

Schaft Creek Project Alternatives Assessments



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EXECUTIVE SUMMARY



Executive Summary

Copper Fox Metals Inc. (Copper Fox) is a Canadian mineral exploration and development company developing the Schaft Creek Project. The Schaft Creek Project is located in north-western British Columbia, approximately 60 km south of the village of Telegraph Creek. Copper Fox has completed a Preliminary Economic Assessment (PEA) of the Schaft Creek property. The PEA outlined a 31 year mine life at 65,000 tonnes per day producing copper, molybdenum, gold and silver.

Copper Fox initiated environmental baseline studies in 2005 and preliminary engineering and geotechnical assessments in 2006. The Project was launched into the British Columbia environmental assessment process in August 2006. With release of the PEA, the Schaft Creek Project Description was updated in January 2008.

The preliminary engineering investigations for the Schaft Creek Project resulted in the development of conceptual designs for the majority of mine components for the Project. However, additional studies were required to select the best options for the placement and design of a tailings storage facility (TSF) and the access road alignment from highway 37 to the mine site.

The TSF and the access road represent major components of the proposed Schaft Creek Project. Diligent design, construction and operation of a TSF is of paramount importance to ensure the viability of a project from many different perspectives; environment, community, safety, engineering and closure.

The extent and footprint of the access road has the potential to affect the natural environment along its alignment. Creating access to a remote and pristine area could significantly affect wildlife and the cultural value associated with the land.

In July 2007, Copper Fox presented alternatives for the TSF and access road alignments to the Schaft Creek Working Group (WG). The WG is comprised of Tahltan representatives, provincial, federal and local government agencies and representatives from the State of Alaska. Representatives from the Tahltan Nation, working through the Tahltan Heritage Resources Environmental Assessment Team (THREAT), proposed an additional access road alignment. At the time Copper Fox was considering four access road alignments. The additional access road alignment put forward by THREAT, the Tahltan Highland road alignment (Highland alignment), was added to the discussion. Following the discussion and site tour in July 2007, three tailings options and two road alignments were carried forward as part of a detailed alternatives assessment.

As part of the alternatives assessment process initiated by Copper Fox, a number of meetings were held with the WG and individually with the THREAT:

- WG: February 20, 2008
- THREAT: April 16, 2008
- THREAT: May 28, 2008

The objectives of the alternatives assessments for the Schaft Creek Project were to:

- develop and document a transparent and balanced assessment methodology in consultation with the WG as a whole and individually with the THREAT;
- complete assessments of proposed alternatives for the placement and operation of the TSF and access road for the Schaft Creek Project and in doing so consider all relevant environmental, community, safety, closure and engineering issues associated with the alternatives;
- make use of best available information and to clearly identify priorities and rationales for ranking alternatives; and
- present preferred options for the placement of the TSF and the access road for the Schaft Creek Project.

The Alternatives Assessments for the tailings options and the access road alignments for the Schaft Creek Project resulted in the following conclusions:

- Tailings Option A is the preferred option. Potential effects to wildlife habitat as well as cultural and archaeological values were recognized and understood. However, potential safety concerns, closure/legacy consideration and serious engineering/water management challenges associated with Option B and Option C outweighed the potential environmental and Tahltan Community concerns. In addition, effects on wildlife and archaeology will not result in significant adverse effects with proper management and mitigation programs. Copper Fox is committed to working with the Tahltan Nation to mitigate potential effects from the development of Option A to the greatest possible extent.
- The Mess Creek Valley road alignment was selected as the preferred road alignment. Human safety considerations and the serious engineering challenges associated with the Tahltan Highland alignment were the dominating factors in selecting the preferred option. It was recognized that the Valley alignment likely would cause disturbance to moose habitat and that the Tahltan Nation have a strong preference for the Tahltan Highland route based on potential archaeological effects. However, the potential for mitigating some of the effects to wildlife and archaeology and the lack of options for improving operator safety for the Tahltan Highland route resulted in the selection of the Mess Creek Valley alignment as the preferred option. However, Copper Fox acknowledges the important environmental and cultural values associated with this alignment and is prepared to work with the Tahltan Nation to mitigate any potential effects to the greatest extent possible.

During the May 28 (2008) meeting between Copper Fox and the THREAT, the conclusions of the alternatives assessment were presented to the THREAT. The THREAT also provided the conclusions from their assessment of the various alternatives. The THREAT requested the following be conducted in response to their concerns with the preferred alternatives selected through the alternatives assessment process:

- Additional tailings storage facilities should be considered; and
- The Tahltan Highland alignment should be revised to ignore provincial boundaries of Mount Edziza Provincial Park.

Copper Fox requested their consulting engineers to complete these two tasks and comment on any additional tailings options and revisions to the Tahltan Highland alignment. The letter reports from Knight Piesold Consulting Ltd. and McElhanney Consulting Services Ltd. are appended to this report. These two letter reports reaffirm that Tailings Option A and the Mess Creek Valley road alignment are the best alternatives for the Schaft Creek Project.

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1. INTRODUCTION

1. Introduction

The following report documents the Schaft Creek Project Alternatives Assessments conducted by various consultants to Copper Fox Metals Ltd. (Copper Fox): Rescan Environmental Services, Knight Piesold Consulting, McElhanney Consulting and Moose Mountain Technical Services Ltd. The Schaft Creek Project is currently in the British Columbia environmental assessment process (B.C. Environmental Assessment Act) and the Canadian environmental assessment process (Canadian Environmental Assessment Act).

1.1 Project Summary

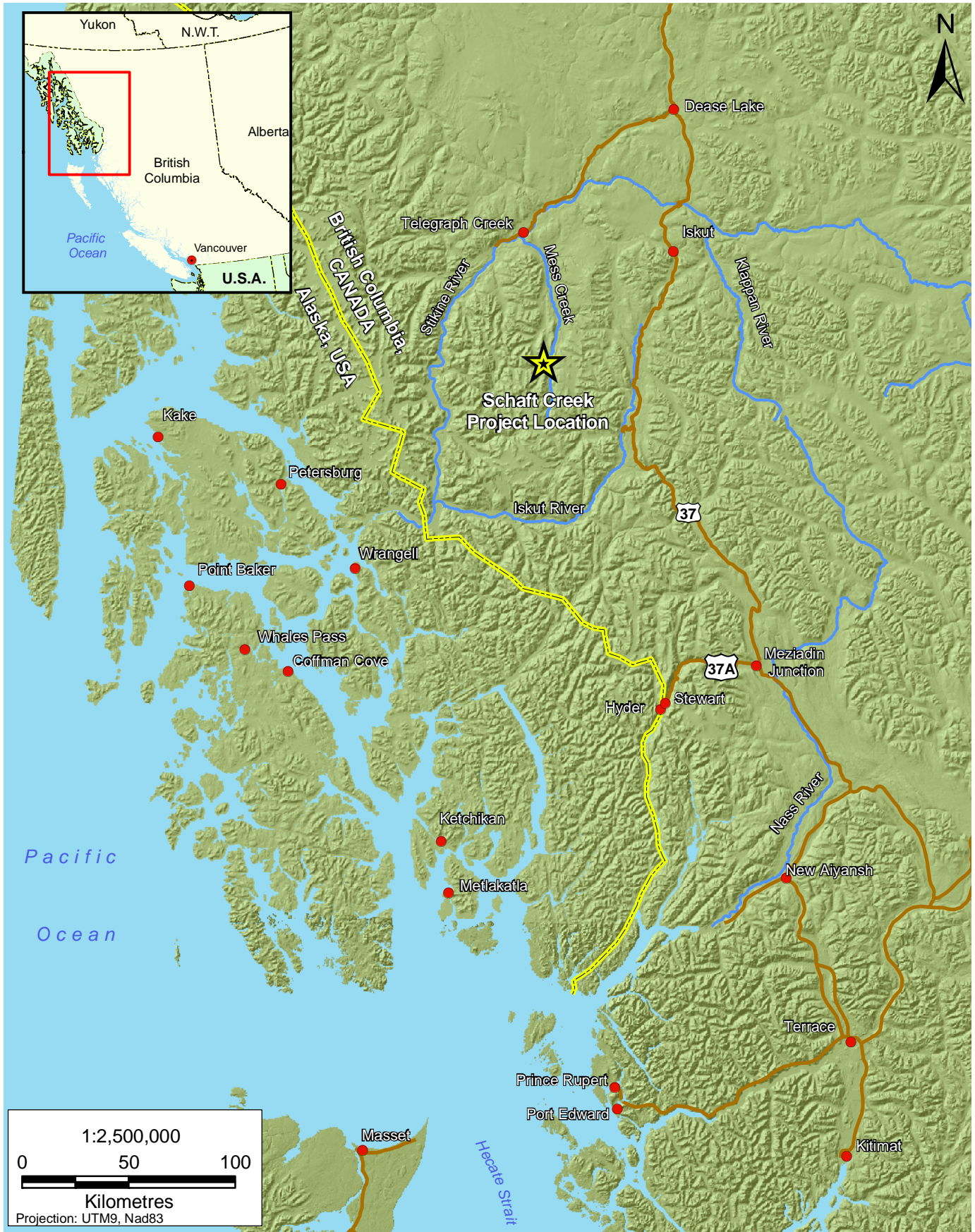
Copper Fox is a Canadian mineral exploration and development company who is focused on developing the Schaft Creek Project. The Schaft Creek Project is located in north-western British Columbia, approximately 60 km south of the village of Telegraph Creek (Figure 1.1-1). The Schaft Creek deposit is a polymetallic (copper-gold-silver-molybdenum) deposit located in the Liard District of north-western British Columbia (Latitude 57° 22' 4.2"; Longitude 130°, 58' 48.9"). The property comprises 40 mineral claims covering approximately 20,932 ha within the Cassiar Iskut-Stikine Land and Resource Management Plan (Figure 1.1-2).

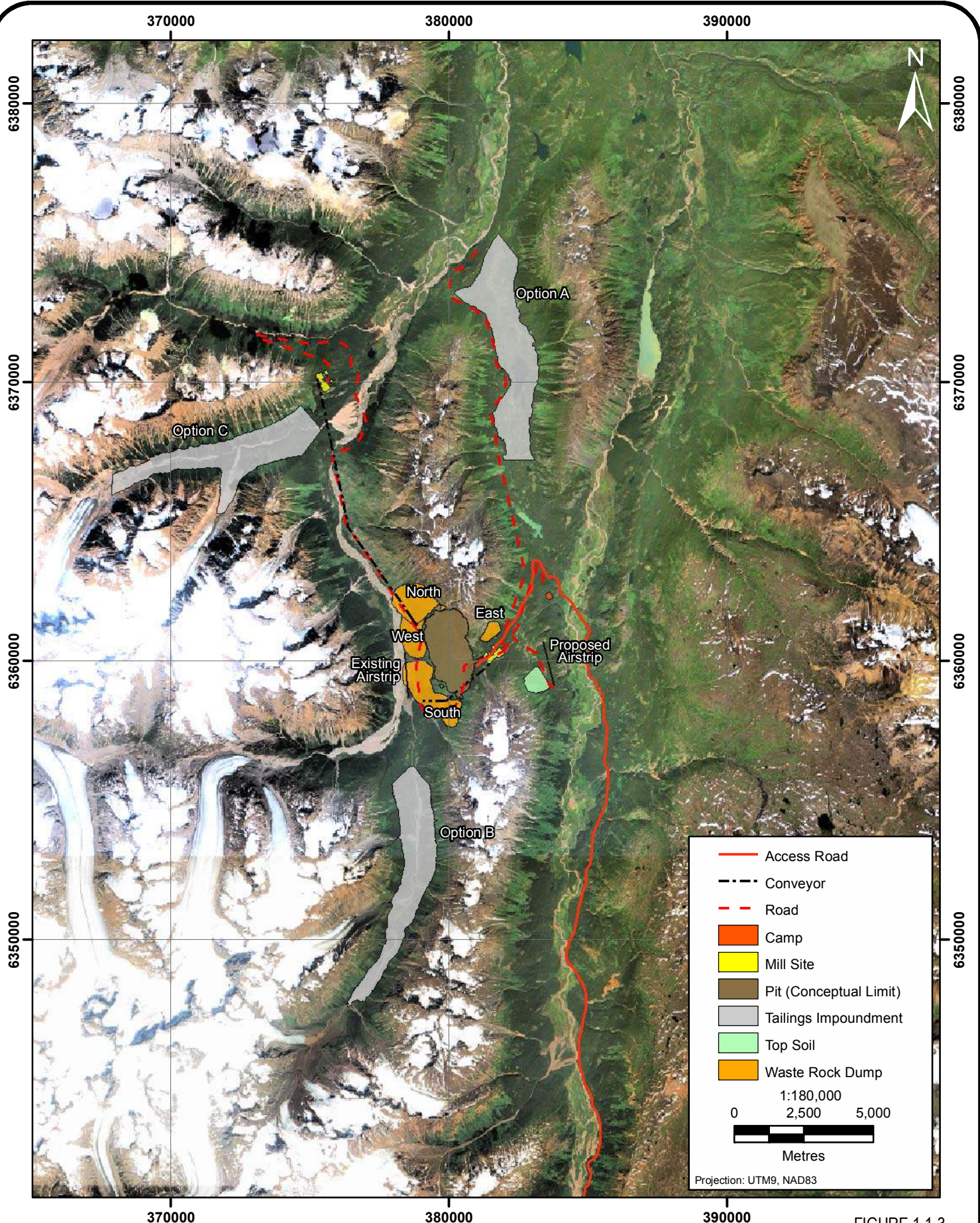
The Schaft Creek Project is located within the traditional territory of the Tahltan Nation. Copper Fox has been in discussions with the Tahltan Central Council (TCC) and the Tahltan Heritage Resources Environmental Assessment Team (THREAT) since initiating exploration activities in 2005. Copper Fox has engaged in numerous agreements with the TCC including a Communications Agreement, Traditional Knowledge Agreement, Letter of Understanding with the Tahltan Nation Development Corporation (TNDC) and a THREAT Agreement. Copper Fox will continue to work together with the Tahltan Nation as the Schaft Creek Project continues to move forward.

