supply</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Overburden / Mine Rock</b>	<b>B Dedicated on-site aggregate pit(s)</b>	<b>C Commercial off-site aggregate pits</b>
Effects on Aboriginal and Treaty Rights	Avoid infringement of Aboriginal and Treaty Rights, except as otherwise agreed to with local First Nations and Métis	<u>Advantages</u> <ul style="list-style-type: none"> <li>Any impacts would be managed and mitigated through impact benefit agreements, or equivalent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Any impacts would be managed and mitigated through impact benefit agreements, or equivalent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>If an existing off-site aggregate pit is used for supply, it would be permitted with no effects</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>IAMGOLD would not have control on management or mitigation of any potential impacts at off-site pits operated by others</li> </ul>
Effects to the Human Environment Summary Evaluation and Rating		Developing aggregate from mine rock (NAG) would have no appreciable adverse effect on the human environment, as all activities would take place at the Project site, using mine rock that requires removal in any event to support mining. There would be no off-site traffic associated with this alternative.  <b>Summary Rating: Preferred</b>	The existing aggregate on-site pit(s) are remotely located, and any potential disturbance would be short-term. Any on-site pit development/continued use would not affect the off-property human environment. Use of this alternative may include the use of small off site pit(s) to support construction, if more suitable material for concrete is required.  <b>Summary Rating: Preferred</b>	The development and/or use of off-site pit sources would result in increased traffic on local roads, potentially increasing levels of general disturbance and frequency of traffic accidents. There would also be potential opportunities for local employment and business associated with supplying aggregate. Use would be short-term (mine construction phase).  <b>Summary Rating: Acceptable</b>

**APPENDIX U6**

<b>Aggregate Supply</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Overburden / Mine Rock</b>	<b>B Dedicated on-site aggregate pit(s)</b>	<b>C Commercial off-site aggregate pits</b>
<b>Amenability to Reclamation</b>				
Effect on public safety and security	Avoidance of safety and security risks to the general public	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Safety and security during all phases as per the Project development profile, ensuring compliance with applicable regulations</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Safety and security during all phases would follow the Project development profile, ensuring compliance with applicable regulations</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Safety and security during all phases would follow requirements as managed by the external supplier</li> <li>• May remain in operation by external supplier beyond the life of the mine</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>
Effect on environmental health and sustainability	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	n/a	n/a	n/a
	Attainment or maintenance of water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	Protection of aquatic life would be maintained in the receiving water through management of pit lake water quality discharge, irrespective of the alternative used and closure options selected.		As managed by external supplier. May remain in operation by external supplier beyond the life of the mine.
	Restoration of passive drainage systems	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Alternative would allow for the development of passive drainage systems</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Alternative would allow for the development of passive drainage systems</li> </ul>	As managed by external supplier. May remain in operation by external supplier beyond the life of the mine.
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	

**APPENDIX U6**

Aggregate Supply				
Performance Objective / Criteria	Indicator	Alternatives		
		A Overburden / Mine Rock	B Dedicated on-site aggregate pit(s)	C Commercial off-site aggregate pits
Effect on environmental health and sustainability	Provision of habitats for vegetation and wildlife species, including SAR	<u>Advantages</u> <ul style="list-style-type: none"> <li>Closure part of Project closure profile – alternatives will either provide terrestrial habitat or fish and aquatic habitat</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Pit site(s) would be rehabilitated to provide either terrestrial habitat or fish and aquatic habitat, depending on the closure alternative selected</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Pit may be rehabilitated to provide wildlife habitat including habitat, unless operation is continued independent of the Project needs by an external supplier</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
Effect on land use	Provide opportunities for productive land uses following the completion of mining activities	<u>Advantages</u> <ul style="list-style-type: none"> <li>Use of mine rock limits the Project footprint</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Opportunities for productive land uses associated with all alternatives, at closure, are limited mainly to the development of habitats for vegetation and wildlife species, including SAR</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Opportunities for productive land uses associated with all alternatives, at closure, are limited mainly to the development of habitats for vegetation and wildlife species, including SAR</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
	Provide for an aesthetically pleasing site	<u>Advantages</u> <ul style="list-style-type: none"> <li>Alternatives are broadly similar in their potential to develop an aesthetically pleasing site at closure</li> <li>Use of mine rock limits the Project footprint (reduced waste stockpile, no additional pits)</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Alternatives are broadly similar in their potential to develop an aesthetically pleasing site at closure</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Alternatives are broadly similar in their potential to develop an aesthetically pleasing site at closure</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>

**APPENDIX U6**

<b>Aggregate Supply</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Overburden / Mine Rock</b>	<b>B Dedicated on-site aggregate pit(s)</b>	<b>C Commercial off-site aggregate pits</b>
<b>Amenability to Reclamation Summary Evaluation and Rating</b>		<p>This alternative has the potential to reduce remaining mine rock (NAG) wastes at the end of the mine life, while providing either terrestrial habitat or fish and aquatic habitat at closure. By using mine rock, this alternative limits the Project footprint.</p> <p><b>Summary Rating: Preferred</b></p>	<p>The pit site(s) would be rehabilitated to provide terrestrial habitat, or potentially fish and aquatic habitat.</p> <p><b>Summary Rating: Preferred</b></p>	<p>Pit sites developed in association with this alternative would likely be rehabilitated to provide terrestrial vegetation and wildlife habitat, as managed by others; unless operation is continued by external suppliers.</p> <p><b>Summary Rating: Acceptable</b></p>
	<b>Overall Summary Rating</b>	<p>The use of mine rock extracted to support mining activities for aggregate resources is the most cost-effective alternative, providing material suitable to meet all or most needs for construction within the Project site, reducing or avoiding additional potential effects and the waste stockpile size and footprint. Additional rock from pits may be required where more suitable material may be needed, or to meet construction needs if mining plans evolve. This alternative has the potential to generate terrestrial habitat or fish and aquatic habitat upon closure. It is likely that this alternative will be selected in combination with alternative B.</p> <p><b>Preferred</b></p>	<p>Dedicated on-site aggregate pits provide a cost-effective alternative that can deliver construction material to the Project over a short distance. Remote locations for the pits reduce or avoid effects, but rehabilitation would be required upon closure. This alternative has the potential to generate terrestrial habitat or fish and aquatic habitat upon closure. It is likely that this alternative will be selected in combination with alternative A.</p> <p><b>Preferred</b></p>	<p>Unless suitable aggregate / construction material cannot be obtained from the Project property or site, this alternative has no notable advantages for the Project. Hauling material to the Project site would result in an increase in traffic along public roads, increasing construction costs and other effects. There is also a greater potential for disturbance to local residents for development of an off-site aggregate pit.</p> <p><b>Acceptable</b></p>

Source: AMEC (2013).



**APPENDIX U7  
NON-HAZARDOUS WASTE MANAGEMENT ALTERNATIVES ASSESSMENT**





**APPENDIX U7**

<b>Non-Hazardous Solid Waste Management</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Truck waste off site to an existing licensed landfill</b>	<b>B Develop an on-site landfill(s)</b>	<b>C Acquire an off-site landfill</b>
<b>Cost Effectiveness</b>				
Côté Gold Project Financing	Investor attractiveness or risk	<u>Advantages</u> <ul style="list-style-type: none"> <li>Operated by others, eliminating potential environmental and human environment effects at the Project site or in the vicinity</li> <li>Some capital required for permitting</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Operated by IAMGOLD, eliminating the risk of operation delays</li> <li>Low operating costs (shortest haul)</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Operated by IAMGOLD, eliminating the risk of operation delays</li> <li>MNR Neville Township Landfill site can be accessed via Mesomikenda Road, reducing capital costs</li> <li>Low operating cost (short haul)</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Comparatively higher operating cost due to solid waste transport off site, with some capital costs</li> <li>Existing landfill would likely require expansion, which would be funded partly or in whole by IAMGOLD</li> <li>Reliance on external service provider</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Capital required for development, including access roads</li> <li>Potential risk of liability at closure, which would require long term management and monitoring requiring capital</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Capital required for acquisition and development</li> <li>Potential risk of liability at closure, which would require long term management and monitoring requiring capital</li> <li>Longer haul distance, but not significantly greater than for alternative B</li> </ul>
Return on investment (ROI)	Provides a competitive or acceptable ROI	<u>Advantages</u> <ul style="list-style-type: none"> <li>Some capital required for permitting</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Low operating costs benefit a competitive ROI</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Low operating costs benefit a competitive ROI</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Higher operational costs offsets a competitive ROI</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Capital required for landfill development</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Capital required for landfill acquisition and potential expansion may be somewhat higher than for alternative B</li> </ul>

APPENDIX U7

Non-Hazardous Solid Waste Management				
Performance Objective / Criteria	Indicator	Alternatives		
		A Truck waste off site to an existing licensed landfill	B Develop an on-site landfill(s)	C Acquire an off-site landfill
Financial Risk	Provides, or is associated with, a preferred, manageable or acceptable financial risk	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• IAMGOLD can manage site and operating costs</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• IAMGOLD can manage site and operating costs</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Risk of operation delay or issues given that the landfill would be operated by others</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Risk of seepage with elevated concentrations, however, this should be mitigated by proper design</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Risk of seepage with elevated concentrations, however, this should be mitigated by proper design</li> </ul>
Cost Effectiveness Summary Evaluation and Rating		<p>It is likely that an off-site landfill would be further from the Project site than an on-site landfill, increasing the cost of solid waste transport. This option allows for the closure liability to be transferred to others operating the landfill. It is presumed that IAMGOLD would accept its share of any short and long-term liabilities through contractual arrangements. With an off-site landfill, there would be no effects due to seepage within the Project site or in its vicinity.</p> <p><b>Summary Rating: Acceptable</b></p>	<p>An on-site facility would allow IAMGOLD to control the operational aspects of the landfill and is the most cost-effective alternative. This option would require closure and post-closure seepage management and monitoring programs to ensure the efficiency of the closure activities. There is a risk of seepage with elevated concentrations which could lead to long-term liabilities, but which can be mitigated by proper design.</p> <p><b>Summary Rating: Preferred</b></p>	<p>Developing, or acquiring a developed, off-site facility would allow IAMGOLD to control the operational aspects of the landfill. Transportation cost would be marginally higher compared to alternative B due to a longer haul distance (~2 km), but reduced compared to trucking wastes off site. This option would require closure and post-closure seepage management and monitoring programs to ensure the efficiency of the closure activities. There is a risk of seepage with elevated concentrations which could lead to long-term liabilities, but which can be mitigated by proper design.</p> <p><b>Summary Rating: Preferred</b></p>

**APPENDIX U7**

<b>Non-Hazardous Solid Waste Management</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Truck waste off site to an existing licensed landfill</b>	<b>B Develop an on-site landfill(s)</b>	<b>C Acquire an off-site landfill</b>
<b>Technical Applicability and/or System Integrity and Reliability</b>				
Available Technology	Used elsewhere in similar circumstances, and is predictably effective with contingencies if and as required	<u>Advantages</u> <ul style="list-style-type: none"> <li>Proven technology used at other mine sites</li> <li>Contingency planning would include trucking solid wastes to another licensed landfill facility</li> <li>Using a regional waste management facility allows for recycling</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Proven technology used at other mine sites</li> <li>Contingency planning would include trucking solid wastes to another licensed landfill facility</li> <li>Recycling would be considered as part of waste management</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Proven technology used at other mine sites</li> <li>Contingency planning would include trucking solid wastes to another licensed landfill facility</li> <li>Recycling would be considered as part of waste management</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Reliance on service provider</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
	New technologies supported by pilot plant or strong theoretical investigations or testing, with contingencies if and as required	n/a	n/a	n/a
Technical Applicability and/or System Integrity and Reliability Summary Evaluation and Rating		The technology used for this landfill option would be similar in nature to the technology used in other landfill facilities.  <b>Summary Rating: Acceptable</b>	The technology used for this landfill option would be similar in nature to the technology used in other landfill facilities.  <b>Summary Rating: Acceptable</b>	The technology used for this landfill option would be similar in nature to the technology used in other landfill facilities.  <b>Summary Rating: Acceptable</b>

**APPENDIX U7**

<b>Non-Hazardous Solid Waste Management</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Truck waste off site to an existing licensed landfill</b>	<b>B Develop an on-site landfill(s)</b>	<b>C Acquire an off-site landfill</b>
<b>Ability to Service the Site Effectively</b>				
Service	Provides a guaranteed supply to the site with manageable potential for supply disruption, and/or contingencies available	<u>Advantages</u> <ul style="list-style-type: none"> <li>Contingency planning would include trucking solid wastes to another licensed landfill facility</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Operated by IAMGOLD, eliminating the risk of service disruptions</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Operated by IAMGOLD, eliminating the risk of service disruptions</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Managed by others, offering a potential risk for service disruption</li> <li>Facility may need to be expanded to ensure enough capacity for the Project; the expansion would require negotiation with the municipality (or other), which could be a potential schedule risk</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Facility would need to be sited, designed and permitted on the Project property</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Facility could need to be designed and permitted for expansion</li> </ul>
Accessibility	Accessible land base or infrastructure needed to support component development and operation	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent (operated by others)</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>The landfill would be located on existing Project property</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>The landfill is located in close proximity to the Project site (~2 km)</li> <li>Can be accessed by existing Mesomikenda Road</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>This landfill facility could be located at a significant distance away from the Project</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>The new landfill facility would require the construction of additional internal haul roads</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>

**APPENDIX U7**

<b>Non-Hazardous Solid Waste Management</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Truck waste off site to an existing licensed landfill</b>	<b>B Develop an on-site landfill(s)</b>	<b>C Acquire an off-site landfill</b>
Ability to Service the Site Effectively Summary Evaluation and Rating		There is a risk that services could be disrupted by the involvement of others. However, this risk would be mitigated through adequate contracts between the parties. A considerably longer haul distance may increase service times.  <b>Summary Rating: Acceptable</b>	The new on-site landfill facility would require detailed design and permitting. Additional access roads would be required to access the landfill. Service disruptions are less likely as IAMGOLD would operate the landfill.  <b>Summary Rating: Acceptable</b>	Designs and permitting may be required for expansion of the existing off-site landfill. Service disruptions are less likely as IAMGOLD would operate the landfill, which can be accessed by the existing Mesomikenda Road.  <b>Summary Rating: Preferred</b>
<b>Effects to the Physical and Biological Environments</b>				
Effect on air quality and climate	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	<u>Advantages</u> • Remote location limits effects of odours	<u>Advantages</u> • Remote location limits effects of odours	<u>Advantages</u> • Remote location limits effects of odours
		<u>Disadvantages</u> • Potential odour effects, which can be mitigated through proper design and control measures, could occur over a broader area • Trucking the solid waste to the off-site landfill increases air emissions	<u>Disadvantages</u> • Potential odour effects, which can be mitigated through proper design and control measures	<u>Disadvantages</u> • Potential odour effects, which can be mitigated through proper design and control measures
	Emission rates of greenhouse gases (GHGs)	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent
		<u>Disadvantages</u> • Trucking the solid waste to the off-site landfill increases GHG emissions	<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent

APPENDIX U7

Non-Hazardous Solid Waste Management				
Performance Objective / Criteria	Indicator	Alternatives		
		A Truck waste off site to an existing licensed landfill	B Develop an on-site landfill(s)	C Acquire an off-site landfill
Effect on fish and aquatic habitat	Attainment or maintenance of surface water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent
		<u>Disadvantages</u> • Potential leachate or seepage concerns, which can be mitigated through proper design and monitoring (as managed by others) •	<u>Disadvantages</u> • Potential leachate or seepage concerns, which can be mitigated through proper design and monitoring	<u>Disadvantages</u> • Potential leachate or seepage concerns, which can be mitigated through proper design and monitoring
	Maintenance of flows and water levels in streams and lakes suitable to support aquatic species and habitat	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent
		<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • As above	<u>Disadvantages</u> • As above
	Maintenance of fish population	n/a	n/a	n/a
	Maintenance of groundwater flows, levels and quality	n/a	n/a	n/a

APPENDIX U7

Non-Hazardous Solid Waste Management				
Performance Objective / Criteria	Indicator	Alternatives		
		A Truck waste off site to an existing licensed landfill	B Develop an on-site landfill(s)	C Acquire an off-site landfill
Effect on Wetlands	Attainment or maintenance of water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent
		<u>Disadvantages</u> • Potential leachate or seepage concerns, which can be mitigated through proper design and monitoring (as managed by others)	<u>Disadvantages</u> • Potential leachate or seepage concerns, which can be mitigated through proper design and monitoring	<u>Disadvantages</u> • Potential leachate or seepage concerns, which can be mitigated through proper design and monitoring
	Area, type and quality (functionality) of terrestrial habitat that would be displaced or altered	n/a	n/a	n/a
	Maintenance of wetland connectivity	n/a	n/a	n/a
Effect on terrestrial species and habitat	Area, type and quality (functionality) of terrestrial habitat that would be displaced or altered	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent	<u>Advantages</u> • MNR Neville Landfill is an existing site and use of this facility would reduce the loss of pristine habitat • Could potentially reduce unwanted wildlife interaction with landfill material due to improved management methods
		<u>Disadvantages</u> • Could potentially attract unwanted wildlife to the landfill facility	<u>Disadvantages</u> • Could potentially attract unwanted wildlife to the landfill facility	<u>Disadvantages</u> • None apparent

APPENDIX U7

Non-Hazardous Solid Waste Management				
Performance Objective / Criteria	Indicator	Alternatives		
		A Truck waste off site to an existing licensed landfill	B Develop an on-site landfill(s)	C Acquire an off-site landfill
Effect on terrestrial species and habitat	Potential for noise (or other harm or harassment) related disturbance	<u>Advantages</u> <ul style="list-style-type: none"> <li>Expected to be minimal (as managed by others)</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Minimal additional noise would be generated from the landfill during operation</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Minimal additional noise would be generated from the landfill during operation</li> <li>Improved management of the MNR Neville Landfill would minimize material loss and may improve environmental compliance, and improve safety for local users</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Noise would be distributed over longer haul routes</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Potential for noise effects during construction phase, which can be managed and mitigated</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Potential for noise effects during expansion, which can be managed and mitigated</li> <li>Some increase in traffic noise on Mesomikenda Lake Road</li> </ul>
	Maintenance or provision of plant dispersion and wildlife movement corridors	n/a	n/a	n/a
	Maintenance of wildlife population	n/a	n/a	n/a
Effect on Species at Risk (SAR)	Sensitivity level of involved species (Endangered, Threatened, Special Concern)	<u>Advantages</u> <ul style="list-style-type: none"> <li>Location of existing off-site landfill likely sited away from SAR habitat</li> <li>Existing landfill sites are currently disturbed areas</li> </ul>	Little brown myotis bats (Endangered – Ontario ESA) have been recorded around the Project site and may persist in the area through to closure.	<u>Advantages</u> <ul style="list-style-type: none"> <li>Location of existing off-site landfill likely sited away from SAR habitat</li> <li>Existing landfill sites are currently disturbed areas</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>



**APPENDIX U7**

<b>Non-Hazardous Solid Waste Management</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Truck waste off site to an existing licensed landfill</b>	<b>B Develop an on-site landfill(s)</b>	<b>C Acquire an off-site landfill</b>
Effect on Species at Risk (SAR)	Area, type and quality of SAR territories or habitat that would be displaced	<u>Advantages</u> • Existing landfill is unlikely to support SAR	<u>Advantages</u> • No bat hibernacula identified prior to pit development – may not need to provide compensatory habitat upon closure	<u>Advantages</u> • Existing landfill is unlikely to support SAR
		<u>Disadvantages</u> • Unknown risk to SAR	<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • Unknown risk to SAR
	Potential for noise (or other harm or harassment) related disturbance	n/a	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent
			<u>Disadvantages</u> • Potential for disturbance during construction, operation and closure phase	<u>Disadvantages</u> • Potential for disturbance during construction, operation and closure phase
Maintenance or provision of wildlife movement corridors	n/a	n/a	n/a	
Effects to the Physical and Biological Environments Summary Evaluation and Rating		The environmental effects of this alternative include: air, GHG and noise emissions generated by the trucks transporting solid waste off site.  <b>Summary Rating: Acceptable</b>	No off-site trucking required (internal hauling only), with potential to attract unwanted wildlife to the landfill. Environmental effects of this alternative include: air, GHG and noise emissions, particularly during construction.  <b>Summary Rating: Acceptable</b>	Use of existing site, reduces the loss of undisturbed terrestrial habitat. Short distance off-site trucking required, with potential to reduce unwanted wildlife to the landfill and area. Environmental effects of this alternative include: air, GHG and noise emissions, particularly during expansion activities.  <b>Summary Rating: Preferred</b>

**APPENDIX U7**

<b>Non-Hazardous Solid Waste Management</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Truck waste off site to an existing licensed landfill</b>	<b>B Develop an on-site landfill(s)</b>	<b>C Acquire an off-site landfill</b>
<b>Effects to the Human Environment</b>				
Effect on local residents and recreational users	Maintenance of property values	<u>Advantages</u> • None apparent	<u>Advantages</u> • No nearby residents – Project property	<u>Advantages</u> • No nearby residents – near Project property
		<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent
	Maintenance or improvement of income opportunities	<u>Advantages</u> • None apparent – managed by others	<u>Advantages</u> • The additional need for solid waste management would result in an increase in jobs in the region	<u>Advantages</u> • The additional need for solid waste management would result in an increase in jobs in the region
		<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent
	Maintenance or provision of local access	n/a	n/a	n/a
	Attainment of noise by-law guidelines, and /or background sound levels if already above the guidelines	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent
		<u>Disadvantages</u> • Noise levels may be marginally increased by landfill activity – managed by others	<u>Disadvantages</u> • The noise levels of the Project site may be marginally increased by the nearby landfill activity	<u>Disadvantages</u> • Noise levels may be marginally increased by landfill activity
	Non-interference with water well supply systems	n/a	n/a	n/a

APPENDIX U7

Non-Hazardous Solid Waste Management				
Performance Objective / Criteria	Indicator	Alternatives		
		A Truck waste off site to an existing licensed landfill	B Develop an on-site landfill(s)	C Acquire an off-site landfill
Effect on local residents and recreational users	Non-interference with surface water drinking supply	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent	<u>Advantages</u> • Existing location reduces potential for effects on adjacent water bodies
		<u>Disadvantages</u> • Potential for effects on adjacent water bodies, also along access roads	<u>Disadvantages</u> • Potential for effects on water bodies adjacent to access roads • Greater potential for interference with high groundwater table in the Project property	<u>Disadvantages</u> • None apparent
	Potential for general disturbance and adverse affects on aesthetics	<u>Advantages</u> • Away from Project site and property – managed by others	<u>Advantages</u> • Potential for marginal change in aesthetics given the location near the Project site	<u>Advantages</u> • Landfill already established
		<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • Depending on the design of the expansion of the landfill, there could be marginal changes in aesthetics
	Potential for adverse health and safety effects	n/a	n/a	n/a
	Effect on infrastructure	Maintenance or provision of local and regional access	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent
<u>Disadvantages</u> • Trucking of the solid waste would increase the traffic on the local roads			<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • Trucking of the solid waste would marginally increase the traffic on Mesomikenda Road (~2 km between Project property and landfill)

**APPENDIX U7**

<b>Non-Hazardous Solid Waste Management</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Truck waste off site to an existing licensed landfill</b>	<b>B Develop an on-site landfill(s)</b>	<b>C Acquire an off-site landfill</b>
Effect on infrastructure	Maintenance and reliability of power supply systems	n/a	n/a	n/a
	Maintenance and reliability of pipeline systems	n/a	n/a	n/a
Public health and safety	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent
		<u>Disadvantages</u> • Trucking the solid waste to the off-site landfill increases air emissions, likely below standards (managed by others)	<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • Trucking the solid waste to the off-site landfill increases air emissions, but would remain below standards
	Maintenance or attainment of the quality of drinking water supply systems	n/a	n/a	n/a
	Managing the potential for adverse electromagnetic exposure	n/a	n/a	n/a
	Maintaining safe road traffic conditions that are within the domain of IAMGOLD control	n/a	n/a	n/a
	Maintenance or provision of health services	n/a	n/a	n/a

APPENDIX U7

Non-Hazardous Solid Waste Management				
Performance Objective / Criteria	Indicator	Alternatives		
		A Truck waste off site to an existing licensed landfill	B Develop an on-site landfill(s)	C Acquire an off-site landfill
Effect on local businesses and economy	Maintenance or improvement of local business and economic opportunities (including commercial bait harvesters and trappers)	<u>Advantages</u>	<u>Advantages</u>	<u>Advantages</u>
		<ul style="list-style-type: none"> <li>Local businesses would be able to provide services for waste transportation</li> </ul>	<ul style="list-style-type: none"> <li>Landfill development would offer employment opportunities</li> </ul>	<ul style="list-style-type: none"> <li>Landfill acquisition and expansion would offer employment opportunities</li> </ul>
	Continued access to areas used for natural resource harvesting by tourism operators	<u>Disadvantages</u>	<u>Disadvantages</u>	<u>Disadvantages</u>
		<ul style="list-style-type: none"> <li>None apparent</li> </ul>	<ul style="list-style-type: none"> <li>None apparent</li> </ul>	<ul style="list-style-type: none"> <li>None apparent</li> </ul>
		n/a	<u>Advantages</u>	<u>Advantages</u>
			<ul style="list-style-type: none"> <li>None apparent</li> </ul>	<ul style="list-style-type: none"> <li>None apparent</li> </ul>
			<u>Disadvantages</u>	<u>Disadvantages</u>
			<ul style="list-style-type: none"> <li>Potential for restriction of access to immediate area around landfill(s) due to safety and security measures</li> </ul>	<ul style="list-style-type: none"> <li>Potential for restriction of access to immediate area around landfill due to safety and security measures</li> </ul>
Effect on tourism and recreation	Maintenance or improvement of tourism and recreational opportunities	n/a	n/a	n/a
Regional economy	Maintenance or improvement of the regional economy	<u>Advantages</u>	<u>Advantages</u>	<u>Advantages</u>
		<ul style="list-style-type: none"> <li>Waste management needs may result in an increase in jobs in the area</li> </ul>	<ul style="list-style-type: none"> <li>Waste management needs may result in an increase in jobs in the area</li> </ul>	<ul style="list-style-type: none"> <li>Waste management needs may result in an increase in jobs in the area</li> </ul>
		<u>Disadvantages</u>	<u>Disadvantages</u>	<u>Disadvantages</u>
		<ul style="list-style-type: none"> <li>None apparent</li> </ul>	<ul style="list-style-type: none"> <li>None apparent</li> </ul>	<ul style="list-style-type: none"> <li>None apparent</li> </ul>
Effect on government services	Maintenance or improvement on the capacity of existing health, education and family support services	n/a	<u>Advantages</u>	<u>Advantages</u>
			<ul style="list-style-type: none"> <li>None apparent</li> </ul>	<ul style="list-style-type: none"> <li>The capacity of the landfill would likely need to be increased, which could consequently benefit local residents</li> </ul>
			<u>Disadvantages</u>	<u>Disadvantages</u>
			<ul style="list-style-type: none"> <li>None apparent</li> </ul>	<ul style="list-style-type: none"> <li>None apparent</li> </ul>

APPENDIX U7

Non-Hazardous Solid Waste Management				
Performance Objective / Criteria	Indicator	Alternatives		
		A Truck waste off site to an existing licensed landfill	B Develop an on-site landfill(s)	C Acquire an off-site landfill
Effect on resource management objectives	Consistency with established and planned resource management objectives such as Bear Management Areas and Sustainable Forest Management units	n/a	n/a	n/a
Excessive waste materials	Limiting the generation of unnecessary waste materials	n/a	n/a	n/a
	Potential for material to be recycled/reused	<u>Advantages</u> • Landfill facilities which employ a recycling program will be considered	<u>Advantages</u> • Depending on local infrastructure, recycling may be possible, reducing total wastes	<u>Advantages</u> • Depending on local infrastructure, recycling may be possible, reducing total wastes
		<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent
Effect on built heritage and cultural heritage landscapes	Destruction of any, or part of any, built heritage resources, cultural heritage landscapes, heritage attributes or features	n/a	<u>Advantages</u> • Built heritage resources sites (if any) would be identified and avoided, or otherwise suitably catalogued and managed according to applicable regulations and standards • Any sites discovered during construction can be protected and/or avoided	<u>Advantages</u> • Landfill already exists – effects on built heritage resources due to potential expansion are not anticipated
			<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent

APPENDIX U7

Non-Hazardous Solid Waste Management				
Performance Objective / Criteria	Indicator	Alternatives		
		A Truck waste off site to an existing licensed landfill	B Develop an on-site landfill(s)	C Acquire an off-site landfill
Effect on built heritage and cultural heritage landscapes	Alteration that is not sympathetic or is incompatible, with the historic fabric and appearance of cultural heritage resources	n/a	n/a	n/a
	Shadows created that alter the appearance of a built heritage resource, cultural heritage landscape, heritage attribute or change the viability of a natural feature or plantings, such as a garden	n/a	n/a	n/a
	Isolation of a built heritage resource or heritage attribute from its surrounding environment, context or a significant relationship	n/a	n/a	n/a
	Direct or indirect obstruction of significant views or vistas within, from or of built heritage resources or cultural heritage landscapes	n/a	n/a	n/a

APPENDIX U7

Non-Hazardous Solid Waste Management				
Performance Objective / Criteria	Indicator	Alternatives		
		A Truck waste off site to an existing licensed landfill	B Develop an on-site landfill(s)	C Acquire an off-site landfill
Effect on built heritage and cultural heritage landscapes	A change in land use such as rezoning a battlefield from open space to residential use, allowing new development or site alteration to fill in the formerly open spaces	n/a	n/a	n/a
	Avoidance of damage to built heritage resources or cultural heritage landscapes, or document cultural resources if damage or relocation cannot be reasonably avoided	<u>Advantages</u> <ul style="list-style-type: none"> <li>Landfill already exists – effects on archaeological resources due to potential expansion are not anticipated (managed by others)</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Archaeological and built heritage resources sites (if any) would be identified and avoided, or otherwise suitable catalogued and managed according to applicable regulations and standards</li> <li>Any sites discovered during construction can be protected and/or avoided</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Landfill already exists – effects on archaeological resources due to potential expansion are not anticipated</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
Effect on archaeological resources	Land disturbances (such as a change in grade that alters soils and drainage patterns that adversely affect an archaeological resource)	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>Same as above</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Same as above</li> </ul>
			<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>



APPENDIX U7

Non-Hazardous Solid Waste Management				
Performance Objective / Criteria	Indicator	Alternatives		
		A Truck waste off site to an existing licensed landfill	B Develop an on-site landfill(s)	C Acquire an off-site landfill
Effect on archaeological resources	Avoidance of archaeological sites, or mitigation through excavation of the site, if avoidance is not possible, as per the Standards and Guidelines for Consultant Archaeologists (2010), including other forms of mitigation through engagement with Aboriginal communities	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Same as above</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Same as above</li> </ul>
			<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>
Effects on First Nation reserves and communities	Maintenance or improvement of First Nation reserve and community conditions (subject to the limitations of Company capacity and community members' personal choice)	n/a	n/a	n/a

**APPENDIX U7**

<b>Non-Hazardous Solid Waste Management</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Truck waste off site to an existing licensed landfill</b>	<b>B Develop an on-site landfill(s)</b>	<b>C Acquire an off-site landfill</b>
Effect on spiritual, ceremonial sites	Avoidance of damage or disturbance to known spiritual and ceremonial sites; or implement other forms protection/preservation supported by Aboriginal communities	<u>Advantages</u> <ul style="list-style-type: none"> <li>Landfill already exists – effects on archaeological resources due to potential expansion are not anticipated (managed by others)</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Spiritual, ceremonial, cultural heritage and archaeological sites (if any) would be identified through TK/TLU and archaeological studies and would be avoided, or otherwise suitably catalogued and managed in accordance with Provincial and First Nation / Métis requirements and commitments</li> <li>Any sites discovered during construction can be protected and avoided</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Landfill already exists – effects on spiritual, ceremonial, cultural heritage and archaeological sites due to potential expansion are not anticipated</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
Effects on traditional land use	Maintain access to traditional lands for current traditional land uses, except as otherwise agreed to with local First Nations and Métis	<u>Advantages</u> <ul style="list-style-type: none"> <li>No anticipated adverse effect</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>No anticipated adverse effect – on Project property</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>No additional land purchases would be required with this alternative</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
Effects on Aboriginal and Treaty Rights	Avoid infringement of Aboriginal and Treaty Rights, except as otherwise agreed to with local First Nations and Métis	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Any impacts would be managed and mitigated through impact benefit agreements, or equivalent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Any impacts would be managed and mitigated through impact benefit agreements, or equivalent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>IAMGOLD would not be responsible for third party operators (managed by others)</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>