The Schaft Creek deposit was discovered in 1957 and has since been investigated by prospecting, geological mapping, geophysical surveys as well as diamond and percussion drilling. Over 65,000 meters of drilling has been completed on the property as of end of 2007. Additional drilling is planned for 2008 to support future economic assessments of the property and an environmental assessment application.

The Schaft Creek Project entered the British Columbia environmental assessment process in August 2006. Although a formal federal decision has not yet been made, the Project will likely require federal approval as per the Canadian Environmental Assessment Act. Copper Fox has targeted the Q1 2009 for submission of their Schaft Creek Environmental Assessment Application.

Copper Fox has completed a scoping level engineering and economic report for the Schaft Creek Project, called Preliminary Economic Assessment. The footprint of the proposed mine and associated infrastructure are presented in Figure 1.1-3. The current mine plan has ore milled from an open pit at a rate of 65,000 tonnes/day. The Schaft deposit will be mined with large





truck/shovel operations and typical drill and blast techniques. An explosives manufacturing facility will be constructed on-site to support blasting activities. The mine plan includes 719 million tonnes of minable ore over a 31 year mine life. The Project is estimated to generate up to 1,200 jobs during the construction phase of the project and approximately 500 permanent jobs during the life of the mine.

Ore will be crushed, milled and filtered on-site to produce copper and molybdenum concentrates. The mill will include a typical comminution circuit (Semi-Autogenous Mill, Ball Mill and Pebble Crusher) followed by a flotation circuit and a copper circuit with thickener, filtration and concentrate loadout and shipping. The mill includes a designated molybdenum circuit with thickener, filtration circuit, drying and bagging. The filter plant will be located at the plant site. A tailings thickener and water reclaim system will be used to recycle process water. The copper and molybdenum concentrates will be shipped via truck from the mill to the port of Stewart, BC.

Copper Fox will construct an access road from Highway 37 to the Schaft Creek property. Access to the property from Highway 37 will require approximately 105 km of new road. The first 65 km of the access road to the Schaft Creek property follows the Galore Creek access road. NovaGold and Teck Cominco have currently put a hold on future construction efforts along their access road and the overall Galore Creek Project. Copper Fox will seek approval from the provincial government and NovaGold/Teck Cominco to complete construction of the first 65 km of the Galore Creek access road should construction of the project remain on hold.

Copper Fox has targeted the Q1 2009 for completion of a full Feasibility report and for submission of the Environmental Assessment Application for the Project. Screening of the EA Application plus the 180 day review period will result in project approval as early as September 2009. Copper Fox will likely seek concurrent permitting for strategic permits to facilitate the timely construction of key project components. Construction is estimated to take two and half years. Thus, production could begin by early 2013 (Copper Fox, 2008).

1.2 Background and Scope of Alternatives Assessments

The preliminary engineering investigations for the Schaft Creek Project resulted in the development of conceptual designs for the majority of mine components for the Project. However, additional studies were required to select the best options for the placement and conceptual design of the tailings storage facility (TSF) and the alignment of the access road from highway 37 to the mine site (Copper Fox, 2008).

The TSF and the access road represent major components of the proposed Schaft Creek Project. Diligent design, construction and operation of a TSF are of paramount importance to ensure effective water management and in turn to protect receiving water quality. Effective water management is one of the most important factors for ensuring the success of the proposed Project. The extent and footprint of the access road has the potential to affect the natural environment along its alignment. Creating access to a remote and pristine area could significantly affect wildlife and the cultural value associated with the land.

In July 2007, Copper Fox presented alternatives for the TSF and access road alignments to the Schaft Creek Working Group (WG). The WG is comprised of Tahltan representatives, provincial, federal and local agencies and representatives from the State of Alaska. Representatives from the Tahltan Nation, working through the Tahltan Heritage Resources Environmental Assessment Team (THREAT), proposed an additional access road alignment. At the time Copper Fox was considering four access road alignments. The additional access road alignment put forward by THREAT, the Tahltan Highland road alignment (Highland alignment), was added to the discussion. Following the discussion and site tour in July 2007, three tailings options and two road alignments were carried forward as part of a detailed alternatives assessment.

As part of the alternatives assessment process initiated by Copper Fox, a number of meetings were held with the WG and individually with the THREAT:

- WG: February 20, 2008
- THREAT: April 16, 2008
- THREAT: May 28, 2008

The purpose of the assessments was to evaluate all potential environmental effects (direct and indirect), social and cultural implications, safety considerations and engineering challenges. The preferred tailings option and access road alignment identified by the assessments will be included in the mine plan for the Schaft Creek Project, which would form the basis of the pending Pre-Feasibility study, the Environmental Assessment Application and the final Feasibility study.

Alternatives assessments are inherently subjective. Assigning relative values to different areas (*e.g.*, assessing the value of road safety against disturbances of wetlands) involves making subjective judgements, which will be influenced by the cultural, ethical and moral values of the assessor. To address this issue, Copper Fox engaged stakeholders to assist with the development of the methodology for the alternatives assessments. The goal was to develop a simple and transparent methodology, which would clearly identify the rationale for ranking the proposed alternatives.

On February 20, 2008 Copper Fox met with representatives of the Tahltan Nation (THREAT members) and the Schaft Creek Working Group (WG) to present a proposed methodology for the alternatives assessments for the Schaft Creek Project. Following the meeting, the proposed methodology was modified based on feedback from attendees.

On April 16, 2008 Copper Fox had a second meeting met with THREAT to discuss the updated methodology and to devise a strategy for completing the assessment. It was agreed that a parallel alternatives assessments should be completed by THREAT. The purpose of the parallel assessments was to ensure that both the Tahltan Nation and Copper Fox had equal opportunities to provide input to the assessment process. The two assessments would serve as records documenting THREAT's and Copper Fox's priorities as the Schaft Creek Project moves through the environmental assessment process. The methodology adopted by Copper Fox (as presented

to THREAT and the Schaft Creek Project Working Group) is described in Section 3. A report summary from the meeting between Copper Fox and the THREAT is presented in Appendix 1.

The specific objectives of the alternatives assessments for the Schaft Creek Project were:

- develop and document a transparent and balanced assessment methodology in consultation with the WG and individually with the THREAT;
- complete assessments of proposed alternatives for the placement and operation of the TSF and access road for the Schaft Creek Project and in doing so consider all relevant environmental, Tahltan community, safety, closure and engineering considerations associated with the alternatives;
- make use of best available information and to clearly identify priorities and rationales for ranking alternatives; and
- present preferred alternatives for the placement of the TSF and the access road for the Schaft Creek Project.

The proposed alternatives and methodology are discussed in the following sections, followed by the alternatives assessments for the placement of the TSF and the access road alignment.

2. METHODOLOGY

2. Methodology

One of the primary goals of the alternatives assessments for the Schaft Creek Project was to develop a simple and transparent methodology, which would clearly identify the rationale for ranking the proposed alternatives. The methodology described in this section was developed in consultation with THREAT and the Schaft Creek Project Working Group.

A central concept in the methodology is that the assessments are *relative*. This means that the assessment will examine the magnitude of potential effects associated with one option relative to the magnitude of potential effects associated with the other option(s). An assessment of overall/absolute effects associated with development of the Schaft Creek Project will be presented in the Environmental Assessment Application, which is scheduled for submission in the first quarter of 2009.

2.1 Assessment Structure

The methodology developed for the alternatives assessments is organized in terms of *categories*, *criteria* and *sub-criteria*. Figure 2.1-1 shows a diagram of the structure of the alternatives assessment for placement of the TSF. All components that could be affected by (or affect) the development of the proposed options were classified in terms of general categories. The following five categories were defined for the tailings options alternatives assessment:

- Environment;
- Tahltan Community;
- Safety;
- Closure and Legacy; and
- Engineering.

The same categories were used for the alternatives assessment for the road route alignment with the exception of ‘Closure and Legacy’ category because closure issues associated with the proposed road alignments were not substantially different between options.

Categories consisted of several criteria, which in turn contained several sub-criteria. As an example, Table 2.1-1 shows the criteria and sub-criteria included in the ‘Tahltan Community’ category for the alternatives assessment for the tailings options. Criteria and sub-criteria associated with the other categories are described in the assessment sections (Section 4 and 5).