**APPENDIX U7**

<b>Non-Hazardous Solid Waste Management</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Truck waste off site to an existing licensed landfill</b>	<b>B Develop an on-site landfill(s)</b>	<b>C Acquire an off-site landfill</b>
Effects to the Human Environment Summary Evaluation and Rating		<p>This option offers more opportunities to the local businesses and boosts the regional economy. However, operations, mitigation and employment opportunities would be managed by independent service providers.</p> <p><b>Summary Rating: Acceptable</b></p>	<p>There are no major effects on the human environment for this alternative, and there are some employment opportunities for the area.</p> <p><b>Summary Rating: Acceptable</b></p>	<p>There are no major effects on the human environment for this alternative, and there are employment opportunities for the area. This alternative presents the least effects on the human environment as the landfill already exists and its location limits or eliminates the potential for effects with surface water.</p> <p><b>Summary Rating: Preferred</b></p>
<b>Amenability to Reclamation</b>				
Effect on public safety and security	Avoidance of safety and security risks to the general public	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Increase in traffic along local roads</li> <li>• IAMGOLD would not be responsible for third party operators (managed by others)</li> </ul>		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Increase in traffic along Mesomikenda Lake Road</li> </ul>
Effect on environmental health and sustainability	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Remote location limits effects of odours</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Remote location limits effects of odours</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Remote location limits effects of odours</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Negligible odour effects, which can be mitigated through proper closure design and control measures, managed by others</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Negligible odour effects, which can be mitigated through proper closure design and control measures</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Negligible odour effects, which can be mitigated through proper closure design and control measures</li> </ul>

**APPENDIX U7**

<b>Non-Hazardous Solid Waste Management</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Truck waste off site to an existing licensed landfill</b>	<b>B Develop an on-site landfill(s)</b>	<b>C Acquire an off-site landfill</b>
Effect on environmental health and sustainability	Attainment or maintenance of water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	<u>Advantages</u> <ul style="list-style-type: none"> <li>The landfill is presumed to be designed to applicable standards to mitigate any potential for meaningful off-property migration of leachate or seepage</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>The landfill would be designed to applicable standards to mitigate any potential for off-property migration of leachate or seepage</li> <li>Landfill leachate management would be integrated with other, site-wide effluent management programs</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>The landfill would be designed to applicable standards to mitigate any potential for off-property migration of leachate or seepage</li> <li>Landfill location reduces the potential for effects with surface waters</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>IAMGOLD is expected to carry its share of any long-term liabilities that may arise, as applicable through contractual arrangements</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Liability for long-term leachate management and monitoring</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Liability for long-term leachate management and monitoring</li> </ul>
	Restoration of passive drainage systems	n/a	n/a	n/a
	Provision of habitats for vegetation and wildlife species, including SAR	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Site to be rehabilitated at closure to a condition that would be supportive of local wildlife and vegetation</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Site to be rehabilitated at closure to a condition that would be supportive of local wildlife and vegetation</li> <li>Expansion of an existing site</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Managed by others – IAMGOLD would not control/verify the outcome of reclamation</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Disturbance of a new site</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>

**APPENDIX U7**

<b>Non-Hazardous Solid Waste Management</b>					
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>			
		<b>A Truck waste off site to an existing licensed landfill</b>	<b>B Develop an on-site landfill(s)</b>	<b>C Acquire an off-site landfill</b>	
Effect on land use	Provide opportunities for productive land uses following the completion of mining activities	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Opportunities for productive land uses associated with all alternatives, at closure, are limited mainly to the development of terrestrial habitat for vegetation and wildlife species</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Opportunities for productive land uses associated with all alternatives, at closure, are limited mainly to the development of terrestrial habitat for vegetation and wildlife species</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Opportunities for productive land uses associated with all alternatives, at closure, are limited mainly to the development of terrestrial habitat for vegetation and wildlife species</li> </ul>	
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	
	Provide for an aesthetically pleasing site	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Alternatives B and C are broadly similar in their potential to develop an aesthetically pleasing site at closure</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Alternatives B and C are broadly similar in their potential to develop an aesthetically pleasing site at closure</li> </ul>	
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Managed by others – IAMGOLD would not control/verify the outcome of reclamation</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	
	Amenability to Reclamation Summary Evaluation and Rating		No off-property leachate migration or closure required at the Project site. The selected landfill could potentially be returned to productive terrestrial habitat for vegetation and wildlife at closure, though this is managed by independent service providers.	No expected off-property leachate migration following closure. Site can be returned to productive terrestrial habitat for vegetation and wildlife at closure.	No expected off-property leachate migration following closure. Site can be returned to productive terrestrial habitat for vegetation and wildlife at closure. The existing landfill may be expanded, but potential disturbances associated with expansion activities are expected to be minimal and temporary.
			<b>Summary Rating: Acceptable</b>	<b>Summary Rating: Acceptable</b>	<b>Summary Rating: Preferred</b>

**APPENDIX U7**

<b>Non-Hazardous Solid Waste Management</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Truck waste off site to an existing licensed landfill</b>	<b>B Develop an on-site landfill(s)</b>	<b>C Acquire an off-site landfill</b>
<b>Overall Summary Rating</b>		<p>An off-site landfill would be an acceptable alternative to meet the Project's non-hazardous waste management needs. Expansion of the selected existing landfill may be required, with capital costs required. As no on-site landfill would be developed, environment and human effects at the Project site or in the vicinity are eliminated. This alternative allows for closure liability to be transferred to others operating the landfill, but carries greater operational costs due to transport of solid wastes and potential for service disruption. Management of such a facility, as well as transport of wastes, would be managed by others, potentially leading to service disruption and other liabilities out of IAMGOLD's control.</p> <p align="center"><b>Acceptable</b></p>	<p>An on-site landfill(s) provides an acceptable alternative to meet the Project's non-hazardous waste management needs, but requires more capital costs. However, this alternative would allow IAMGOLD to control operational and other aspects of the landfill, ensuring service availability and capacity. This would also reduce operational costs as the landfill would be placed on Project property, eliminating lengthy solid waste transport. Habitat would be disturbed in order to develop the facility as part of the Project profile,</p> <p align="center"><b>Acceptable</b></p>	<p>A nearby off-site landfill provides an acceptable alternative to meet the Project's non-hazardous waste management needs, though it would require more capital than alternative B as expansion may be required. This alternative would allow IAMGOLD to control operational and other management aspects of the landfill, ensuring service availability and capacity for the Project's needs. Operational costs would be reduced compared to alternative A as the landfill would be placed in close proximity to the Project property (~2 km), reducing lengthy solid waste transport. By using an existing landfill, pristine habitat would not be disturbed.</p> <p align="center"><b>Preferred</b></p>

Source: AMEC (2013).

**APPENDIX U8  
DOMESTIC SEWAGE TREATMENT ALTERNATIVES ASSESSMENT**





**APPENDIX U8**

<b>Domestic Sewage Treatment</b>					
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>			
		<b>A Septic tank(s) and tile field(s)</b>	<b>B Lagoons</b>	<b>C Package sewage treatment plant</b>	<b>D Trucking domestic waste off site to licensed treatment plant</b>
<b>Cost Effectiveness</b>					
Côté Gold Project Financing	Investor attractiveness or risk	<u>Advantages</u> <ul style="list-style-type: none"> <li>• More economic than off-site treatment</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• More economic than off-site treatment</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• More economic than off-site treatment</li> <li>• Smallest footprint of all the alternatives</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Off site treatment plant would be managed by others</li> <li>• No closure costs required</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Closure costs required</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Closure costs required</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Reduced closure costs required</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Greater operational costs due to hauling of wastes off site</li> </ul>
Return on investment (ROI)	Provides a competitive or acceptable ROI	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Potential for a more competitive ROI compare to off-site treatment</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Potential for a more competitive ROI compare to off-site treatment</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Potential for a more competitive ROI compare to off-site treatment</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• No closure costs</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Tile field construction would require imported fill; land space for development of a tile field</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Lagoon construction would require land space and imported fill</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• May or may not be cost competitive with a septic tank and tile field or lagoon system</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Greater operational costs would affect ROI</li> </ul>
Financial Risk	Provides, or is associated with, a preferred, manageable or acceptable financial risk	All alternatives carry an equivalent (low) level of financial risk	All alternatives carry an equivalent (low) level of financial risk	All alternatives carry an equivalent (low) level of financial risk	All alternatives carry an equivalent (low) level of financial risk

**APPENDIX U8**

<b>Domestic Sewage Treatment</b>					
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>			
		<b>A Septic tank(s) and tile field(s)</b>	<b>B Lagoons</b>	<b>C Package sewage treatment plant</b>	<b>D Trucking domestic waste off site to licensed treatment plant</b>
Cost Effectiveness Summary Evaluation and Rating		Based on the site conditions, the septic tank and tile field alternative would require additional material and site preparation; thereby making this alternative potentially more costly. This alternative also requires capital for closure costs.  <b>Summary Rating: Acceptable</b>	Based on the site conditions, the lagoon alternative would require additional material and site preparation; thereby making this alternative potentially more costly. This alternative would also require capital for closure costs.  <b>Summary Rating: Acceptable</b>	Package sewage treatment plants provide a cost-competitive, risk-free technology, with reduced closure costs. This alternative may or may not be cost competitive with a septic tank and tile field or lagoon system.  <b>Summary Rating: Preferred</b>	Although a reliable alternative, the cost associated with trucking domestic waste off site is the highest, making this alternative less desirable.  <b>Summary Rating: Acceptable</b>
<b>Technical Applicability and/or System Integrity and Reliability</b>					
Available Technology	Used elsewhere in similar circumstances, and is predictably effective with contingencies if and as required	<u>Advantages</u> • Proven and effective technology with low operational risk	<u>Advantages</u> • Proven and effective technology with low operational risk • Broadly used by small communities in arctic areas	<u>Advantages</u> • Proven and effective technology with low operational risk • Smallest footprint compared to the other alternatives	<u>Advantages</u> • Proven and effective technology with low operational risk
		<u>Disadvantages</u> • Technology is generally better suited to smaller scale operations	<u>Disadvantages</u> • Technology is generally better suited to smaller scale operations	<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent
	New technologies supported by pilot plant or strong theoretical investigations or testing, with contingencies if and as required	n/a	n/a	n/a	n/a

**APPENDIX U8**

<b>Domestic Sewage Treatment</b>					
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>			
		<b>A Septic tank(s) and tile field(s)</b>	<b>B Lagoons</b>	<b>C Package sewage treatment plant</b>	<b>D Trucking domestic waste off site to licensed treatment plant</b>
Technical Applicability and/or System Integrity and Reliability Summary Evaluation and Rating		This is a frequently applied, proven and effective technology.  <b>Summary Rating: Acceptable</b>	This is a frequently applied, proven and effective technology.  <b>Summary Rating: Acceptable</b>	This is a frequently applied, proven and effective technology, with the smallest footprint of all the alternatives.  <b>Summary Rating: Preferred</b>	This is a frequently applied, proven and effective technology.  <b>Summary Rating: Acceptable</b>
<b>Ability to Service the Site Effectively</b>					
Service	Provides a guaranteed supply to the site with manageable potential for supply disruption, and/or contingencies available	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent
		<u>Disadvantages</u> • Potential land availability and capacity constraints • Dependence on third party operator to remove sewage sludge from site	<u>Disadvantages</u> • Potential land availability and capacity constraints	<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • Dependence on third party operator to remove sewage from holding tank
Accessibility	Accessible land base or infrastructure needed to support component development and operation	n/a	n/a	n/a	n/a
Ability to Service the Site Effectively Summary Evaluation and Rating		A reliable option, but with potential for capacity constraints.  <b>Summary Rating: Acceptable</b>	A reliable option, but with potential for capacity constraints.  <b>Summary Rating: Acceptable</b>	A reliable option without potential for capacity constraints.  <b>Summary Rating: Preferred</b>	Due to dependence on others, there is a potential risk for service disruption.  <b>Summary Rating: Acceptable</b>

**APPENDIX U8**

<b>Domestic Sewage Treatment</b>					
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>			
		<b>A Septic tank(s) and tile field(s)</b>	<b>B Lagoons</b>	<b>C Package sewage treatment plant</b>	<b>D Trucking domestic waste off site to licensed treatment plant</b>
<b>Effects to the Physical and Biological Environments</b>					
Effect on air quality and climate	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent
		<u>Disadvantages</u> • Potential for air quality effects (odour), which can be mitigated by proper design and remote location	<u>Disadvantages</u> • Greatest potential for air quality effects (odour), which can be partially mitigated by proper design and remote location	<u>Disadvantages</u> • Potential for air quality effects (odour), which can be mitigated by proper design and remote location	<u>Disadvantages</u> • Trucking sewage off-site to treatment plant increases air emissions • Potential for air quality effects (odour), which can be mitigated by proper design and remote location
	Emission rates of greenhouse gases (GHGs)	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent
		<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • Trucking sewage off-site to treatment plant increases GHG emissions

APPENDIX U8

Domestic Sewage Treatment					
Performance Objective / Criteria	Indicator	Alternatives			
		A Septic tank(s) and tile field(s)	B Lagoons	C Package sewage treatment plant	D Trucking domestic waste off site to licensed treatment plant
Effect on fish and aquatic habitat	Attainment or maintenance of surface water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Potential for effects on water quality due to seepage from tile field, however, this option would be designed to prevent/mitigate effects on the receiving environment</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Potential for effects on water quality due to seepage and discharge from lagoons, however, this option would be designed to prevent/mitigate effects on the receiving environment</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Potential for effects on water quality due to discharge of processed effluent, however, this option would be designed to meet discharge criteria</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Potential effects on water quality in the event of a vehicular incident</li> </ul>
	Maintenance of flows and water levels in streams and lakes suitable to support aquatic species and habitat	n/a	n/a	n/a	n/a
	Maintenance of fish population	n/a	n/a	n/a	n/a
Maintenance of groundwater flows, levels and quality	n/a	n/a	n/a	n/a	

APPENDIX U8

Domestic Sewage Treatment					
Performance Objective / Criteria	Indicator	Alternatives			
		A Septic tank(s) and tile field(s)	B Lagoons	C Package sewage treatment plant	D Trucking domestic waste off site to licensed treatment plant
Effect on Wetlands	Attainment or maintenance of water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	n/a	n/a	n/a	n/a
	Area, type and quality (functionality) of terrestrial habitat that would be displaced or altered	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	n/a
			<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Wetlands may be used for effluent polishing, if discharged on site and compliant with applicable criteria</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Wetlands may be used for effluent polishing, if discharged on site and compliant with applicable criteria</li> </ul>	
Maintenance of wetland connectivity	n/a	n/a	n/a	n/a	

APPENDIX U8

Domestic Sewage Treatment					
Performance Objective / Criteria	Indicator	Alternatives			
		A Septic tank(s) and tile field(s)	B Lagoons	C Package sewage treatment plant	D Trucking domestic waste off site to licensed treatment plant
Effect on terrestrial species and habitat	Area, type and quality (functionality) of terrestrial habitat that would be displaced or altered	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Limited disturbance over small area for the holding tank</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Limited potential for habitat disruption, however, it would be sited to minimize any effect</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Limited potential for habitat disruption, however, it would be sited to minimize any effect</li> <li>• This alternative would incur the largest footprint compared to other alternatives</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Limited potential for habitat disruption, however, it would be sited to minimize any effect</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Disturbances would occur due to off-site hauling activities</li> </ul>
	Potential for noise (or other harm or harassment) related disturbance	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Limited potential for noise disturbances</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Limited potential for noise disturbances</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Limited potential for noise disturbances</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Limited potential for noise disturbances</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>
	Maintenance or provision of plant dispersion and wildlife movement corridors	n/a	n/a	n/a	n/a
	Maintenance of wildlife population	n/a	n/a	n/a	n/a

APPENDIX U8

Domestic Sewage Treatment					
Performance Objective / Criteria	Indicator	Alternatives			
		A Septic tank(s) and tile field(s)	B Lagoons	C Package sewage treatment plant	D Trucking domestic waste off site to licensed treatment plant
Effect on Species at Risk (SAR)	Sensitivity level of involved species (Endangered, Threatened, Special Concern)	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Domestic waste would be trucked off site to an existing treatment plant</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Little brown myotis bats (Endangered – Ontario ESA) have been recorded around the Project site and may persist in the area through to closure</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Little brown myotis bats (Endangered – Ontario ESA) have been recorded around the Project site and may persist in the area through to closure</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Little brown myotis bats (Endangered – Ontario ESA) have been recorded around the Project site and may persist in the area through to closure</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>
	Area, type and quality of SAR territories or habitat that would be displaced	See equivalent indicator in Effects on terrestrial and species habitat	See equivalent indicator in Effects on terrestrial and species habitat	See equivalent indicator in Effects on terrestrial and species habitat	See equivalent indicator in Effects on terrestrial and species habitat
	Potential for noise (or other harm or harassment) related disturbance	See equivalent indicator in Effects on terrestrial and species habitat	See equivalent indicator in Effects on terrestrial and species habitat	See equivalent indicator in Effects on terrestrial and species habitat	See equivalent indicator in Effects on terrestrial and species habitat
	Maintenance or provision of wildlife movement corridors	n/a	n/a	n/a	n/a



**APPENDIX U8**

<b>Domestic Sewage Treatment</b>					
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>			
		<b>A Septic tank(s) and tile field(s)</b>	<b>B Lagoons</b>	<b>C Package sewage treatment plant</b>	<b>D Trucking domestic waste off site to licensed treatment plant</b>
Effects to the Physical and Biological Environments Summary Evaluation and Rating		With proper design, effects on the physical and biological environment will be minimal.	With proper design, effects on the physical and biological environment will be minimal.	With proper design, effects on the physical and biological environment are not anticipated. Additionally, this alternative is expected to have the least impact on the physical and biological environment due to its technology and reduced footprint.	This option is acceptable. Due to trucking sewage off-site, the environmental effects can potentially affect a greater area compared to the alternatives.
		<b>Summary Rating: Acceptable</b>	<b>Summary Rating: Acceptable</b>	<b>Summary Rating: Preferred</b>	<b>Summary Rating: Acceptable</b>
<b>Effects to the Human Environment</b>					
Effect on local residents and recreational users	Maintenance of property values	n/a	n/a	n/a	n/a
	Maintenance or improvement of income opportunities	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent	<u>Advantages</u> • A third party would be required for transport of the sewage to the local sewage treatment plant
		<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent
	Maintenance or provision of local access	n/a	n/a	n/a	n/a
	Attainment of noise by-law guidelines, and /or background sound levels if already above the guidelines	n/a	n/a	n/a	n/a

APPENDIX U8

Domestic Sewage Treatment					
Performance Objective / Criteria	Indicator	Alternatives			
		A Septic tank(s) and tile field(s)	B Lagoons	C Package sewage treatment plant	D Trucking domestic waste off site to licensed treatment plant
Effect on local residents and recreational users	Non-interference with water well supply systems	n/a	n/a	n/a	n/a
	Non-interference with surface water drinking supply	See equivalent indicator in Effect on fish and aquatic habitat	See equivalent indicator in Effect on fish and aquatic habitat	See equivalent indicator in Effect on fish and aquatic habitat	See equivalent indicator in Effect on fish and aquatic habitat
	Potential for general disturbance and adverse affects on aesthetics	n/a	n/a	n/a	n/a
	Potential for adverse health and safety effects	n/a	n/a	n/a	n/a
Effect on infrastructure	Maintenance or provision of local and regional access	n/a	n/a	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul> <u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Would utilize capacity from the local sewage treatment plant</li> </ul>
	Maintenance and reliability of power supply systems	All alternatives would draw power from the Provincial electrical grid.			
	Maintenance and reliability of pipeline systems	n/a	n/a	n/a	n/a

APPENDIX U8

Domestic Sewage Treatment					
Performance Objective / Criteria	Indicator	Alternatives			
		A Septic tank(s) and tile field(s)	B Lagoons	C Package sewage treatment plant	D Trucking domestic waste off site to licensed treatment plant
Public health and safety	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent
		<u>Disadvantages</u> • Potential for air quality effects (odour), which can be mitigated by proper design and remote location	<u>Disadvantages</u> • Greatest potential for air quality effects (odour), which can be partially mitigated by proper design and remote location	<u>Disadvantages</u> • Potential for air quality effects (odour), which can be mitigated by proper design and remote location	<u>Disadvantages</u> • Trucking sewage off-site to treatment plant increases air emissions • Potential for air quality effects (odour)
	Maintenance or attainment of the quality of drinking water supply systems	n/a	n/a	n/a	n/a
	Managing the potential for adverse electromagnetic exposure	n/a	n/a	n/a	n/a
	Maintaining safe road traffic conditions that are within the domain of IAMGOLD control	n/a	n/a	n/a	n/a
Maintenance or provision of health services	n/a	n/a	n/a	n/a	
Effect on local businesses and economy	Maintenance or improvement of local business and economic opportunities (including commercial bait harvesters and trappers)	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent	<u>Advantages</u> • A third party may be required to transport sewage to the local treatment plant
		<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent

APPENDIX U8

Domestic Sewage Treatment					
Performance Objective / Criteria	Indicator	Alternatives			
		A Septic tank(s) and tile field(s)	B Lagoons	C Package sewage treatment plant	D Trucking domestic waste off site to licensed treatment plant
Effect on local businesses and economy	Continued access to areas used for natural resource harvesting by tourism operators	n/a	n/a	n/a	n/a
Effect on tourism and recreation	Maintenance or improvement of tourism and recreational opportunities	n/a	n/a	n/a	n/a
Regional economy	Maintenance or improvement of the regional economy	n/a	n/a	n/a	n/a
Effect on government services	Maintenance or improvement on the capacity of existing health, education and family support services	n/a	n/a	n/a	n/a
Effect on resource management objectives	Consistency with established and planned resource management objectives such as Bear Management Areas and Sustainable Forest Management units	n/a	n/a	n/a	n/a
Excessive waste materials	Limiting the generation of unnecessary waste materials	n/a	n/a	n/a	n/a
	Potential for material to be recycled/reused	n/a	n/a	n/a	n/a

**APPENDIX U8**

<b>Domestic Sewage Treatment</b>					
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>			
		<b>A Septic tank(s) and tile field(s)</b>	<b>B Lagoons</b>	<b>C Package sewage treatment plant</b>	<b>D Trucking domestic waste off site to licensed treatment plant</b>
Effect on built heritage and cultural heritage landscapes	Destruction of any, or part of any, built heritage resources, cultural heritage landscapes, heritage attributes or features	n/a	n/a	n/a	n/a
	Alteration that is not sympathetic or is incompatible, with the historic fabric and appearance of cultural heritage resources	n/a	n/a	n/a	n/a
	Shadows created that alter the appearance of a built heritage resource, cultural heritage landscape, heritage attribute or change the viability of a natural feature or plantings, such as a garden	n/a	n/a	n/a	n/a
	Isolation of a built heritage resource or heritage attribute from its surrounding environment, context or a significant relationship	n/a	n/a	n/a	n/a

APPENDIX U8

Domestic Sewage Treatment						
Performance Objective / Criteria	Indicator	Alternatives				
		A Septic tank(s) and tile field(s)	B Lagoons	C Package sewage treatment plant	D Trucking domestic waste off site to licensed treatment plant	
Effect on built heritage and cultural heritage landscapes	Direct or indirect obstruction of significant views or vistas within, from or of built heritage resources or cultural heritage landscapes	n/a	n/a	n/a	n/a	
	A change in land use such as rezoning a battlefield from open space to residential use, allowing new development or site alteration to fill in the formerly open spaces	n/a	n/a	n/a	n/a	
	Avoidance of damage to built heritage resources or cultural heritage landscapes, or document cultural resources if damage or relocation cannot be reasonably avoided	<u>Advantages</u>	<ul style="list-style-type: none"> <li>Archaeological and built heritage resources sites (if any) would be identified and avoided, or otherwise suitable catalogued and managed according to applicable regulations and standards</li> <li>Any sites discovered during construction can be protected and/or avoided</li> </ul>	<ul style="list-style-type: none"> <li>Archaeological and built heritage resources sites (if any) would be identified and avoided, or otherwise suitable catalogued and managed according to applicable regulations and standards</li> <li>Any sites discovered during construction can be protected and/or avoided</li> </ul>	<ul style="list-style-type: none"> <li>Archaeological and built heritage resources sites (if any) would be identified and avoided, or otherwise suitable catalogued and managed according to applicable regulations and standards</li> <li>Any sites discovered during construction can be protected and/or avoided</li> </ul>	n/a
		<u>Disadvantages</u>	<ul style="list-style-type: none"> <li>None apparent</li> </ul>	<ul style="list-style-type: none"> <li>None apparent</li> </ul>	<ul style="list-style-type: none"> <li>None apparent</li> </ul>	

APPENDIX U8

Domestic Sewage Treatment					
Performance Objective / Criteria	Indicator	Alternatives			
		A Septic tank(s) and tile field(s)	B Lagoons	C Package sewage treatment plant	D Trucking domestic waste off site to licensed treatment plant
Effect on archaeological resources	Land disturbances (such as a change in grade that alters soils and drainage patterns that adversely affect an archaeological resource)	n/a	n/a	n/a	n/a
	Avoidance of archaeological sites, or mitigation through excavation of the site, if avoidance is not possible, as per the Standards and Guidelines for Consultant Archaeologists (2010), including other forms of mitigation through engagement with Aboriginal communities	n/a	n/a	n/a	n/a
Effects on First Nation reserves and communities	Maintenance or improvement of First Nation reserve and community conditions (subject to the limitations of Company capacity and community members' personal choice)	n/a	n/a	n/a	n/a

**APPENDIX U8**

<b>Domestic Sewage Treatment</b>					
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>			
		<b>A Septic tank(s) and tile field(s)</b>	<b>B Lagoons</b>	<b>C Package sewage treatment plant</b>	<b>D Trucking domestic waste off site to licensed treatment plant</b>
Effect on spiritual, ceremonial sites	Avoidance of damage or disturbance to known spiritual and ceremonial sites; or implement other forms protection/preservation supported by Aboriginal communities	<u>Advantages</u> <ul style="list-style-type: none"> <li>Spiritual, ceremonial, cultural heritage and archaeological sites would be identified through TK/TLU and archaeological studies and would be avoided, or otherwise suitably catalogued and managed in accordance with Provincial and First Nation / Métis requirements and commitments</li> <li>Any sites discovered during construction can be protected and avoided</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Spiritual, ceremonial, cultural heritage and archaeological sites would be identified through TK/TLU and archaeological studies and would be avoided, or otherwise suitably catalogued and managed in accordance with Provincial and First Nation / Métis requirements and commitments</li> <li>Any sites discovered during construction can be protected and avoided</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Spiritual, ceremonial, cultural heritage and archaeological sites would be identified through TK/TLU and archaeological studies and would be avoided, or otherwise suitably catalogued and managed in accordance with Provincial and First Nation / Métis requirements and commitments</li> <li>Any sites discovered during construction can be protected and avoided</li> </ul>	n/a
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	
Effects on traditional land use	Maintain access to traditional lands for current traditional land uses, except as otherwise agreed to with local First Nations and Métis	n/a	n/a	n/a	n/a



**APPENDIX U8**

<b>Domestic Sewage Treatment</b>					
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>			
		<b>A Septic tank(s) and tile field(s)</b>	<b>B Lagoons</b>	<b>C Package sewage treatment plant</b>	<b>D Trucking domestic waste off site to licensed treatment plant</b>
Effects on Aboriginal and Treaty Rights	Avoid infringement of Aboriginal and Treaty Rights, except as otherwise agreed to with local First Nations and Métis	n/a	n/a	n/a	n/a
Effects to the Human Environment Summary Evaluation and Rating		There is no appreciable or predicted effect or benefit to the human environment.  <b>Summary Rating: Acceptable</b>	There is no appreciable or predicted effect or benefit to the human environment.  <b>Summary Rating: Acceptable</b>	There is no appreciable or predicted effect or benefit to the human environment.  <b>Summary Rating: Acceptable</b>	Handling of the sewage by a third party marginally increases local business opportunities.  <b>Summary Rating: Acceptable</b>
<b>Amenability to Reclamation</b>					
Effect on public safety and security	Avoidance of safety and security risks to the general public	n/a	n/a	n/a	n/a
Effect on environmental health and sustainability	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	<u>Advantages</u> <ul style="list-style-type: none"> <li>Potential to be fully removed</li> <li>If tile field material is hauled off site, it would reduce required closure measures</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Potential to be fully removed</li> <li>If lagoon material is hauled off site, it would reduce required closure measures</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Full removal of package sewage treatment plant from the Project site at closure</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Full removal of storage tanks from the Project site at closure</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>If tile field reclaimed on site, potential for extended but temporary odour effects</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>If lagoon(s) reclaimed on site, potential for extended but temporary odour effects</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>

APPENDIX U8

Domestic Sewage Treatment					
Performance Objective / Criteria	Indicator	Alternatives			
		A Septic tank(s) and tile field(s)	B Lagoons	C Package sewage treatment plant	D Trucking domestic waste off site to licensed treatment plant
Effect on environmental health and sustainability	Attainment or maintenance of water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	See equivalent indicator in Effect on fish and aquatic habitat	See equivalent indicator in Effect on fish and aquatic habitat	See equivalent indicator in Effect on fish and aquatic habitat	<u>Advantages</u> <ul style="list-style-type: none"> <li>No discharge water or seepage</li> </ul>
					<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
	Restoration of passive drainage systems	<u>Advantages</u> <ul style="list-style-type: none"> <li>Passive drainage systems would be re-established after closure</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Passive drainage systems would be re-established after closure</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Passive drainage systems would be re-established after closure</li> </ul>	n/a
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	
	Provision of habitats for vegetation and wildlife species, including SAR	<u>Advantages</u> <ul style="list-style-type: none"> <li>Terrestrial habitat for vegetation and wildlife species would be established at closure</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Terrestrial habitat for vegetation and wildlife species would be established at closure</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Terrestrial habitat for vegetation and wildlife species would be established at closure</li> </ul>	n/a
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	

APPENDIX U8

Domestic Sewage Treatment					
Performance Objective / Criteria	Indicator	Alternatives			
		A Septic tank(s) and tile field(s)	B Lagoons	C Package sewage treatment plant	D Trucking domestic waste off site to licensed treatment plant
Effect on land use	Provide opportunities for productive land uses following the completion of mining activities	<u>Advantages</u> <ul style="list-style-type: none"> <li>Opportunities for productive land uses associated with all alternatives, at closure, are limited mainly to the development of terrestrial habitat for vegetation and wildlife species</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Opportunities for productive land uses associated with all alternatives, at closure, are limited mainly to the development of terrestrial habitat for vegetation and wildlife species</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Opportunities for productive land uses associated with all alternatives, at closure, are limited mainly to the development of terrestrial habitat for vegetation and wildlife species</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Treatment plant would likely continue operations as managed by others</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
	Provide for an aesthetically pleasing site	<u>Advantages</u> <ul style="list-style-type: none"> <li>All alternatives are broadly similar in their potential to develop an aesthetically pleasing site at closure</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>All alternatives are broadly similar in their potential to develop an aesthetically pleasing site at closure</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>All alternatives are broadly similar in their potential to develop an aesthetically pleasing site at closure</li> <li>Smallest footprint of all the alternatives</li> </ul>	n/a
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	

APPENDIX U8

Domestic Sewage Treatment					
Performance Objective / Criteria	Indicator	Alternatives			
		A Septic tank(s) and tile field(s)	B Lagoons	C Package sewage treatment plant	D Trucking domestic waste off site to licensed treatment plant
Amenability to Reclamation Summary Evaluation and Rating		Small sites developed in association with this alternative would be rehabilitated to provide terrestrial habitat for vegetation and wildlife.  <b>Summary Rating: Acceptable</b>	Small sites developed in association with this alternative would be rehabilitated to provide terrestrial habitat for vegetation and wildlife.  <b>Summary Rating: Acceptable</b>	With the smallest footprint of all the alternatives, small sites developed in association with this alternative would be rehabilitated to provide terrestrial habitat for vegetation and wildlife.  <b>Summary Rating: Preferred</b>	An off-site licensed treatment plant would likely continue in operation beyond the life of the mine, independent of IAMGOLD and as managed by others.  <b>Summary Rating: Acceptable</b>
<b>Overall Summary Rating</b>		All alternatives provide an effective and reliable alternative to meet Project domestic sewage management needs. The septic tank and tile field alternative requires more capital and land, with potential for capacity constraints. This alternative would provide terrestrial habitat for vegetation and wildlife species at closure.  <b>Acceptable</b>	All alternatives provide an effective and reliable alternative to meet Project domestic sewage management needs. The lagoon alternative requires more capital and the most land, with potential for capacity constraints. This alternative would provide terrestrial habitat for vegetation and wildlife species at closure.  <b>Acceptable</b>	All alternatives provide an effective and reliable alternative to meet Project domestic sewage management needs. The package sewage treatment plant alternative provides a compact, cost-competitive, low risk technology without capacity constraints. This alternative represents the smallest footprint, and the small sites utilized by this alternative would provide terrestrial habitat for vegetation and wildlife species at closure.  <b>Preferred</b>	All alternatives provide an effective and reliable alternative to meet Project domestic sewage management needs. The trucking of domestic waste off-site alternative has high operational costs, dependence on an external service provider and the potential to extend potential environmental effects over a broader area.  <b>Acceptable</b>

Source: AMEC (2013).