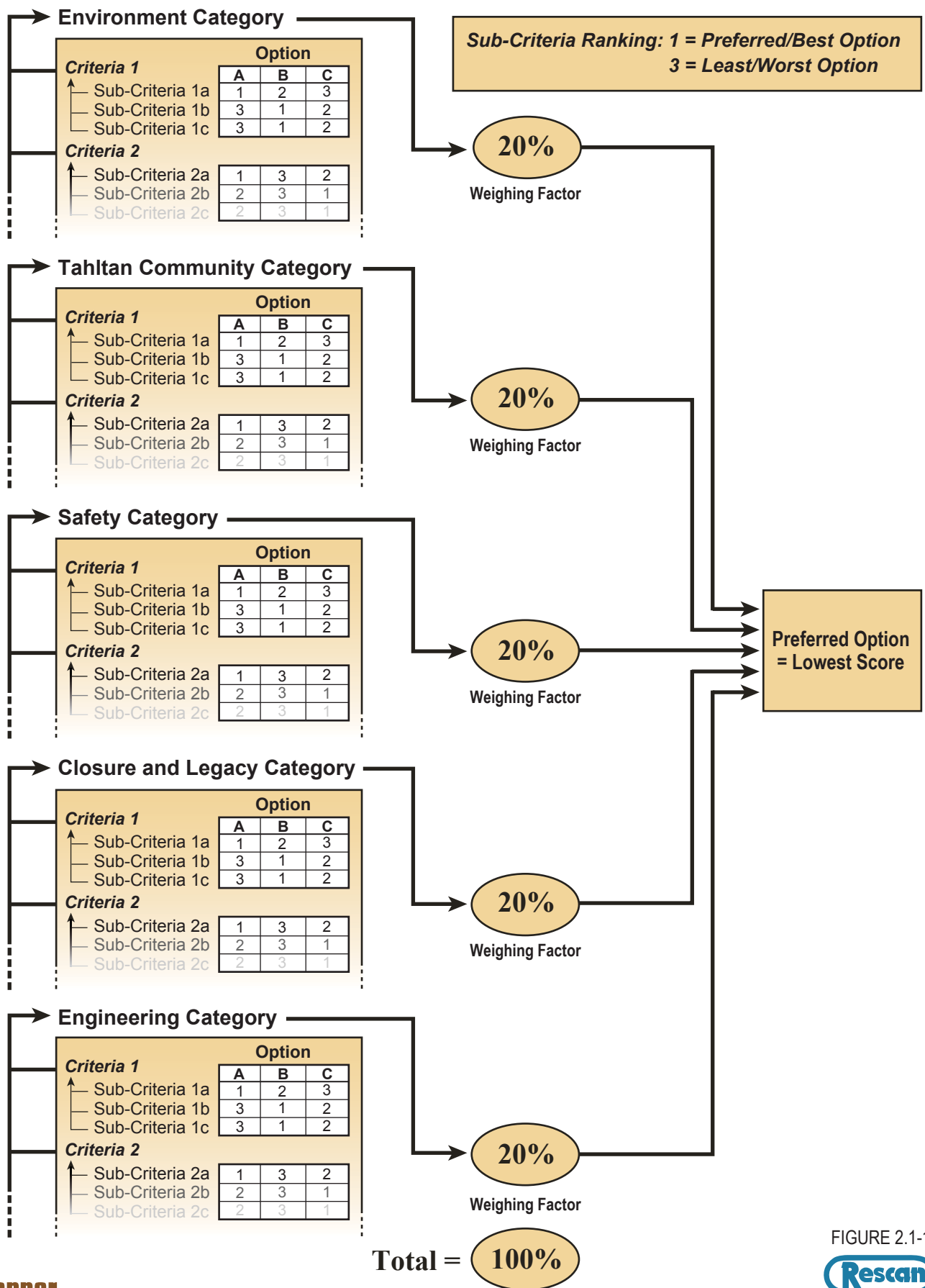


FIGURE 2.1-1



**Table 2.1-1
Criteria and Sub-Criteria Included in the ‘Tahltan Community’
Category for the Tailings Options Alternatives Assessment**

Tahltan Community Criteria	Sub-Criteria
Tahltan Traditional Use	Heritage Data Interviews with Elders
Archaeology	Archaeology Impact Assessment Archaeology Overview Assessment
Current Use	Tenure Holders Tahltan Current Use Recreational Use Visual Effects Noise Effects
Country Foods	Direct Loss of Foods Indirect Loss of Foods

2.2 Criteria Screening

A screening exercise was completed to select criteria and sub-criteria to be included in the alternatives assessments. As the first step in the screening exercise, Copper Fox produced a comprehensive table of criteria and sub-criteria that, based on knowledge about the Project area and the surrounding environment, could be influenced by (or influence) the development of the Project components. The criteria and sub-criteria tables were presented to members of the Schaft Creek Project Working Group and THREAT for comments. Based on feedback from the Working Group and THREAT additional criteria were added. The assessment screening table for the tailings options and the access road alignments are included in Appendix 2 and Appendix 3, respectively.

The following screening rules were applied to the proposed criteria and sub-criteria to determine whether they should be included in the final assessment:

- Rule 1: criteria and sub-criteria must be affected by (or affect) the options included in the alternatives assessments.
- Rule 2: each criteria or sub-criteria must be distinct from other criteria or sub-criteria.

Rule 1 was implemented to ensure that the assessments remain relative; Rule 2 was included to avoid double-counting. For example, the sub-criterion “Direct Habitat Loss” was proposed under the “Wildlife” criterion for the alternatives assessment for placement of the TSF. Because the tailings options are associated with different habitat and because no other criteria included this sub-criterion, it was selected for inclusion in the assessment. Conversely, the sub-criterion “Number of Fish Species” (in the criterion “Fisheries”) was not included in the final assessment because none of the areas associated with the proposed tailings options are fish bearing.

2.3 Criteria Ranking

Criteria and sub-criteria included in the final assessment were assessed based on information and data available in the environmental baseline studies and engineering assessments completed for the Schaft Creek Project. If the available information for a given criterion was insufficient to select a preferred option rankings were not assigned.

For the TSF options alternatives assessment, the preferred sub-criteria received a ranking of “1”, the least preferred received a ranking of “3”, while the “middle” option was assigned a ranking of “2”. The preferred option for criteria included in the access road alternatives assessment received a ranking of “1”, while the least preferred option was assigned the ranking “2”.

2.4 Final Selection of the Preferred Options

The selection of the preferred options depends critically on how categories, criteria and sub-criteria are weighed in the final assessment. The following weighing scheme was used for this alternatives assessment:

- all **sub-criteria** were assigned equal weights;
- all **criteria** were assigned equal weights; and
- **categories** were assigned weights based on the values and priorities held by Copper Fox (*i.e.* Safety category bias); equal weights and weights biased to the Tahltan Community category are also presented.

The weights shown in Table 2.4-1 reflect the values and priorities of Copper Fox. Copper Fox recognizes that other stakeholders may prioritize categories differently. As the proponent, Copper Fox is directly responsible for the safety of the public and employees as well as the protection of the environment for the life of the Schaft Creek Project and following closure. Therefore, the company is obliged to adopt priorities that it feels best achieve these objectives. Providing a safe and healthy working environment and protecting the rights of workers to return safe and healthy to their homes and loved ones at the end of the day is a high priority for Copper Fox. Although significant progress has been made in developing safe working practices for mining operations, mining remains an inherently dangerous profession because of the scale and complexity of the operations and the size of equipment used.

**Table 2.4-1
Category Weights Used for the Schaft Creek Project
Alternatives Assessments – Safety Category Bias**

Categories	Tailings Options Category Weights	Road Alignment Category Weights
Environment	20%	20%
Tahltan Community	20%	20%
Safety	30%	40%
Closure and Legacy	15%	n/a
Engineering	15%	20%
Total	100%	100%

Supporting Documentation

Several engineering, scientific and sociological studies completed for the Schaft Creek Project were used as supporting documentation for the alternatives assessments. Table 2.5-1 shows a summary of available documentation. Electronic (pdf) copies of these reports are available on Copper Fox's website (www.copperfoxmetals.com).

**Table 2.5-1
Supporting Documentation for the Schaft Creek Project
Alternatives Assessment**

Document Title	Author	Document Type	Date Completed	Reference
Access Route Terrain and Geohazards Mapping (DRAFT)	BGC Engineering Inc.	Report	March 6, 2008	BGC, 2008b
Schaft Creek Tailings Options Study, Geohazards	BGC Engineering Inc.	Memorandum	February 5, 2008	BGC, 2008a
Schaft Creek Project Description	Copper Fox Metals Inc.	Report	January 2008	Copper Fox, 2008
Schaft Creek - Conceptual TSF Site Options Study	Knight Piésold Consulting Ltd.	Letter	February 29, 2008	Knight Piesold, 2008a
Schaft Creek - Comparison of Water Management Considerations at TSF Options A and B	Knight Piésold Consulting Ltd.	Letter	March 27, 2008	Knight Piesold, 2008b
Tahltan Highland Route	McElhanney Consulting Services Ltd.	Letter	March 14, 2008	McElhanney, 2008
Schaft Creek Project - ML-ARD Assessment of Surficial Samples from the Proposed Access Road	Minesite Drainage Assessment Group (MDAG)	Report	February 20, 2008	MDAG, 2008
Draft of Tailing Site Evaluation Report	Moose Mountain Technical Services	Memorandum	March 19, 2008	Moose Mountain, 2008
Preliminary Economic Assessment on the Development of the Schaft Creek Project Located in Northwest British Columbia, Canada	Samuel Engineering, Inc.	Report	December 2007	Samuel Engineering, 2007
Schaft Creek 2007 Aquatic Resources Baseline Report	Rescan Environmental Services Ltd.	Report	March, 2008	Rescan, 2008a
Schaft Creek Project: Archaeological Baseline Study, 2007, Non-Technical Summary	Rescan Environmental Services Ltd.	Report	March, 2008	Rescan, 2008k
Schaft Creek Tahltan (Country) Foods Baseline Assessment	Rescan Environmental Services Ltd.	Report	April, 2008	Rescan, 2008j
Schaft Creek Fisheries Baseline 2007	Rescan Environmental Services Ltd.	Report	March, 2008	Rescan, 2008i
Schaft Creek Project: Preliminary Groundwater Baseline Report	Rescan Environmental Services Ltd.	Report	February, 2008	Rescan, 2008h
Schaft Creek Project: 2007 Hydrology Baseline Report	Rescan Environmental Services Ltd.	Report	March, 2008	Rescan, 2008g
Schaft Creek Project: 2007 Meteorology Baseline Report	Rescan Environmental Services Ltd.	Report	February, 2008	Rescan, 2008f
Schaft Creek Project Noise Baseline Report	Rescan Environmental Services Ltd.	Report	February, 2008	Rescan, 2008e
Schaft Creek Soils Baseline Report	Rescan Environmental Services Ltd.	Report	March, 2008	Rescan, 2008d
Vegetation Baseline Report 2007	Rescan Environmental Services Ltd.	Report	March, 2008	Rescan, 2008m
Wetlands Baseline Report 2007	Rescan Environmental Services Ltd.	Report	April, 2008	Rescan, 2008l
Schaft Creek Bird Studies Baseline Report 2006	Rescan Environmental Services Ltd.	Report	May, 2007	Rescan, 2007a
Schaft Creek Project 2006 Moose Baseline Report	Rescan Environmental Services Ltd.	Report	November, 2007	Rescan, 2007b
Schaft Creek Bat Inventory 2007	Rescan Environmental Services Ltd.	Report	March 2008	Rescan, 2008c
Schaft Creek Western Toad Baseline 2007	Rescan Environmental Services Ltd.	Report	March 2008	Rescan, 2008b

3. PROPOSED ALTERNATIVES

3. Proposed Alternatives

The Project Description and proposed mine plan for the Schaft Creek Project was based on a preliminary economic assessment completed in December 2007 by Samuels Engineering, Inc. (lead author) with contributions from Associated Geoscientists Ltd., McElhanney Consulting Ltd., Moose Mountain Technical Services and Hyyppa Engineering (Copper Fox, 2008; Samuels Engineering, 2007).

The following sections provide descriptions of the proposed alternatives for the TSF and the alignment of the access road for the Schaft Creek Project. Further details about various aspects of the engineering and baseline characteristics associated with the proposed options will be presented in the alternative assessment sections (Section 4 and 5). Detailed descriptions of the baseline characteristics and engineering considerations associated with the proposed options are available in baseline and engineering reports completed for the Project (See Table 2.5-1).

3.1 Tailings Storage Facility Options

Over the life of the mine, the Schaft Creek Project will generate over 700 million tonnes of tailings. Management of tailings and mine water is a critical aspect of the mine operation. Proper design, construction, operation and closure of a TSF is important for minimizing potential risks to workers and infrastructure as well as potential effects on surrounding terrestrial and aquatic environments.

The preliminary engineering assessment for the Schaft Creek Project identified three potential options for placement of the TSF (Figure 3.1-1; Copper Fox, 2008). The three locations, referred to as Option A, B and C, were selected based on storage capacity afforded by the local terrain, proximity to the process plant and the potential for constructing tailings embankment structures. Ground and aerial surveys were completed for each site during the 2006 field season.

The engineering reports used for the alternatives assessment of the TSF considered a total storage capacity of 1,000 million tonnes of tailings, a daily throughput of 100,000 tonnes. These design characteristics reflect the mine plan to be used for the pre-feasibility study due to be completed in June/July 2008. Additional details about engineering design considerations are available in Moose Mountain (2008) and Knight Piésold (2008a and 2008b).

3.1.1 Tailings Option A: Skeeter Lake

Option A is located in a valley immediately east of Mount LaCasse (Skeeter Valley). The valley is densely vegetated predominantly with Engelmann Spruce and Sub-Alpine Fir (Plate 3-1). Skeeter Lake, several small ponds as well as wetland areas and swampy terrain are found on this site. A low relief saddle area between Skeeter Lake and Start Lake divides the valley into two watersheds; the southern watershed drains south to Mess Creek while the northern watershed drains north to Schaft Creek (Figure 3.1-2).

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380000

390000

6380000

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6370000

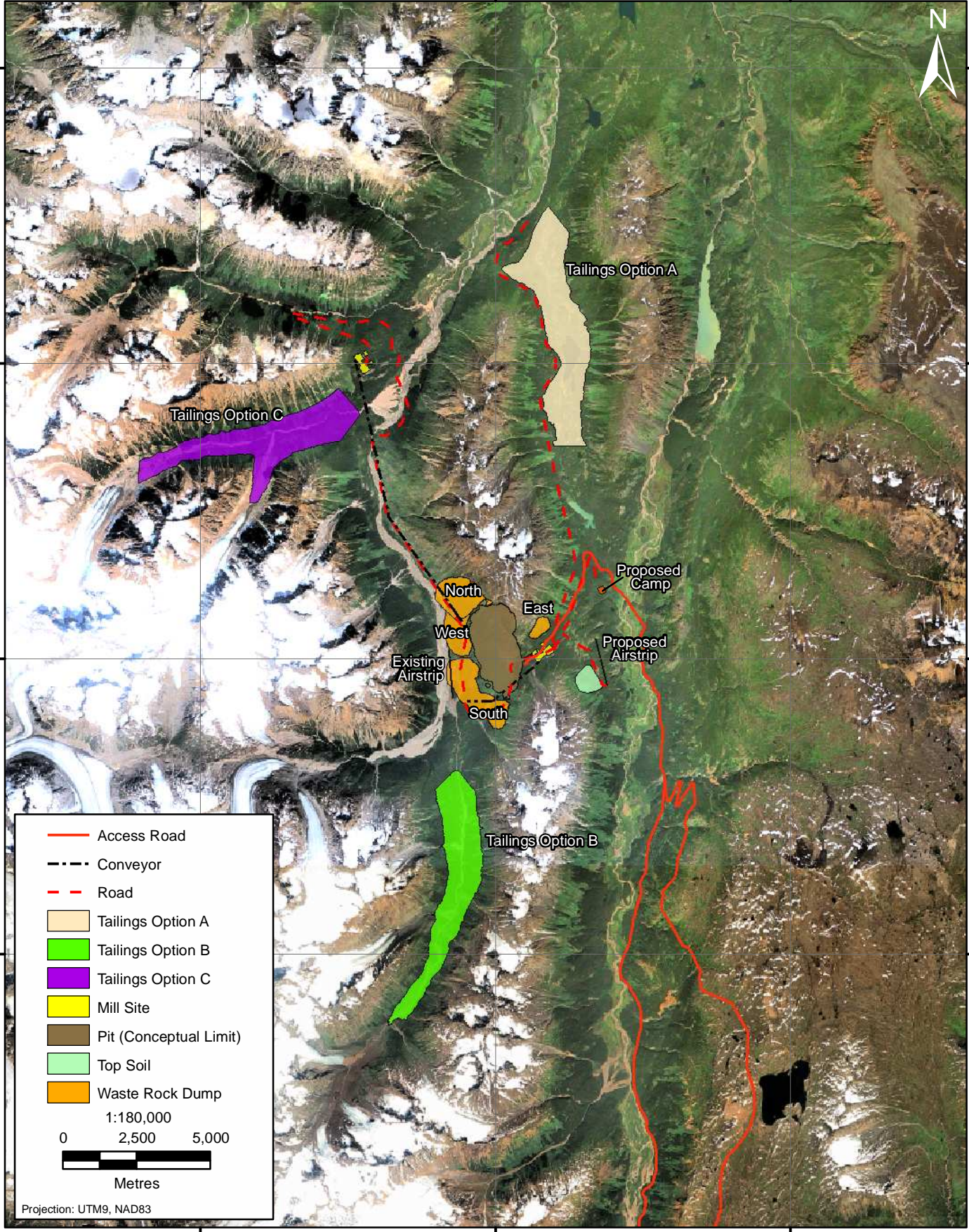
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	Access Road
	Conveyor
	Road
	Tailings Option A
	Tailings Option B
	Tailings Option C
	Mill Site
	Pit (Conceptual Limit)
	Top Soil
	Waste Rock Dump

1:180,000

0 2,500 5,000

Metres

Projection: UTM9, NAD83

370000

380000

390000

FIGURE 3.1-1

Options for Placement of the Tailings Storage Facility for the Schaft Creek Project



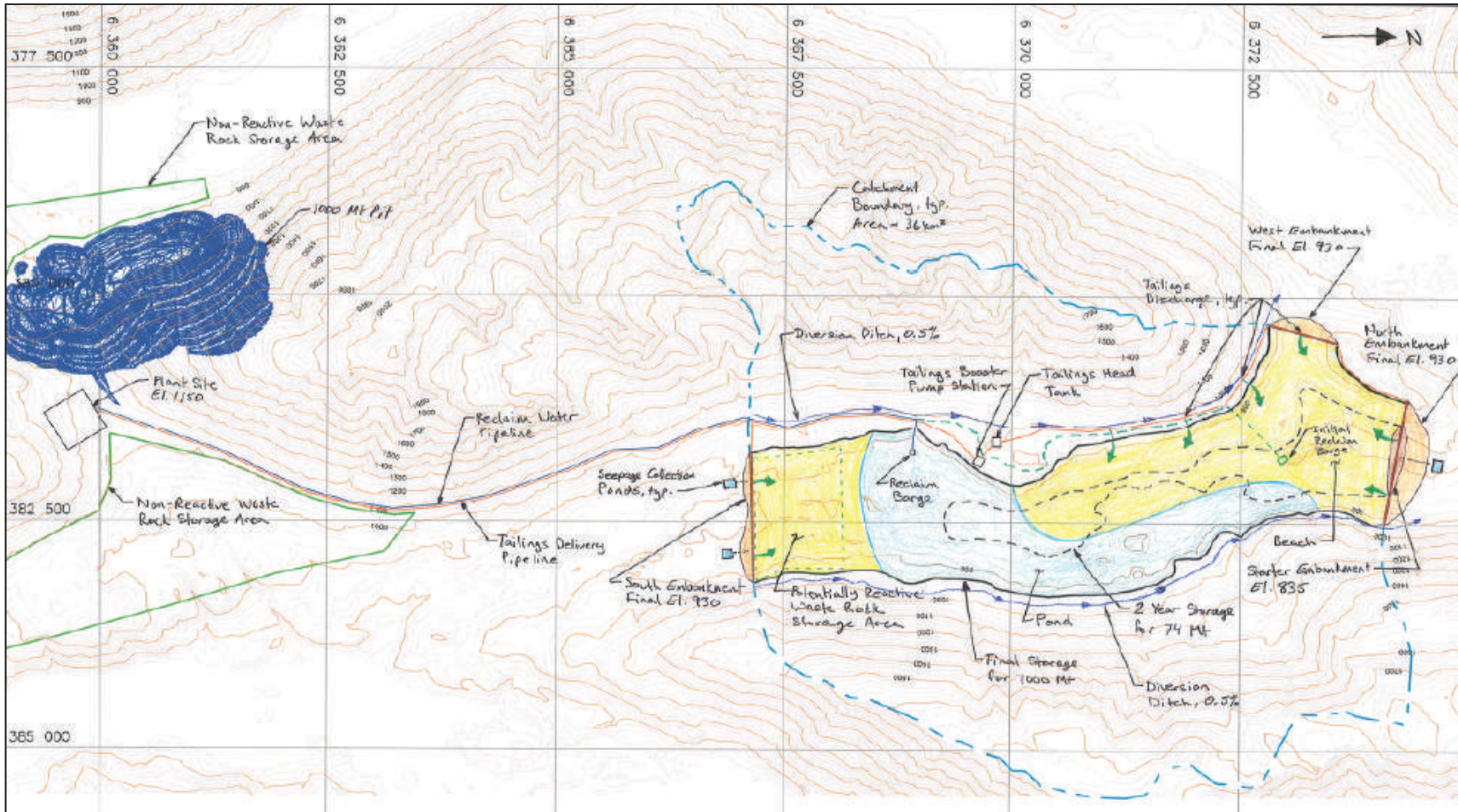




Plate 3-1. Skeeter Lake Valley

Key findings from the baseline studies completed in 2006 and 2007 include:

- Lakes in the northern watershed in Skeeter Valley provide good habitat for aquatic life but fish are not present due to a significant fish barriers downstream of the lake (Rescan, 2008a; 2008i).
- The valley is densely vegetated with Engelmann Spruce and the valley bottom contains wetland areas (Rescan, 2008l);
- Three archaeological sites were discovered in the area during surveys completed in 2007. The sites are similar to numerous sites found in Mount Edziza Provincial Park located approximately 20 km east of the Project area (Rescan, 2008k);
- The size of the diverted catchment area for the northern section of Skeeter Valley is approximately 35 km² and only a small fraction of the watershed is glaciated (Rescan, 2008g; Knight Piésold, 2008a).

Detailed baseline information is available in the baseline reports prepared for the Schaft Creek Project (Table 2.5-1)

Option A would require the construction of three embankment structures. The main embankment would be constructed at the northern end of the TSF. Embankments would be required at the southern end of the facility and to the southwest of the main embankment (Figure 3.1-2). The main embankment would be located approximately 12 km north of the open pit. Diversion channels, approximately seven kilometers long, would be constructed along the eastern and western perimeter of the facility. Certain sections of the diversion channels would likely be routed through pipes to prevent clogging of the channel by debris flows or avalanches.

Additional information about preliminary engineering design and geohazards are available in BGC (2008a), Moose Mountain (2008) and Knight Piésold (2008a and 2008b).

3.1.2 Tailings Option B: Hickman Creek

Tailings Option B is located in a valley immediately west of Mount Hickman in the Hickman Creek tributary (Figure 3.1-1). Hickman Creek drains north and joins Schaft Creek southeast of the proposed pit. The lower sections of the Hickman Creek Valley are forested while the headwaters are dominated by large glaciated areas (Plate 3-2). The eastern and western slopes of the valley are steep and numerous debris flow and avalanche paths are present along the length of the proposed TSF (BGC, 2008a).

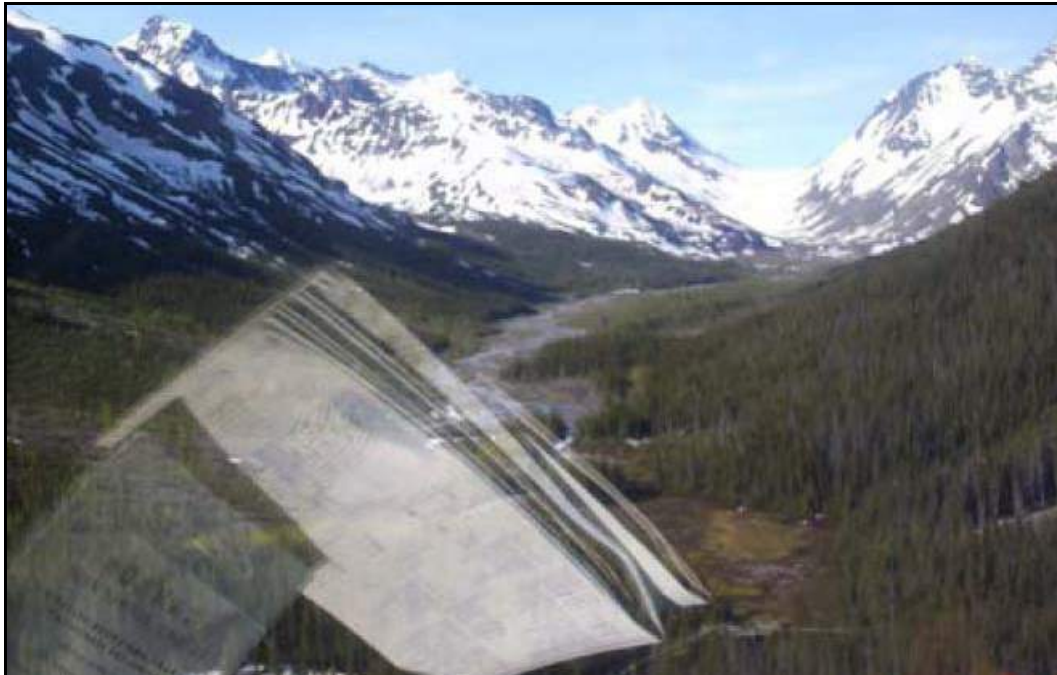


Plate 3-2. Tailings Option B

Key findings of the baseline studies completed in 2006 and 2007 include:

- There are no fish present in Hickmann Creek due to a fish barrier located approximately 7 km downstream from the toe of the proposed embankment structure (Rescan, 2008i; Rescan, 2008a).
- Habitat for aquatic life in Hickman Creek is generally poor (Rescan, 2008i; Rescan, 2008a).
- The lower sections are forested, predominantly with Engelmann Spruce, and smaller wetland areas line the banks of the Hickmann Creek (Rescan, 2008m).
- The diverted catchment area for Tailings Option B is approximately 79 km² (Knight Piésold, 2008a).