**APPENDIX U9  
TRANSMISSION LINE ALIGNMENT ALTERNATIVES ASSESSMENT**



APPENDIX U9

Transmission Line Alignment			
Performance Objective / Criteria	Indicator	Alternatives	
		A Shining Tree Alignment	B Cross-Country Alignment
<b>Cost Effectiveness</b>			
Côté Gold Project Financing	Investor attractiveness or risk	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Largely avoids populated areas</li> <li>• Follows existing ROW and transmission line</li> <li>• Lower potential to encounter new claims and land tenure negotiations</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Largely avoids populated areas</li> <li>• Shorter, more affordable alignment</li> <li>• Shorter distance results in lower electrical transmission losses, reducing operating costs</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Potentially require more coordination with local utility provider and contractors</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Higher potential for new claims and land tenure negotiations</li> <li>• Crosses more undisturbed land – possibly more environmental permitting processes required</li> </ul>

**APPENDIX U9**

<b>Transmission Line Alignment</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A Shining Tree Alignment</b>	<b>B Cross-Country Alignment</b>
Return on investment (ROI)	Provides a competitive or acceptable ROI	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Possibility of reducing access road construction costs if access to these roads is confirmed</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Shorter alignment (~120 km in total, ~155 ha less to clear) and more direct to the Project site, translating to reduced construction and operational costs</li> <li>• Easier access potential due to proximity to Highway 144</li> <li>• Shorter transmission line results in lower electrical transmission losses, benefitting ROI</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Longer alignment (~157 km in total), more expensive to construct</li> <li>• Higher operational costs due to length of transmission line and related electrical transmission losses</li> <li>• Access to existing maintenance access roads not confirmed; development of some access roads also required (approximately 5 km in total)</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Necessity for development of some access roads (approximately 14 km in total)</li> <li>• Potentially more difficult to operate construction equipment (denser forested area) at commencement of construction</li> </ul>
Financial Risk	Provides, or is associated with, a preferred, manageable or acceptable financial risk	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Lower potential for Project delays which may be caused by new claims and land tenure negotiations</li> <li>• Lower potential for Project delays – likely to be the more preferred alternative by environmental permitting authorities</li> <li>• Potential of transfer to local utility provider (closure cost savings, transfer of responsibilities)</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Lower potential of transfer to local utility provider</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Somewhat higher risk associated with Project delays (new claims and land tenure negotiations, environmental permitting)</li> </ul>



**APPENDIX U9**

<b>Transmission Line Alignment</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A Shining Tree Alignment</b>	<b>B Cross-Country Alignment</b>
Cost Effectiveness Summary Evaluation and Rating		<p>The Shining Tree alignment is considered an acceptable option as it follows existing transmission line corridors with possible access to existing maintenance roads, providing ease of access. The longer length of this alignment does imply higher construction and operational costs, though it has a lower potential for Project delays which may be caused by new claims, land tenure negotiations or environmental permitting.</p> <p><b>Summary Rating: Acceptable</b></p>	<p>The Cross-Country alignment is a shorter and more direct alignment to the Project, in close proximity to Highway 144, translating into lower construction and operational costs. The shorter length of this alignment results in lower electrical transmission losses, which may be attractive to investors. This alternative carries a potential for scheduling delays due to a higher potential of facing new claims, land tenure negotiations, and environmental permitting.</p> <p><b>Summary Rating: Preferred</b></p>
<b>Technical Applicability and/or System Integrity and Reliability</b>			
Available Technology	Used elsewhere in similar circumstances, and is predictably effective with contingencies if and as required	<u>Advantages</u> <ul style="list-style-type: none"> <li>Predictably effective</li> <li>Same technology used in other 230 kV transmission lines in Ontario</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Predictably effective</li> <li>Same technology used in other 230 kV transmission lines in Ontario</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
	New technologies supported by pilot plant or strong theoretical investigations or testing, with contingencies if and as required	n/a	n/a
Technical Applicability and/or System Integrity and Reliability Summary Evaluation and Rating		<p>The Shining Tree alignment is acceptable as it is as effective as the alternative.</p> <p><b>Summary Rating: Acceptable</b></p>	<p>The Cross-Country alignment is acceptable as it is as effective as the alternative.</p> <p><b>Summary Rating: Acceptable</b></p>

**APPENDIX U9**

<b>Transmission Line Alignment</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A Shining Tree Alignment</b>	<b>B Cross-Country Alignment</b>
<b>Ability to Service the Site Effectively</b>			
Service	Provides a guaranteed supply to the site with manageable potential for supply disruption, and/or contingencies available	<u>Advantages</u> <ul style="list-style-type: none"> <li>Deemed able to effectively provide electricity to the Project</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Deemed able to effectively provide electricity to the Project</li> <li>Shorter transmission line results in lower electrical transmission losses</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>A lengthier transmission line generally has higher electrical transmission losses</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
Accessibility	Accessible land base or infrastructure needed to support component development and operation	<u>Advantages</u> <ul style="list-style-type: none"> <li>Easier access through existing maintenance roads, if access to these roads is confirmed</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Close proximity to Highway 144</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Construction of access roads in addition to the planned 5 km would be required if access to existing access roads is not confirmed</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Constructions of more access roads required (~14 km)</li> <li>Potential for lengthier negotiations to obtain surface rights</li> </ul>
Ability to Service the Site Effectively Summary Evaluation and Rating		<p>The Shining Tree alignment option may be more easily accessible for construction. Higher electrical transmission losses are likely due to the length of this alternative alignment.</p> <p><b>Summary Rating: Acceptable</b></p>	<p>The Cross-Country alignment would provide some initial challenges with regards to accessibility. Obtainment of surface rights to construct access roads may cause schedule delays.</p> <p><b>Summary Rating: Acceptable</b></p>

**APPENDIX U9**

<b>Transmission Line Alignment</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A Shining Tree Alignment</b>	<b>B Cross-Country Alignment</b>
<b>Effects to the Physical and Biological Environments</b>			
Effect on air quality and climate	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	<u>Advantages</u> <ul style="list-style-type: none"> <li>Negligible air emissions during the construction phase due to winter construction</li> <li>Negligible emissions generated during the operations phase</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Minimal air emissions during the construction phase</li> <li>Negligible emissions generated during the operations phase</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Winter construction period, which would aid in reducing air emissions, potentially missed due to EA consultation and permitting process</li> </ul>
	Emission rates of greenhouse gases (GHGs)	<u>Advantages</u> <ul style="list-style-type: none"> <li>Minimal GHG emissions during the construction phase</li> <li>Negligible GHG emissions during the operations phase due to maintenance activities</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Minimal GHG emissions during the construction phase</li> <li>Less vegetation clearance requirement translates to less sequestration potential removal</li> <li>Negligible GHG emissions during the operations phase due to maintenance activities</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Compared to the alternative, somewhat higher GHG emissions due to longer distance and construction</li> <li>Higher vegetation clearance requirement translates to more sequestration potential removal</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>

**APPENDIX U9**

<b>Transmission Line Alignment</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A Shining Tree Alignment</b>	<b>B Cross-Country Alignment</b>
Effect on fish and aquatic habitat	Attainment or maintenance of surface water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Low potential for the degradation of water quality during the operations phase</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Low potential for the degradation of water quality during the operations phase</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Dust, erosion and potential for fuel spills during the construction phase could affect water quality if it enters a watercourse or body, also affecting fish</li> <li>• The use of industry best practices during construction can avoid or mitigate these potential effects</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Dust, erosion and potential fuel spills during the construction phase could affect water quality if it enters a watercourse or body, also affecting fish</li> <li>• The use of industry best practices during construction can avoid or mitigate these potential effects</li> </ul>
	Maintenance of flows and water levels in streams and lakes suitable to support aquatic species and habitat	<u>Advantages</u> <ul style="list-style-type: none"> <li>• No in-water works</li> <li>• Construction near water bodies would be in the winter, minimizing disturbance of surface waters</li> <li>• Crossings overhead and not in water, thus no effects expected</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• No in-water works</li> <li>• Construction near water bodies would be in the winter, minimizing disturbance of surface waters</li> <li>• Crossings overhead and not in water, thus no effects expected</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>
	Maintenance of fish population	n/a	n/a
Maintenance of groundwater flows, levels and quality	n/a	n/a	

**APPENDIX U9**

<b>Transmission Line Alignment</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A Shining Tree Alignment</b>	<b>B Cross-Country Alignment</b>
Effect on Wetlands	Attainment or maintenance of water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	<u>Advantages</u> <ul style="list-style-type: none"> <li>Construction during winter would help maintain water quality</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Construction during winter would help maintain water quality</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Winter construction period potentially missed due to EA consultation and permitting process</li> </ul>
	Area, type and quality (functionality) of terrestrial habitat that would be displaced or altered	<u>Advantages</u> <ul style="list-style-type: none"> <li>Area to be impacted is negligible</li> <li>Limited to line poles and cables</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Area to be impacted is negligible</li> <li>Limited to line poles and cables</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
	Maintenance of wetland connectivity	n/a	n/a
Effect on terrestrial species and habitat	Area, type and quality (functionality) of terrestrial habitat that would be displaced or altered	<u>Advantages</u> <ul style="list-style-type: none"> <li>Some forest habitat would be removed, and replaced by grassland or shrub land</li> <li>Some species may benefit from additional forest edge habitat, even more so compared to the alternative</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Some forest habitat would be removed, and replaced by grassland or shrub land</li> <li>Some species may benefit from additional forest edge habitat</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Further clearing of the existing transmission line corridor would remove forested terrestrial habitat</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Clearing of the transmission line corridor would remove denser forested terrestrial habitat</li> </ul>
	Potential for noise (or other harm or harassment) related disturbance	<u>Advantages</u> <ul style="list-style-type: none"> <li>Effects limited to construction phase</li> <li>Limited potential for disturbance due to winter construction</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Effects limited to construction phase</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Potential disturbances due to noise during construction phase</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Potential disturbances due to noise during construction phase</li> </ul>

**APPENDIX U9**

<b>Transmission Line Alignment</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A Shining Tree Alignment</b>	<b>B Cross-Country Alignment</b>
Effect on terrestrial species and habitat	Maintenance or provision of plant dispersion and wildlife movement corridors	<u>Advantages</u> <ul style="list-style-type: none"> <li>Existing transmission line corridor already opportunistically used as a wildlife movement corridor – further clearing for the transmission line would expand this corridor</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Would create a new transmission line corridor which would likely be used by wildlife as a movement corridor</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
	Maintenance of wildlife population	n/a	n/a
Effect on Species at Risk (SAR)	Sensitivity level of involved species (Endangered, Threatened, Special Concern)	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Whip-poor-wills (Threatened – Ontario ESA) and Common Nighthawks (Special Concern – Ontario ESA) have been recorded (heard) from the centre of the southern section of the alignment between the Shining Tree DS and the Project site</li> <li>Little brown myotis bats (Endangered – Ontario ESA) have been recorded</li> <li>ESA permits may be required</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Little brown myotis bats (Endangered – Ontario ESA) have been recorded. Preliminary indications suggest that a somewhat higher abundance of the bats are likely to be found along this alignment</li> </ul>
	Area, type and quality of SAR territories or habitat that would be displaced	<u>Advantages</u> <ul style="list-style-type: none"> <li>Expansion of the corridor (clearing) for the transmission line alignment could create Whip-poor-will habitat, but may potentially affect the Whip-poor-wills using the area long the southern section of the alignment</li> <li>No bat hibernacula identified</li> <li>ESA permits or letters of acceptance from the MNR may be required, with potential scheduling delays</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Clearing of the transmission line alignment could create new Whip-poor-will habitat</li> <li>No bat hibernacula identified</li> <li>ESA permits from the MNR likely required, with a higher potential for scheduling delays</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>

**APPENDIX U9**

<b>Transmission Line Alignment</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A Shining Tree Alignment</b>	<b>B Cross-Country Alignment</b>
Effect on Species at Risk (SAR)	Potential for noise (or other harm or harassment) related disturbance	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Effects limited to construction phase</li> <li>• Limited potential for disturbance due to winter construction</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Effects limited to construction phase</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Lower potential disturbances due to noise during winter construction phase</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Higher potential disturbances due to noise during construction phase</li> </ul>
	Maintenance or provision of wildlife movement corridors	See equivalent indicator in Effects on terrestrial species and habitat	See equivalent indicator in Effects on terrestrial species and habitat
Effects to the Physical and Biological Environments Summary Evaluation and Rating		Most physical and biological impacts at the Shining Tree alignment would occur during the construction phase and can be mitigated. These can be further minimized by commencing construction during the winter. Habitat changes may affect some species, but can benefit others, such as Whip-poor-wills. Additional environmental permits or acceptances may be required.  <b>Summary Rating: Acceptable</b>	Most physical and biological impacts at the Cross-Country alignment would occur during the construction phase and can be mitigated. Construction during the winter may not be possible due to EA consultation and permitting processes, potentially causing Project delays. This shorter alignment will imply less clearing (~120 km in total, ~155 ha less to clear). Habitat changes may affect some species, but can benefit others, such as Whip-poor-wills. Additional environmental permits are more likely to be required for this alternative.  <b>Summary Rating: Preferred</b>
<b>Effects to the Human Environment</b>			
Effect on local residents and recreational users	Maintenance of property values	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Follows existing transmission line corridors and would have the least impact on property values</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Somewhat remote option, but may impact the value of nearby cottages and properties</li> </ul>

**APPENDIX U9**

<b>Transmission Line Alignment</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A Shining Tree Alignment</b>	<b>B Cross-Country Alignment</b>
Effect on local residents and recreational users	Maintenance or improvement of income opportunities	<u>Advantages</u> <ul style="list-style-type: none"> <li>Labour and materials would be required for construction</li> <li>Local timber businesses may benefit from employment opportunities and availability of merchantable timber</li> <li>Could support future resource development in the local area</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Labour and materials would be required for construction</li> <li>Local timber businesses may benefit from employment opportunities and availability of merchantable timber</li> <li>Could support future resource development in the local area</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
	Maintenance or provision of local access	<u>Advantages</u> <ul style="list-style-type: none"> <li>Existing corridor facilitates access to some areas used for recreational purposes</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Newly created corridor may facilitate access to some areas used for recreational or commercial purposes</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>During the construction phase, may limit access/use of trap cabins along the east-west section of this alignment</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Potential for discontinued or limited access to some areas</li> <li>May create human conflicts with wildlife using newly created corridor (e.g., bears)</li> </ul>
	Attainment of noise by-law guidelines, and /or background sound levels if already above the guidelines	<u>Advantages</u> <ul style="list-style-type: none"> <li>Construction would comply with by-law requirements</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Construction would comply with by-law requirements</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
	Non-interference with water well supply systems	n/a	n/a
	Non-interference with surface water drinking supply	<u>Advantages</u> <ul style="list-style-type: none"> <li>Chemical sprays would not be used to maintain the transmission line ROW corridor</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Chemical sprays would not be used to maintain the transmission line ROW corridor</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>



APPENDIX U9

Transmission Line Alignment			
Performance Objective / Criteria	Indicator	Alternatives	
		A Shining Tree Alignment	B Cross-Country Alignment
Effect on local residents and recreational users	Potential for general disturbance and adverse effects on aesthetics	<u>Advantages</u> <ul style="list-style-type: none"> <li>Aesthetics already affected by existing transmission line and cleared ROW corridors</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> <li>Local residents may not support a high voltage transmission line close to their residences</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>The transmission line may be visible from selected locations, though it would generally be constructed away from roads and settled areas as much as possible</li> <li>Local residents may not support a high voltage transmission line close to their residences</li> <li>This alignment may affect more trap cabins than the alternative.</li> </ul>
	Potential for adverse health and safety effects	See equivalent indicators in Public health and safety	See equivalent indicators in Public health and safety
Effect on infrastructure	Maintenance or provision of local and regional access	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Possible minor interference with local traffic during the construction phase</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Possible minor interference with local traffic during the construction phase</li> </ul>
	Maintenance and reliability of power supply systems	<u>Advantages</u> <ul style="list-style-type: none"> <li>May reinforce the local electrical grid</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>May reinforce the local electrical grid</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
	Maintenance and reliability of pipeline systems	n/a	n/a
Public health and safety	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	n/a	n/a

APPENDIX U9

Transmission Line Alignment			
Performance Objective / Criteria	Indicator	Alternatives	
		A Shining Tree Alignment	B Cross-Country Alignment
Public health and safety	Maintenance or attainment of the quality of drinking water supply systems	n/a	n/a
	Managing the potential for adverse electromagnetic exposure	<u>Advantages</u> <ul style="list-style-type: none"> <li>Generally located in remote area and away from roads</li> <li>Cottages and tourism facilities in the area are generally inhabited seasonally and therefore limited potential for health risks</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Generally located in remote area and away from roads</li> <li>Cottages and tourism facilities in the area are generally inhabited seasonally and therefore limited potential for health risks</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
	Maintaining safe road traffic conditions that are within the domain of IAMGOLD control	n/a	n/a
	Maintenance or provision of health services	n/a	n/a
Effect on local businesses and economy	Maintenance or improvement of local business and economic opportunities (including commercial bait harvesters and trappers)	<u>Advantages</u> <ul style="list-style-type: none"> <li>Opportunity for local businesses or service providers to bid on construction and maintenance of transmission line</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Opportunity for local businesses or service providers to bid on construction and maintenance of transmission line</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>May potentially affect local bait harvesters, trappers, etc.</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>May potentially affect local bait harvesters, trappers, etc.</li> </ul>

**APPENDIX U9**

<b>Transmission Line Alignment</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A Shining Tree Alignment</b>	<b>B Cross-Country Alignment</b>
Effect on local businesses and economy	Continued access to areas used for natural resource harvesting by tourism operators	<u>Advantages</u> <ul style="list-style-type: none"> <li>Existing corridor facilitates access to some areas, and expansion thereof may improve access</li> <li>Opportunistically used by wildlife which may increase wildlife presence and increased hunting/trapping success</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Newly created corridor may facilitate access to some areas</li> <li>Would provide a new corridor which may be used by wildlife and may increase wildlife presence and increased hunting/trapping success</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Could remove small portions of resource use areas (trap lines, etc.)</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Could remove small portions of resource use areas (trap lines, etc.)</li> </ul>
Effect on tourism and recreation	Maintenance or improvement of tourism and recreational opportunities	Same as above	Same as above
Regional economy	Maintenance or improvement of the regional economy	<u>Advantages</u> <ul style="list-style-type: none"> <li>Opportunity for local businesses or service providers to bid on clearing and construction of transmission line</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Opportunity for local businesses or service providers to bid on clearing and construction of transmission line</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
Effect on government services	Maintenance or improvement on the capacity of existing health, education and family support services	<u>Advantages</u> <ul style="list-style-type: none"> <li>Construction of the transmission line may stimulate the local and regional economy</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Construction of the transmission line may stimulate the local and regional economy</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
Effect on resource management objectives	Consistency with established and planned resource management objectives such as Bear Management Areas and Sustainable Forest Management units	n/a	n/a

APPENDIX U9

Transmission Line Alignment			
Performance Objective / Criteria	Indicator	Alternatives	
		A Shining Tree Alignment	B Cross-Country Alignment
Excessive waste materials	Limiting the generation of unnecessary waste materials	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Merchantable timber would be provided to local forestry licence holder</li> <li>• No waste streams would be generated</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Merchantable timber would be provided to local forestry licence holder</li> <li>• No waste streams would be generated</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Construction wastes (expected to be minimal) would be deposited in a licensed landfill</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Construction wastes (expected to be minimal) would be deposited in a licensed landfill</li> </ul>
	Potential for material to be recycled/reused	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Same as above</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Same as above</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>
Effect on built heritage and cultural heritage landscapes	Destruction of any, or part of any, built heritage resources, cultural heritage landscapes, heritage attributes or features	At this time, no Archaeological Assessment has been conducted for the alignments. It is unlikely that there will be no archaeological sites for the Cross Country Alignment. Sites on the Shining Tree Alignment may have been assessed or are already disturbed. Sites will be managed and mitigated in accordance with Ministry of Tourism, Culture and Sport's (MTCS) <i>Standards and Guidelines for Consulting Archaeologists</i> .	
	Alteration that is not sympathetic or is incompatible with the historic fabric and appearance of cultural heritage resources	Cultural Heritage Landscapes and Built Heritage Resources may be present and will be assessed in accordance with MTCS standards. Management options will be developed if present.	
	Shadows created that alter the appearance of a built heritage resource, cultural heritage landscape, heritage attribute or change the viability of a natural feature or plantings, such as a garden		

**APPENDIX U9**

<b>Transmission Line Alignment</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A Shining Tree Alignment</b>	<b>B Cross-Country Alignment</b>
Effect on built heritage and cultural heritage landscapes	Isolation of a built heritage resource or heritage attribute from its surrounding environment, context or a significant relationship	<p>At this time, no Archaeological Assessment has been conducted for the alignments. It is unlikely that there will be no archaeological sites for the Cross Country Alignment. Sites on the Shining Tree Alignment may have been assessed or are already disturbed. Sites will be managed and mitigated in accordance with Ministry of Tourism, Culture and Sport's (MTCS) <i>Standards and Guidelines for Consulting Archaeologists</i>.</p> <p>Cultural Heritage Landscapes and Built Heritage Resources may be present and will be assessed in accordance with MTCS standards. Management options will be developed if present.</p>	
	Direct or indirect obstruction of significant views or vistas within, from or of built heritage resources or cultural heritage landscapes		
	A change in land use such as rezoning a battlefield from open space to residential use, allowing new development or site alteration to fill in the formerly open spaces		
	Avoidance of damage to built heritage resources or cultural heritage landscapes, or document cultural resources if damage or relocation cannot be reasonably avoided		
Effect on archaeological resources	Land disturbances (such as a change in grade that alters soils and drainage patterns that adversely affect an archaeological resource)	See above	

APPENDIX U9

Transmission Line Alignment			
Performance Objective / Criteria	Indicator	Alternatives	
		A Shining Tree Alignment	B Cross-Country Alignment
Effect on archaeological resources	Avoidance of archaeological sites, or mitigation through excavation of the site, if avoidance is not possible, as per the Standards and Guidelines for Consultant Archaeologists (2010), including other forms of mitigation through engagement with Aboriginal communities	See above	
Effects on First Nation reserves and communities	Maintenance or improvement of First Nation reserve and community conditions (subject to the limitations of Company capacity and community members' personal choice)	<u>Advantages</u> <ul style="list-style-type: none"> <li>Potential employment opportunities during construction and maintenance</li> <li>First Nation construction companies would have an opportunity to bid on the construction and maintenance works</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Potential employment opportunities during construction and maintenance</li> <li>First Nation construction companies would have an opportunity to bid on the construction and maintenance works</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
Effect on spiritual, ceremonial sites	Avoidance of damage or disturbance to known spiritual and ceremonial sites; or implement other forms protection/preservation supported by Aboriginal communities	<u>Advantages</u> <ul style="list-style-type: none"> <li>Any spiritual, ceremonial, cultural heritage and archaeological sites identified through baseline studies would be avoided</li> <li>Any sites discovered during construction can be protected and/or avoided</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Any spiritual, ceremonial, cultural heritage and archaeological sites identified through baseline studies would be avoided</li> <li>Any sites discovered during construction can be protected and/or avoided</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
Effects on traditional land use	Maintain access to traditional lands for current traditional land uses, except as otherwise agreed to with local First Nations and Métis	<u>Advantages</u> <ul style="list-style-type: none"> <li>Expanded corridor may improve access to more remote areas</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>New corridor may improve access to more remote areas</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Potential for human conflicts with wildlife using corridors (e.g., bears)</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Potential for human conflicts with wildlife using corridors (e.g., bears)</li> </ul>

**APPENDIX U9**

<b>Transmission Line Alignment</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A Shining Tree Alignment</b>	<b>B Cross-Country Alignment</b>
Effects on Aboriginal and Treaty Rights	Avoid infringement of Aboriginal and Treaty Rights, except as otherwise agreed to with local First Nations and Métis	<u>Advantages</u> <ul style="list-style-type: none"> <li>Any impacts would be managed or mitigated through benefit or other agreements</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Any impacts would be managed or mitigated through benefit or other agreements</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
Effects to the Human Environment Summary Evaluation and Rating		<p>The Shining Tree alignment is acceptable as it largely avoids populated areas and follows existing transmission lines and corridors, resulting in fewer new impacts on the human environment while providing for economic and employment opportunities. Local seasonal residents may not support a high voltage transmission line in proximity to their residences.</p> <p><b>Summary Rating: Acceptable</b></p>	<p>The more direct Cross-Country alignment is acceptable as impacts to the human environment can be mitigated, while providing for economic and employment opportunities. Local residents may not support a high voltage transmission line close to their residences – new disturbances to areas used for recreation may be less acceptable than the alternative, which is already disturbed by the existing transmission line and cleared corridors. This alignment may affect more trap cabins than the alternative.</p> <p><b>Summary Rating: Acceptable</b></p>
<b>Amenability to Reclamation</b>			
Effect on public safety and security	Avoidance of safety and security risks to the general public	<u>Advantages</u> <ul style="list-style-type: none"> <li>Proposed alignment follows existing transmission lines and corridors – any potential risks are known and identified in advance</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
Effect on environmental health and sustainability	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	n/a	n/a

APPENDIX U9

Transmission Line Alignment			
Performance Objective / Criteria	Indicator	Alternatives	
		A Shining Tree Alignment	B Cross-Country Alignment
Effect on environmental health and sustainability	Attainment or maintenance of water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	n/a	n/a
	Restoration of passive drainage systems	n/a	n/a
	Provision of habitats for vegetation and wildlife species, including SAR	<u>Advantages</u> <ul style="list-style-type: none"> <li>Likely continued use as a wildlife corridor</li> <li>Transmission line alignment expansion may increase SAR habitat for Whip-poor-wills and Common Nighthawk</li> <li>Habitat can revert to forested communities if allowed to</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Likely would be used as a wildlife corridor</li> <li>Transmission line alignment development may increase SAR habitat for Whip-poor-wills and Common Nighthawk</li> <li>Habitat can revert to forested communities if allowed to</li> </ul>
Effect on land use	Provide opportunities for productive land uses following the completion of mining activities	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
		<u>Advantages</u> <ul style="list-style-type: none"> <li>May allow hunting, fishing and recreational vehicle use along corridor</li> <li>Higher potential for hand-over to local service provider – reinforce Provincial electrical grid for the local area</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>May allow hunting, fishing and recreational vehicle use along corridor</li> <li>Potential for hand-over to local service provider – reinforce Provincial electrical grid for the local area</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>No ongoing employment / contract opportunities for maintenance if transmission line is removed at closure</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>No ongoing employment / contract opportunities for maintenance if transmission line is removed at closure</li> </ul>



**APPENDIX U9**

<b>Transmission Line Alignment</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A Shining Tree Alignment</b>	<b>B Cross-Country Alignment</b>
Effect on land use	Provide for an aesthetically pleasing site	<u>Advantages</u> <ul style="list-style-type: none"> <li>If transmission line is removed at closure, then area will likely return to a natural state which is valued by cottagers and local residents</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>If transmission line is removed at closure, then area will likely return to a natural state which is valued by cottagers and local residents</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>The transmission line would be visible from selected locations if left in place</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>The transmission line would be visible from selected locations if left in place</li> </ul>
Amenability to Reclamation Summary Evaluation and Rating		Both alternatives are amenable to reclamation.  <b>Summary Rating: Acceptable</b>	Both alternatives are amenable to reclamation.  <b>Summary Rating: Acceptable</b>
<b>Overall Summary Rating</b>		The Shining Tree alignment follows existing transmission line corridors, lowering potential for Project delays due to new claims, land tenure negotiations and environmental permitting. Its longer length raises construction and operational costs and increases electrical transmission losses, but poses the lesser potential effects on the physical, biological and human environments compared to the alternative as the area is already affected by existing transmission lines and ROWs.  <b>Acceptable</b>	The Cross-Country alignment is shorter and more direct to the Project site, greatly reducing construction costs and electrical transmission losses. Land to be cleared is also reduced compared to the alternative (~155 ha less), but sections of currently undisturbed land will be cleared. However, physical, biological and human environment effects are largely expected to be similar, and in some cases less, than the alternative. This alternative has a somewhat higher potential of new claims, land tenure negotiations and other environmental permit requirements.  <b>Preferred</b>

Source: AMEC (2013).