- High flows have been measured in Hickmann Creek because of the contribution of glacial melt water (Rescan, 2008g).

Tailings Option B would require a single embankment structure, which would be located approximately 2 km south of the open pit (Figure 3.1-3). Because of the topography, the final embankment would rise approximately 200 metres above the base elevation. Diversion channels would be constructed along the eastern and western perimeter of the final TSF. Because of the relatively large catchment area and glaciated headwaters, substantial flows would pass through the eastern and western diversion channels and to outfalls located adjacent to the tailings embankment structure. A sizable diversion structure upstream of the TSF would be required to collect melt-water and runoff from the glacier (Moose Mountain, 2008; Knight Piésold 2008a and 2008b).

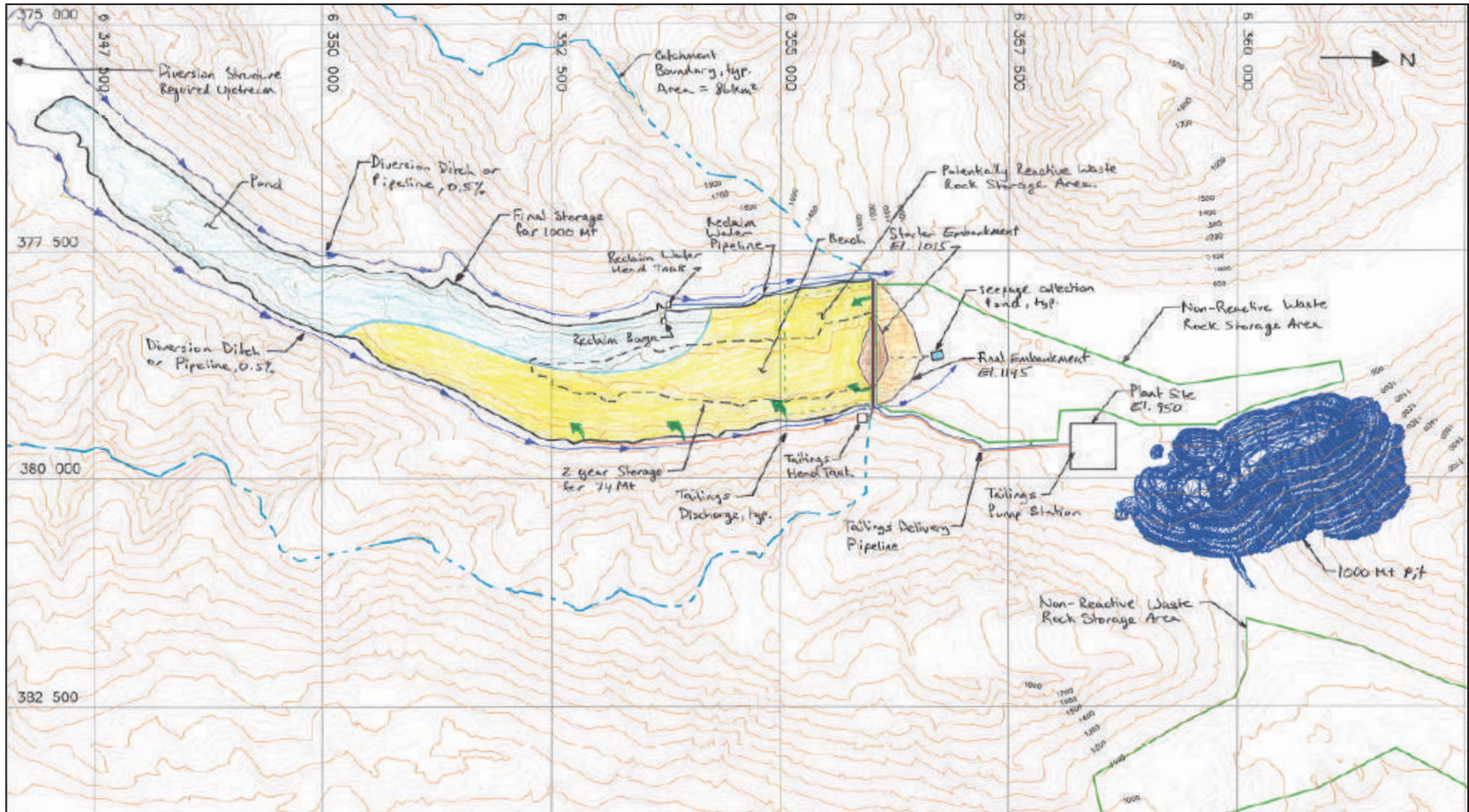
Serious concerns about the safety and technical feasibility related to the construction and operation of Tailings Option B have been raised. Constructing and operating diversion channels along steep slopes that are prone to debris flows and avalanches is extremely challenging and associated with considerable risk, both operational and for human safety. Additional information about the geohazards and engineering assessments for Tailings Option B are available in BGC (2008a), Moose Mountain (2008) and Knight Piésold (2008a and 2008b).

3.1.3 Tailings Option C: Option C Creek

Tailings Option C is located in an unnamed valley west of Schaft Creek approximately 10 km northwest of the proposed open pit (Figure 3.1-1). The Option C Creek is a tributary to Schaft Creek. Access to Tailings Option C would require a bridge across the floodplains of Schaft Creek. The valley is sparsely vegetated with very steep side slopes and heavily glaciated headwaters (Plate 3-3).



Plate 3-3. Tailings Option C



Key findings of the baseline studies completed in 2006 and 2007 include:

- There are no fish present in the Option C Creek due to a fish barrier located upstream of the confluence with Schaft Creek (Rescan, 2008i; Rescan, 2008a).
- Habitat for aquatic life in the creek is generally poor (Rescan, 2008i; Rescan, 2008a).
- The lower sections are sparsely forested and the valley is dominated by shrubs or unvegetated glacial till (Rescan, 2008m).
- The diverted catchment area for Tailings Option C is approximately 76 km². High flows from Tailings Option C Creek is expected because of the steep terrain, limited vegetation cover and the highly glaciated headwaters (Rescan, 2008g).
- The valley contains considerable geohazards throughout the proposed tailings area (BGC 2008a).

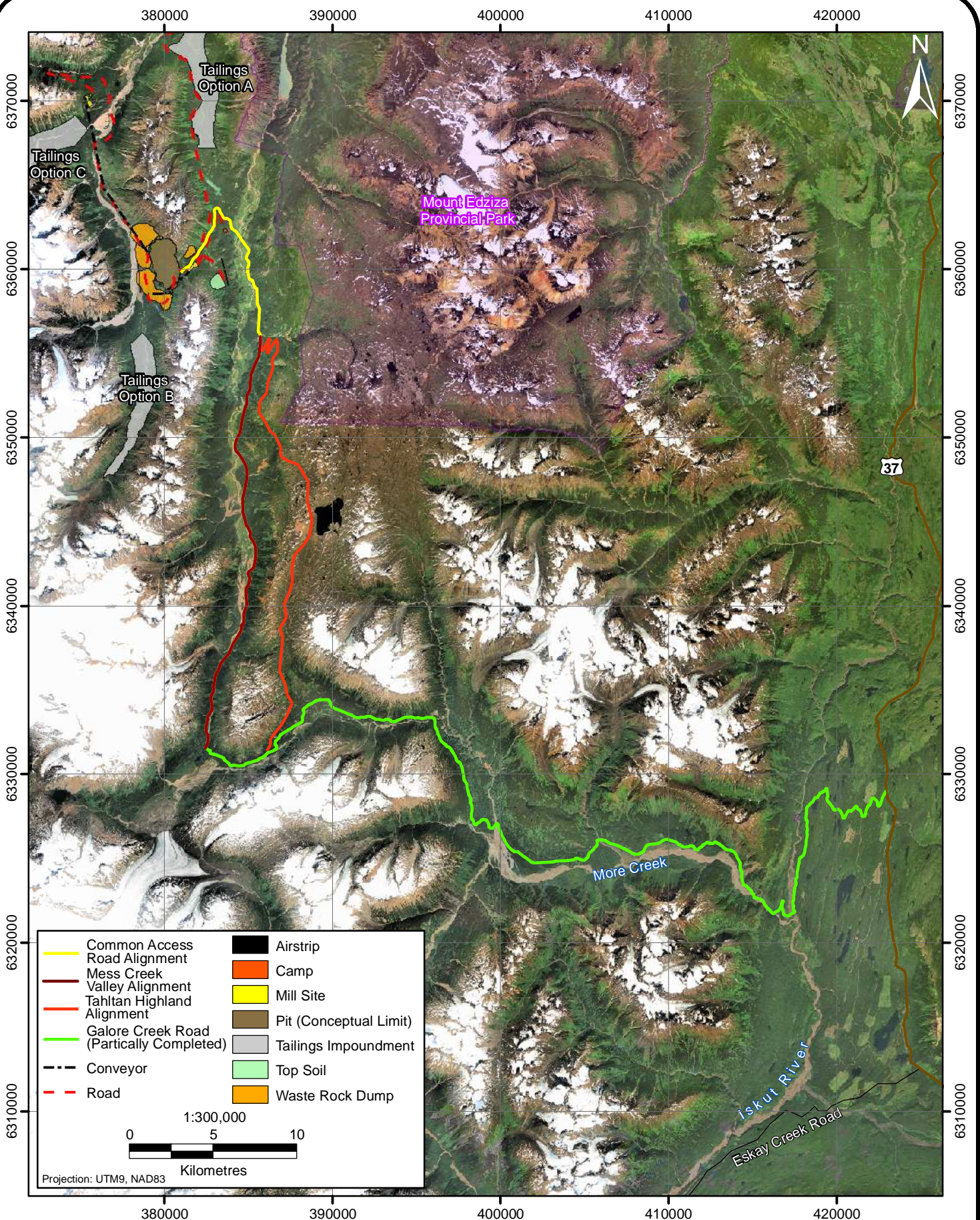
Tailings Option C has relatively low value wildlife habitat. The valley is susceptible to a large number of geohazards, which would result in near-insurmountable construction and operational challenges. Therefore, in the preliminary engineering assessments it was concluded that Tailings Option C was unlikely to be a feasible option based on engineering considerations (Moose Mountain, 2008; Knight Piésold, 2008a). However, the Option was included in the alternatives assessment in the event that fatal flaws were encountered for Option A or Option B. Information about the geohazards and engineering considerations for Tailings Option C are available in BGC (2008a), Moose Mountain (2008) and Knight Piésold (2008a and 2008b).

3.2 Access Road Alignment

The Project Description for the Schaft Creek Project released in July 2006 included four options to connect the property to Highway 37. These options included:

- Mess Creek Valley via More Creek;
- Ball Creek/Arctic lake;
- Ball Creek/Little Arctic Lake Creek;
- Raspberry Pass.

During a Schaft Creek Working Group site visit in July 2007 members of the Tahltan Nation, provincial and federal governments discussed the four options with Copper Fox. From those discussions it was clear that Ball Creek/Arctic Lake, Ball Creek/Little Arctic Lake Creek and Raspberry Pass options were not feasible access road options, leaving the 'Mess Creek Valley via Moore Creek' route as the only available option. However, the Tahltan Nation proposed an alternative alignment to the Mess Creek Valley alignment, known as the Tahltan Highland road alignment. Figure 3.2-1 shows the Mess Creek Valley road alignment and the Tahltan Highland road alignment. Following the meeting in July, 2007 Copper Fox initiated engineering assessments of the proposed Valley and Highland alignments, which included geohazards assessments and preliminary cost engineering (Copper Fox, 2008).