**APPENDIX U10  
OPEN PIT CLOSURE ALTERNATIVES ASSESSMENT**



APPENDIX U10

Mine Closure – Open Pit Mine				
Performance Objective / Criteria	Indicator	Alternatives		
		A Natural flooding	B Enhanced flooding	C Backfill with mineral waste
<b>Cost Effectiveness</b>				
Côté Gold Project Financing	Investor attractiveness or risk	<u>Advantages</u> <ul style="list-style-type: none"> <li>Pit can be flooded passively for a small direct cost</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Utilizing all available water sources, the pit could be flooded in as little as 50 years, thereby reducing longer term site management liabilities</li> <li>Enhanced pit flooding can be achieved at reasonable costs, which would include maintaining, and/or setting up, several pumping stations around the site (most of these would already be in place as part of mine operations)</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Natural flooding on its own would take approximately 100 years, during which the site would have to be managed</li> <li>Fencing, berming or other safety protection would be required, and to be maintained until the pit is fully flooded</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Fencing, berming or other safety protection would be required, and to be maintained until the pit is fully flooded</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Approximately 850 Mt of material (mine rock, overburden) will be removed from the pit; based on the final volume of the pit (~630 Mm<sup>3</sup>), the backfilling cost would be approximately \$3 billion, which is unsustainable and cannot be supported by the Project</li> </ul>

**APPENDIX U10**

<b>Mine Closure – Open Pit Mine</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Natural flooding</b>	<b>B Enhanced flooding</b>	<b>C Backfill with mineral waste</b>
Return on investment (ROI)	Provides a competitive or acceptable ROI	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Flooding the open pit in as little time as reasonably practicable would reduce long term site management costs</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Protracted flooding of the open pit would increase long term site management costs</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• A \$3 billion cost for backfilling is unsustainable and cannot be supported by the Project</li> </ul>
Financial Risk	Provides, or is associated with, a preferred, manageable or acceptable financial risk	n/a	n/a	n/a
Cost Effectiveness	Summary Evaluation and Rating	Natural flooding of the open pit would extend long term site management costs to an unnecessarily long timeframe, which would raise both costs and uncertainties.  <b>Summary Rating: Acceptable</b>	Enhanced flooding of the open pit in as little time as reasonably practicable would reduce long term site management costs. By utilizing all available water sources, flooding can potentially be completed in 50 years, thereby reducing longer term site management liabilities.  <b>Summary Rating: Preferred</b>	The approximate \$3 billion cost to backfill the open pit by conventional means cannot be supported by the Project.  <b>Summary Rating: Unacceptable</b>
<b>Technical Applicability and/or System Integrity and Reliability</b>				
Available Technology	Used elsewhere in similar circumstances, and is predictably effective with contingencies if and as required	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Standard technology with predictable success</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Standard technology with predictable success</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Standard technology with predictable success</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>

**APPENDIX U10**

<b>Mine Closure – Open Pit Mine</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Natural flooding</b>	<b>B Enhanced flooding</b>	<b>C Backfill with mineral waste</b>
Available Technology	New technologies supported by pilot plant or strong theoretical investigations or testing, with contingencies if and as required	n/a	n/a	n/a
Technical Applicability and/or System Integrity and Reliability Summary Evaluation and Rating		Natural flooding of open pits is common practice in the industry.  <b>Summary Rating: Acceptable</b>	Enhanced flooding of open pits is common practice in the industry.  <b>Summary Rating: Acceptable</b>	Backfilling of open pits is standard practice in the industry with no notable risks.  <b>Summary Rating: Acceptable</b>
<b>Ability to Service the Site Effectively</b>				
Service	Provides a guaranteed supply to the site with manageable potential for supply disruption, and/or contingencies available	n/a	n/a	n/a
Accessibility	Accessible land base or infrastructure needed to support component development and operation	n/a	n/a	n/a
Ability to Service the Site Effectively Summary Evaluation and Rating		<b>n/a</b>	<b>n/a</b>	<b>n/a</b>

**APPENDIX U10**

<b>Mine Closure – Open Pit Mine</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Natural flooding</b>	<b>B Enhanced flooding</b>	<b>C Backfill with mineral waste</b>
<b>Effects to the Physical and Biological Environments</b>				
Effect on air quality and climate	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	n/a	n/a	n/a
Effect on air quality and climate	Emission rates of greenhouse gases (GHGs)	n/a	n/a	n/a
Effect on fish and aquatic habitat	Attainment or maintenance of surface water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	<u>Advantages</u> <ul style="list-style-type: none"> <li>Allowing the open pit to flood more slowly can allow for problematic site effluents to be directed to the open pit and held without release for a period of approximately 100 years</li> <li>Pit walls would have more time to react geochemically, potentially affecting water quality</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Flooding the pit more quickly would decrease the period of time to achieve overall passive site water quality management</li> <li>Available time for the pit walls to react geochemically would be reduced</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Flooding the pit slowly would allow the pit walls more time to oxidize, which would further aggravate pit water quality</li> <li>Flooding the pit slowly will increase the period of time to achieve overall site passive water quality management</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Flooding the pit more quickly means that any problematic site effluents would need to be treated and managed to a suitable discharge quality over a shorter period of time</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Alternative does not generate aquatic habitat</li> </ul>



**APPENDIX U10**

<b>Mine Closure – Open Pit Mine</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Natural flooding</b>	<b>B Enhanced flooding</b>	<b>C Backfill with mineral waste</b>
Effect on fish and aquatic habitat	Maintenance of flows and water levels in streams and lakes suitable to support aquatic species and habitat	<u>Advantages</u> <ul style="list-style-type: none"> <li>Allowing closed out portions of the Project site to drain naturally, including the TMF, would be optimal for maintaining downstream river flows and associated fish habitat, provided that runoff quality is acceptable</li> <li>Could potentially generate new aquatic and fish habitat</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent, depending on the extent to which site catchments are diverted to accelerate flooding of the open pit</li> <li>A more balanced approach could be used, where some portion of local catchments would be diverted to the open pit</li> <li>Flooding will largely be enhanced by pumping water from seepage collection ponds and other Project water facilities</li> <li>Could potentially generate new aquatic and fish habitat</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Backfilling the open pit with mine rock and overburden would allow site drainages to operate in a more natural condition, within a comparatively shorter period of time, provided that runoff quality is acceptable</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Diverting site catchments to the open pit could affect local flows, and hence fish habitat</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent, provided that runoff quality is acceptable</li> </ul>
	Maintenance of fish population	n/a	n/a	n/a
	Maintenance of groundwater flows, levels and quality	n/a	n/a	n/a

APPENDIX U10

Mine Closure – Open Pit Mine				
Performance Objective / Criteria	Indicator	Alternatives		
		A Natural flooding	B Enhanced flooding	C Backfill with mineral waste
Effect on Wetlands	Attainment or maintenance of water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	n/a	n/a	n/a
	Area, type and quality (functionality) of terrestrial habitat that would be displaced or altered	n/a	n/a	n/a
	Maintenance of wetland connectivity	n/a	n/a	n/a
Effect on terrestrial species and habitat	Area, type and quality (functionality) of terrestrial habitat that would be displaced or altered	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Backfilling the open pit with mine rock and overburden would allow for the redevelopment of terrestrial habitats suitable for vegetation and wildlife within the open pit area</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Alternative does not generate terrestrial habitat at closure</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Alternative does not generate terrestrial habitat at closure</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>
	Potential for noise (or other harm or harassment) related disturbance	n/a	n/a	n/a

**APPENDIX U10**

<b>Mine Closure – Open Pit Mine</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Natural flooding</b>	<b>B Enhanced flooding</b>	<b>C Backfill with mineral waste</b>
Effect on terrestrial species and habitat	Maintenance or provision of plant dispersion and wildlife movement corridors	n/a	n/a	n/a
	Maintenance of wildlife population	n/a	n/a	n/a
Effect on Species at Risk (SAR)	Sensitivity level of involved species (Endangered, Threatened, Special Concern)	Little brown myotis bats (Endangered – Ontario ESA) have been recorded around the Project site and may persist in the area through to closure.		
	Area, type and quality of SAR territories or habitat that would be displaced	<u>Advantages</u> <ul style="list-style-type: none"> <li>No bat hibernacula identified prior to pit development – may not need to provide compensatory habitat upon closure</li> <li>Could potentially generate new aquatic and fish habitat</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>No bat hibernacula identified prior to pit development – may not need to provide compensatory habitat upon closure</li> <li>Could potentially generate new aquatic and fish habitat</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>No bat hibernacula identified prior to pit development – may not need to provide compensatory habitat upon closure</li> <li>Alternative would generate a large area of terrestrial habitat at closure</li> <li>Habitats could be made conducive to selected SAR species such as Common Nighthawks and Whip-poor-wills</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Does not generate terrestrial habitat at closure</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Does not generate terrestrial habitat at closure</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>

**APPENDIX U10**

<b>Mine Closure – Open Pit Mine</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Natural flooding</b>	<b>B Enhanced flooding</b>	<b>C Backfill with mineral waste</b>
Effect on Species at Risk (SAR)	Potential for noise (or other harm or harassment) related disturbance	<u>Advantages</u> <ul style="list-style-type: none"> <li>Limited potential for disturbance during closure phase</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Limited potential for disturbance during closure phase</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Potential for disturbance due to backfilling activities, limited to closure phase</li> </ul>
	Maintenance or provision of wildlife movement corridors	n/a	n/a	n/a
Effects to the Physical and Biological Environments Summary Evaluation and Rating		Allowing the pit to flood more slowly would provide for longer term effluent containment without release, and would also divert less runoff away from site area watercourses, thereby more effectively maintaining fish habitat. The disadvantages would be longer term exposure of the pit walls to oxidation, and a longer period of time to establish passive site drainage for the open pit.  <b>Summary Rating: Acceptable</b>	Flooding the pit more quickly would shorten the period of time needed to establish passive site drainage from all parts of the site and would reduce the period of pit wall exposure to oxidation; but an aggressive pit flooding approach may have adverse effects on downstream flows and fish habitat.  <b>Summary Rating: Preferred</b>	Backfilling the pit would also allow for the re-establishment of terrestrial habitats to support vegetation and wildlife, but would eliminate the possibility of generating aquatic habitat.  <b>Summary Rating: Acceptable</b>
<b>Effects to the Human Environment</b>				
Effect on local residents and recreational users	Maintenance of property values	n/a	n/a	n/a
	Maintenance or improvement of income opportunities	n/a	n/a	n/a
	Maintenance or provision of local access	n/a	n/a	n/a

**APPENDIX U10**

<b>Mine Closure – Open Pit Mine</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Natural flooding</b>	<b>B Enhanced flooding</b>	<b>C Backfill with mineral waste</b>
Effect on local residents and recreational users	Attainment of noise by-law guidelines, and /or background sound levels if already above the guidelines	n/a	n/a	n/a
	Non-interference with water well supply systems	n/a	n/a	n/a
	Non-interference with surface water drinking supply	n/a	n/a	n/a
Effect on local residents and recreational users	Potential for general disturbance and adverse affects on aesthetics	n/a	n/a	n/a
	Potential for adverse health and safety effects	n/a	n/a	n/a
Effect on infrastructure	Maintenance or provision of local and regional access	n/a	n/a	n/a
	Maintenance and reliability of power supply systems	n/a	n/a	n/a
	Maintenance and reliability of pipeline systems	n/a	n/a	n/a
Public health and safety	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	n/a	n/a	n/a

**APPENDIX U10**

<b>Mine Closure – Open Pit Mine</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Natural flooding</b>	<b>B Enhanced flooding</b>	<b>C Backfill with mineral waste</b>
Public health and safety	Maintenance or attainment of the quality of drinking water supply systems	n/a	n/a	n/a
	Managing the potential for adverse electromagnetic exposure	n/a	n/a	n/a
	Maintaining safe road traffic conditions that are within the domain of IAMGOLD control	n/a	n/a	n/a
	Maintenance or provision of health services	n/a	n/a	n/a
Effect on local businesses and economy	Maintenance or improvement of local business and economic opportunities (including commercial bait harvesters and trappers)	n/a	n/a	n/a
	Continued access to areas used for natural resource harvesting by tourism operators	n/a	n/a	n/a
Effect on tourism and recreation	Maintenance or improvement of tourism and recreational opportunities	n/a	n/a	n/a
Regional economy	Maintenance or improvement of the regional economy	n/a	n/a	n/a

**APPENDIX U10**

<b>Mine Closure – Open Pit Mine</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Natural flooding</b>	<b>B Enhanced flooding</b>	<b>C Backfill with mineral waste</b>
Effect on government services	Maintenance or improvement on the capacity of existing health, education and family support services	n/a	n/a	n/a
Effect on resource management objectives	Consistency with established and planned resource management objectives such as Bear Management Areas and Sustainable Forest Management units	n/a	n/a	n/a
Excessive waste materials	Limiting the generation of unnecessary waste materials	n/a	n/a	n/a
	Potential for material to be recycled/reused	n/a	n/a	n/a
Effect on built heritage and cultural heritage landscapes	Destruction of any, or part of any, built heritage resources, cultural heritage landscapes, heritage attributes or features	n/a	n/a	n/a
	Alteration that is not sympathetic or is incompatible, with the historic fabric and appearance of cultural heritage resources	n/a	n/a	n/a

APPENDIX U10

Mine Closure – Open Pit Mine				
Performance Objective / Criteria	Indicator	Alternatives		
		A Natural flooding	B Enhanced flooding	C Backfill with mineral waste
Effect on built heritage and cultural heritage landscapes	Shadows created that alter the appearance of a built heritage resource, cultural heritage landscape, heritage attribute or change the viability of a natural feature or plantings, such as a garden	n/a	n/a	n/a
	Isolation of a built heritage resource or heritage attribute from its surrounding environment, context or a significant relationship	n/a	n/a	n/a
	Direct or indirect obstruction of significant views or vistas within, from or of built heritage resources or cultural heritage landscapes	n/a	n/a	n/a
	A change in land use such as rezoning a battlefield from open space to residential use, allowing new development or site alteration to fill in the formerly open spaces	n/a	n/a	n/a



**APPENDIX U10**

<b>Mine Closure – Open Pit Mine</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Natural flooding</b>	<b>B Enhanced flooding</b>	<b>C Backfill with mineral waste</b>
Effect on built heritage and cultural heritage landscapes	Avoidance of damage to built heritage resources or cultural heritage landscapes, or document cultural resources if damage or relocation cannot be reasonably avoided	n/a	n/a	n/a
Effect on archaeological resources	Land disturbances (such as a change in grade that alters soils and drainage patterns that adversely affect an archaeological resource)	n/a	n/a	n/a
	Avoidance of archaeological sites, or mitigation through excavation of the site, if avoidance is not possible, as per the Standards and Guidelines for Consultant Archaeologists (2010), including other forms of mitigation through engagement with Aboriginal communities	n/a	n/a	n/a

APPENDIX U10

Mine Closure – Open Pit Mine				
Performance Objective / Criteria	Indicator	Alternatives		
		A Natural flooding	B Enhanced flooding	C Backfill with mineral waste
Effects on First Nation reserves and communities	Maintenance or improvement of First Nation reserve and community conditions (subject to the limitations of Company capacity and community members' personal choice)	<u>Advantages</u> <ul style="list-style-type: none"> <li>No known potential for adverse effects</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>No known potential for adverse effects</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>No known potential for adverse effects</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
Effect on spiritual, ceremonial sites	Avoidance of damage or disturbance to known spiritual and ceremonial sites; or implement other forms protection/preservation supported by Aboriginal communities	n/a	n/a	n/a
Effects on traditional land use	Maintain access to traditional lands for current traditional land uses, except as otherwise agreed to with local First Nations and Métis	n/a	n/a	n/a
Effects on Aboriginal and Treaty Rights	Avoid infringement of Aboriginal and Treaty Rights, except as otherwise agreed to with local First Nations and Métis	n/a	n/a	n/a
Effects to the Human Environment Summary Evaluation and Rating		n/a	n/a	n/a

APPENDIX U10

Mine Closure – Open Pit Mine				
Performance Objective / Criteria	Indicator	Alternatives		
		A Natural flooding	B Enhanced flooding	C Backfill with mineral waste
<b>Amenability to Reclamation</b>				
Effect on public safety and security	Avoidance of safety and security risks to the general public	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• The need for long term fencing or other access protection is greatly diminished compared with the natural flooding alternative (up to approximately 50 years)</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Open pit would have to be fenced, bermed, or otherwise protected against inadvertent public access for many years</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Fencing or other access protection still required until the pit is flooded</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Fencing or other access protection still required until the pit is filled</li> </ul>
Effect on environmental health and sustainability	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	n/a	n/a	n/a
	Attainment or maintenance of water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	Protection of aquatic life would be maintained in the receiving water through management of pit lake water quality discharge, irrespective of the method of open pit mine reclamation (flooding or backfilling).		

**APPENDIX U10**

<b>Mine Closure – Open Pit Mine</b>					
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>			
		<b>A Natural flooding</b>	<b>B Enhanced flooding</b>	<b>C Backfill with mineral waste</b>	
Effect on environmental health and sustainability	Restoration of passive drainage systems	<u>Advantages</u> • Alternative would allow for the development of passive drainage systems	<u>Advantages</u> • Alternative would allow for the development of passive drainage systems	<u>Advantages</u> • Alternative has potential for the development of passive drainage systems	
		<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent	
	Provision of habitats for vegetation and wildlife species, including SAR	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent	<u>Advantages</u> • Backfilling the open pit with mine rock and overburden would allow terrestrial habitats suitable for wildlife to be redeveloped within the open pit area	
		<u>Disadvantages</u> • Alternative does not generate terrestrial habitat at closure	<u>Disadvantages</u> • Alternative does not generate terrestrial habitat at closure	<u>Disadvantages</u> • None apparent	
	Effect on land use	Provide opportunities for productive land uses following the completion of mining activities	<u>Advantages</u> • Opportunities for productive land uses associated with this alternative at closure are limited to the development of fish and aquatic habitat	<u>Advantages</u> • Opportunities for productive land uses associated with this alternative at closure are limited to the development of fish and aquatic habitat	<u>Advantages</u> • Opportunities for productive land uses associated with this alternative at closure are limited to the development of terrestrial habitat for vegetation and wildlife species
			<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent
Provide for an aesthetically pleasing site		<u>Advantages</u> • All alternatives are broadly similar in their potential to develop an aesthetically pleasing site at closure	<u>Advantages</u> • All alternatives are broadly similar in their potential to develop an aesthetically pleasing site at closure	<u>Advantages</u> • All alternatives are broadly similar in their potential to develop an aesthetically pleasing site at closure	
		<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent	

**APPENDIX U10**

<b>Mine Closure – Open Pit Mine</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Natural flooding</b>	<b>B Enhanced flooding</b>	<b>C Backfill with mineral waste</b>
<b>Amenability to Reclamation Summary Evaluation and Rating</b>		<p>Allowing the pit to flood more slowly would provide for longer term effluent containment without release, and would also divert less runoff away from site area watercourses, thereby more effectively maintaining fish habitat. The disadvantages would be longer term exposure of the pit walls to oxidation, and a longer period of time to establish passive site drainage for the open pit.</p> <p><b>Summary Rating: Acceptable</b></p>	<p>Flooding the pit more quickly would shorten the period of time needed to establish passive site drainage from all parts of the site and would reduce the period of pit wall exposure to oxidation. As flooding will be enhanced by pumping from seepage collection ponds and other Project water management facilities, flow of water bodies will likely not be affected.</p> <p><b>Summary Rating: Preferred</b></p>	<p>Backfilling the pit would allow for the re-establishment of terrestrial habitats to support wildlife.</p> <p><b>Summary Rating: Acceptable</b></p>
	<b>Overall Summary Rating</b>	<p>Natural flooding, while an acceptable alternative would extend long-term management costs, potentially raising uncertainties. It would provide potential new fish and aquatic habitat, though passive drainage may take a longer period of time to become established.</p> <p><b>Acceptable</b></p>	<p>Enhanced flooding of the open pit is very similar to the natural flooding alternative, but would require much less time to fully flood the pit. It would provide potential new fish and aquatic habitat. This alternative would reduce long-term management costs and uncertainties, and likely will not affect other downstream flows as water is pumped for pit flooding.</p> <p><b>Preferred</b></p>	<p>Though backfilling by conventional means would establish terrestrial habitat, backfilling costs cannot be supported by the Project, making this an unviable option.</p> <p><b>Unacceptable</b></p>

Source: AMEC (2013).



**APPENDIX U11**  
**WATER MANAGEMENT SYSTEM CLOSURE ALTERNATIVES ASSESSMENT**





APPENDIX U11

Mine Closure – Water Management System				
Performance Objective / Criteria	Indicator	Alternatives		
		A Leave in place	B Partial removal	C Full removal
<b>Cost Effectiveness</b>				
Côté Gold Project Financing	Investor attractiveness or risk	<u>Advantages</u> <ul style="list-style-type: none"> <li>Leaving the water management system in place greatly reduces capital closure costs</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Partial removal of the water management system (compared to full removal) reduces capital closure costs</li> <li>The proposed demolition landfill would be used for disposal of non-hazardous wastes</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Area will likely return to a more natural condition over time post-rehabilitation, which may be seen positively by local cottagers, tourism operators and authorities</li> <li>No capital maintenance costs</li> <li>The proposed demolition landfill would be used for disposal of non-hazardous wastes</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Maintenance costs would be required indefinitely for some of the system components, particularly the mine water pond, polishing pond and seepage collection systems</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Maintenance costs would be required indefinitely for some of the system components, particularly the mine water pond, polishing pond and seepage collection systems</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Full removal of the water management system will require greater closure capital costs</li> </ul>
Return on investment (ROI)	Provides a competitive or acceptable ROI	<u>Advantages</u> <ul style="list-style-type: none"> <li>Reduced closure costs</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Lower closure costs</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>No maintenance costs</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Maintenance costs</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Maintenance costs</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Closure costs</li> </ul>
Financial Risk	Provides, or is associated with, a preferred, manageable or acceptable financial risk	n/a	n/a	n/a

APPENDIX U11

Mine Closure – Water Management System				
Performance Objective / Criteria	Indicator	Alternatives		
		A Leave in place	B Partial removal	C Full removal
Cost effectiveness Summary Evaluation and Rating		<p>Leaving the water management system in place is a cost-effective alternative and is used in the industry. However, maintenance costs would be required indefinitely.</p> <p><b>Summary Rating: Acceptable</b></p>	<p>Partial removal of the water management system is a cost-effective alternative compared to full removal, and is commonplace in the industry. Use of the proposed demolition landfill for non-hazardous waste would be used. Reduced maintenance costs would be required indefinitely, compared to leaving the entire system in place.</p> <p><b>Summary Rating: Preferred</b></p>	<p>Removal of the water management system requires greater capital closure costs, despite use of the proposed demolition landfill for non-hazardous wastes, but eliminates the need for maintenance costs. This alternative however may be unnecessarily expensive and may incur additional disturbance to the environment during closure.</p> <p><b>Summary Rating: Acceptable</b></p>
<b>Technical Applicability and/or System Integrity and Reliability</b>				
Available Technology	Used elsewhere in similar circumstances, and is predictably effective with contingencies if and as required	n/a	n/a	n/a
	New technologies supported by pilot plant or strong theoretical investigations or testing, with contingencies if and as required	n/a	n/a	n/a
Technical Applicability and/or System Integrity and Reliability Summary Evaluation and Rating		n/a	n/a	n/a

**APPENDIX U11**

<b>Mine Closure – Water Management System</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Leave in place</b>	<b>B Partial removal</b>	<b>C Full removal</b>
<b>Ability to Service the Site Effectively</b>				
Service	Provides a guaranteed supply to the site with manageable potential for supply disruption, and/or contingencies available	n/a	n/a	n/a
Accessibility	Accessible land base or infrastructure needed to support component development and operation	n/a	n/a	n/a
Ability to Service the Site Effectively Summary Evaluation and Rating		<b>n/a</b>	<b>n/a</b>	<b>n/a</b>
<b>Effects to the Physical and Biological Environments</b>				
Effect on air quality and climate	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	n/a	n/a	n/a
	Emission rates of greenhouse gases (GHGs)	n/a	n/a	n/a

**APPENDIX U11**

<b>Mine Closure – Water Management System</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Leave in place</b>	<b>B Partial removal</b>	<b>C Full removal</b>
Effect on fish and aquatic habitat	Attainment or maintenance of surface water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	<u>Advantages</u> <ul style="list-style-type: none"> <li>An integrated and well designed water management system is fully capable of complying with final effluent standards required to attain or maintain receiving water protection of aquatic life standards, or scientifically defensible alternatives</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>An integrated and well designed water management system is fully capable of complying with final effluent standards required to attain or maintain receiving water protection of aquatic life standards, or scientifically defensible alternatives</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Removal of the water management system would have no adverse effects on compliance with final effluent standards required to attain or maintain receiving water protection of aquatic life standards, or scientifically defensible alternatives</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Leaving the system in place requires maintenance indefinitely to prevent any potential effects on water quality</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Partially leaving the system in place requires maintenance indefinitely to prevent any potential effects on water quality</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
	Maintenance of flows and water levels in streams and lakes suitable to support aquatic species and habitat	<u>Advantages</u> <ul style="list-style-type: none"> <li>Same as above</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Same as above</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Same as above</li> <li>Runoff and flow would likely revert to a more natural setting</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>In the event of effects (e.g., seepage breach with high residual concentrations), fish habitat may be affected</li> <li>Runoff collection systems would continue to direct water in a set way which may be different to the natural setting, but this is not expected to appreciably affect fish and aquatic habitat</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>In the event of effects (e.g., seepage breach with high residual concentrations), fish habitat may be affected</li> <li>Remaining runoff collection systems would continue to direct water in a set way which may be different to the natural setting, but this is not expected to appreciably affect fish and aquatic habitat</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>

**APPENDIX U11**

<b>Mine Closure – Water Management System</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Leave in place</b>	<b>B Partial removal</b>	<b>C Full removal</b>
Effect on fish and aquatic habitat	Maintenance of fish population	Same as above	Same as above	Same as above
	Maintenance of groundwater flows, levels and quality	Local surface and groundwater systems are not functionally connected as far as fish habitat is concerned.	Local surface and groundwater systems are not functionally connected as far as fish habitat is concerned.	Local surface and groundwater systems are not functionally connected as far as fish habitat is concerned.
Effect on Wetlands	Attainment or maintenance of water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	See equivalent indicator in Effect on fish and aquatic habitat	See equivalent indicator in Effect on fish and aquatic habitat	See equivalent indicator in Effect on fish and aquatic habitat
	Area, type and quality (functionality) of terrestrial habitat that would be displaced or altered	n/a	n/a	n/a
	Maintenance of wetland connectivity	n/a	n/a	n/a

APPENDIX U11

Mine Closure – Water Management System				
Performance Objective / Criteria	Indicator	Alternatives		
		A Leave in place	B Partial removal	C Full removal
Effect on terrestrial species and habitat	Area, type and quality (functionality) of terrestrial habitat that would be displaced or altered	<u>Advantages</u> <ul style="list-style-type: none"> <li>Leaving the water management system in place does not preclude the development of terrestrial habitat post-closure</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Partially leaving the water management system in place does not preclude the development of terrestrial habitat post-closure</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Development of unobstructed terrestrial habitat can be developed</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Some of the components would not allow for the development of terrestrial habitat post-closure (e.g., mine water pond, polishing pond)</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Depending on which components are left in place, they may not allow for the development of terrestrial habitat post-closure (e.g., mine water pond, polishing pond)</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
	Potential for noise (or other harm or harassment) related disturbance	<u>Advantages</u> <ul style="list-style-type: none"> <li>Limited potential for disturbance during closure phase</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Low potential for disturbance during closure phase</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Potential for disturbance due to closure activities, limited to closure phase</li> </ul>
	Maintenance or provision of plant dispersion and wildlife movement corridors	n/a	n/a	n/a
	Maintenance of wildlife population	n/a	n/a	n/a

APPENDIX U11

Mine Closure – Water Management System				
Performance Objective / Criteria	Indicator	Alternatives		
		A Leave in place	B Partial removal	C Full removal
Effect on Species at Risk (SAR)	Sensitivity level of involved species (Endangered, Threatened, Special Concern)	Little brown myotis bats (Endangered – Ontario ESA) have been recorded around the Project site and may persist in the area through to closure.		
	Area, type and quality of SAR territories or habitat that would be displaced	n/a	n/a	n/a
	Potential for noise (or other harm or harassment) related disturbance	See equivalent indicator in Effects on terrestrial and species habitat	See equivalent indicator in Effects on terrestrial and species habitat	See equivalent indicator in Effects on terrestrial and species habitat
	Maintenance or provision of wildlife movement corridors	n/a	n/a	n/a
Effects to the Physical and Biological Environments Summary Evaluation and Rating		Aquatic and other habitat functions would be maintained and/or not be appreciably affected if the water management system is left in place. Maintenance would be required to prevent any potential effects on water quality, and terrestrial habitat development is not precluded.  <b>Summary Rating: Acceptable</b>	Aquatic and other habitat functions would be maintained and/or not be appreciably affected if the water management system is left in place. Maintenance would be required on some components to prevent any potential effects on water quality, and terrestrial habitat development is not precluded.  <b>Summary Rating: Acceptable</b>	Aquatic and other habitat functions would be maintained, and runoff and flow would likely revert to a more natural setting, while the area would allow for the development of unobstructed terrestrial habitat.  <b>Summary Rating: Preferred</b>

APPENDIX U11

Mine Closure – Water Management System				
Performance Objective / Criteria	Indicator	Alternatives		
		A Leave in place	B Partial removal	C Full removal
<b>Effects to the Human Environment</b>				
Effect on local residents and recreational users	Maintenance of property values	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent	n/a
		<u>Disadvantages</u> • Leaving water management system infrastructure in place may be perceived negatively by local residents	<u>Disadvantages</u> • Partially leaving water management system infrastructure in place may be perceived negatively by local residents	
	Maintenance or improvement of income opportunities	<u>Advantages</u> • If some buildings are left in place upon closure, associated water management infrastructure would also remain potentially leading to some employment opportunities (maintenance)	<u>Advantages</u> • Potential for employment opportunities (maintenance)	n/a
		<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent	
	Maintenance or provision of local access	n/a	n/a	n/a
	Attainment of noise by-law guidelines, and /or background sound levels if already above the guidelines	n/a	n/a	n/a
	Non-interference with water well supply systems	n/a	n/a	n/a
Non-interference with surface water drinking supply	n/a	n/a	n/a	



APPENDIX U11

Mine Closure – Water Management System				
Performance Objective / Criteria	Indicator	Alternatives		
		A Leave in place	B Partial removal	C Full removal
Effect on local residents and recreational users	Potential for general disturbance and adverse affects on aesthetics	n/a	n/a	n/a
	Potential for adverse health and safety effects	n/a	n/a	n/a
Effect on infrastructure	Maintenance or provision of local and regional access	n/a	n/a	n/a
	Maintenance and reliability of power supply systems	n/a	n/a	n/a
	Maintenance and reliability of pipeline systems	n/a	n/a	n/a
Public health and safety	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	n/a	n/a	n/a
	Maintenance or attainment of the quality of drinking water supply systems	n/a	n/a	n/a
	Managing the potential for adverse electromagnetic exposure	n/a	n/a	n/a
	Maintaining safe road traffic conditions that are within the domain of IAMGOLD control	n/a	n/a	n/a

APPENDIX U11

Mine Closure – Water Management System				
Performance Objective / Criteria	Indicator	Alternatives		
		A Leave in place	B Partial removal	C Full removal
Public health and safety	Maintenance or provision of health services	n/a	n/a	n/a
Effect on local businesses and economy	Maintenance or improvement of local business and economic opportunities (including commercial bait harvesters and trappers)	n/a	n/a	n/a
	Continued access to areas used for natural resource harvesting by tourism operators	n/a	n/a	n/a
Effect on tourism and recreation	Maintenance or improvement of tourism and recreational opportunities	n/a	n/a	n/a
Regional economy	Maintenance or improvement of the regional economy	<u>Advantages</u> <ul style="list-style-type: none"> <li>Ongoing maintenance requirement would provide employment opportunities</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Ongoing maintenance requirement would provide employment opportunities</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
Effect on government services	Maintenance or improvement on the capacity of existing health, education and family support services	n/a	n/a	n/a

APPENDIX U11

Mine Closure – Water Management System				
Performance Objective / Criteria	Indicator	Alternatives		
		A Leave in place	B Partial removal	C Full removal
Effect on resource management objectives	Consistency with established and planned resource management objectives such as Bear Management Areas and Sustainable Forest Management units	n/a	n/a	n/a
Excessive waste materials	Limiting the generation of unnecessary waste materials	<u>Advantages</u> • No waste removal required	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent
		<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • Some waste removal required	<u>Disadvantages</u> • Waste removal required
	Potential for material to be recycled/reused	n/a	n/a	n/a
Effect on built heritage and cultural heritage landscapes	Destruction of any, or part of any, built heritage resources, cultural heritage landscapes, heritage attributes or features	n/a	n/a	n/a
	Alteration that is not sympathetic or is incompatible, with the historic fabric and appearance of cultural heritage resources	n/a	n/a	n/a

APPENDIX U11

Mine Closure – Water Management System				
Performance Objective / Criteria	Indicator	Alternatives		
		A Leave in place	B Partial removal	C Full removal
Effect on built heritage and cultural heritage landscapes	Shadows created that alter the appearance of a built heritage resource, cultural heritage landscape, heritage attribute or change the viability of a natural feature or plantings, such as a garden	n/a	n/a	n/a
	Isolation of a built heritage resource or heritage attribute from its surrounding environment, context or a significant relationship	n/a	n/a	n/a
	Direct or indirect obstruction of significant views or vistas within, from or of built heritage resources or cultural heritage landscapes	n/a	n/a	n/a
	A change in land use such as rezoning a battlefield from open space to residential use, allowing new development or site alteration to fill in the formerly open spaces	n/a	n/a	n/a

APPENDIX U11

Mine Closure – Water Management System				
Performance Objective / Criteria	Indicator	Alternatives		
		A Leave in place	B Partial removal	C Full removal
Effect on built heritage and cultural heritage landscapes	Avoidance of damage to built heritage resources or cultural heritage landscapes, or document cultural resources if damage or relocation cannot be reasonably avoided	n/a	n/a	n/a
Effect on archaeological resources	Land disturbances (such as a change in grade that alters soils and drainage patterns that adversely affect an archaeological resource)	n/a	n/a	n/a
	Avoidance of archaeological sites, or mitigation through excavation of the site, if avoidance is not possible, as per the Standards and Guidelines for Consultant Archaeologists (2010), including other forms of mitigation through engagement with Aboriginal communities	n/a	n/a	n/a

APPENDIX U11

Mine Closure – Water Management System				
Performance Objective / Criteria	Indicator	Alternatives		
		A Leave in place	B Partial removal	C Full removal
Effects on First Nation reserves and communities	Maintenance or improvement of First Nation reserve and community conditions (subject to the limitations of Company capacity and community members' personal choice)	n/a	n/a	n/a
Effect on spiritual, ceremonial sites	Avoidance of damage or disturbance to known spiritual and ceremonial sites; or implement other forms protection/preservation supported by Aboriginal communities	n/a	n/a	n/a
Effects on traditional land use	Maintain access to traditional lands for current traditional land uses, except as otherwise agreed to with local First Nations and Métis	n/a	n/a	n/a
Effects on Aboriginal and Treaty Rights	Avoid infringement of Aboriginal and Treaty Rights, except as otherwise agreed to with local First Nations and Métis	n/a	n/a	n/a

**APPENDIX U11**

<b>Mine Closure – Water Management System</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Leave in place</b>	<b>B Partial removal</b>	<b>C Full removal</b>
Effects to the Human Environment Summary Evaluation and Rating		There are no notable effects on the human environment with either of the alternatives. There is potential for ongoing employment to meet maintenance requirements with this alternative, though leaving all water management systems in place may be perceived as negative by local residents.	There are no notable effects on the human environment with either of the alternatives. There is potential for ongoing employment to meet some maintenance requirements with this alternative. Partially leaving water management system infrastructure in place may be perceived negatively by local residents, unless it has been negotiated to leave buildings and associated infrastructure in place for future use.	There are no notable effects on the human environment with either of the alternatives.
		<b>Summary Rating: Acceptable</b>	<b>Summary Rating: Preferred</b>	<b>Summary Rating: Acceptable</b>
<b>Amenability to Reclamation</b>				
Effect on public safety and security	Avoidance of safety and security risks to the general public	n/a	n/a	n/a
Effect on environmental health and sustainability	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	n/a	n/a	n/a
	Attainment or maintenance of water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	See equivalent indicator in Effects to the Physical and Biological Environments	See equivalent indicator in Effects to the Physical and Biological Environments	See equivalent indicator in Effects to the Physical and Biological Environments

**APPENDIX U11**

<b>Mine Closure – Water Management System</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Leave in place</b>	<b>B Partial removal</b>	<b>C Full removal</b>
Effect on environmental health and sustainability	Restoration of passive drainage systems	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Same as above</li> <li>• Runoff and flow would likely revert to a more natural setting</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Runoff collection systems would continue to direct water in a set way which may be different to the natural setting, but this is not expected to appreciably affect established passive drainage systems</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Remaining runoff collection systems would continue to direct water in a set way which may be different to the natural setting, but this is not expected to appreciably affect established passive drainage systems</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>
	Provision of habitats for vegetation and wildlife species, including SAR	n/a	n/a	n/a
Effect on land use	Provide opportunities for productive land uses following the completion of mining activities	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Opportunities for productive land uses associated with all alternatives, at closure, are limited mainly to the development of terrestrial habitat for vegetation and wildlife species</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Opportunities for productive land uses associated with all alternatives, at closure, are limited mainly to the development of terrestrial habitat for vegetation and wildlife species</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Opportunities for productive land uses associated with all alternatives, at closure, are limited mainly to the development of terrestrial habitat for vegetation and wildlife species</li> <li>• This alternative allows for the development of unobstructed terrestrial habitat</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>



**APPENDIX U11**

<b>Mine Closure – Water Management System</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Leave in place</b>	<b>B Partial removal</b>	<b>C Full removal</b>
Effect on land use	Provide for an aesthetically pleasing site	<u>Advantages</u> <ul style="list-style-type: none"> <li>All alternatives are broadly similar in their potential to develop an aesthetically pleasing site at closure</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>All alternatives are broadly similar in their potential to develop an aesthetically pleasing site at closure</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>All alternatives are broadly similar in their potential to develop an aesthetically pleasing site at closure, though this alternative would provide the best aesthetically pleasing site</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
Amenability to Reclamation Summary Evaluation and Rating		Site can largely be returned to a productive terrestrial habitat for vegetation and wildlife at closure.  <b>Summary Rating: Acceptable</b>	Site can largely be returned to a productive terrestrial habitat for vegetation and wildlife at closure.  <b>Summary Rating: Acceptable</b>	Site can be returned to a productive and unobstructed terrestrial habitat for vegetation and wildlife at closure.  <b>Summary Rating: Preferred</b>
<b>Overall Summary Rating</b>		Leaving the water management system in place is a cost-effective alternative that is effectively used in the industry. Terrestrial habitat development is not precluded and fish and aquatic habitat can be maintained or is not appreciably affected, but maintenance would be required indefinitely to prevent potential effects on water and habitat quality.  <b>Acceptable</b>	Partially leaving the water management system in place is a cost-effective alternative that is effectively used in the industry. Terrestrial habitat development is not precluded and fish and aquatic habitat can be maintained or is not appreciably affected, but maintenance would be required indefinitely if certain components of the system are left in place to prevent potential effects on water and habitat quality.  <b>Acceptable</b>	Full removal of the water management system is effectively used in the industry but requires greater capital closure costs. Unobstructed terrestrial habitat can be developed while fish and aquatic habitat can be maintained, and runoff and flows can revert to a more natural setting. There are no maintenance requirements with this alternative.  <b>Preferred</b>

Source: AMEC (2013).