3.2.1 Mess Creek Valley Route

From the Schaft Creek mine camp, the Mess Creek Valley route would proceed north along Mount LaCasse for 4.5 km where it would descend into the Mess Creek Valley (km 6.2). Here, the route would cross the Mess Creek floodplain and reach the eastern slopes of the valley at km 8.0. From km 8.0 to km 12.0 the road would traverse well drained granular soil along the eastern slope of the Mess Creek Valley. From km 12.0 to km 40.0 the road would cross several streams and debris fans. Certain sections would cross avalanche runout zones. At km 40.0, the road would join the access road for the Galore Creek Project (approximately km 65 on the Galore Creek road), which has been partially constructed (Copper Fox, 2008). Detailed descriptions of geohazards present along the Mess Creek Valley route along with detailed topographical maps are available in BGC (2008b). A detailed description of the Moore Creek Valley section of the road is available in the environmental assessment for the Galore Creek Project¹.

3.2.2 Tahltan Highland Route

The Tahltan highland route follows the Mess Creek Valley alignment for the first 8.0 km from the Schaft Creek mine camp to the eastern slope of the Mess Creek valley. However, rather than proceeding south along the western aspect of the Mess Creek valley, the route ascends approximately 465 metres via a series of steep switchback turns. At altitude, the road proceeds along steep slopes of exposed bedrock and crosses a gorge before arriving at the alpine plateau known as the Tahltan Highlands. The route then passes west of Arctic lake as it heads south along the plateau and descends to the Galore Creek access road in the Moore Creek valley (approximately at km 60). From there, the Highland alignment follows the same route as the Mess Creek Valley alignment described above. A description of the geohazards and engineering considerations for the Tahltan Highland alignment is available in BGC (2008b) and McElhanney (2008). A detailed description of the Moore Creek valley section of the road is available in the environmental assessment for the Galore Creek Project¹.

¹ http://a100.gov.bc.ca/appsdata/epic/html/deploy/epic_project_home_239.html

4. ASSESSMENT OF TAILINGS STORAGE FACILITY OPTIONS



4. Assessment of Tailings Storage Facility Options

This section presents the alternatives assessment for selecting a location for the TSF for the Schaft Creek Project. Following the methodology presented in Section 2.0, criteria and sub-criteria included in the five categories ‘Environment’, ‘Tahltan Community’, ‘Safety’, ‘Closure and Legacy’, and ‘Engineering’ were ranked relative to one another. The option that was preferred with respect to a specific sub-criterion received a score of “1” while the least preferred option received a score of “3”. Ranking were only completed if supporting information or data was available.

The following sections show the ranking tables along with brief justifications for the assigned rankings and reference to supporting documentation. A summary is provided that highlights the main considerations for the proposed alternatives.

4.1 Environment

Table 4-1 shows the rankings for the criteria and sub-criteria included in the Environment category. The assessment of the environmental criteria clearly shows that Option C is the preferred option, while Option A is the least preferred option. The high value wildlife habitat, wetland areas and aquatic habitat found in Option A would be affected significantly if the area was developed as a TSF. The role of Skeeter valley as a possible moose migration corridor adds to the value of the area. Conversely, virtually no wildlife or aquatic habitat is present at Option C.

4.2 Tahltan Community

Table 4-2 shows the rankings for the criteria and sub-criteria included in the Tahltan Community category. Information concerning Tahltan Traditional Use was not available for the alternatives assessment. However, THREAT had indicated that Option A (Skeeter valley) has significant cultural value for the Tahltan Nation. In addition, preliminary archaeological surveys have indicated that the density of archaeological sites likely are higher in Option A compared to Option B and Option C. Therefore, Option C was deemed to be the preferred option with respect to the Tahltan Community category and Option A was the least preferred.

4.3 Closure and Legacy

Table 4-3 shows the rankings for the criteria and sub-criteria included in the Closure and Legacy category. The assessment of criteria in the Closure and Legacy category was dominated by long-term water quality and potential long-term effects related to containment of tailings solids. In the assessment, Option A came out as the preferred option because of the relative simple closure concepts and the relatively high potential for restoring the compromised habitat.

**Table 4-1
Assessment of Tailings Options: Environment**

Environment Criteria	Sub-Criteria	Option A	Option B	Option C	Rationale	
Water Quality & Quality	ML/ARD	-	-	-	The available information about ML/ARD is insufficient to determine potential differences between options	
	Sedimentation	1	2	3	The risk of increasing sediment transport are greater for Option C and B than for Option A (Moose Mountain, 2008)	
	Nutrients	-	-	-	Data on nutrient loading is not available	
	General Hydrograph	3	2	1	The hydrograph in Skeeter Creek will likely be affected to a higher degree than Hickman or Option C creeks because a higher proportion of the flow will be diverted to the tailings facility (Rescan, 2008g; Knight Piesold 2008b)	
	Peak Flows	3	2	1	The peak flows in Skeeter Creek will likely be affected to a higher degree than Hickman or Option C creeks because a higher proportion of the flow will be diverted to the tailings facility (Rescan, 2008g; Knight Piesold 2008b)	
	Low Flows	3	2	1	The peak flows in Skeeter Creek will likely be affected to a higher degree than Hickman or Option C creeks because a higher proportion of the flow will be diverted to the tailings facility (Rescan, 2008g; Knight Piesold 2008b)	
	Groundwater Quantity	-	-	-	Insufficient information is available to determine the magnitude of effects on groundwater for the different options	
	Groundwater Quality	-	-	-	Insufficient information is available to determine the magnitude of effects on groundwater for the different options	
	Tahltan Knowledge	-	-	-	Tahltan Traditional Knowledge report is not available for inclusion in this Alternatives Assessment	
		Score	10	8	6	
	Ranking	3	2	1		
Fisheries	Indirect Habitat Loss	3	2	1	Development of Option A would cause greater indirect loss of habitat than Option B and C (Rescan, 2008a)	
	Toxicity	1	1	1	None of the options would discharge water that would be toxic to fish	
	Tahltan Knowledge	-	-	-	Tahltan Traditional Knowledge report is not available for inclusion in this Alternatives Assessment	
		Score	4	3	2	
	Ranking	3	2	1		
Wildlife	Direct Habitat Loss	3	2	1	Option A has the highest quality wildlife (moose) habitat of the three Options (Rescan, 2007b)	
	Indirect Habitat Loss	3	2	1	Development of Option A would likely cause more indirect habitat loss than Option B and C (Rescan, 2007b)	
	Migration Route	3	2	1	The location of Option A could be a wildlife (moose) migration corridor, while Option B and C are unlikely to be (THREAT, pers. comm)	
	Key Habitat Units	3	2	1	Option A has the greatest potential for providing key habitat units (Rescan, 2007b)	
	Tahltan Knowledge	-	-	-	Tahltan Traditional Knowledge report is not available for inclusion in this Alternatives Assessment	
		Score	12	8	4	
	Ranking	3	2	1		
Ecosystems	Rare Plants	-	-	-	Data on potential for rare plants habitat is not available	
	Ecosystem Diversity	3	2	1	Option A is associated with a more diverse ecosystem than Options B and C (Rescan, 2008l)	
	Tahltan Knowledge	-	-	-	Tahltan Traditional Knowledge report is not available for inclusion in this Alternatives Assessment	
		Score	3	2	1	
	Ranking	3	2	1		
Air Quality & Noise	Dust	-	-	-	Insufficient information is available to determine the magnitude of fugitive dust emissions	
	Diesel Emissions	-	-	-	A detailed emissions inventory is required to determine the relative magnitude of diesel emissions for the different options	
	Construction Noise	-	-	-	Noise modelling is required to determine the relative magnitude of noise effects for the different options	
	Operation Noise	-	-	-	Noise modelling is required to determine the relative magnitude of noise effects for the different options	
		Score	0	0	0	
		Ranking	1	1	1	
		<i>Sum of Rankings</i>	13	9	5	
OVERALL RANKING		3	2	1		

**Table 4-2
Assessment of Tailings Options: Tahltan Community**

Tahltan Community Criteria	Sub-Criteria	Option A	Option B	Option C	Rationale
Tahltan Traditional Use	Heritage Data	-	-	-	Tahltan Traditional Knowledge report is not available for inclusion in this Alternatives Assessment
	Interviews with Elders	-	-	-	The interviews with Tahltan Elders were not completed by the time of this assessment
	Score	0	0	0	
	Ranking	1	1	1	
Archaeology	Archaeology Impact Assessment	3	2	1	Based on the Archaeological Overview Assessment, the greatest potential for impacting archaeological sites is present in Tailings Option A (Rescan, 2008k)
	Archaeology Overview Assessment	3	2	1	
	Score	6	4	2	
	Ranking	3	2	1	
Current Use	Tenure Holders	-	-	-	Information about potential effects on current tenure holders is unavailable
	Tahltan Current Use	3	2	1	Information about Tahltan current use is unavailable. However, THREAT has indicated that Option A is least preferred
	Recreational Use	-	-	-	Information about current recreational use is unavailable
	Visual Effects	-	-	-	A visual effects assessment is required to determine the relative magnitude of visual effects for the three Options
	Noise Effects	-	-	-	Noise modelling is required to determine the relative magnitude of noise effects for the three Options
	Score	3	2	1	
Ranking	3	2	1		
Country Foods	Direct Loss of Foods	3	2	1	The diversity of the vegetation and the value of wildlife habitat is greatest for Option A (Rescan, 2008l)
	Indirect Loss of Foods	3	2	1	The diversity of the vegetation and the value of wildlife habitat is greatest for Option A (Rescan, 2008l)
	Score	6	4	2	
	Ranking	3	2	1	
	<i>Sum of Rankings</i>	10	7	4	
OVERALL RANKING		3	2	1	

**Table 4-3
Assessment of Tailings Options: Closure and Legacy**

Closure and Legacy Criteria	Sub-Criteria	Option A	Option B	Option C	Rationale
Water Management	Groundwater Protection	-	-	-	Potential effects on groundwater following closure are unknown
	Hydrograph	-	-	-	The effects on the natural hydrograph following closure will likely be small for all Options
	Complexity of Water Management	1	2	3	The complexity of the water management is far greater for Options B and C than for Option A (Moose Mountain, 2008; Knight Piesold, 2008a&b)
	Long-term water quality	1	2	3	Long-term water quality effects are likely greater for Options B and C (Moose Mountain, 2008)
	Tahltan Knowledge	-	-	-	Tahltan Traditional Knowledge report is not available for inclusion in this Alternatives Assessment
	Score	2	4	6	
	Ranking	1	2	3	
Tailings Solids and Reclamation	Potential loss of Tailings Solids to rec. env.	1	2	3	The potential for loss of tailings solids is greatest for Options B and C (Moose Mountain, 2008)
	Embankment structure decommissioning	1	2	3	Decommissioning and reclamation of the embankment structures are more challenging for Options B and C (Moose Mountain, 2008)
	Potential for habitat restoration	3	2	1	The potential for restoring habitat is greater for Option A (Moose Mountain, 2008)
	Tahltan Knowledge	-	-	-	Tahltan Traditional Knowledge report is not available for inclusion in this Alternatives Assessment
	Score	5	6	7	
	Ranking	1	2	3	
	<i>Sum of Rankings</i>	2	4	6	
OVERALL RANKING	1	2	3		

4.4 Safety

Table 4-4 shows the rankings for the criteria and sub-criteria included in the Safety category. The assessment of safety issues related to development of the three tailings options resulted in the selection of Option A as the preferred option. Geohazards (avalanches, debris flows and rockfall) are far less prevalent in Option A compared to Option B and Option C. More importantly, the construction and operation of Option B or Option C are associated with considerable risks to human safety.

4.5 Engineering

Table 4-5 shows the rankings for the criteria and sub-criteria included in the Engineering category. Option A was selected as the preferred option based on engineering considerations. Based on preliminary engineering assessments, the construction and operation of water management structures (diversion channels in particular) for Option B or Option C represented serious engineering challenges. The large flows in Hickmann and Option C creeks would require large diversion channels, which would have to be constructed along steep mountain slopes crossing numerous debris flow channels and avalanche paths. While it theoretically would be possible to construct and operate a TSF in Option B or Option C it is likely not feasible. Some engineering challenges would be associated with the construction and operation of Option A (such as the potential for karst terrain) but they would be far less significant than the issues associated with Option B or option C.