**APPENDIX U12**  
**MINE ROCK AREAS (MRA) AND STOCKPILES CLOSURE ALTERNATIVES ASSESSMENT**



APPENDIX U12

Mine Closure – MRA and Stockpiles					
Performance Objective / Criteria	Indicator	Alternatives			
		A Reuse	B Stabilization and cover/revegetate	C Use in backfill	D Engineered cover
<b>Cost Effectiveness</b>					
Côté Gold Project Financing	Investor attractiveness or risk	<u>Advantages</u> <ul style="list-style-type: none"> <li>Utilizing waste overburden and NAG mine rock for construction is cost effective, as these materials would be generated irrespective of construction needs</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Most cost effective alternative for non-reactive bulk mining wastes</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Backfilling, whole or partial, of the open pit with overburden and NAG mine rock could reduce closure costs and requirements for the stockpiles</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Engineered covers in conjunction with runoff and seepage management for managing PAG mine rock and metal leaching (ML) and acid rock drainage (ARD) is attractive to investors</li> <li>Current indications are that there is negligible potential for the presence of PAG rock</li> <li>Costs associated with treatment and/or management of residual PAG or ML/ARD volumes can be considerably reduced</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>A relatively small quantity of waste overburden and mine rock are needed for the Project construction (~40 Mt)</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Not suitable for PAG mine rock, but current indications are that there is negligible potential for PAG rock</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Approximately 850 Mt of material (mine rock, overburden) would be removed from the pit; backfilling costs likely too high to be a viable option</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Development of engineered covers is very expensive</li> </ul>

APPENDIX U12

Mine Closure – MRA and Stockpiles					
Performance Objective / Criteria	Indicator	Alternatives			
		A Reuse	B Stabilization and cover/revegetate	C Use in backfill	D Engineered cover
Return on investment (ROI)	Provides a competitive or acceptable ROI	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Cost-effective alternative resulting in competitive ROI</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Best alternative for most competitive ROI</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Allows a competitive ROI for open pit backfill needs</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Reduces the quantity of ML/ARD runoff and seepage that would need to be treated and/or managed, if PAG rock is present</li> <li>• Currently, no PAG rock or ML/ARD potential is present</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• A relatively small quantity of waste overburden and mine rock are needed for the Project construction</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Not preferable for PAG rock, if present</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Only a very small quantity of material can be economically disposed of using this method</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Development of engineered covers is very expensive</li> </ul>
Financial Risk	Provides, or is associated with, a preferred, manageable or acceptable financial risk	<u>Advantages</u> <ul style="list-style-type: none"> <li>• No associated financial risk</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• No associated financial risk for NAG materials</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• No associated financial risk</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Reduces long term liabilities associated with PAG materials and ML/ARD</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Could result in longer term liabilities if used for the management of PAG rock, if present</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>

**APPENDIX U12**

<b>Mine Closure – MRA and Stockpiles</b>					
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>			
		<b>A Reuse</b>	<b>B Stabilization and cover/revegetate</b>	<b>C Use in backfill</b>	<b>D Engineered cover</b>
Cost Effectiveness Summary Evaluation and Rating		Utilizing waste overburden and NAG mine rock for construction is cost effective, as these materials would be generated irrespective of construction needs. But, only a relatively small quantity of waste overburden and mine rock are needed for construction.  <b>Summary Rating: Acceptable</b>	This alternative is cost-effective and presents the most competitive ROI. It is suitably protective of the environment (conveys less risk) for non-reactive materials that are not required for construction. Current indications are that there is negligible potential for PAG rock, making this a viable option.  <b>Summary Rating: Preferred</b>	Utilizing mine rock for open pit backfill is cost effective, as the generation of such backfill from other sources (for example, quarries) would be unacceptably expensive and unnecessarily disturbing to the environment. However, this is only suitable for a very small amount of material. Backfilling the open pit completely is economically unsustainable for the Project.  <b>Summary Rating: Acceptable - partial</b>	Developing engineered covers for mine rock is expensive, but reduces overall Project risk, and is likely to be supported by investors and stakeholders as being proactive. This alternative is suitable for PAG materials that are not used for backfill, if present, and where there is potential for ML/ARD. Current indications are that there is negligible potential for PAG rock.  <b>Summary Rating: Acceptable</b>
<b>Technical Applicability and/or System Integrity and Reliability</b>					
Available Technology	Used elsewhere in similar circumstances, and is predictably effective with contingencies if and as required	<u>Advantages</u> <ul style="list-style-type: none"> <li>Mine wastes (overburden and NAG mine rock) are preferentially used for site construction</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>This alternative is commonly used at mine sites for the reclamation of waste stockpiles and is predictably effective for NAG materials</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Mine rock is commonly used for open pit backfill</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Engineered covers are being more frequently used in the industry</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Use of PAG rock for construction, if present, to be avoided</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>May not be suitable for some PAG materials, if present</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Some collection and management / treatment of residual PAG rock seepage, if any, is likely to be required</li> </ul>

APPENDIX U12

Mine Closure – MRA and Stockpiles					
Performance Objective / Criteria	Indicator	Alternatives			
		A Reuse	B Stabilization and cover/revegetate	C Use in backfill	D Engineered cover
Available Technology	New technologies supported by pilot plant or strong theoretical investigations or testing, with contingencies if and as required	n/a	n/a	n/a	n/a
Technical Applicability and/or System Integrity and Reliability Summary Evaluation and Rating		Mine wastes (overburden and NAG mine rock) are preferentially used for site construction.  <b>Summary Rating: Acceptable</b>	This alternative is commonly used at mine sites for the reclamation of waste stockpiles and is predictably effective for NAG materials, and possibly some PAG materials, if present.  <b>Summary Rating: Acceptable</b>	Mine rock is commonly used for open pit backfill  <b>Summary Rating: Acceptable</b>	Engineered covers are being used more frequently in the industry, recognizing that some collection and management / treatment of residual PAG rock seepage, if any, is likely to be required.  <b>Summary Rating: Acceptable</b>
<b>Ability to Service the Site Effectively</b>					
Service	Provides a guaranteed supply to the site with manageable potential for supply disruption, and/or contingencies available	<u>Advantages</u> <ul style="list-style-type: none"> <li>Mine wastes (overburden and NAG mine rock) are preferentially used for site construction</li> </ul> <u>Disadvantages</u> <ul style="list-style-type: none"> <li>Mine rock production schedule may not meet construction needs for some materials</li> </ul>	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>Mine rock is commonly used for open pit backfill</li> </ul> <u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	n/a



APPENDIX U12

Mine Closure – MRA and Stockpiles					
Performance Objective / Criteria	Indicator	Alternatives			
		A Reuse	B Stabilization and cover/revegetate	C Use in backfill	D Engineered cover
Accessibility	Accessible land base or infrastructure needed to support component development and operation	n/a	n/a	n/a	n/a
Ability to Service the Site Effectively Summary Evaluation and Rating		Mine wastes (overburden and NAG mine rock) are preferentially used for site construction.  <b>Summary Rating: Acceptable</b>	n/a  n/a	Mine rock is commonly used for backfill, and would be readily available when needed at closure.  <b>Summary Rating: Acceptable</b>	n/a  n/a
Effects to the Physical and Biological Environments					
Effect on air quality and climate	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	n/a	n/a	n/a	n/a
	Emission rates of greenhouse gases	n/a	n/a	n/a	n/a

APPENDIX U12

Mine Closure – MRA and Stockpiles					
Performance Objective / Criteria	Indicator	Alternatives			
		A Reuse	B Stabilization and cover/revegetate	C Use in backfill	D Engineered cover
Effect on fish and aquatic habitat	Attainment or maintenance of surface water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Revegetation would reduce erosion potentials, and hence suspended solids loadings to receiving waters</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• An engineered cover would reduce ARD development and ML, if PAG rock present, and hence the potential for excess metals loadings to receiving waters</li> <li>• Revegetation of the uppermost cover layer would reduce erosion potentials, and hence suspended solids loadings to receiving waters</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>
	Maintenance of flows and water levels in streams and lakes suitable to support aquatic species and habitat	n/a	n/a	n/a	n/a
	Maintenance of fish population	n/a	n/a	n/a	n/a
	Maintenance of groundwater flows, levels and quality	n/a	n/a	n/a	n/a

APPENDIX U12

Mine Closure – MRA and Stockpiles					
Performance Objective / Criteria	Indicator	Alternatives			
		A Reuse	B Stabilization and cover/revegetate	C Use in backfill	D Engineered cover
Effect on Wetlands	Attainment or maintenance of water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	See equivalent indicator in Effect on fish and aquatic habitat	See equivalent indicator in Effect on fish and aquatic habitat	See equivalent indicator in Effect on fish and aquatic habitat	See equivalent indicator in Effect on fish and aquatic habitat
	Area, type and quality (functionality) of terrestrial habitat that would be displaced or altered	n/a	n/a	n/a	n/a
	Maintenance of wetland connectivity	n/a	n/a	n/a	n/a
Effect on terrestrial species and habitat	Area, type and quality (functionality) of terrestrial habitat that would be displaced or altered	<u>Advantages</u> <ul style="list-style-type: none"> <li>Use of a portion of mineral wastes for construction reduces the volume and footprint of mineral waste stockpiles, and reduces or eliminates disturbance that would otherwise be associated with obtaining construction materials from other sources</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Revegetation of stockpile surfaces would target the development of habitats previously displaced by mine development</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Use of a portion of mineral wastes for construction reduces the volume and footprint of mineral waste stockpiles, and reduces or eliminates disturbance that would otherwise be associated with obtaining materials from other sources</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Revegetation of stockpile surfaces would target the development of habitats previously displaced by mine development</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>

APPENDIX U12

Mine Closure – MRA and Stockpiles					
Performance Objective / Criteria	Indicator	Alternatives			
		A Reuse	B Stabilization and cover/revegetate	C Use in backfill	D Engineered cover
Effect on terrestrial species and habitat	Potential for noise (or other harm or harassment) related disturbance	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent
		<u>Disadvantages</u> • Temporary noise emissions would occur during construction activities	<u>Disadvantages</u> • Temporary noise emissions would occur during reclamation	<u>Disadvantages</u> • Temporary noise emissions during backfilling operations	<u>Disadvantages</u> • Temporary noise emissions would occur during reclamation
	Maintenance or provision of plant dispersion and wildlife movement corridors	n/a	n/a	n/a	n/a
	Maintenance of wildlife population	n/a	n/a	n/a	n/a
Effect on Species at Risk (SAR)	Sensitivity level of involved species (Endangered, Threatened, Special Concern)	n/a	n/a	n/a	n/a
	Area, type and quality of SAR territories or habitat that would be displaced	See equivalent indicator in Effects on terrestrial species and habitat	See equivalent indicator in Effects on terrestrial species and habitat	See equivalent indicator in Effects on terrestrial species and habitat	See equivalent indicator in Effects on terrestrial species and habitat
	Potential for noise (or other harm or harassment) related disturbance	See equivalent indicator in Effects on terrestrial species and habitat	See equivalent indicator in Effects on terrestrial species and habitat	See equivalent indicator in Effects on terrestrial species and habitat	See equivalent indicator in Effects on terrestrial species and habitat
	Maintenance or provision of wildlife movement corridors	n/a	n/a	n/a	n/a

**APPENDIX U12**

<b>Mine Closure – MRA and Stockpiles</b>					
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>			
		<b>A Reuse</b>	<b>B Stabilization and cover/revegetate</b>	<b>C Use in backfill</b>	<b>D Engineered cover</b>
Effects to the Physical and Biological Environments Summary Evaluation and Rating		Utilization of a portion of mine mineral wastes for construction reduces the volume and footprint of mineral waste stockpiles, and reduces potential disturbance that would otherwise be associated with obtaining construction materials from other sources. Only a small portion of mineral wastes can be disposed in this manner.  <b>Summary Rating: Acceptable</b>	Covering and revegetating stockpiles would limit the release of suspended solids loadings to receiving waters and would provide terrestrial habitat for vegetation and wildlife species.  <b>Summary Rating: Acceptable</b>	Utilization of a portion of mine mineral wastes for open pit backfill reduces the volume and footprint of mineral waste stockpiles, and reduces potential disturbance that would otherwise be associated with obtaining materials from other sources. Only a small portion of mineral wastes can be disposed in this manner.  <b>Summary Rating: Acceptable</b>	Use of an engineered stockpile cover would improve overall site water management and limit ARD development and ML, if PAG rock present, and associated metals loadings to receiving waters. Covering and revegetating over the engineered cover would provide terrestrial habitat for vegetation and wildlife species.  <b>Summary Rating: Acceptable</b>
		<b>Effects to the Human Environment</b>			
Effect on local residents and recreational users	Maintenance of property values	n/a	<u>Advantages</u> • Revegetation of mineral waste stockpiles at closure would improve area aesthetics	n/a	<u>Advantages</u> • Revegetation of mineral waste stockpiles at closure would improve area aesthetics
			<u>Disadvantages</u> • None apparent		<u>Disadvantages</u> • None apparent
	Maintenance or improvement of income opportunities	n/a	n/a	n/a	n/a
	Maintenance or provision of local access	n/a	n/a	n/a	n/a

**APPENDIX U12**

<b>Mine Closure – MRA and Stockpiles</b>					
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>			
		<b>A Reuse</b>	<b>B Stabilization and cover/revegetate</b>	<b>C Use in backfill</b>	<b>D Engineered cover</b>
Effect on local residents and recreational users	Attainment of noise by-law guidelines, and /or background sound levels if already above the guidelines	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent
		<u>Disadvantages</u> • Temporary noise emissions would occur during construction activities	<u>Disadvantages</u> • Temporary noise emissions would occur during reclamation	<u>Disadvantages</u> • Very limited noise emissions during backfilling operations	<u>Disadvantages</u> • Temporary noise emissions would occur during reclamation
	Non-interference with water well supply systems	n/a	n/a	n/a	n/a
	Non-interference with surface water drinking supply	<u>Advantages</u> • None apparent	<u>Advantages</u> • Revegetation would reduce erosion potentials, and hence suspended solids loadings to receiving waters	<u>Advantages</u> • None apparent	<u>Advantages</u> • An engineered cover would reduce ARD development and ML, if PAG rock present, and hence the potential for excess metals loadings to receiving waters • Revegetation of the uppermost cover layer would reduce erosion potentials, and hence suspended solids loadings to receiving waters
		<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent

**APPENDIX U12**

<b>Mine Closure – MRA and Stockpiles</b>						
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>				
		<b>A Reuse</b>	<b>B Stabilization and cover/revegetate</b>	<b>C Use in backfill</b>	<b>D Engineered cover</b>	
Effect on local residents and recreational users	Potential for general disturbance and adverse affects on aesthetics	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>Revegetation of mineral waste stockpiles at closure would improve area aesthetics</li> </ul>	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>Revegetation of mineral waste stockpiles at closure would improve area aesthetics</li> </ul>	
			<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	
	Potential for adverse health and safety effects	n/a	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>Revegetation of the uppermost cover layer would reduce dust emissions, and emissions of any associated metals from mine rock that would otherwise be exposed</li> </ul>	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>An engineered cover would reduce ARD development and ML, if PAG rock present, and hence the potential for excess metals loadings to receiving waters</li> <li>Revegetation of the uppermost cover layer would reduce dust emissions, and emissions of any associated metals from mine rock that would otherwise be exposed</li> </ul>
				<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
Effect on infrastructure	Maintenance or provision of local and regional access	n/a	n/a	n/a	n/a	
	Maintenance and reliability of power supply systems	n/a	n/a	n/a	n/a	

APPENDIX U12

Mine Closure – MRA and Stockpiles					
Performance Objective / Criteria	Indicator	Alternatives			
		A Reuse	B Stabilization and cover/revegetate	C Use in backfill	D Engineered cover
Effect on infrastructure	Maintenance and reliability of pipeline systems	n/a	n/a	n/a	n/a
Public health and safety	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>Revegetation of the uppermost cover layer would reduce dust emissions, and emissions of any associated metals from mine rock that would otherwise be exposed</li> </ul>	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>Revegetation of the uppermost cover layer would reduce dust emissions, and emissions of any associated metals from mine rock that would otherwise be exposed</li> </ul>
			<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
Public health and safety	Maintenance or attainment of the quality of drinking water supply systems	n/a	n/a	n/a	n/a
	Managing the potential for adverse electromagnetic exposure	n/a	n/a	n/a	n/a
	Maintaining safe road traffic conditions that are within the domain of IAMGOLD control	n/a	n/a	n/a	n/a
	Maintenance or provision of health services	n/a	n/a	n/a	n/a



APPENDIX U12

Mine Closure – MRA and Stockpiles					
Performance Objective / Criteria	Indicator	Alternatives			
		A Reuse	B Stabilization and cover/revegetate	C Use in backfill	D Engineered cover
Effect on local businesses and economy	Maintenance or improvement of local business and economic opportunities (including commercial bait harvesters and trappers)	n/a	n/a	n/a	n/a
	Continued access to areas used for natural resource harvesting by tourism operators	n/a	n/a	n/a	n/a
Effect on tourism and recreation	Maintenance or improvement of tourism and recreational opportunities	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>Revegetation of mineral waste stockpiles at closure would improve area aesthetics</li> <li>Habitats developed to support wildlife could contribute to hunting opportunities</li> </ul>	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>Revegetation of mineral waste stockpiles at closure would improve area aesthetics</li> <li>Habitats developed to support wildlife could contribute to hunting opportunities</li> </ul>
			<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
Regional economy	Maintenance or improvement of the regional economy	n/a	n/a	n/a	n/a
Effect on government services	Maintenance or improvement on the capacity of existing health, education and family support services	n/a	n/a	n/a	n/a

APPENDIX U12

Mine Closure – MRA and Stockpiles					
Performance Objective / Criteria	Indicator	Alternatives			
		A Reuse	B Stabilization and cover/revegetate	C Use in backfill	D Engineered cover
Effect on resource management objectives	Consistency with established and planned resource management objectives such as Bear Management Areas and Sustainable Forest Management units	n/a	n/a	n/a	n/a
Excessive waste materials	Limiting the generation of unnecessary waste materials	<u>Advantages</u> <ul style="list-style-type: none"> <li>Utilization of a portion of mine mineral wastes for construction reduces the volume and footprint of mineral waste stockpiles</li> </ul>	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>Utilization of a portion of mine mineral wastes for open pit backfill marginally reduces the volume and footprint of mineral waste stockpiles</li> </ul>	n/a
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	
	Potential for material to be recycled/reused	<u>Advantages</u> <ul style="list-style-type: none"> <li>Same as above</li> </ul>	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>Same as above</li> </ul>	n/a
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	

APPENDIX U12

Mine Closure – MRA and Stockpiles					
Performance Objective / Criteria	Indicator	Alternatives			
		A Reuse	B Stabilization and cover/revegetate	C Use in backfill	D Engineered cover
Effect on built heritage and cultural heritage landscapes	Destruction of any, or part of any, built heritage resources, cultural heritage landscapes, heritage attributes or features	n/a	n/a	n/a	n/a
	Alteration that is not sympathetic or is incompatible, with the historic fabric and appearance of cultural heritage resources	n/a	n/a	n/a	n/a
	Shadows created that alter the appearance of a built heritage resource, cultural heritage landscape, heritage attribute or change the viability of a natural feature or plantings, such as a garden	n/a	n/a	n/a	n/a
	Isolation of a built heritage resource or heritage attribute from its surrounding environment, context or a significant relationship	n/a	n/a	n/a	n/a

**APPENDIX U12**

<b>Mine Closure – MRA and Stockpiles</b>					
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>			
		<b>A Reuse</b>	<b>B Stabilization and cover/revegetate</b>	<b>C Use in backfill</b>	<b>D Engineered cover</b>
Effect on built heritage and cultural heritage landscapes	Direct or indirect obstruction of significant views or vistas within, from or of built heritage resources or cultural heritage landscapes	n/a	n/a	n/a	n/a
	A change in land use such as rezoning a battlefield from open space to residential use, allowing new development or site alteration to fill in the formerly open spaces	n/a	n/a	n/a	n/a
	Avoidance of damage to built heritage resources or cultural heritage landscapes, or document cultural resources if damage or relocation cannot be reasonably avoided	n/a	n/a	n/a	n/a
Effect on archaeological resources	Land disturbances (such as a change in grade that alters soils and drainage patterns that adversely affect an archaeological resource)	n/a	n/a	n/a	n/a

**APPENDIX U12**

<b>Mine Closure – MRA and Stockpiles</b>					
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>			
		<b>A Reuse</b>	<b>B Stabilization and cover/revegetate</b>	<b>C Use in backfill</b>	<b>D Engineered cover</b>
Effect on archaeological resources	Avoidance of archaeological sites, or mitigation through excavation of the site, if avoidance is not possible, as per the Standards and Guidelines for Consultant Archaeologists (2010), including other forms of mitigation through engagement with Aboriginal communities	n/a	n/a	n/a	n/a
Effects on First Nation reserves and communities	Maintenance or improvement of First Nation reserve and community conditions (subject to the limitations of Company capacity and community members' personal choice)	n/a	n/a	n/a	n/a
Effect on spiritual, ceremonial sites	Avoidance of damage or disturbance to known spiritual and ceremonial sites; or implement other forms protection/preservation supported by Aboriginal communities	n/a	n/a	n/a	n/a

APPENDIX U12

Mine Closure – MRA and Stockpiles					
Performance Objective / Criteria	Indicator	Alternatives			
		A Reuse	B Stabilization and cover/revegetate	C Use in backfill	D Engineered cover
Effects on traditional land use	Maintain access to traditional lands for current traditional land uses, except as otherwise agreed to with local First Nations and Métis	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>Habitats developed to support wildlife could contribute to hunting opportunities</li> </ul>	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>Habitats developed to support wildlife could contribute to hunting opportunities</li> </ul>
			<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
Effects on Aboriginal and Treaty Rights	Avoid infringement of Aboriginal and Treaty Rights, except as otherwise agreed to with local First Nations and Métis	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
Effects to the Human Environment Summary Evaluation and Rating		Use of this alternative would contribute to a reduction in overall mineral wastes that would otherwise need to be stockpiled on the surface.  <b>Summary Rating: Acceptable</b>	Revegetation of mineral waste stockpiles at closure would improve area aesthetics, and potentially contribute to hunting opportunities by providing terrestrial habitat.  <b>Summary Rating: Acceptable</b>	Use of this alternative would contribute to a minor reduction in overall mineral wastes that would otherwise need to be stockpiled on the surface.  <b>Summary Rating: Acceptable</b>	Revegetation of mineral waste stockpiles at closure would improve area aesthetics, and potentially contribute to hunting opportunities by providing terrestrial habitat.  <b>Summary Rating: Acceptable</b>

**APPENDIX U12**

<b>Mine Closure – MRA and Stockpiles</b>					
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>			
		<b>A Reuse</b>	<b>B Stabilization and cover/revegetate</b>	<b>C Use in backfill</b>	<b>D Engineered cover</b>
<b>Amenability to Reclamation</b>					
Effect on public safety and security	Avoidance of safety and security risks to the general public	n/a	n/a	n/a	n/a
Effect on environmental health and sustainability	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>Revegetation of the uppermost cover layer would reduce dust emissions, and emissions of any associated metals from mine rock that would otherwise be exposed</li> </ul>	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>Revegetation of the uppermost cover layer would reduce dust emissions, and emissions of any associated metals from mine rock that would otherwise be exposed</li> </ul>
			<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
Effect on environmental health and sustainability	Attainment or maintenance of water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Revegetation would reduce erosion potentials, and hence suspended solids loadings to receiving waters</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>An engineered cover would reduce ARD development and ML, if PAG rock present, and hence the potential for excess metals loadings to receiving waters</li> <li>Revegetation of the uppermost cover layer would reduce erosion potentials, and hence suspended solids loadings to receiving waters</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>

**APPENDIX U12**

<b>Mine Closure – MRA and Stockpiles</b>					
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>			
		<b>A Reuse</b>	<b>B Stabilization and cover/revegetate</b>	<b>C Use in backfill</b>	<b>D Engineered cover</b>
Effect on environmental health and sustainability	Restoration of passive drainage systems	n/a	n/a	n/a	n/a
	Provision of habitats for vegetation and wildlife species, including SAR	See equivalent indicator in Effects on terrestrial species and habitats	See equivalent indicator in Effects on terrestrial species and habitats	See equivalent indicator in Effects on terrestrial species and habitats	See equivalent indicator in Effects on terrestrial species and habitats
Effect on land use	Provide opportunities for productive land uses following the completion of mining activities	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>Restored sites would be mainly supportive of wildlife habitat functions, and related uses such as hiking, hunting, and other outdoor recreational pursuits</li> </ul>	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>Restored sites would be mainly supportive of wildlife habitat functions, and related uses such as hiking, hunting, and other outdoor recreational pursuits</li> </ul>
			<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
	Provide for an aesthetically pleasing site	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>Revegetation of mineral waste stockpiles at closure would improve area aesthetics</li> </ul>	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>Revegetation of mineral waste stockpiles at closure would improve area aesthetics</li> </ul>
			<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>



**APPENDIX U12**

<b>Mine Closure – MRA and Stockpiles</b>					
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>			
		<b>A Reuse</b>	<b>B Stabilization and cover/revegetate</b>	<b>C Use in backfill</b>	<b>D Engineered cover</b>
Amenability to Reclamation Summary Evaluation and Rating		Utilization of a portion of mine mineral wastes for construction reduces the volume and footprint of mineral waste stockpiles, and reduces potential disturbance that would otherwise be associated with obtaining construction materials from other sources. Only a small portion of mineral wastes can be disposed in this manner.  <b>Summary Rating: Acceptable</b>	Covering and revegetating stockpiles would limit the release of suspended solids loadings to receiving waters and would provide terrestrial habitat for vegetation and wildlife species.  <b>Summary Rating: Preferred</b>	Utilization of a portion of mine mineral wastes for open pit backfill reduces the volume and footprint of mineral waste stockpiles, and reduces potential disturbance that would otherwise be associated with obtaining materials from other sources. Only a small portion of mineral wastes can be disposed in this manner.  <b>Summary Rating: Acceptable</b>	Use of an engineered stockpile cover would improve overall site water management and limit ML/ARD development, and associated metals loadings to receiving waters, if present. Covering and revegetating would limit the release of suspended solids loadings and would provide terrestrial habitat for vegetation and wildlife species.  <b>Summary Rating: Preferred</b>

APPENDIX U12

Mine Closure – MRA and Stockpiles					
Performance Objective / Criteria	Indicator	Alternatives			
		A Reuse	B Stabilization and cover/revegetate	C Use in backfill	D Engineered cover
<b>Overall Summary Rating</b>		<p>Reusing waste overburden and NAG mine rock for construction is a cost-effective alternative that would reduce waste generation, volume and footprint of waste stockpiles and potential disturbance otherwise associated with obtaining construction materials from other sources. However, only a small quantity of this material would be needed for construction.</p> <p><b>Acceptable</b></p>	<p>This is a cost-effective alternative for non-reactive materials, as it conveys less environmental risk and presents a competitive ROI. Current indications are that there is negligible potential for PAG rock, making this a viable option. Covering and revegetation would provide terrestrial habitat for vegetation and wildlife species.</p> <p><b>Preferred</b></p>	<p>Utilization of waste overburden and mine rock as backfill material is cost-effective and would reduce waste generation, volume and footprint of waste stockpiles and potential disturbance otherwise associated with obtaining materials from other sources. However, only a small quantity of this material can be disposed of in this manner as extensive backfilling costs are unsustainable for the Project.</p> <p><b>Acceptable – partial</b></p>	<p>Development of engineered covers is an expensive alternative, but greatly reduces overall Project risk and likely supported by investors and stakeholders. This alternative is suitable if PAG materials are present, improving overall site water management and limiting ARD development and ML. Current indications are that there is negligible potential for PAG rock. Covering and revegetating over the cover would provide terrestrial habitat for vegetation and wildlife species.</p> <p><b>Acceptable</b></p>

Source: AMEC (2013).

**APPENDIX U13  
TAILINGS MANAGEMENT FACILITY (TMF) CLOSURE ALTERNATIVES ASSESSMENT**



APPENDIX U13

Mine Closure – Tailings Management Facility (TMF)			
Performance Objective / Criteria	Indicator	Alternatives	
		A Permanent flooding	B Covering and revegetating
<b>Cost Effectiveness</b>			
Côté Gold Project Financing	Investor attractiveness or risk	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Flooding the TMF to maintain the tailings in a saturated state and to provide an effective oxygen barrier, is a standard and well accepted closure strategy for preventing ML/ARD development if PAG rock is present</li> <li>• Current indications are that the majority of tailings will not be acid-generating</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Covering the TMF beaches with a sufficiently thick layer of overburden would help to maintain the underlying tailings in a saturated condition, and would also provide an oxygen barrier, both of which would act to prevent ML/ARD development if PAG rock is present</li> <li>• Current indications are that the majority of tailings will not be acid-generating</li> <li>• Water impoundment dams would not be required following closure</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Complete flooding of the TMF at closure would require a large quantity of water to be held in the TMF indefinitely in order to fully flood all exposed tailings beaches</li> <li>• Requires building and maintenance of substantive water impoundment dams indefinitely (greater closure capital requirements)</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Closure capital for cover, countering and revegetation would be required</li> </ul>
Return on investment (ROI)	Provides a competitive or acceptable ROI	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Avoids indefinite maintenance of water impoundment dams</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Complete flooding of the TMF at closure would require a large quantity of water to be held in the TMF indefinitely in order to fully flood all exposed tailings beaches</li> <li>• Requires maintenance of water impoundment dams indefinitely</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• TMF dams would still require regular inspection</li> <li>• Costs for providing a complete overburden cover are high</li> </ul>

APPENDIX U13

Mine Closure – Tailings Management Facility (TMF)			
Performance Objective / Criteria	Indicator	Alternatives	
		A Permanent flooding	B Covering and revegetating
Financial Risk	Provides, or is associated with, a preferred, manageable or acceptable financial risk	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Avoids indefinite maintenance of water impoundment dams</li> <li>• Lower environmental risk associated with potential for TMF dam failure / unintended release</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Requires maintenance of water impoundment dams indefinitely</li> <li>• Environmental risk in the event of TMF dam failure / unintended release</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• TMF dams would still require regular inspection</li> </ul>
Cost Effectiveness Summary Evaluation and Rating		Flooding the TMF to maintain the tailings in a saturated state and to provide an oxygen barrier to prevent development of ML/ARD is a standard and well accepted closure strategy. Currently, indications are that the majority of tailings will not be acid-generating. Impounding such a quantity of water will require ongoing maintenance and carries higher potential environmental risks in the event of TMF dam failure / unintended release.	Covering the TMF beaches with a sufficiently thick layer of overburden would help to maintain the underlying tailings in a saturated condition, and would also provide an oxygen barrier, both of which would act to prevent ML/ARD development. Currently, indications are that the majority of tailings will not be acid-generating. This alternative carries a lower environmental risk associated with potential for TMF dam failure / unintended release.
		<b>Summary Rating: Acceptable</b>	<b>Summary Rating: Preferred</b>
<b>Technical Applicability and/or System Integrity and Reliability</b>			
Available Technology	Used elsewhere in similar circumstances, and is predictably effective with contingencies if and as required	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Standard technology with predictable success</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Standard technology with predictable success</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Holding water against TMF dams carries long-term risk</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>

APPENDIX U13

Mine Closure – Tailings Management Facility (TMF)			
Performance Objective / Criteria	Indicator	Alternatives	
		A Permanent flooding	B Covering and revegetating
Available Technology	New technologies supported by pilot plant or strong theoretical investigations or testing, with contingencies if and as required	n/a	n/a
Technical Applicability and/or System Integrity and Reliability Summary Evaluation and Rating		Flooding the TMF to prevent ML/ARD development, if PAG rock is present, is a standard and well proven technology. There is some risk with holding large volumes of water against TMF dams over the long term.  <b>Summary Rating: Acceptable</b>	Covering the TMF with a sufficiently thick, low permeability overburden cover is a standard well proven technology with low environmental risks.  <b>Summary Rating: Preferred</b>
<b>Ability to Service the Site Effectively</b>			
Service	Provides a guaranteed supply to the site with manageable potential for supply disruption, and/or contingencies available	n/a	n/a
Accessibility	Accessible land base or infrastructure needed to support component development and operation	n/a	n/a
Ability to Service the Site Effectively Summary Evaluation and Rating		<b>n/a</b>	<b>n/a</b>
<b>Effects to the Physical and Biological Environments</b>			
Effect on air quality and climate	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	n/a	n/a
	Emission rates of greenhouse gases	n/a	n/a

APPENDIX U13

Mine Closure – Tailings Management Facility (TMF)			
Performance Objective / Criteria	Indicator	Alternatives	
		A Permanent flooding	B Covering and revegetating
Effect on fish and aquatic habitat	Attainment or maintenance of surface water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	<u>Advantages</u> <ul style="list-style-type: none"> <li>Flooding the TMF would provide an effective means of managing ML/ARD potentials, if PAG rock is present, and attaining a post-closure TMF runoff quality that is protective of receiving waters</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Covering the TMF beaches with a sufficiently thick, low-permeability overburden cover would provide an effective means of managing ML/ARD potentials, if PAG rock is present, and attaining a post-closure TMF runoff quality that is protective of receiving waters</li> <li>Supernatant pond water will be drained to the polishing pond, and water from the polishing pond will be discharged via Bagsverd Creek, in accordance with discharge criteria as per established operational requirements</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
	Maintenance of flows and water levels in streams and lakes suitable to support aquatic species and habitat	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Lower environmental risk associated with potential TMF dam failure / unintended release</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Higher environmental risk associated with potential TMF dam failure / unintended release</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
	Maintenance of fish population	Same as above	Same as above
	Maintenance of groundwater flows, levels and quality	n/a	n/a



APPENDIX U13

Mine Closure – Tailings Management Facility (TMF)			
Performance Objective / Criteria	Indicator	Alternatives	
		A Permanent flooding	B Covering and revegetating
Effect on Wetlands	Attainment or maintenance of water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	<u>Advantages</u> <ul style="list-style-type: none"> <li>Flooding the TMF would provide an effective means of managing ML/ARD potentials, if PAG rock is present, and attaining a post-closure TMF runoff quality that is protective of downstream wetlands and watercourses</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Covering the TMF with a sufficiently thick low-permeability overburden cover would provide an effective means of managing ML/ARD potentials, if PAG rock is present, and attaining a post-closure TMF runoff quality that is protective of downstream wetlands and watercourses</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
	Area, type and quality (functionality) of terrestrial habitat that would be displaced or altered	<u>Advantages</u> <ul style="list-style-type: none"> <li>A wetland zone would likely develop around the TMF basin perimeter</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
Maintenance of wetland connectivity	n/a	n/a	
Effect on terrestrial species and habitat	Area, type and quality (functionality) of terrestrial habitat that would be displaced or altered	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Alternative would generate a large area of terrestrial habitat at closure</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Alternative does not generate terrestrial habitat at closure</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
	Potential for noise (or other harm or harassment) related disturbance	<u>Advantages</u> <ul style="list-style-type: none"> <li>Limited potential for disturbance during closure phase</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Potential for disturbance due to backfilling activities, limited to closure phase</li> </ul>
Maintenance or provision of plant dispersion and wildlife movement corridors	n/a	n/a	

APPENDIX U13

Mine Closure – Tailings Management Facility (TMF)			
Performance Objective / Criteria	Indicator	Alternatives	
		A Permanent flooding	B Covering and revegetating
Effect on terrestrial species and habitat	Maintenance of wildlife population	n/a	n/a
Effect on Species at Risk (SAR)	Sensitivity level of involved species (Endangered, Threatened, Special Concern)	Little brown myotis bats (Endangered – Ontario ESA) have been recorded around the Project site and may persist in the area through to closure.	
	Area, type and quality of SAR territories or habitat that would be displaced	<u>Advantages</u> <ul style="list-style-type: none"> <li>No bat hibernacula identified prior to pit development – may not need to provide compensatory habitat upon closure</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>No bat hibernacula identified prior to pit development – may not need to provide compensatory habitat upon closure</li> <li>Habitats could be made conducive to selected SAR species such as Common Nighthawks and Whip-poor-wills</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
	Potential for noise (or other harm or harassment) related disturbance	<u>Advantages</u> <ul style="list-style-type: none"> <li>Limited potential for disturbance during closure phase</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Potential for disturbance due to backfilling activities, limited to closure phase</li> </ul>
Maintenance or provision of wildlife movement corridors		n/a	n/a

**APPENDIX U13**

<b>Mine Closure – Tailings Management Facility (TMF)</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A Permanent flooding</b>	<b>B Covering and revegetating</b>
Effects to the Physical and Biological Environments Summary Evaluation and Rating		Both alternatives are capable of preventing the development of ML/ARD, if PAG rock is present, and of protecting downstream wetlands and receiving waters. The principal limitation to this alternative at closure is that it would not generate terrestrial habitat capable of supporting vegetation and wildlife species, but it could potentially provide future aquatic habitat. This alternative has a higher potential environmental risk in the event of TMF dam failure / unintended release makes this a less attractive alternative.	Both alternatives are capable of preventing the development of ML/ARD, if PAG rock is present, and of protecting downstream wetlands and receiving waters. The full cover alternative carries a lower potential environmental risk of TMF dam failure/unintended release, and would generate an extensive area of terrestrial habitat once the site is fully restored, that would be capable of supporting vegetation and wildlife species.
		<b>Summary Rating: Acceptable</b>	<b>Summary Rating: Preferred</b>
<b>Effects to the Human Environment</b>			
Effect on local residents and recreational users	Maintenance of property values	n/a	n/a
	Maintenance or improvement of income opportunities	n/a	n/a
	Maintenance or provision of local access	n/a	n/a
	Attainment of noise by-law guidelines, and /or background sound levels if already above the guidelines	n/a	n/a
	Non-interference with water well supply systems	n/a	n/a
	Non-interference with surface water drinking supply	n/a	n/a
	Potential for general disturbance and adverse affects on aesthetics	n/a	n/a

APPENDIX U13

Mine Closure – Tailings Management Facility (TMF)			
Performance Objective / Criteria	Indicator	Alternatives	
		A Permanent flooding	B Covering and revegetating
Effect on local residents and recreational users	Potential for adverse health and safety effects	n/a	n/a
Effect on infrastructure	Maintenance or provision of local and regional access	n/a	n/a
	Maintenance and reliability of power supply systems	n/a	n/a
	Maintenance and reliability of pipeline systems	n/a	n/a
Public health and safety	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	n/a	n/a
	Maintenance or attainment of the quality of drinking water supply systems	n/a	n/a
	Managing the potential for adverse electromagnetic exposure	n/a	n/a
	Maintaining safe road traffic conditions that are within the domain of IAMGOLD control	n/a	n/a
	Maintenance or provision of health services	n/a	n/a
Effect on local businesses and economy	Maintenance or improvement of local business and economic opportunities (including commercial bait harvesters and trappers)	n/a	<u>Advantages</u>
			<ul style="list-style-type: none"> <li>Potential for new and innovative land uses, such as biomass production</li> </ul>
	Continued access to areas used for natural resource harvesting by tourism operators	n/a	n/a
			<ul style="list-style-type: none"> <li>None apparent</li> </ul>

APPENDIX U13

Mine Closure – Tailings Management Facility (TMF)			
Performance Objective / Criteria	Indicator	Alternatives	
		A Permanent flooding	B Covering and revegetating
Effect on tourism and recreation	Maintenance or improvement of tourism and recreational opportunities	n/a	n/a
Regional economy	Maintenance or improvement of the regional economy	n/a	n/a
Effect on government services	Maintenance or improvement on the capacity of existing health, education and family support services	n/a	n/a
Effect on resource management objectives	Consistency with established and planned resource management objectives such as Bear Management Areas and Sustainable Forest Management units	n/a	n/a
Excessive waste materials	Limiting the generation of unnecessary waste materials	n/a	n/a
	Potential for material to be recycled/reused	n/a	n/a
Effect on built heritage and cultural heritage landscapes	Destruction of any, or part of any, built heritage resources, cultural heritage landscapes, heritage attributes or features	n/a	n/a
	Alteration that is not sympathetic or is incompatible, with the historic fabric and appearance of cultural heritage resources	n/a	n/a
	Shadows created that alter the appearance of a built heritage resource, cultural heritage landscape, heritage attribute or change the viability of a natural feature or plantings, such as a garden	n/a	n/a

APPENDIX U13

Mine Closure – Tailings Management Facility (TMF)			
Performance Objective / Criteria	Indicator	Alternatives	
		A Permanent flooding	B Covering and revegetating
Effect on built heritage and cultural heritage landscapes	Isolation of a built heritage resource or heritage attribute from its surrounding environment, context or a significant relationship	n/a	n/a
	Direct or indirect obstruction of significant views or vistas within, from or of built heritage resources or cultural heritage landscapes	n/a	n/a
	A change in land use such as rezoning a battlefield from open space to residential use, allowing new development or site alteration to fill in the formerly open spaces	n/a	n/a
	Avoidance of damage to built heritage resources or cultural heritage landscapes, or document cultural resources if damage or relocation cannot be reasonably avoided	n/a	n/a
Effect on archaeological resources	Land disturbances (such as a change in grade that alters soils and drainage patterns that adversely affect an archaeological resource)	n/a	n/a

APPENDIX U13

Mine Closure – Tailings Management Facility (TMF)			
Performance Objective / Criteria	Indicator	Alternatives	
		A Permanent flooding	B Covering and revegetating
Effect on archaeological resources	Avoidance of archaeological sites, or mitigation through excavation of the site, if avoidance is not possible, as per the Standards and Guidelines for Consultant Archaeologists (2010), including other forms of mitigation through engagement with Aboriginal communities	n/a	n/a
Effects on First Nation reserves and communities	Maintenance or improvement of First Nation reserve and community conditions (subject to the limitations of Company capacity and community members' personal choice)	No known potential for adverse effects	No known potential for adverse effects
Effect on spiritual, ceremonial sites	Avoidance of damage or disturbance to known spiritual and ceremonial sites; or implement other forms protection/preservation supported by Aboriginal communities	n/a	n/a
Effects on traditional land use	Maintain access to traditional lands for current traditional land uses, except as otherwise agreed to with local First Nations and Métis	n/a	n/a
Effects on Aboriginal and Treaty Rights	Avoid infringement of Aboriginal and Treaty Rights, except as otherwise agreed to with local First Nations and Métis	n/a	n/a

APPENDIX U13

Mine Closure – Tailings Management Facility (TMF)			
Performance Objective / Criteria	Indicator	Alternatives	
		A Permanent flooding	B Covering and revegetating
Effects to the Human Environment Summary Evaluation and Rating		n/a	Though closure of the TMF is not expected to have any notable effects to the human environment, in terms of the indicators listed, this alternative presents the potential for new and innovative land uses, such as biomass production, post-closure.  <b>Summary: Preferred</b>
<b>Amenability to Reclamation</b>			
Effect on public safety and security	Avoidance of safety and security risks to the general public	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Reduced in the event of a TMF dam failure</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Complete flooding of the TMF at closure would require a very large quantity of water to be impounded within the TMF indefinitely in order to fully flood all exposed TMF beaches – this would carry some potential risk in the event of a TMF dam failure / unintended release</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>
Effect on environmental health and sustainability	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	n/a	n/a
	Attainment or maintenance of water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	See equivalent indicator in Effects to fish and aquatic habitat	See equivalent indicator in Effects to fish and aquatic habitat



APPENDIX U13

Mine Closure – Tailings Management Facility (TMF)			
Performance Objective / Criteria	Indicator	Alternatives	
		A Permanent flooding	B Covering and revegetating
Effect on environmental health and sustainability	Restoration of passive drainage systems	<u>Advantages</u> <ul style="list-style-type: none"> <li>Alternative would allow for the development of passive drainage systems</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Alternative has potential for the development of passive drainage systems</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
	Provision of habitats for vegetation and wildlife species, including SAR	See equivalent indicator in Effects on Species at Risk (SAR)	See equivalent indicator in Effects on Species at Risk (SAR)
Effect on land use	Provide opportunities for productive land uses following the completion of mining activities	<u>Advantages</u> <ul style="list-style-type: none"> <li>Opportunities for productive land uses associated with this alternative at closure is limited mainly to the development of aquatic habitat</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Potential for new and innovative land uses, such as biomass production</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
	Provide for an aesthetically pleasing site	<u>Advantages</u> <ul style="list-style-type: none"> <li>All alternatives are broadly similar in their potential to develop an aesthetically pleasing site at closure</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>All alternatives are broadly similar in their potential to develop an aesthetically pleasing site at closure</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>

APPENDIX U13

Mine Closure – Tailings Management Facility (TMF)			
Performance Objective / Criteria	Indicator	Alternatives	
		A Permanent flooding	B Covering and revegetating
Amenability to Reclamation Summary Evaluation and Rating		<p>All alternatives are capable of preventing the development of ML/ARD, if PAG rock is present, and of protecting downstream wetlands and receiving waters. The principal limitation to this alternative at closure is that it would require a very large quantity of water to be held within the TMF indefinitely in order to fully flood all exposed TMF beaches; this would carry a higher potential environmental risk in the event of a TMF dam failure / unintended release. This alternative would not generate terrestrial habitat that would be capable of supporting vegetation and wildlife species.</p> <p><b>Summary Rating: Acceptable</b></p>	<p>All alternatives are capable of reducing the development of ML/ARD, if PAG rock is present, and of protecting downstream wetlands and receiving waters. The full cover alternative would also generate an extensive area of terrestrial habitat, once the site is fully restored, that would be capable of supporting vegetation and wildlife species. This allows for the potential of new and innovative land uses, such as biomass production. This alternative has a low potential environmental risk of a TMF dam failure / unintended release.</p> <p><b>Summary Rating: Preferred</b></p>
<b>Overall Summary Rating</b>		<p>Permanently flooding the TMF at closure is a standard and proven technology with the capability of preventing ML/ARD development if PAG rock is present, though current indications are that tailings will not be acid-generating. There is a long-term environmental risk associated with holding large quantities of water against TMF dams. This alternative would not generate terrestrial habitat, but has the potential to generate future aquatic habitat.</p> <p><b>Acceptable</b></p>	<p>Covering and revegetating the TMF is a standard and proven technology with the capability of effectively preventing ML/ARD development if PAG rock is present, though current indications are that tailings will not be acid-generating. This alternative has a low potential environmental risk of TMF dam failure and has the potential to develop terrestrial habitat for vegetation and wildlife species, or even for new and innovative land uses, such as biomass production. Support for this alternative from investors and stakeholders would likely be higher.</p> <p><b>Preferred</b></p>

Source: AMEC (2013).

**APPENDIX U14  
BUILDINGS CLOSURE ALTERNATIVES ASSESSMENT**



APPENDIX U14

Mine Closure - Buildings			
Performance Objective / Criteria	Indicator	Alternatives	
		A Disassembly and removal	B Re-use of acceptable buildings
<b>Cost Effectiveness</b>			
Côté Gold Project Financing	Investor attractiveness or risk	<u>Advantages</u> <ul style="list-style-type: none"> <li>No buildings or associated infrastructure will remain in place post-closure</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Closure costs required may be reduced by leaving some buildings intact for extended or alternate use</li> <li>Retaining some buildings necessitates the retention of some access roads and associated infrastructure, thus reducing closure costs</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Closure costs required</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> <li>Any buildings remaining for alternate use will need to be secured for public safety</li> </ul>
Return on investment (ROI)	Provides a competitive or acceptable ROI	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
Financial Risk	Provides, or is associated with a preferred, manageable or acceptable financial risk	n/a	n/a
Cost effectiveness Summary Evaluation and Rating		Disassembly and removal of buildings from the Project site is common practice and requires closure to be consistent with the specified future use of the land (O.Reg. 240/00). This alternative requires capital for closure costs.  <b>Summary Rating: Preferred</b>	Some buildings, such as the accommodations complex, may be maintained for extended or alternate future use, either by IAMGOLD or as negotiated with others, therefore reducing the required closure costs.  <b>Summary Rating: Acceptable</b>

APPENDIX U14

Mine Closure - Buildings			
Performance Objective / Criteria	Indicator	Alternatives	
		A Disassembly and removal	B Re-use of acceptable buildings
<b>Technical Applicability and/or System Integrity and Reliability</b>			
Available Technology	Used elsewhere in similar circumstances, and is predictably effective with contingencies if and as required	n/a	n/a
	New technologies supported by pilot plant or strong theoretical investigations or testing, with contingencies if and as required	n/a	n/a
Technical Applicability and/or System Integrity and Reliability Summary Evaluation and Rating		n/a	n/a
<b>Ability to Service the Site Effectively</b>			
Service	Provides a guaranteed supply to the site with manageable potential for supply disruption, and/or contingencies available	n/a	n/a
Accessibility	Accessible land base or infrastructure needed to support component development and operation	n/a	n/a
Ability to Service the Site Effectively Summary Evaluation and Rating		n/a	n/a
<b>Effects to the Physical and Biological Environments</b>			
Effect on air quality and climate	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	<u>Advantages</u> <ul style="list-style-type: none"> <li>Mitigation measures can be put in place to achieve compliance with air quality point of impingement standards.</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Mitigation measures can be put in place to achieve compliance with air quality point of impingement standards.</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>

APPENDIX U14

Mine Closure - Buildings			
Performance Objective / Criteria	Indicator	Alternatives	
		A Disassembly and removal	B Re-use of acceptable buildings
Effect on air quality and climate	Emission rates of greenhouse gases	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Disassembly may require demolition equipment, resulting in some GHG emissions</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Disassembly of selected buildings may require demolition equipment, resulting in some GHG emissions</li> </ul>
Effect on fish and aquatic habitat	Attainment or maintenance of surface water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	n/a	n/a
	Maintenance of flows and water levels in streams and lakes suitable to support aquatic species and habitat	n/a	n/a
	Maintenance of fish population	n/a	n/a
	Maintenance of groundwater flows, levels and quality	n/a	n/a
Effect on Wetlands	Attainment or maintenance of water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	n/a	n/a

APPENDIX U14

Mine Closure - Buildings			
Performance Objective / Criteria	Indicator	Alternatives	
		A Disassembly and removal	B Re-use of acceptable buildings
Effect on Wetlands	Area, type and quality (functionality) of terrestrial habitat that would be displaced or altered	n/a	n/a
	Maintenance of wetland connectivity	n/a	n/a
Effect on terrestrial species and habitat	Area, type and quality (functionality) of terrestrial habitat that would be displaced or altered	n/a	n/a
	Potential for noise (or other harm or harassment) related disturbance	n/a	n/a
	Maintenance or provision of plant dispersion and wildlife movement corridors	n/a	n/a
	Maintenance of wildlife population	n/a	n/a
Effect on Species at Risk (SAR)	Sensitivity level of involved species (Endangered, Threatened, Special Concern)	Little brown myotis bats (Endangered – Ontario ESA) have been recorded around the Project site and may persist in the area through to closure.	
	Area, type and quality of SAR territories or habitat that would be displaced	n/a	<p><u>Advantages</u></p> <ul style="list-style-type: none"> <li>Leaving some buildings in place does not preclude the development of terrestrial habitat post-closure</li> </ul> <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> <li>Reduced area for terrestrial habitat development post-closure</li> </ul>



**APPENDIX U14**

<b>Mine Closure - Buildings</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A Disassembly and removal</b>	<b>B Re-use of acceptable buildings</b>
Effect on Species at Risk (SAR)	Potential for noise (or other harm or harassment) related disturbance	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul> <u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Potential for disturbance due to closure activities, limited to closure phase</li> </ul>	n/a
	Maintenance or provision of wildlife movement corridors	n/a	n/a
Effects to the Physical and Biological Environments Summary Evaluation and Rating		Air emissions will be minor and temporary / intermittent, and strictly associated with building disassembly. Terrestrial habitat would be reclaimed and left undisturbed by buildings.  <b>Summary Rating: Preferred</b>	Air emissions will be minor and temporary / intermittent, and strictly associated with building disassembly, with the exception of appropriate buildings retained for alternative use. Terrestrial habitat will be reclaimed where buildings are removed.  <b>Summary Rating: Acceptable</b>
<b>Effects to the Human Environment</b>			
Effect on local residents and recreational users	Maintenance of property values	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Property value may potentially be improved by maintaining some buildings for alternate use</li> </ul> <u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>
		Maintenance or improvement of income opportunities	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>
	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>

APPENDIX U14

Mine Closure - Buildings			
Performance Objective / Criteria	Indicator	Alternatives	
		A Disassembly and removal	B Re-use of acceptable buildings
Effect on local residents and recreational users	Maintenance or provision of local access	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>Maintenance of some buildings necessitates the maintenance of some access roads</li> </ul> <u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
	Attainment of noise by-law guidelines, and /or background sound levels if already above the guidelines	n/a	n/a
	Non-interference with water well supply systems	n/a	n/a
	Non-interference with surface water drinking supply	n/a	n/a
	Potential for general disturbance and adverse affects on aesthetics	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>Maintenance of some buildings necessitates the maintenance of some access roads</li> </ul> <u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
	Potential for adverse health and safety effects	n/a	n/a
	Maintenance or provision of local and regional access	n/a	n/a
Effect on infrastructure	Maintenance and reliability of power supply systems	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>If some buildings are left in place, the transmission line may be left in place to supply power, if negotiated as such, which would further reduce closure costs</li> </ul> <u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
	Maintenance and reliability of pipeline systems	n/a	n/a

APPENDIX U14

Mine Closure - Buildings			
Performance Objective / Criteria	Indicator	Alternatives	
		A Disassembly and removal	B Re-use of acceptable buildings
Public health and safety	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	n/a	n/a
	Maintenance or attainment of the quality of drinking water supply systems	n/a	n/a
	Managing the potential for adverse electromagnetic exposure	n/a	n/a
	Maintaining safe road traffic conditions that are within the domain of IAMGOLD control	n/a	n/a
	Maintenance or provision of health services	n/a	n/a
Effect on local businesses and economy	Maintenance or improvement of local business and economic opportunities (including commercial bait harvesters and trappers)	n/a	n/a
	Continued access to areas used for natural resource harvesting by tourism operators	n/a	n/a
Effect on tourism and recreation	Maintenance or improvement of tourism and recreational opportunities	n/a	n/a
Regional economy	Maintenance or improvement of the regional economy	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• If buildings are maintained for use by the local community, if negotiated as such, some employment opportunities may arise</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>

APPENDIX U14

Mine Closure - Buildings			
Performance Objective / Criteria	Indicator	Alternatives	
		A Disassembly and removal	B Re-use of acceptable buildings
Effect on government services	Maintenance or improvement on the capacity of existing health, education and family support services	n/a	n/a
Effect on resource management objectives	Consistency with established and planned resource management objectives such as Bear Management Areas and Sustainable Forest Management units	n/a	n/a
Excessive waste materials	Limiting the generation of unnecessary waste materials	<u>Advantages</u> <ul style="list-style-type: none"> <li>Use of dedicated on-site demolition landfill</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Less demolition wastes generated</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
	Potential for material to be recycled/reused	n/a	n/a
Effect on built heritage and cultural heritage landscapes	Destruction of any, or part of any, built heritage resources, cultural heritage landscapes, heritage attributes or features	n/a	n/a
	Alteration that is not sympathetic or is incompatible, with the historic fabric and appearance of cultural heritage resources	n/a	n/a
	Shadows created that alter the appearance of a built heritage resource, cultural heritage landscape, heritage attribute or change the viability of a natural feature or plantings, such as a garden	n/a	n/a

APPENDIX U14

Mine Closure - Buildings			
Performance Objective / Criteria	Indicator	Alternatives	
		A Disassembly and removal	B Re-use of acceptable buildings
Effect on built heritage and cultural heritage landscapes	Isolation of a built heritage resource or heritage attribute from its surrounding environment, context or a significant relationship	n/a	n/a
	Direct or indirect obstruction of significant views or vistas within, from or of built heritage resources or cultural heritage landscapes	n/a	n/a
	A change in land use such as rezoning a battlefield from open space to residential use, allowing new development or site alteration to fill in the formerly open spaces	n/a	n/a
	Avoidance of damage to built heritage resources or cultural heritage landscapes, or document cultural resources if damage or relocation cannot be reasonably avoided	n/a	n/a
Effect on archaeological resources	Land disturbances (such as a change in grade that alters soils and drainage patterns that adversely affect an archaeological resource)	n/a	n/a

APPENDIX U14

Mine Closure - Buildings			
Performance Objective / Criteria	Indicator	Alternatives	
		A Disassembly and removal	B Re-use of acceptable buildings
Effect on archaeological resources	Avoidance of archaeological sites, or mitigation through excavation of the site, if avoidance is not possible, as per the Standards and Guidelines for Consultant Archaeologists (2010), including other forms of mitigation through engagement with Aboriginal communities	n/a	n/a
Effects on First Nation reserves and communities	Maintenance or improvement of First Nation reserve and community conditions (subject to the limitations of Company capacity and community members' personal choice)	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>Buildings maintained for use by the local First Nations communities, if negotiated as such</li> </ul>
			<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
Effect on spiritual, ceremonial sites	Avoidance of damage or disturbance to known spiritual and ceremonial sites; or implement other forms protection/preservation supported by Aboriginal communities	n/a	n/a
Effects on traditional land use	Maintain access to traditional lands for current traditional land uses, except as otherwise agreed to with local First Nations and Métis	n/a	n/a
Effects on Aboriginal and Treaty Rights	Avoid infringement of Aboriginal and Treaty Rights, except as otherwise agreed to with local First Nations and Métis	n/a	n/a

**APPENDIX U14**

<b>Mine Closure - Buildings</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A Disassembly and removal</b>	<b>B Re-use of acceptable buildings</b>
Effects to the Human Environment Summary Evaluation and Rating		<p>The only notable effect to the human environment with this alternative is the use of land for a dedicated demolition landfill for disposal of non-hazardous wastes generated by the disassembly and removal of buildings.</p> <p><b>Summary Rating: Acceptable</b></p>	<p>If some buildings are maintained for alternate use by local and/or First Nations communities, if negotiated as such, the amount of demolition waste production would be reduced. As a consequence, there could also be potential employment opportunities and property value appreciation.</p> <p><b>Summary Rating: Preferred</b></p>
<b>Amenability to Reclamation</b>			
Effect on public safety and security	Avoidance of safety and security risks to the general public	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Any buildings left for alternate use would be prepared for public safety and security</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>
Effect on environmental health and sustainability	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	n/a	n/a
	Attainment or maintenance of water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	n/a	n/a
	Restoration of passive drainage systems	n/a	n/a
	Provision of habitats for vegetation and wildlife species, including SAR	n/a	n/a

APPENDIX U14

Mine Closure - Buildings			
Performance Objective / Criteria	Indicator	Alternatives	
		A Disassembly and removal	B Re-use of acceptable buildings
Effect on land use	Provide opportunities for productive land uses following the completion of mining activities	<u>Advantages</u> <ul style="list-style-type: none"> <li>Removal of buildings followed by revegetation and closure measures would provide terrestrial habitat for vegetation and wildlife species</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Maintenance of some buildings for alternate use after closure may provide opportunities for other land uses</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>This alternative does not preclude the generation of terrestrial habitat for vegetation and wildlife species, but it would be reduced</li> </ul>
	Provide for an aesthetically pleasing site	<u>Advantages</u> <ul style="list-style-type: none"> <li>Generation of unobstructed terrestrial habitat for vegetation and wildlife species</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
Amenability to Reclamation Summary Evaluation and Rating		Removal of buildings upon site closure would generate unobstructed terrestrial habitat for vegetation and wildlife species.  <b>Summary Rating: Preferred</b>	Maintenance of some buildings for re-use could provide alternative land uses. Generation of terrestrial habitat for vegetation and wildlife species is not precluded with this alternative, but the habitat would be reduced compared to the alternative due to the persistence of buildings and associated infrastructure.  <b>Summary Rating: Acceptable</b>



**APPENDIX U14**

<b>Mine Closure - Buildings</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A Disassembly and removal</b>	<b>B Re-use of acceptable buildings</b>
<b>Overall Summary Rating</b>		<p>Disassembly and removal is a common industry practice and a requirement as per O.Reg. 240/00, to be consistent with the specified future use of the land. This alternative requires greater capital for closure costs and would generate unobstructed terrestrial habitat for vegetation and wildlife species.</p> <p><b>Preferred</b></p>	<p>This alternative allows for some buildings to be retained for alternate future use, either by IAMGOLD or as negotiated with others such as local residents and/or First Nations communities. This would reduce closure costs and potentially provide employment opportunities and property value appreciation. The generation of terrestrial habitat is not precluded with this alternative, but it would be reduced compared to the alternative.</p> <p><b>Acceptable</b></p>

Source: AMEC (2013).