4.6 Assessment Summary

Table 4-6 shows the summary for the alternatives assessment for the placement of the TSF for the Schaft Creek Project. The Environment and Tahltan Community categories favoured Option C, while the Safety, Closure & Legacy and Engineering categories favoured Option A.

As discussed earlier, the weight assigned to each category is a reflection of the values and priorities of the assessor. As the proponent, Copper Fox is directly responsible for the safety of the public and employees as well as the protection of the environment for the life of the Schaft Creek Project and following closure. Therefore, the company is obliged to adopt priorities that best achieve these objectives. Table 4-6 shows the category weights that reflect the proprieties of Copper Fox.

Providing a safe and healthy working environment and protecting the rights of workers to return safe and healthy to their homes and loved ones at the end of the day is a high priority for Copper Fox. Although significant progress has been made in developing safe working practices for mining operations, mining remains an inherently dangerous profession because of the scale and complexity of the operations and the size of equipment used.

Copper Fox also recognizes the Safety category bias in the above table. Below are tables showing no bias between categories (Table 4-7) and bias toward the Tahltan Community category (Table 4-8).

**Table 4-4
Assessment of Tailings Options: Safety**

Safety Criteria	Sub-Criteria	Option A	Option B	Option C	Rationale
Geo-Hazards	Avalanche	1	2	3	Human exposure to avalanche hazards are greater for Options B and C than for Option A (Moose Mountain, 2008; BGC, 2008a)
	Debris Flows	1	2	3	Human exposure to debris flow hazards are greater for Options B and C than for Option A (Moose Mountain, 2008; BGC, 2008a)
	Deep-seated Slumping	3	1	2	The potential for deep-seated slumping (and associated hazards) are greatest for Option A (BGC, 2008a)
	Rockfall	1	2	3	Human exposure to rock-fall hazards are greater for Options B and C than for Option A (BGC, 2008a)
	Karst Terrain Potential	3	2	1	The potential for occurrence of sinkholes is greater for Option A than for Options B and C (Moose Mountain, 2008)
	Score	9	9	12	
	Ranking	1	1	3	
Water and Flooding	Outbreak Floods	1	2	3	Hazards associated with outbreak floods are greater for Option B and C than for Option A (Moose Mountain, 2008)
	Diversion Channel Maintenance	1	2	3	Maintenance of diversion channels are far more hazardous for Options B and C than for Option A (Moose Mountain, 2008)
	Score	2	4	6	
	Ranking	1	2	3	
Construction and Operations	Driving Hazards	3	2	1	The access road for Option A is longer (Moose Mountain, 2008)
	Hazards related to spillway modification	1	2	3	Modifying the spillway for Option B and C is associated with greater risk than spillway modification for Option A (Moose Mountain, 2008)
	High Pressure Pumps and Pipelines	1	2	3	Tailings Options B and C would require high pressure tailings slurry pumps and pipelines (Moose Mountain, 2008)
	Likelihood and Consequence of Spill	1	2	3	The likelihood and consequence of a spill are greater for Options B and C than for Option A (Moose Mountain, 2008)
	Likelihood and Consequence of Malfunction	1	2	3	The likelihood and consequence of malfunctions are greater for Options B and C than for Option A (Moose Mountain, 2008)
	Score	7	10	13	
	Ranking	1	2	3	
Other Environmental Hazards	Wildlife Hazards	-	-	-	Hazards associated with wildlife are likely equal for the three Options (no reference)
	Tahltan Knowledge	-	-	-	Tahltan Traditional Knowledge report is not available for inclusion in this Alternatives Assessment
	Score	0	0	0	
	Ranking	1	1	1	
	Sum of Rankings	4	6	10	
OVERALL RANKING	1	2	3		

**Table 4-5
Assessment of Tailings Options: Engineering**

Engineering Criteria	Sub-Criteria	Option A	Option B	Option C	Rationale
Construction Challenges	Extensive Design and Investigations Required	1	2	3	The complexity of the engineering design required for Options B and C could cause substantial delays for the Project (Moose Mountain, 2008; Knight Piesold, 2008a&b) Options B and C would require construction in very challenging terrain (Moose Mountain, 2008; Knight Piesold, 2008a&b) Options B and C would require significant structures for controlling debris flows (Moose Mountain, 2008; Knight Piesold, 2008a&b) Data on the subsurface geology and hydrogeology are not available Option A has the least risk of slope failure (Moose Mountain, 2008; Knight Piesold, 2008a&b)
	Physical Construction Challenges	1	2	3	
	Debris Flows	1	2	3	
	Sub-surface Geology	-	-	-	
	Slope Stability	1	2	3	
	Score	4	8	12	
	Ranking	1	2	3	
Operating Challenges	Construction Around Sensitive Habitat	3	2	1	Option A is associated with more sensitive habitat than Options B and C (Rescan, 2008) Managing effluent quality and quantity from Options B and C would be associated with significant difficulty (Moose Mountain, 2008; Knight Piesold, 2008a&b) Options B and C are associated with considerable hazards to infrastructure (Moose Mountain, 2008; Knight Piesold, 2008a&b) Considerable efforts would be required to control debris flows from Options C and B (Moose Mountain, 2008; Knight Piesold, 2008a&b) Managing diversion structures for Options B and C would require significant efforts (Moose Mountain, 2008; Knight Piesold, 2008a&b) It is not possible to determinedifferences in water quality from either tailings option based on the information currently available The stability of the water diversion structures would be greatest for Option A (Moose Mountain, 2008; Knight Piesold, 2008a&b) Options B and C would require far more avalanche control than Option A (Moose Mountain, 2008; BGC, 2008a)
	Effluent Management (Quantity and Quality)	1	2	3	
	Hazards to Infrastructure	1	2	3	
	Debris Flows	1	2	3	
	Diverted Flow Management	1	2	3	
	Diverted Flow Water Quality	-	-	-	
	Diverted Flow Stability/Flooding Risk	1	2	3	
	Avalanche	1	2	3	
	Score	9	14	19	
		Ranking	1	2	
Estimated Costs	Estimated Operating Costs	1	2	3	Operating costs would be lowest for Option A (Moose Mountain, 2008) Capital costs would be lowest for Option A (Moose Mountain, 2008)
	Estimated Total Capital Costs	1	2	3	
	Score	2	4	6	
	Ranking	1	2	3	
	<i>Sum of Rankings</i>	3	6	9	
OVERALL RANKING		1	2	3	

Assessment of Tailings Storage Facility Options

Table 4-6
Tailings Options Alternatives Assessment – Safety Category Bias

Categories	Weight	Option A	Option B	Option C
Environment	20%	3	2	1
Tahltan Community	20%	3	2	1
Safety	30%	1	2	3
Closure and Legacy	15%	1	2	3
Engineering	15%	1	2	3
Total	100%	1.8	2	2.2
		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Table 4-7
Tailings Options Alternatives Assessment – No Category Bias

Categories	Weight	Option A	Option B	Option C
Environment	20%	3	2	1
Tahltan Community	20%	3	2	1
Safety	20%	1	2	3
Closure and Legacy	20%	1	2	3
Engineering	20%	1	2	3
Total	100%	1.8	2	2.2
		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Table 4-7
Tailings Options Alternatives Assessment – Tahltan Community Category Bias

Categories	Weight	Option A	Option B	Option C
Environment	20%	3	2	1
Tahltan Community	30%	3	2	1
Safety	20%	1	2	3
Closure and Legacy	15%	1	2	3
Engineering	15%	1	2	3
Total	100%	2	2	2
		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

5. ACCESS ROAD ALIGNMENT

5. Access Road Alignment

This section presents the alternatives assessment for the two proposed access road alignments for the Schaft Creek Project: the Mess Creek Valley alignment and the Tahltan Highland alignment. Criteria and sub-criteria for the four categories `Environment`, Tahltan Community`, `Safety`, and `Engineering` were assigned ranking of 1 for preferred options and 2 for least preferred option.

5.1 Environment

Table 5-1 shows the rankings assigned to the criteria included in the Environment category for the alternatives assessment for the access road alignments. The assessment showed that both options were ranked relatively equal with respect to environmental criteria. Potential effects to wildlife and fish habitat were greater for the Mess Creek Valley alignment, while effects to terrestrial ecosystems, water and air quality potentially would be greater for the Tahltan Highland alignment. Overall, the assessment resulted in a slight preference for the Mess Creek Valley alignment. However, it is possible that further studies would change the result of the assessment to a slight preference for the Tahltan Highland route.

5.2 Tahltan Community

Table 5-2 shows the ranked criteria and sub-criteria for the Tahltan Community category. Information regarding Tahltan Traditional Use and Archaeological value for the two alignments was limited and hence the associated sub-criteria were not ranked. However, THREAT has indicated that the Tahltan Highland alignment is favoured by the Tahltan Nation. Furthermore, potential effects on the availability of Country Foods are greater for the Mess Creek Valley alignment. Therefore, the Tahltan Highland route was selected as the preferred option considering Tahltan Community criteria.

5.3 Safety

Table 5.3 shows the ranked criteria and sub-criteria for the Safety category. In terms of the geohazards criterion, both options were ranked relatively equal with a slight preference for the Tahltan Highland alignment. However, considering potential construction and operations challenges, the Mess Creek Valley alignment was strongly favoured. The switchback section that would connect the Mess Creek valley to the Tahltan Highland is steep and would result in grades between 10% and 16% with very tight, sloped turns. This section would be very hazardous during wet, snowy or freezing conditions, which would prevail 10 months out the year. The high potential for whiteout conditions and general limited visibility would constitute additional hazards (BGC, 2008b; McElhanney, 2008). Safety hazards associated with the Mess Creek Valley alignment include risk of flooding and debris flows. However, these hazards were assessed to be far less serious and easier to mitigate.

**Table 5-1
Assessment of Road Options: Environment**

Environment Criteria	Sub-Criteria	Highland	Mess Creek	Rationale
Water Quality & Quality	ML/ARD	-	-	Insufficient data is available to comment on differences between ML/ARD characteristics for the two road alignments (MDAG, 2008)
	Sediment Control	2	1	Controlling erosion on the the switchback section of the Tahltan Highland route will be difficult (McElhanney, 2008)
	Runoff Water Quality	2	1	Sediment loadings and the greater addition of traction material on the Highland Route may compromise runoff water quality (McElhanney, 2008; pers. comm.)
	Nutrients	2	1	More rock work will be required for Highland alignment
	Tahltan Knowledge	-	-	Tahltan Traditional Knowledge report is not available for inclusion in this Alternatives Assessment
	Score	6	3	
	Ranking	2	1	
Fisheries	Indirect Habitat Loss	1	2	The Mess Creek route crosses more indirect fish habitat than the Highland Route (McElhanney, 2008; BGC, 2008b)
	Direct Habitat Loss	1	2	The Mess Creek Route has a greater potential for disrupting fish habitat due to proximity of the road (McElhanney, 2008; BGC, 2008b)
	Absence/Presence	1	2	Fish are present along the Mess Creek Route (Rescan, 2008i)
	Tahltan Knowledge	-	-	Tahltan Traditional Knowledge report is not available for inclusion in this Alternatives Assessment
	Score	3	6	
	Ranking	1	2	
Wildlife	Direct Habitat Loss	1	2	The Mess Creek alignment is located in closer proximity to moose habitat (Rescan, 2007b)
	Indirect Habitat Loss	1	2	The Mess Creek alignment is located in closer proximity to moose habitat (Rescan, 2007b)
	Migration Route	-	-	It is unknown what affect the two alignments would have on migration of wildlife as both routes likely interact with wildlife migration
	Key Habitat Units	1	2	Mess Creek Valley likely offers more key habitat than the Tahltan Highlands (Rescan, 2007b)
	Tahltan Knowledge	-	-	Tahltan Traditional Knowledge report is not available for inclusion in this Alternatives Assessment
	Score	3	6	
	Ranking	1	2	
Ecosystems	Rare Plants	-	-	The potential for finding rare plants for either option is currently unknown
	Ecosystem Sensitivity	2	1	The alpine ecosystems along the Highland Route are more sensitive to disturbances than the ecosystems along the valley bottom (no reference)
	Tahltan Knowledge	-	-	Tahltan Traditional Knowledge report is not available for inclusion in this Alternatives Assessment
	Score	2	1	
	Ranking	2	1	
Air Quality & Noise	Dust	2	1	The wind exposure along with greater quantities of traction material along the Highland Route will increase the potential for fugitive dust emissions (Rescan, 2008f; McElhanney, 2008)
	Diesel Emissions	2	1	The additional ascent along the Tahltan highland will increase emissions from diesel trucks marginally
	Construction noise	-	-	Noise modelling is required to quantify noise effects
	Operation Noise	-	-	Noise modelling is required to quantify noise effects
	Score	4	2	
	Ranking	2	1	
	<i>Sum of Rankings</i>	8	7	
	OVERALL RANKING	2	1	