**APPENDIX U15  
INFRASTRUCTURE CLOSURE ALTERNATIVES ASSESSMENT**



**APPENDIX U15**

<b>Mine Closure - Infrastructure</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Decontamination and removal</b>	<b>B Leave in place for future use</b>	<b>C Reclaim in place</b>
<b>Cost Effectiveness</b>				
Côté Gold Project Financing	Investor attractiveness or risk	<u>Advantages</u> <ul style="list-style-type: none"> <li>No infrastructure will be left in place post-closure</li> <li>Infrastructure associated with potential environmental effects will be decontaminated and cleaned up according to applicable regulations and standard guidelines</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Closure costs required may be reduced by leaving infrastructure intact for extended or alternate use</li> <li>Infrastructure associated with potential environmental effects will be decontaminated and cleaned up according to applicable regulations and standard guidelines</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Closure costs required may be reduced by leaving infrastructure to be reclaimed in place</li> <li>Infrastructure associated with potential environmental effects will be decontaminated and cleaned up according to applicable regulations and standard guidelines</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Closure costs required</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Closure costs required</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Closure costs required</li> <li>May require ongoing monitoring/maintenance</li> </ul>
Return on investment (ROI)	Provides a competitive or acceptable ROI	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Additional costs may be required for ongoing monitoring/maintenance</li> </ul>
Financial Risk	Provides, or is associated with a preferred, manageable or acceptable financial risk	n/a	n/a	n/a

**APPENDIX U15**

<b>Mine Closure - Infrastructure</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Decontamination and removal</b>	<b>B Leave in place for future use</b>	<b>C Reclaim in place</b>
Cost Effectiveness Summary Evaluation and Rating		Disassembly and removal of infrastructure from the Project site is common practice and requires capital for closure costs, to be consistent with the specified future use of the land (O.Reg. 240/00).	Some infrastructure may be maintained for extended or alternate use, either by IAMGOLD or as negotiated with others, thus reducing the required closure costs.	In-place reclamation of infrastructure is common, but may incur additional costs for monitoring/maintenance.
		<b>Summary Rating: Acceptable</b>	<b>Summary Rating: Acceptable</b>	<b>Summary Rating: Acceptable</b>
<b>Technical Applicability and/or System Integrity and Reliability</b>				
Available Technology	Used elsewhere in similar circumstances, and is predictably effective with contingencies if and as required	n/a	n/a	n/a
	New technologies supported by pilot plant or strong theoretical investigations or testing, with contingencies if and as required	n/a	n/a	n/a
Technical Applicability and/or System Integrity and Reliability Summary Evaluation and Rating		<b>n/a</b>	<b>n/a</b>	<b>n/a</b>
<b>Ability to Service the Site Effectively</b>				
Service	Provides a guaranteed supply to the site with manageable potential for supply disruption, and/or contingencies available	n/a	n/a	n/a

**APPENDIX U15**

<b>Mine Closure - Infrastructure</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Decontamination and removal</b>	<b>B Leave in place for future use</b>	<b>C Reclaim in place</b>
Accessibility	Accessible land base or infrastructure needed to support component development and operation	n/a	n/a	n/a
Ability to Service the Site Effectively Summary Evaluation and Rating		n/a	n/a	n/a
<b>Effects to the Physical and Biological Environments</b>				
Effect on air quality and climate	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	<u>Advantages</u> • Mitigation measures can be put in place to achieve compliance with air quality point of impingement standards	<u>Advantages</u> • Mitigation measures can be put in place to achieve compliance with air quality point of impingement standards	<u>Advantages</u> • Mitigation measures can be put in place to achieve compliance with air quality point of impingement standards
		<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent
	Emission rates of greenhouse gases (GHGs)	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent	<u>Advantages</u> • None apparent
		<u>Disadvantages</u> • Disassembly may require demolition equipment, resulting in some GHG emissions	<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • This alternative may require equipment to carry out reclamation measures, resulting in some GHG emissions

**APPENDIX U15**

<b>Mine Closure - Infrastructure</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Decontamination and removal</b>	<b>B Leave in place for future use</b>	<b>C Reclaim in place</b>
Effect on fish and aquatic habitat	Attainment or maintenance of surface water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	<u>Advantages</u> <ul style="list-style-type: none"> <li>Infrastructure associated with potential environmental effects will be decontaminated and cleaned up to be in compliance with stringent final effluent standards required to attain or maintain receiving water protection of aquatic life standards, or scientifically defensible alternatives</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Infrastructure associated with potential environmental effects will be decontaminated and cleaned up to be in compliance with stringent final effluent standards required to attain or maintain receiving water protection of aquatic life standards, or scientifically defensible alternatives</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Infrastructure associated with potential environmental effects will be decontaminated and cleaned up to be in compliance with stringent final effluent standards required to attain or maintain receiving water protection of aquatic life standards, or scientifically defensible alternatives</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Dust, erosion and potential fuel spills during the closure phase could affect water quality if it enters a watercourse or water body, in turn potentially affecting fish</li> <li>The use of industry standard best practices during construction can avoid or mitigate these potential effects</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Limited potential for dust, erosion and fuel spills during closure phase could affect water quality if it enters a watercourse or water body, in turn potentially affecting fish</li> <li>The use of industry standard best practices during construction can avoid or mitigate these potential effects</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Dust, erosion and potential fuel spills during the closure phase could affect water quality if it enters a watercourse or water body, in turn potentially affecting fish</li> <li>The use of industry standard best practices during construction can avoid or mitigate these potential effects</li> </ul>
	Maintenance of flows and water levels in streams and lakes suitable to support aquatic species and habitat	n/a	n/a	n/a
	Maintenance of fish population	n/a	n/a	n/a
Maintenance of groundwater flows, levels and quality	n/a	n/a	n/a	



**APPENDIX U15**

<b>Mine Closure - Infrastructure</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Decontamination and removal</b>	<b>B Leave in place for future use</b>	<b>C Reclaim in place</b>
Effect on Wetlands	Attainment or maintenance of water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	n/a	n/a	n/a
	Area, type and quality (functionality) of terrestrial habitat that would be displaced or altered	n/a	n/a	n/a
	Maintenance of wetland connectivity	n/a	n/a	n/a
Effect on terrestrial species and habitat	Area, type and quality (functionality) of terrestrial habitat that would be displaced or altered	<u>Advantages</u> <ul style="list-style-type: none"> <li>This alternative would provide unobstructed terrestrial habitat for vegetation and wildlife species</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Does not preclude the use of the area by vegetation and wildlife species</li> <li>The generated corridor (ROW) for the transmission line alignment could create Whip-poor-will habitat</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Provide mostly unobstructed terrestrial habitat for vegetation and wildlife species</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Obstructed terrestrial habitat</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Reclamation of the transmission line ROW may eliminate potential habitat for Whip-poor-wills</li> </ul>

**APPENDIX U15**

<b>Mine Closure - Infrastructure</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Decontamination and removal</b>	<b>B Leave in place for future use</b>	<b>C Reclaim in place</b>
Effect on terrestrial species and habitat	Potential for noise (or other harm or harassment) related disturbance	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Effects limited to closure phase</li> <li>• Limited potential for disturbance due to relative remoteness of infrastructure</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Effects limited to closure phase</li> <li>• Limited potential for disturbance due to relative remoteness of infrastructure</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Potential disturbances due to noise during closure phase</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Potential disturbances due to noise during closure phase</li> </ul>
	Maintenance or provision of plant dispersion and wildlife movement corridors	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Removal of infrastructure, particularly the transmission line, may provide an unobstructed wildlife movement corridor</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Transmission line ROW opportunistically used as a wildlife movement corridor</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Reclamation may provide an obstructed wildlife movement corridor along the transmission line ROW</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>
	Maintenance of wildlife population	n/a	n/a	n/a
Effect on Species at Risk (SAR)	Sensitivity level of involved species (Endangered, Threatened, Special Concern)	Whip-poor-wills (most sensitive species) and Common Nighthawks have been heard near the existing transmission line alignment corridor and may persist in the area through to closure. Little brown myotis bats (Endangered – Ontario ESA) have been recorded around the Project site and may persist in the area through to closure.		

**APPENDIX U15**

<b>Mine Closure - Infrastructure</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Decontamination and removal</b>	<b>B Leave in place for future use</b>	<b>C Reclaim in place</b>
Effect on Species at Risk (SAR)	Area, type and quality of SAR territories or habitat that would be displaced	See equivalent indicator in Effects on terrestrial species and habitat	See equivalent indicator in Effects on terrestrial species and habitat	See equivalent indicator in Effects on terrestrial species and habitat
	Potential for noise (or other harm or harassment) related disturbance	See equivalent indicator in Effects on terrestrial species and habitat	See equivalent indicator in Effects on terrestrial species and habitat	See equivalent indicator in Effects on terrestrial species and habitat
	Maintenance or provision of wildlife movement corridors	See equivalent indicator in Effects on terrestrial species and habitat	See equivalent indicator in Effects on terrestrial species and habitat	See equivalent indicator in Effects on terrestrial species and habitat
Effects to the Physical and Biological Environments Summary Evaluation and Rating		<p>Most physical and biological impacts would occur during the closure phase, with notable effects related to closure of the transmission line that can be mitigated. Terrestrial habitat may be generated - habitat changes may adversely affect some species, but can benefit others, such as Whip-poor-wills.</p> <p><b>Summary Rating: Acceptable</b></p>	<p>Minimal physical and biological impacts would occur during the closure phase, as decontamination and clean-up of some infrastructure would still be required. By leaving infrastructure in place, some habitat fragmentation (e.g., transmission line corridor) may remain, adversely affecting some species, but potentially benefiting others, such as Whip-poor-wills.</p> <p><b>Summary Rating: Acceptable</b></p>	<p>Through reclamation of in-place infrastructure, closure disruptions may be minimized by avoiding the need for removal of most infrastructure components. Limited habitat fragmentation may remain (e.g., transmission line corridor), adversely affecting some species, but potentially benefiting others, such as Whip-poor-wills. Ongoing monitoring/maintenance may be required.</p> <p><b>Summary Rating: Acceptable</b></p>

**APPENDIX U15**

<b>Mine Closure - Infrastructure</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Decontamination and removal</b>	<b>B Leave in place for future use</b>	<b>C Reclaim in place</b>
<b>Effects to the Human Environment</b>				
Effect on local residents and recreational users	Maintenance or improvement of income opportunities	<u>Advantages</u> • Local businesses may benefit from employment opportunities during closure activities	<u>Advantages</u> • If infrastructure is maintained for use by the local community or others, if negotiated as such, some employment opportunities may arise	<u>Advantages</u> • Local businesses may benefit from employment opportunities during closure activities
		<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent
	Maintenance or provision of local access	<u>Advantages</u> • None apparent	<u>Advantages</u> • If infrastructure such as roads are maintained for use by the local community or others, if negotiated as such, it may improve local access in the area	<u>Advantages</u> • None apparent
		<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent
	Attainment of noise by-law guidelines, and /or background sound levels if already above the guidelines	n/a	n/a	n/a
	Non-interference with water well supply systems	n/a	n/a	n/a
	Non-interference with surface water drinking supply	n/a	n/a	n/a

APPENDIX U15

Mine Closure - Infrastructure				
Performance Objective / Criteria	Indicator	Alternatives		
		A Decontamination and removal	B Leave in place for future use	C Reclaim in place
Effect on local residents and recreational users	Potential for general disturbance and adverse affects on aesthetics	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul> <u>Disadvantages</u> <ul style="list-style-type: none"> <li>• If the transmission line is left in place it may be visible from selected locations, though it would generally be constructed away from roads and settled areas as much as possible</li> </ul>	n/a
	Potential for adverse health and safety effects	n/a	n/a	n/a
Effect on infrastructure	Maintenance or provision of local and regional access	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>• If infrastructure, such as roads and the transmission line is left in place for future use there is a potential of enhancing local access in the area and the Provincial electrical grid</li> </ul>	n/a
			<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	
Public health and safety	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	n/a	n/a	n/a
	Maintenance or attainment of the quality of drinking water supply systems	n/a	n/a	n/a

APPENDIX U15

Mine Closure - Infrastructure				
Performance Objective / Criteria	Indicator	Alternatives		
		A Decontamination and removal	B Leave in place for future use	C Reclaim in place
Public health and safety	Managing the potential for adverse electromagnetic exposure	n/a	n/a	n/a
	Maintaining safe road traffic conditions that are within the domain of IAMGOLD control	n/a	n/a	n/a
	Maintenance or provision of health services	n/a	n/a	n/a
Effect on local businesses and economy	Maintenance or improvement of local business and economic opportunities (including commercial bait harvesters and trappers)	n/a	n/a	n/a
	Continued access to areas used for natural resource harvesting by tourism operators	n/a	See equivalent indicator in Effect on infrastructure	n/a
Effect on tourism and recreation	Maintenance or improvement of tourism and recreational opportunities	n/a	n/a	n/a
Regional economy	Maintenance or improvement of the regional economy	<u>Advantages</u> <ul style="list-style-type: none"> <li>Local businesses may benefit from employment opportunities during closure activities</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>If infrastructure maintained for use by the local community or others, if negotiated as such, some employment opportunities may arise</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Local businesses may benefit from employment opportunities during closure activities</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>

APPENDIX U15

Mine Closure - Infrastructure				
Performance Objective / Criteria	Indicator	Alternatives		
		A Decontamination and removal	B Leave in place for future use	C Reclaim in place
Effect on government services	Maintenance or improvement on the capacity of existing health, education and family support services	n/a	n/a	n/a
Effect on resource management objectives	Consistency with established and planned resource management objectives such as Bear Management Areas and Sustainable Forest Management units	n/a	n/a	n/a
Excessive waste materials	Limiting the generation of unnecessary waste materials	<u>Advantages</u> • Use of dedicated on-site demolition landfill	<u>Advantages</u> • No demolition wastes generated	<u>Advantages</u> • Reduced reclamation wastes generated
		<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent
	Potential for material to be recycled/reused	n/a	n/a	n/a
Effect on built heritage and cultural heritage landscapes	Destruction of any, or part of any, built heritage resources, cultural heritage landscapes, heritage attributes or features	n/a	n/a	n/a
	Alteration that is not sympathetic or is incompatible, with the historic fabric and appearance of cultural heritage resources	n/a	n/a	n/a

APPENDIX U15

Mine Closure - Infrastructure				
Performance Objective / Criteria	Indicator	Alternatives		
		A Decontamination and removal	B Leave in place for future use	C Reclaim in place
Effect on built heritage and cultural heritage landscapes	Shadows created that alter the appearance of a built heritage resource, cultural heritage landscape, heritage attribute or change the viability of a natural feature or plantings, such as a garden	n/a	n/a	n/a
	Isolation of a built heritage resource or heritage attribute from its surrounding environment, context or a significant relationship	n/a	n/a	n/a
	Direct or indirect obstruction of significant views or vistas within, from or of built heritage resources or cultural heritage landscapes	n/a	n/a	n/a
	A change in land use such as rezoning a battlefield from open space to residential use, allowing new development or site alteration to fill in the formerly open spaces	n/a	n/a	n/a



**APPENDIX U15**

<b>Mine Closure - Infrastructure</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Decontamination and removal</b>	<b>B Leave in place for future use</b>	<b>C Reclaim in place</b>
Effect on built heritage and cultural heritage landscapes	Avoidance of damage to built heritage resources or cultural heritage landscapes, or document cultural resources if damage or relocation cannot be reasonably avoided	n/a	n/a	n/a
Effect on archaeological resources	Land disturbances (such as a change in grade that alters soils and drainage patterns that adversely affect an archaeological resource)	n/a	n/a	n/a
	Avoidance of archaeological sites, or mitigation through excavation of the site, if avoidance is not possible, as per the Standards and Guidelines for Consultant Archaeologists (2010), including other forms of mitigation through engagement with Aboriginal communities	n/a	n/a	n/a

APPENDIX U15

Mine Closure - Infrastructure				
Performance Objective / Criteria	Indicator	Alternatives		
		A Decontamination and removal	B Leave in place for future use	C Reclaim in place
Effects on First Nation reserves and communities	Maintenance or improvement of First Nation reserve and community conditions (subject to the limitations of Company capacity and community members' personal choice)	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Infrastructure maintained for use by the local First Nations communities, if negotiated as such</li> </ul>	
			<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• None apparent</li> </ul>	
Effect on spiritual, ceremonial sites	Avoidance of damage or disturbance to known spiritual and ceremonial sites; or implement other forms protection/preservation supported by Aboriginal communities	n/a	n/a	n/a
Effects on traditional land use	Maintain access to traditional lands for current traditional land uses, except as otherwise agreed to with local First Nations and Métis	n/a	n/a	n/a
Effects on Aboriginal and Treaty Rights	Avoid infringement of Aboriginal and Treaty Rights, except as otherwise agreed to with local First Nations and Métis	n/a	n/a	n/a

**APPENDIX U15**

<b>Mine Closure - Infrastructure</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Decontamination and removal</b>	<b>B Leave in place for future use</b>	<b>C Reclaim in place</b>
Effects to the Human Environment Summary Evaluation and Rating		The only notable effect to the human environment with this alternative is the use of land as a dedicated demolition landfill for disposal of non-hazardous wastes generated by removal of infrastructure. Closure activities may generate temporary employment opportunities for local businesses and residents.	If infrastructure is maintained for alternate use by local and/or First Nations communities, if negotiated as such, the amount of demolition wastes produced would be reduced.	In-place reclamation of infrastructure would greatly reduce wastes generated during closure activities. Reclamation activities may generate temporary employment opportunities for local businesses and residents.
		<b>Summary Rating: Acceptable</b>	<b>Summary Rating: Acceptable</b>	<b>Summary Rating: Acceptable</b>
<b>Amenability to Reclamation</b>				
Effect on public safety and security	Avoidance of safety and security risks to the general public	<u>Advantages</u> • None apparent	<u>Advantages</u> • Any infrastructure left for alternate use would be checked for public safety and security	<u>Advantages</u> • None apparent
		<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent
Effect on environmental health and sustainability	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	n/a	n/a	n/a

APPENDIX U15

Mine Closure - Infrastructure				
Performance Objective / Criteria	Indicator	Alternatives		
		A Decontamination and removal	B Leave in place for future use	C Reclaim in place
Effect on environmental health and sustainability	Attainment or maintenance of water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	See equivalent indicators in Effects to the Physical and Biological Environments	See equivalent indicators in Effects to the Physical and Biological Environments	See equivalent indicators in Effects to the Physical and Biological Environments
	Restoration of passive drainage systems	n/a	n/a	n/a
	Provision of habitats for vegetation and wildlife species, including SAR	<u>Advantages</u> <ul style="list-style-type: none"> <li>Removal of infrastructure, particularly the transmission line, may provide an unobstructed wildlife movement corridor and/or terrestrial habitat for vegetation and wildlife species, including SAR</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>The generated corridor (ROW) for the transmission line alignment could create Whip-poor-will habitat</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Reclamation of infrastructure, particularly the transmission line, may provide a wildlife movement corridor and/or terrestrial habitat for vegetation and wildlife species, including SAR</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Leaving infrastructure in place would provide obstructed terrestrial habitat</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Reclamation of the transmission line ROW may eliminate potential habitat for Whip-poor-wills</li> </ul>

**APPENDIX U15**

<b>Mine Closure - Infrastructure</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Decontamination and removal</b>	<b>B Leave in place for future use</b>	<b>C Reclaim in place</b>
Effect on land use	Provide opportunities for productive land uses following the completion of mining activities	<u>Advantages</u> <ul style="list-style-type: none"> <li>Removal of infrastructure followed by revegetation and closure measures would provide terrestrial habitat for vegetation and wildlife species, including SAR</li> <li>This alternative may allow for unobstructed use of the area for recreational and tourism activities</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Maintaining infrastructure for future use after closure may provide opportunities for other land uses</li> <li>Increased access by leaving access roads in place may enhance use of the area for recreational and tourism activities</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Reclamation of infrastructure would provide terrestrial habitat for vegetation and wildlife species, including SAR</li> <li>This alternative may allow for use of the area for recreational and tourism activities</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>No generation of terrestrial habitat for vegetation and wildlife species</li> <li>Greater access to the area by leaving the transmission line corridor in place may place more pressure on local hunting</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
	Provide for an aesthetically pleasing site	<u>Advantages</u> <ul style="list-style-type: none"> <li>Alternative broadly similar in its potential to develop an aesthetically pleasing site at closure</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Alternative broadly similar in its potential to develop an aesthetically pleasing site at closure</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>The access roads and transmission line may obstruct aesthetics from certain points of view</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>

**APPENDIX U15**

<b>Mine Closure - Infrastructure</b>				
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>		
		<b>A Decontamination and removal</b>	<b>B Leave in place for future use</b>	<b>C Reclaim in place</b>
<b>Amenability to Reclamation Summary Evaluation and Rating</b>		Removal of infrastructure at site closure would generate unobstructed terrestrial habitat for vegetation and wildlife species.	By maintaining infrastructure for re-use, alternate land uses may arise. However, this option reduces or eliminates the possibility of generating terrestrial habitat for vegetation and wildlife species, and greater access provided by the transmission line corridor (if left in place) may put more pressure on local hunting.	Reclamation of infrastructure at site closure would generate terrestrial habitat for vegetation and wildlife species. Ongoing monitoring/maintenance may be required.
		<b>Summary Rating: Preferred</b>	<b>Summary Rating: Acceptable</b>	<b>Summary Rating: Acceptable</b>
<b>Overall Summary Rating</b>		Decontamination and removal of Project infrastructure is a common industry practice and requires capital for closure costs as per the specified future use of the land (O.Reg. 240/00). The potential effects are mostly limited to the closure phase, where there is potential for some disruption due to closure activities. This alternative would generate unobstructed terrestrial habitat for vegetation and wildlife species.	Leaving infrastructure in place for extended or alternate future use reduces require closure costs and activities. There is potential for limited disruption during the closure phase as some infrastructure would still require decontamination and clean-up. Leaving infrastructure in place does not preclude the use of surrounding terrestrial habitat, albeit obstructed. Additionally, by leaving the transmission line in place, there is potential for improvement of access to the area and enhancement of the Provincial electrical grid.	In-place reclamation of infrastructure is a common industry practice that can reduce generated wastes, but may require additional capital for closure and maintenance/monitoring costs. This may provide some employment opportunities for local communities, and would generate terrestrial habitat for vegetation and wildlife species.
		<b>Preferred</b>	<b>Acceptable</b>	<b>Acceptable</b>

Source: AMEC (2013).

**APPENDIX U16  
DRAINAGE CLOSURE ALTERNATIVES ASSESSMENT**





**APPENDIX U16**

<b>Mine Closure - Drainage</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A Stabilize and leave in place</b>	<b>B Removal</b>
<b>Cost Effectiveness</b>			
Côté Gold Project Financing	Investor attractiveness or risk	<u>Advantages</u> <ul style="list-style-type: none"> <li>Leaving drainage in place greatly reduces capital for closure costs</li> <li>Generation of new aquatic habitat and water features (new "Open Pit Lake")</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Area will likely return to pre-Project conditions over time, which may be seen positively by local cottagers, tourism operators and authorities</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>May require capital for maintenance costs</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Full removal of the drainage will require capital for closure costs</li> </ul>
Return on investment (ROI)	Provides a competitive or acceptable ROI	<u>Advantages</u> <ul style="list-style-type: none"> <li>Reduced closure costs translate to a higher ROI</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Closure (removal) costs</li> </ul>
Financial Risk	Provides, or is associated with, a preferred, manageable or acceptable financial risk	n/a	n/a
Cost Effectiveness Summary Evaluation and Rating		Leaving drainage systems in place is the most cost-effective alternative.  <b>Summary Rating: Preferred</b>	Removal of drainage systems requires capital for closure costs, but removes all related land-disturbances. This however may be unnecessarily expensive.  <b>Summary Rating: Acceptable</b>

APPENDIX U16

Mine Closure - Drainage			
Performance Objective / Criteria	Indicator	Alternatives	
		A Stabilize and leave in place	B Removal
<b>Technical Applicability and/or System Integrity and Reliability</b>			
Available Technology	Used elsewhere in similar circumstances, and is predictably effective with contingencies if and as required	n/a	n/a
	New technologies supported by pilot plant or strong theoretical investigations or testing, with contingencies if and as required	n/a	n/a
Technical Applicability and/or System Integrity and Reliability Summary Evaluation and Rating		n/a	n/a
<b>Ability to Service the Site Effectively</b>			
Service	Provides a guaranteed supply to the site with manageable potential for supply disruption, and/or contingencies available	n/a	n/a
Accessibility	Accessible land base or infrastructure needed to support component development and operation	n/a	n/a
Ability to Service the Site Effectively Summary Evaluation and Rating		n/a	n/a
<b>Effects to the Physical and Biological Environments</b>			
Effect on air quality and climate	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	n/a	n/a
	Emission rates of greenhouse gases (GHGs)	n/a	n/a

APPENDIX U16

Mine Closure - Drainage			
Performance Objective / Criteria	Indicator	Alternatives	
		A Stabilize and leave in place	B Removal
Effect on fish and aquatic habitat	Attainment or maintenance of surface water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	<u>Advantages</u> <ul style="list-style-type: none"> <li>Integrated and well designed drainages are capable of complying with final effluent standards required to attain or maintain receiving water protection of aquatic life standards, or scientifically defensible alternatives</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Removal of the drainages would have no adverse effects on compliance with final effluent standards required to attain or maintain receiving water protection of aquatic life standards, or scientifically defensible alternatives</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
	Maintenance of flows and water levels in streams and lakes suitable to support aquatic species and habitat	<u>Advantages</u> <ul style="list-style-type: none"> <li>Generated aquatic habitat with potential for added fish habitat</li> <li>Leaving drainage systems in place does not preclude the establishment of passive drainage systems</li> <li>Some drainage systems may provide alternate fish passage</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Removal of drainage systems may re-establish passive drainage to conditions akin to pre-mining conditions</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
	Maintenance of fish population	n/a	n/a
Maintenance of groundwater flows, levels and quality	Local surface and groundwater systems are not functionally connected as far as fish habitat is concerned.		
Effect on Wetlands	Attainment or maintenance of water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	See equivalent indicator in Effect on fish and aquatic habitat	See equivalent indicator in Effect on fish and aquatic habitat
	Area, type and quality (functionality) of terrestrial habitat that would be displaced or altered	n/a	n/a

APPENDIX U16

Mine Closure - Drainage			
Performance Objective / Criteria	Indicator	Alternatives	
		A Stabilize and leave in place	B Removal
Effect on Wetlands	Maintenance of wetland connectivity	n/a	n/a
Effect on terrestrial species and habitat	Area, type and quality (functionality) of terrestrial habitat that would be displaced or altered	n/a	n/a
	Potential for noise (or other harm or harassment) related disturbance	n/a	n/a
	Maintenance or provision of plant dispersion and wildlife movement corridors	n/a	<u>Advantages</u> <ul style="list-style-type: none"> <li>Full removal of drainage systems would restore small terrestrial habitat sections present prior to drainage system development</li> </ul>
			<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
Effect on Species at Risk (SAR)	Sensitivity level of involved species (Endangered, Threatened, Special Concern)	Little brown myotis bats (Endangered – Ontario ESA) have been recorded around the Project site and may persist in the area through to closure.	
	Area, type and quality of SAR territories or habitat that would be displaced	n/a	n/a
	Potential for noise (or other harm or harassment) related disturbance	n/a	n/a
	Maintenance or provision of wildlife movement corridors	n/a	See equivalent indicator in Effects on terrestrial species and habitat

**APPENDIX U16**

<b>Mine Closure - Drainage</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A Stabilize and leave in place</b>	<b>B Removal</b>
Effects to the Physical and Biological Environments Summary Evaluation and Rating		Aquatic and other habitat functions would be maintained, with the potential for added fish habitat. Leaving drainage systems in place does not preclude the establishment of passive drainage systems, and sections may provide alternate fish passage.  <b>Summary Rating: Acceptable</b>	Aquatic and other habitat functions would be maintained, akin to pre-Project conditions over time. Small terrestrial habitat sections present prior to drainage system development may be restored, in turn re-establishing passive drainage.  <b>Summary Rating: Acceptable</b>
<b>Effects to the Human Environment</b>			
Effect on local residents and recreational users	Maintenance or improvement of income opportunities	<u>Advantages</u> <ul style="list-style-type: none"> <li>If drainages are maintained, some employment opportunities may arise (monitoring / maintenance)</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Area would be reclaimed akin to pre-Project conditions</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
	Maintenance or provision of local access	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Area would be reclaimed akin to pre-Project conditions</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
	Attainment of noise by-law guidelines, and /or background sound levels if already above the guidelines	n/a	n/a
	Non-interference with water well supply systems	n/a	n/a
	Non-interference with surface water drinking supply	<u>Advantages</u> <ul style="list-style-type: none"> <li>No known potential interference with area well users</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>No known potential interference with area well users</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>

APPENDIX U16

Mine Closure - Drainage			
Performance Objective / Criteria	Indicator	Alternatives	
		A Stabilize and leave in place	B Removal
Effect on local residents and recreational users	Potential for general disturbance and adverse affects on aesthetics	n/a	n/a
	Potential for adverse health and safety effects	n/a	n/a
Effect on infrastructure	Maintenance or provision of local and regional access	n/a	n/a
	Maintenance and reliability of power supply systems	n/a	n/a
	Maintenance and reliability of pipeline systems	n/a	n/a
Public health and safety	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	n/a	n/a
	Maintenance or attainment of the quality of drinking water supply systems	n/a	n/a
	Managing the potential for adverse electromagnetic exposure	n/a	n/a
	Maintaining safe road traffic conditions that are within the domain of IAMGOLD control	n/a	n/a
	Maintenance or provision of health services	n/a	n/a

**APPENDIX U16**

<b>Mine Closure - Drainage</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A Stabilize and leave in place</b>	<b>B Removal</b>
Effect on local businesses and economy	Maintenance or improvement of local business and economic opportunities (including commercial bait harvesters and trappers)	<u>Advantages</u> <ul style="list-style-type: none"> <li>If drainages are maintained, some employment opportunities may arise (monitoring / maintenance)</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Area would be reclaimed akin to pre-Project conditions, allowing for recreational and traditional land use</li> <li>Employment opportunities may be generated for closure and removal activities</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
	Continued access to areas used for natural resource harvesting by tourism operators	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Area would be reclaimed akin to pre-Project conditions</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
Effect on tourism and recreation	Maintenance or improvement of tourism and recreational opportunities	n/a	n/a
Regional economy	Maintenance or improvement of the regional economy	<u>Advantages</u> <ul style="list-style-type: none"> <li>Ongoing monitoring / maintenance – employment</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>Employment opportunities may be generated for closure and removal activities</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
Effect on government services	Maintenance or improvement on the capacity of existing health, education and family support services	n/a	n/a
Effect on resource management objectives	Consistency with established and planned resource management objectives such as Bear Management Areas and Sustainable Forest Management units	n/a	n/a

APPENDIX U16

Mine Closure - Drainage			
Performance Objective / Criteria	Indicator	Alternatives	
		A Stabilize and leave in place	B Removal
Excessive waste materials	Limiting the generation of unnecessary waste materials	<u>Advantages</u> <ul style="list-style-type: none"> <li>No removal wastes generated</li> </ul>	<u>Advantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>
		<u>Disadvantages</u> <ul style="list-style-type: none"> <li>None apparent</li> </ul>	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>Removal wastes may be generated</li> </ul>
	Potential for material to be recycled/reused	n/a	n/a
Effect on built heritage and cultural heritage landscapes	Destruction of any, or part of any, built heritage resources, cultural heritage landscapes, heritage attributes or features	n/a	n/a
	Alteration that is not sympathetic or is incompatible, with the historic fabric and appearance of cultural heritage resources	n/a	n/a
	Shadows created that alter the appearance of a built heritage resource, cultural heritage landscape, heritage attribute or change the viability of a natural feature or plantings, such as a garden	n/a	n/a
	Isolation of a built heritage resource or heritage attribute from its surrounding environment, context or a significant relationship	n/a	n/a
	Direct or indirect obstruction of significant views or vistas within, from or of built heritage resources or cultural heritage landscapes	n/a	n/a



APPENDIX U16

Mine Closure - Drainage			
Performance Objective / Criteria	Indicator	Alternatives	
		A Stabilize and leave in place	B Removal
Effect on built heritage and cultural heritage landscapes	A change in land use such as rezoning a battlefield from open space to residential use, allowing new development or site alteration to fill in the formerly open spaces	n/a	n/a
	Avoidance of damage to built heritage resources or cultural heritage landscapes, or document cultural resources if damage or relocation cannot be reasonably avoided	n/a	n/a
Effect on archaeological resources	Land disturbances (such as a change in grade that alters soils and drainage patterns that adversely affect an archaeological resource)	n/a	n/a
	Avoidance of archaeological sites, or mitigation through excavation of the site, if avoidance is not possible, as per the Standards and Guidelines for Consultant Archaeologists (2010), including other forms of mitigation through engagement with Aboriginal communities	n/a	n/a
Effects on First Nation reserves and communities	Maintenance or improvement of First Nation reserve and community conditions (subject to the limitations of Company capacity and community members' personal choice)	n/a	n/a

**APPENDIX U16**

<b>Mine Closure - Drainage</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A Stabilize and leave in place</b>	<b>B Removal</b>
Effect on spiritual, ceremonial sites	Avoidance of damage or disturbance to known spiritual and ceremonial sites; or implement other forms protection/preservation supported by Aboriginal communities	No known potential for adverse effects	No known potential for adverse effects
Effects on traditional land use	Maintain access to traditional lands for current traditional land uses, except as otherwise agreed to with local First Nations and Métis	n/a	n/a
Effects on Aboriginal and Treaty Rights	Avoid infringement of Aboriginal and Treaty Rights, except as otherwise agreed to with local First Nations and Métis	n/a	n/a
Effects to the Human Environment Summary Evaluation and Rating		This alternative may provide employment opportunities for local residents for monitoring and maintenance, and the land could be used for recreational and traditional purposes.  <b>Summary Rating: Acceptable</b>	This alternative may provide employment opportunities for local residents for closure and removal activities, and the land could be used for recreational and traditional purposes.  <b>Summary Rating: Acceptable</b>
<b>Amenability to Reclamation</b>			
Effect on public safety and security	Avoidance of safety and security risks to the general public	n/a	n/a

APPENDIX U16

Mine Closure - Drainage			
Performance Objective / Criteria	Indicator	Alternatives	
		A Stabilize and leave in place	B Removal
Effect on environmental health and sustainability	Attainment or maintenance of air quality point of impingement standards, or scientifically defensible alternatives	n/a	n/a
	Attainment or maintenance of water quality guidelines for the protection of aquatic life, or where pre-Project water quality does not meet the Provincial Water Quality Objectives, it shall not be degraded further	See equivalent indicator in Effects to the Physical and Biological Environment	See equivalent indicator in Effects to the Physical and Biological Environment
	Restoration of passive drainage systems	<u>Advantages</u> • Watercourse realignments do not impede passive drainage systems and / or provide new passive drainage systems	<u>Advantages</u> • Passive drainage systems would be re-established akin to pre-Project conditions over time
		<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • Some active restoration may be required after removal
	Provision of habitats for vegetation and wildlife species, including SAR	n/a	See equivalent indicator in Effects on terrestrial species and habitat
Effect on land use	Provide opportunities for productive land uses following the completion of mining activities	n/a	n/a
	Provide for an aesthetically pleasing site	<u>Advantages</u> • Both alternatives are broadly similar in their potential to develop an aesthetically pleasing site at closure	<u>Advantages</u> • Both alternatives are broadly similar in their potential to develop an aesthetically pleasing site at closure
		<u>Disadvantages</u> • None apparent	<u>Disadvantages</u> • None apparent

**APPENDIX U16**

<b>Mine Closure - Drainage</b>			
<b>Performance Objective / Criteria</b>	<b>Indicator</b>	<b>Alternatives</b>	
		<b>A Stabilize and leave in place</b>	<b>B Removal</b>
Amenability to Reclamation Summary Evaluation and Rating		<p>Drainage systems would provide suitable fish and aquatic habitat in the area, allowing for passive drainage.</p> <p><b>Summary Rating: Acceptable</b></p>	<p>Removal of drainage systems will allow for the area to be reclaimed similarly to its pre-Project condition. Some active restoration may be required.</p> <p><b>Summary Rating: Acceptable</b></p>
<b>Overall Summary Rating</b>		<p>Stabilizing and leaving drainage systems in place upon closure is the most cost-effective alternative, potentially providing employment opportunities for extended monitoring and maintenance. Aquatic and other habitat functions would be maintained, while allowing for passive drainage and potentially providing fish habitat and passage.</p> <p><b>Preferred</b></p>	<p>Removal of drainage systems upon closure requires capital for closure costs, and allows for aquatic and other habitat functions to be maintained and small terrestrial habitat sections present prior to drainage system development to be restored. This alternative also may provide employment opportunities for closure activities.</p> <p><b>Acceptable</b></p>

Source: AMEC (2013).

**APPENDIX U17  
PROJECT ALTERNATIVES ASSESSMENT**



APPENDIX U17

Alternatives to the Project				
Environmental Component	Information Requirements	A Proceed with the Project as Planned by IAMGOLD	B Delay the Project until Circumstances are More Favourable	C “Do nothing” Scenario to the Côté Gold Project
Air quality and sound	Environmental effects	<ul style="list-style-type: none"> <li>Will generate dust, emissions from fuel combustion and processing (including GHGs), vibration and sound</li> </ul>	Same as for Alternative A	None
	Potential for mitigation	<ul style="list-style-type: none"> <li>Spray water or approved dust suppressants along site roads, and progressive reclamation for dust control</li> <li>Use of transmission line power, proper vehicle maintenance and emission control equipment to reduce air pollutants (including GHGs)</li> <li>Sound will be mitigated through enclosing equipment as practicable, proper equipment maintenance and stockpile and facility placement</li> </ul>	Same as for Alternative A	Not Applicable
	<b>Significance</b>	<b>Level 3</b>	<b>Level 3</b>	<b>Not Applicable</b>
Drainage or flooding	Environmental effects	<ul style="list-style-type: none"> <li>The open pit will overprint the Côté Lake</li> <li>Watercourse re-alignments will largely maintain the existing flow/drainage regime</li> </ul>	Same as for Alternative A	None
	Potential for mitigation	<ul style="list-style-type: none"> <li>Flood control berms along the TMF, MRA and open pit to prevent flooding of site infrastructure</li> <li>Bagsverd Creek, Chester Lake and Little Clam Lake will be diverted to avoid Project facilities</li> <li>Minor drainage improvements around the mine site</li> <li>Ponds will be created to optimize site water management</li> <li>High rate of water recycling for the process plant will reduce the amount of water taking from Mesomikenda Lake</li> </ul>	Same as for Alternative A	Not Applicable
	<b>Significance</b>	<b>Level 3</b>	<b>Level 3</b>	<b>Not Applicable</b>

APPENDIX U17

Alternatives to the Project				
Environmental Component	Information Requirements	A Proceed with the Project as Planned by IAMGOLD	B Delay the Project until Circumstances are More Favourable	C “Do nothing” Scenario to the Côté Gold Project
Land subject to hazards	Environmental effects	<ul style="list-style-type: none"> <li>No such lands have been identified</li> </ul>	Same as for Alternative A	None
	Potential for mitigation	Not Applicable	Same as for Alternative A	Not Applicable
	<b>Significance</b>	<b>Level 1</b>	<b>Level 1</b>	<b>Not Applicable</b>
Sedimentation or erosion	Environmental effects	<ul style="list-style-type: none"> <li>Potential sediment release from stockpiles and exposed lands</li> </ul>	Same as for Alternative A	None
	Potential for mitigation	<ul style="list-style-type: none"> <li>Perimeter ditching and runoff collection ponds around site infrastructure</li> </ul>	Same as for Alternative A	Not Applicable
	<b>Significance</b>	<b>Level 1</b>	<b>Level 1</b>	<b>Not Applicable</b>
Release of excess parameters	Environmental effects	<ul style="list-style-type: none"> <li>Treated effluent will be discharged to the environment</li> <li>Sediment management ponds will discharge to nearby watercourses if water quality criteria are met</li> <li>Potential for localized spills from industrial operations</li> </ul>	Same as for Alternative A	None
	Potential for mitigation	<ul style="list-style-type: none"> <li>In-plant cyanide destruction and heavy metal precipitation using SO<sub>2</sub>/Air process, followed by natural degradation of effluent prior to release to environment, combined with seepage collection</li> <li>Use of sumps and settling ponds for sediment control</li> <li>High rate of water recycling for the process plant will reduce water discharge to the environment</li> <li>Procedures and infrastructure to be put in place to reduce the potential for hydrocarbon and other spills, and to clean up any spills that do occur on a regular basis</li> </ul>	Same as for Alternative A	Not Applicable
	<b>Significance</b>	<b>Level 2</b>	<b>Level 2</b>	<b>Not Applicable</b>



APPENDIX U17

Alternatives to the Project				
Environmental Component	Information Requirements	A Proceed with the Project as Planned by IAMGOLD	B Delay the Project until Circumstances are More Favourable	C “Do nothing” Scenario to the Côté Gold Project
Earth or life science features	Environmental effects	<ul style="list-style-type: none"> <li>Area surrounding Project site relatively remote and undeveloped</li> </ul>	Same as for Alternative A	None
	Potential for mitigation	<ul style="list-style-type: none"> <li>Maintain as narrow of a transmission line ROW as practical and utilize existing access for construction as possible</li> </ul>	Same as for Alternative A	Not Applicable
	<b>Significance</b>	<b>Level 3</b>	<b>Level 3</b>	<b>Not Applicable</b>
Soils and sediment quality Vegetation and habitat	Environmental effects	<ul style="list-style-type: none"> <li>Potential for minor areas of soil damage associated with potential hydrocarbon and other spills</li> </ul>	Same as for Alternative A	None
	Potential for mitigation	<ul style="list-style-type: none"> <li>Procedures and infrastructure to be put in place to reduce the potential for hydrocarbon and other spills, and to clean up any spills that do occur on a regular basis</li> </ul>	Same as for Alternative A	Not Applicable
	<b>Significance</b>	<b>Level 1</b>	<b>Level 1</b>	<b>Not Applicable</b>
Vegetation and habitat	Environmental effects	<ul style="list-style-type: none"> <li>Project development will displace local terrestrial habitat and associated plant species</li> <li>Transmission line ROW will require clearing of forested areas</li> </ul>	Same as for Alternative A	None
	Potential for mitigation	<ul style="list-style-type: none"> <li>Mitigations as described above and others (including managing air emissions, develop a compact site, progressive reclamation, compensation measures)</li> <li>Transmission line ROW width will be limited to the extent practical</li> </ul>	Same as for Alternative A	Not applicable
	<b>Significance</b>	<b>Level 3</b>	<b>Level 3</b>	<b>Not Applicable</b>

APPENDIX U17

Alternatives to the Project				
Environmental Component	Information Requirements	A Proceed with the Project as Planned by IAMGOLD	B Delay the Project until Circumstances are More Favourable	C “Do nothing” Scenario to the Côté Gold Project
Ecological integrity	Environmental effects	<ul style="list-style-type: none"> <li>Project development will displace habitat, as per the above</li> <li>Potential for the transmission line ROW to fragment forests and create edge effects</li> <li>A new wildlife corridor will be created along the transmission line ROW</li> </ul>	Same as for Alternative A	None
	Potential for mitigation	<ul style="list-style-type: none"> <li>Mitigation measures as described above (e.g., manage air emissions, develop compact site, progressively reclaim the site, use effective effluent treatment and management, compensation measures)</li> <li>Transmission line ROW width will be limited to the extent practical</li> <li>Watercourse diversions will be designed, to the extent practicable, to facilitate fish movement</li> </ul>	Same as for Alternative A	Not Applicable
	<b>Significance</b>	<b>Level 3</b>	<b>Level 3</b>	<b>Not Applicable</b>
Terrestrial wildlife	Environmental effects	<ul style="list-style-type: none"> <li>Project development will displace local terrestrial habitat and associated wildlife</li> <li>Potential for general disturbance caused by sound and vibration emissions</li> <li>Potential for vehicular collisions</li> </ul>	Same as for Alternative A	None
	Potential for mitigation	<ul style="list-style-type: none"> <li>Mitigation measures as described above (e.g., managing air emissions, develop a compact site and progressively reclaim the site)</li> </ul>	Same as for Alternative A	Not Applicable
	<b>Significance</b>	<b>Level 3</b>	<b>Level 3</b>	<b>Not Applicable</b>

APPENDIX U17

Alternatives to the Project				
Environmental Component	Information Requirements	A Proceed with the Project as Planned by IAMGOLD	B Delay the Project until Circumstances are More Favourable	C “Do nothing” Scenario to the Côté Gold Project
SAR	Environmental effects	<ul style="list-style-type: none"> <li>Loss of non-specific terrestrial habitat, and general disturbance to SAR (e.g., little brown myotis bat, bald eagle)</li> </ul>	Same as for Alternative A	None
	Potential for mitigation	<ul style="list-style-type: none"> <li>Maintain as compact a site as practical</li> <li>Avoidance of SAR habitat as practical (no specific SAR habitat identified in study areas)</li> </ul>	Same as for Alternative A	Not Applicable
	<b>Significance</b>	<b>Level 3</b>	<b>Level 3</b>	<b>Not Applicable</b>
Recovery of a species under special management	Environmental effects	<ul style="list-style-type: none"> <li>See SAR above</li> </ul>	Same as for Alternative A	None
	Potential for mitigation	<ul style="list-style-type: none"> <li>See SAR above</li> </ul>	Same as for Alternative A	Not Applicable
	<b>Significance</b>	<b>Level 3</b>	<b>Level 3</b>	<b>Not Applicable</b>
Fish, aquatic resources and habitats	Environmental effects	<ul style="list-style-type: none"> <li>Treated effluent will be discharged to the Bagsverd Creek as required</li> <li>Overprinting of minor creeks and drainages associated with TMF, stockpiles and open pit development</li> <li>Potential flow reductions in local creeks associated with watercourse realignments</li> </ul>	Same as for Alternative A	None
	Potential for mitigation	<ul style="list-style-type: none"> <li>In-plant cyanide destruction and heavy metal precipitation using SO<sub>2</sub>/Air process, followed by natural degradation of effluent prior to release to environment, combined with seepage collection</li> <li>Use of sumps and collection ponds for sediment control</li> <li>Fish habitat compensation where appropriate</li> <li>High rate of water recycling for the process plant will reduce water taking from Mesomikenda Lake</li> </ul>	Same as for Alternative A	Not Applicable
	<b>Significance</b>	<b>Level 3</b>	<b>Level 3</b>	<b>Not Applicable</b>

APPENDIX U17

Alternatives to the Project				
Environmental Component	Information Requirements	A Proceed with the Project as Planned by IAMGOLD	B Delay the Project until Circumstances are More Favourable	C “Do nothing” Scenario to the Côte Gold Project
Natural heritage features	Environmental effects	<ul style="list-style-type: none"> <li>No natural heritage features identified at the Project site</li> </ul>	Same as for Alternative A	None
	Potential for mitigation	<ul style="list-style-type: none"> <li>No additional mitigation measures beyond those discussed above</li> </ul>	Same as for Alternative A	Not Applicable
	<b>Significance</b>	<b>Level 3</b>	<b>Level 3</b>	<b>Not Applicable</b>
Access to inaccessible areas	Environmental effects	<ul style="list-style-type: none"> <li>Project development will potentially provide improved access along the transmission line ROW</li> </ul>	Same as for Alternative A	The “do nothing” alternative will provide no positive enhancement for other resource management projects
	Potential for mitigation	<ul style="list-style-type: none"> <li>Although access along the cleared ROW may be beneficial for hunters, recreational vehicles and others, access will be restricted as practicable for safety and security</li> </ul>	Same as for Alternative A	Not Applicable
	<b>Significance</b>	<b>Level 1(+)</b>	<b>Level 1(+)</b>	<b>Not Applicable</b>
Obstruct navigation	Environmental effects	<ul style="list-style-type: none"> <li>Effects of transmission line crossings are negligible as it is limited to poles which will be placed away from water features, and wires will cross overhead</li> </ul>	Same as for Alternative A	None
	Potential for mitigation	<ul style="list-style-type: none"> <li>Crossing (e.g., of access roads) will be designed to meet regulatory navigable waters requirements</li> </ul>	Same as for Alternative A	Not Applicable
	<b>Significance</b>	<b>Level 2</b>	<b>Level 2</b>	<b>Not Applicable</b>

APPENDIX U17

Alternatives to the Project				
Environmental Component	Information Requirements	A Proceed with the Project as Planned by IAMGOLD	B Delay the Project until Circumstances are More Favourable	C “Do nothing” Scenario to the Côté Gold Project
Other resource management projects	Environmental effects	<ul style="list-style-type: none"> <li>Provision of 230 kV power to the immediate local area could help encourage other resource projects</li> </ul>	Same as for Alternative A	The “do nothing” alternative will provide no positive enhancement for other resource management projects
	Potential for mitigation	<ul style="list-style-type: none"> <li>Potential to transfer transmission line to local service provider at Project closure if appropriate</li> </ul>	Same as for Alternative A	Not Applicable
	<b>Significance</b>	<b>Level 2(+)</b>	<b>Level 2(+)</b>	<b>Not Applicable</b>
Traffic patterns and infrastructure	Environmental effects	<ul style="list-style-type: none"> <li>Increased use of Highway 144, particularly during construction period</li> </ul>	Same as for Alternative A	None
	Potential for mitigation	<ul style="list-style-type: none"> <li>Adherence to speed limits</li> <li>Bus employees to site from collection point(s) if appropriate</li> </ul>	Same as for Alternative A	Not Applicable
	<b>Significance</b>	<b>Level 1(+)</b>	<b>Level 1(+)</b>	<b>Not Applicable</b>
Recreational importance	Environmental effects	<ul style="list-style-type: none"> <li>Potential for sound disturbance to local hunting activities</li> <li>The Project will restrict access on its lands as part of site security and safety measures</li> </ul>	Same as for Alternative A	None
	Potential for mitigation	<ul style="list-style-type: none"> <li>Maintain as compact a site as practical</li> <li>Emission treatment systems indirectly support recreation by maintaining appropriate air, sound and water discharges</li> </ul>	Same as for Alternative A	Not Applicable
	<b>Significance</b>	<b>Level 1</b>	<b>Level 1</b>	<b>Not Applicable</b>

APPENDIX U17

Alternatives to the Project				
Environmental Component	Information Requirements	A Proceed with the Project as Planned by IAMGOLD	B Delay the Project until Circumstances are More Favourable	C “Do nothing” Scenario to the Côté Gold Project
Create excessive waste materials	Environmental effects	<ul style="list-style-type: none"> <li>Large quantities of tailings and mineral waste stockpiles will be developed</li> <li>Potential to construct domestic material and demolition material landfills for non-hazardous solid wastes</li> </ul>	Same as for Alternative A	None
	Potential for mitigation	<ul style="list-style-type: none"> <li>Open pit volume will be limited to the extent practical</li> <li>TMF will be reclaimed with vegetative cover at mine closure</li> <li>MRA will be reclaimed to productive wildlife habitat at mine closure if practical</li> <li>Landfill(s) will be reclaimed according to regulatory requirements</li> </ul>	Same as for Alternative A	Not Applicable
	<b>Significance</b>	<b>Level 4</b>	<b>Level 4</b>	<b>Not Applicable</b>
Commit a significant amount of non-renewable resources (e.g., aggregates)	Environmental effects	<ul style="list-style-type: none"> <li>Aggregates (sand and gravel) will be required for site development and ongoing TMF construction</li> <li>On-site aggregate sources are available</li> </ul>	Same as for Alternative A	None
	Potential for mitigation	<ul style="list-style-type: none"> <li>Re-use of mine waste as practical</li> <li>Maintain as compact of a site footprint as practical</li> </ul>	Same as for Alternative A	Not Applicable
	<b>Significance</b>	<b>Level 3</b>	<b>Level 3</b>	<b>Not Applicable</b>
Sound levels	Environmental effects	<ul style="list-style-type: none"> <li>Nearby residents may experience increased sound levels from Project construction, operations and closure, including increased traffic along Highway 144</li> </ul>	Same as for Alternative A	None
	Potential for mitigation	<ul style="list-style-type: none"> <li>Sound will be mitigated through enclosing equipment as practicable, proper equipment maintenance and stockpile and facility placement</li> </ul>	Same as for Alternative A	Not Applicable
	<b>Significance</b>	<b>Level 3</b>	<b>Level 3</b>	<b>Not Applicable</b>

APPENDIX U17

Alternatives to the Project				
Environmental Component	Information Requirements	A Proceed with the Project as Planned by IAMGOLD	B Delay the Project until Circumstances are More Favourable	C “Do nothing” Scenario to the Côté Gold Project
Views and aesthetics	Environmental effects	<ul style="list-style-type: none"> <li>Mineral stockpiles (TMF, MRA, developed, along with the open pit and other mine aspects)</li> <li>Stockpiles will be partially and minimally visible from select locations</li> <li>Transmission line will be visible from select locations along ridges and road crossings</li> </ul>	Same as for Alternative A	None
	Potential for mitigation	<ul style="list-style-type: none"> <li>Site to be progressively reclaimed as possible</li> <li>Final closure will improve aesthetics of stockpiles</li> <li>TMF surface will be revegetated</li> </ul>	Same as for Alternative A	Not Applicable
	<b>Significance</b>	<b>Level 3</b>	<b>Level 3</b>	<b>Not Applicable</b>
Precondition or justification for another Project	Environmental effects	Not Applicable	Same as for Alternative A	Not Applicable
	Potential for mitigation	Not Applicable	Same as for Alternative A	Not Applicable
	<b>Significance</b>	<b>Not Applicable</b>	<b>Not Applicable</b>	<b>Not Applicable</b>

APPENDIX U17

Alternatives to the Project				
Environmental Component	Information Requirements	A Proceed with the Project as Planned by IAMGOLD	B Delay the Project until Circumstances are More Favourable	C “Do nothing” Scenario to the Côté Gold Project
Adjacent or nearby uses, persons or property	Environmental effects	<ul style="list-style-type: none"> <li>Local study area is a fairly remote, low density rural area</li> <li>Other nearby land is used for logging activities and recreation</li> <li>Will maintain a compact footprint; however, infrastructure placement limited to properties that IAMGOLD can purchase</li> <li>Limitation to local hunters, fishermen, and recreational vehicle users around the general mine site area</li> </ul>	Same as for Alternative A	None
	Potential for mitigation	<ul style="list-style-type: none"> <li>Maintain a compact mine site</li> <li>Maintenance of road access to local residents at all times</li> <li>Any merchantable timber cut as a result of mine site development will be made available to the local forestry licence holder</li> </ul>	Same as for Alternative A	Not Applicable
	<b>Significance</b>	<b>Level 4</b>	<b>Level 4</b>	<b>Not Applicable</b>
Cultural heritage resources	Environmental effects	<ul style="list-style-type: none"> <li>No cultural heritage resources have been identified in or around the Project site</li> </ul>	Same as for Alternative A	None
	Potential for mitigation	<ul style="list-style-type: none"> <li>Any archaeological sites discovered during baseline studies are protected through the Ontario Heritage Act</li> <li>Additional archaeological studies are underway</li> <li>Procedures and programs will be put in place to identify and respond to cultural heritage resources in the event that any such resources are inadvertently uncovered during mine site construction</li> </ul>	Same as for Alternative A	Not Applicable
	<b>Significance</b>	<b>Level 3</b>	<b>Level 3</b>	<b>Not Applicable</b>



APPENDIX U17

Alternatives to the Project				
Environmental Component	Information Requirements	A Proceed with the Project as Planned by IAMGOLD	B Delay the Project until Circumstances are More Favourable	C “Do nothing” Scenario to the Côté Gold Project
Displace people, businesses, institutions or facilities	Environmental effects	<ul style="list-style-type: none"> <li>The Project will be developed on private lands and will not displace local residents</li> </ul>	Same as for Alternative A	None
	Potential for mitigation	<ul style="list-style-type: none"> <li>Maintain as compact of a project footprint as possible</li> <li>If additional lands are required for Project development, IAMGOLD will negotiate financially generous offers</li> </ul>	Same as for Alternative A	Not Applicable
	<b>Significance</b>	<b>Level 2</b>	<b>Level 2</b>	<b>Not Applicable</b>
Community character	Environmental effects	<ul style="list-style-type: none"> <li>Development of the Project will help to maintain the character of the local resource based community by helping to sustain employment and businesses</li> </ul>	Same as for Alternative A	The “do nothing” alternative will provide no positive enhancement to local communities
	Potential for mitigation	<ul style="list-style-type: none"> <li>Enhance local economic benefits</li> </ul>	Same as for Alternative A	Not Applicable
	<b>Significance</b>	<b>Level 5(+)</b>	<b>Level 5(+)</b>	<b>Not Applicable</b>
Increase demands on government services	Environmental effects	<ul style="list-style-type: none"> <li>EA and permit applications will temporarily increase workloads for government departments (primarily MNR, MOE, MNDM, MTO, CEA Agency, EC, DFO, NRCan and others)</li> <li>Potential for increased demands on municipal services</li> <li>Project negotiations, TK/TLU studies, and environmental reviews will increase demands on Aboriginal government functions</li> </ul>	Same as for Alternative A	None
	Potential for mitigation	<ul style="list-style-type: none"> <li>Alert the various governments to Project timelines so they can plan for increased work loads</li> </ul>	Same as for Alternative A	Not Applicable
	<b>Significance</b>	<b>Level 2</b>	<b>Level 2</b>	<b>Not Applicable</b>

APPENDIX U17

Alternatives to the Project				
Environmental Component	Information Requirements	A Proceed with the Project as Planned by IAMGOLD	B Delay the Project until Circumstances are More Favourable	C “Do nothing” Scenario to the Côté Gold Project
Public health and safety	Environmental effects	<ul style="list-style-type: none"> <li>Possible release of excess parameters in discharged effluents</li> <li>Possible release of excess parameters as a result of spills</li> <li>Potential for traffic accidents</li> </ul>	Same as for Alternative A	None
	Potential for mitigation	<ul style="list-style-type: none"> <li>On-site effluent treatment and water management systems</li> <li>Spill contingency and clean-up plans and protocols</li> <li>Safe driving training programs, and adherence to speed limits</li> <li>Bussing of employees from collection point(s) to site if applicable</li> </ul>	Same as for Alternative A	Not Applicable
	<b>Significance</b>	<b>Level 2</b>	<b>Level 2</b>	<b>Not Applicable</b>
Local, regional, or Provincial economies or businesses	Environmental effects	<ul style="list-style-type: none"> <li>Development of the Project will provide direct business opportunities primarily to local and regional business to construct Project components, supply needed materials and provide services for employees</li> <li>The Project will make a significant contribution to the local and regional economy</li> </ul>	Same as for Alternative A, though at a later time due to Project delay	The “do nothing” alternative will provide no positive enhancement to local communities
	Potential for mitigation	<ul style="list-style-type: none"> <li>Maximize economic benefits</li> </ul>	Same as for Alternative A	Not Applicable
	<b>Significance</b>	<b>Level 5(+)</b>	<b>Level 5(+)</b>	<b>Not Applicable</b>

APPENDIX U17

Alternatives to the Project				
Environmental Component	Information Requirements	A Proceed with the Project as Planned by IAMGOLD	B Delay the Project until Circumstances are More Favourable	C “Do nothing” Scenario to the Côté Gold Project
Tourism values	Environmental effects	<ul style="list-style-type: none"> <li>Adverse effects to tourism expected to be minor</li> <li>Boost to local and regional economy may extend to tourism sector</li> </ul>	Same as for Alternative A	The “do nothing” alternative will provide no positive enhancement to local communities
	Potential for mitigation	<ul style="list-style-type: none"> <li>Maximize economic benefits</li> </ul>	Same as for Alternative A	Not Applicable
	<b>Significance</b>	<b>Level 2 (+)</b>	<b>Level 2(+)</b>	<b>Not Applicable</b>
First Nation Reserves or communities	Environmental effects	<ul style="list-style-type: none"> <li>Development of the Project will provide employment, training and business opportunities to numbers of Aboriginal persons living on nearby First Nation Reserves/communities, together with other tangible economic benefits. The net effect is expected to be positive (excluding any personal choice issues)</li> </ul>	Same as for Alternative A, though at a later time due to Project delay	The “do nothing” alternative will provide no positive enhancement to local communities
	Potential for mitigation	<ul style="list-style-type: none"> <li>Efforts are being made, and will be made through Impact Benefit (or similar) agreements to optimize economic benefits to local Aboriginal peoples</li> </ul>	Same as for Alternative A	None
	<b>Significance</b>	<b>Level 3(+)</b>	<b>Level 3(+)</b>	<b>Not Applicable</b>

APPENDIX U17

Alternatives to the Project				
Environmental Component	Information Requirements	A Proceed with the Project as Planned by IAMGOLD	B Delay the Project until Circumstances are More Favourable	C “Do nothing” Scenario to the Côté Gold Project
Spiritual, ceremonial or cultural sites	Environmental effects	<ul style="list-style-type: none"> <li>Eight Paleo-Indian archaeological sites have been identified in the local study area during baseline studies (Woodland Heritage Services 2013)</li> </ul>	Same as for Alternative A	None
	Potential for mitigation	<ul style="list-style-type: none"> <li>Procedures will be set in place to involve local Aboriginal groups in the Project on an ongoing basis to ensure that spiritual, ceremonial and cultural sites are not disturbed (no spiritual sites expected based on current information)</li> <li>Ongoing TK and TLU information collection from regional First Nations</li> <li>Additional archaeological baseline studies to be conducted</li> <li>All TK, TLU and archaeological information will be available prior to major construction activities. If any sites are identified in future, disturbance to such sites will be avoided</li> </ul>	Same as for Alternative A	None
	<b>Significance</b>	<b>Level 1</b>	<b>Level 1</b>	<b>Not Applicable</b>

APPENDIX U17

Alternatives to the Project				
Environmental Component	Information Requirements	A Proceed with the Project as Planned by IAMGOLD	B Delay the Project until Circumstances are More Favourable	C “Do nothing” Scenario to the Côté Gold Project
Traditional land or resources used for harvesting activities	Environmental effects	<ul style="list-style-type: none"> <li>None known</li> </ul>	Same as for Alternative A	None
	Potential for mitigation	<ul style="list-style-type: none"> <li>Any adverse effects to traditional pursuits involving the Project site area lands will be compensated through Impact Benefit (or similar) agreements</li> </ul>	Same as for Alternative A	None
	<b>Significance</b>	<b>Level 1 (after compensation)</b>	<b>Level 1 (after compensation)</b>	<b>Not Applicable</b>
Aboriginal values	Environmental effects	<ul style="list-style-type: none"> <li>IAMGOLD is working with local Aboriginal peoples to ascertain Aboriginal values relating to cultural heritage and land use aspects</li> </ul>	Same as for Alternative A	None
	Potential for mitigation	<ul style="list-style-type: none"> <li>Pre-contact archaeological sites discovered during baseline studies are protected through the Ontario <i>Heritage Act</i></li> <li>Procedures will be set in place to involve local Aboriginal groups in the Project on an ongoing basis to ensure that cultural heritage values are protected, and that any adverse effects to traditional pursuits involving the Project site area lands will be compensated through Impact Benefit (or similar) agreements (none expected)</li> </ul>	Same as for Alternative A	None
	<b>Significance</b>	<b>Level 1 (after compensation)</b>	<b>Level 1 (after compensation)</b>	<b>Not Applicable</b>
Lands subject to land claims	Environmental effects	To IAMGOLD’s knowledge no First Nations have an active land claim in the local area	Same as for Alternative A	None
	Potential for mitigation	Not Applicable (IAMGOLD has no authority to negotiate or participate in land claims negotiations)	Not Applicable	Not Applicable
	<b>Significance</b>	<b>Not Applicable</b>	<b>Not Applicable</b>	<b>Not Applicable</b>

Source: AMEC (2013).