**Table 5-2
Assessment of Road Options: Tahltan Community**

Tahltan Community Criteria	Sub-Criteria	Highland	Mess Creek	Rationale
Tahltan Traditional Use	Heritage Data	-	-	Heritage data is not available for the Alternatives Assessment
	Interviews with Elders	-	-	Interviews with Elders have not been completed
	Score	0	0	
	Ranking	1	1	
Archaeology	Archaeology Impact Assessment	-	-	An archaeological survey has not yet been completed for the Highland Route. A survey is scheduled for the 2008 field season.
	Archaeology Overview Assessment	-	-	An archaeological survey has not yet been completed for the Highland Route. A survey is scheduled for the 2008 field season.
	Score	0	0	
	Ranking	1	1	
Current Use	Tenure Holders	-	-	Additional information is required to determine potential effects on Tenure holders for the two options
	Tahltan Current Use	1	2	THREAT has indicated that the Highland route is favored to avoid disrupting Tahltan current use (THREAT pers. comm)
	Recreational Use	-	-	Potential effects on recreational users could not be determined based on the available information
	Visual Effects	2	1	The Tahltan Highland Route would be more visible from Mount Edziza Park (no reference)
	Score	3	3	
	Ranking	1	1	
Country Foods	Direct Loss of Foods	1	2	The potential for disturbing plant-based country foods is greater for the Mess Creek Valley Route (Rescan, 2008j; 2008m)
	Indirect Loss of Foods	1	2	The potential for indirectly affecting country foods production is greater for the Mess Creek Valley Route (Rescan, 2008j; 2008m)
	Score	2	4	
	Ranking	1	2	
	<i>Sum of Rankings</i>	4	5	
	OVERALL RANKING	1	2	

**Table 5-3
Assessment of Road Options: Safety**

Safety Criteria	Sub-Criteria	Highland	Mess Creek	Rationale
Geo-Hazards				
	Avalanche	1	2	Potential avalanche dangers are more predominant along the road route (BGC, 2008b)
	Debris Flows	1	2	Debris flows are more likely along the Mess Creek Valley alignment (BGC, 2008b)
	Rockfall	2	1	The southern section of the Tahltan Highland Route is more susceptible natural rock-fall (BGC, 2008b)
	Deep-seated Slumping	-	-	Neither option is associated with significant potentials for deep-seated slumping (BGC, 2008b)
	Tahltan Knowledge	-	-	Tahltan Traditional Knowledge report is not available for inclusion in this Alternatives Assessment
	Score	4	5	
	Ranking	1	2	
Operations				
	Flooding	1	2	The potential for flooding is greater for the Mess Creek Valley route (BGC, 2008b)
	Accidents (likelihood and consequence)	2	1	Accidents are far more likely along the Tahltan Highland Route (McElhanney pers. comm.) Dangers associated with high mountain roads are more predominant along the Tahltan Highland Route (McElhanney, 2008)
	High Mountain Roads	2	1	
	Steep Grades	2	1	The occurrence of steep grades is higher along the Tahltan Highland Route (BGC, 2008b)
	High Winds	2	1	High winds will occur more frequently along the Tahltan highland Route (Rescan, 2008f)
	Visibility	2	1	Visibility will (overall) be better along the Mess Creek Valley alignment (Rescan, 2008f)
	Tight turns/decreasing radius	2	1	The Highland Route will have a greater number of potentially hazardous tight turns (McElhanney, 2008b)
	Wildlife Hazards	1	2	Truck are potentially more likely to encounter wildlife along the Mess Valley Route (Rescan, 2007b)
	Wildfire	-	-	Data on the risk of wildfires along the two routes are not available
	Tahltan Knowledge	-	-	Tahltan Traditional Knowledge report is not available for inclusion in this Alternatives Assessment
	Score	14	10	
	Ranking	2	1	
Construction				
	Accidents (likelihood and consequence)	2	1	The likelihood and consequences of accidents are far greater along the highland Route (the switchback sections in particular) (McElhanney pers. comm.)
	High Mountain Roads	2	1	The travel distance along high mountain roads is greater for the Tahltan Highland Route (BGC, 2008b)
	Steep Grades	2	1	Steep grades are more predominant along the Tahltan Highland Route (McElhanney, 2008)
	High Winds	2	1	High winds will occur more frequently along the Tahltan highland Route (Rescan, 2008f)
	Flooding	1	2	Flooding is more likely to occur along the Mess Creek Valley alignment (BGC, 2008b)
	Rock Work	2	1	The Highland Route requires more extensive rockwork (McElhanney, 2008) A greater number of stream crossing will be encountered along the Mess Creek Valley alignment (McElhanney, 2008; BGC, 2008b)
	In Stream Works and Crossings	1	2	
	Visibility	2	1	Visibility will (overall) be better along the Mess Creek Valley alignment (Rescan, 2008f)
	Wildlife Hazards	1	2	The potential for encountering wildlife is greater along the Mess Creek Valley alignment (Rescan, 2007b)
	Wildfire	-	-	Data on the risk of wildfires along the two routes are not available
	Tahltan Knowledge	-	-	Tahltan Traditional Knowledge report is not available for inclusion in this Alternatives Assessment
	Score	15	12	
	Ranking	2	1	
	<i>Sum of Rankings</i>	5	4	
	OVERALL RANKING	2	1	

5.4 Engineering

Table 5-4 shows the criteria and sub-criteria rankings in the engineering category for the road alignments alternatives assessment. The Mess Creek Valley alignment is strongly favoured from an engineering perspective. Constructing the switchback section from the Mess Creek valley to the Tahltan Highland would be very challenging because of the steep terrain and limited width of the slope. South of the switchback section, a 250 m bridge would be required to cross a deep gorge. A considerable amount of rock work (drilling, blasting and excavating) would be required to cut a road out of the scoured bedrock lining the route. Preliminary cost estimates shows that the construction costs for the Tahltan Highland route would be at least four times greater than the Mess Creek Valley Route because of the engineering challenges. Additional operating challenges are also expected with the Highland alignment.

5.5 Assessment Summary

Table 5-5 shows the final ranking for the road alignments alternatives assessment. The Environment category was relatively inconclusive but favoured the Mess Creek Valley alignment slightly. The Tahltan Community category favoured the Tahltan Highland alignment, while both the Safety and the Engineering categories strongly favoured the Mess Creek Valley alignment.

As discussed earlier, workers safety is a very important priority for Copper Fox. Based on the very real safety considerations associated with the Tahltan Highland alignment Copper Fox selected the Mess Creek Valley alignment as the preferred option for the Schaft Creek Project. However, Copper Fox acknowledges the important environmental and cultural values associated with this alignment and is prepared to work with the Tahltan Nation to mitigate any potential effects to the greatest extent possible.

Copper Fox also recognizes the Safety category bias in the above table. Below are tables showing no bias between categories (Table 5-6) and bias toward the Tahltan Community category.

**Table 5-4
Assessment of Road Options: Engineering**

Engineering Criteria	Sub-Criteria	Highland	Mess Creek	Rationale	
Concurrent Powerline Alignment	Follows Powerline Right-of-way	-	-	At present, it is uncertain whether a transmission line would require an alternative (separate) alignment	
	Score	0	0		
	Ranking	1	1		
Construction Challenges	Slope Stability	2	1	Slope stability issues are more serious for the Tahltan Highland Route (BGC, 2008b)	
	Extent of Cut and Fill	2	1	More extensive cut and fill are required for the Tahltan Highland Route (McElhanney, 2008)	
	Extensive Rock Work	2	1	More extensive rock work is required for the Tahltan highland Route (McElhanney, 2008)	
	Adverse Weather Conditions	2	1	Weather conditions along the Tahltan Highland Route are more adverse than along the Mess Creek Valley Route (Rescan, 2008f)	
	Debris Flow	1	2	The potential for debris flow is greater along the Mess Creek Valley Route (BGC, 2008b)	
	Flooding Potential	1	2	The potential for flooding is greater along the Mess Creek Valley Route (BGC, 2008b)	
	ARD Monitoring and Mitigation	2	1	ML/ARD monitoring efforts will be more extensive along the Tahltan Highland Route due to a more rock work (McElhanney, 2008)	
	Creek Crossings & Bridges	2	1	Far more challenging crossing for the Highland Route (McElhanney, 2008)	
	Construction Around Sensitive Habitat	-	-	Both options involve construction around sensitive habitat (alpine meadows vs. fish and aquatic habitat)	
	Score	14	10		
	Ranking	2	1		
	Operating Challenges	Snow Clearing	2	1	Snow clearing efforts will be far greater for the Tahltan Highland Route (Rescan, 2008f)
		Rock fall	2	1	Rock-falls are more likely to occur along the Tahltan Highland Route (BGC, 2008b)
Debris Flow		1	2	Debris flows are more likely to occur along the Mess Creek Valley Route (BGC, 2008b)	
Avalanche		1	2	The potential for avalanches is greater for the Mess Creek Valley Route (BGC, 2008b)	
Keeping Culverts Clear		1	2	Efforts to maintain culverts will be greater for the Mess Creek Valley Route (more culverts) (McElhanney, 2008)	
Grading		2	1	Grading will be considerably more difficult along the Tahltan Highland Route (McElhanney, 2008)	
Bridge Maintenance		2	1	Bridge maintenance will be more challenging along the Highland Route (larger bridges) (McElhanney, 2008)	
Flooding Potential		1	2	The potential for flooding is greater along the Mess Creek Valley Route (BGC, 2008b)	
Length of Operating Season		2	1	The operating season is shorter for the Tahltan Highland Route (McElhanney, 2008)	
Length of Road		-	-	The two alignments do not differ significantly with respect to distance travelled (BGC, 2008b)	
Tahltan Knowledge		-	-	Tahltan Traditional Knowledge report is not available for inclusion in this Alternatives Assessment	
Score		14	13		
Ranking		2	1		
Geotechnical Considerations		Sub-surface Geology	-	-	Data concerning sub-surface geology is not available
		Slope Stability	2	1	Slope stability issues are more serious for the Tahltan Highland Route (BGC, 2008b; McElhanney, 2008)
		Tahltan Knowledge	-	-	Tahltan Traditional Knowledge report is not available for inclusion in this Alternatives Assessment
		Score	2	1	
	Ranking	2	1		
Estimated Costs	Estimated Capital Costs	2	1	Capital costs are greater for the Tahltan Highland Route (McElhanney, 2008)	
	Estimated Operating Costs	2	1	Operating costs are greater for the Tahltan Highland Route (McElhanney, 2008)	
	Score	4	2		
	Ranking	2	1		
	<i>Sum of Rankings</i>	9	5		
OVERALL RANKING		2	1		

**Table 5-5
Access Road Alternatives Assessment – Safety Category Bias**

Categories	Weight	Tahltan Highland	Mess Creek Valley
Environment	20%	2	1
Tahltan Community	20%	1	2
Safety	40%	2	1
Engineering	20%	2	1
Total	100%	1.8	1.2
		<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Table 5-6
Access Road Alternatives Assessment – No Category Bias**

Categories	Weight	Tahltan Highland	Mess Creek Valley
Environment	25%	2	1
Tahltan Community	25%	1	2
Safety	25%	2	1
Engineering	25%	2	1
Total	100%	1.75	1.25
		<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Table 5-7
Access Road Alternatives Assessment – Tahltan Community Bias**

Categories	Weight	Tahltan Highland	Mess Creek Valley
Environment	20%	2	1
Tahltan Community	40%	1	2
Safety	20%	2	1
Engineering	20%	2	1
Total	100%	1.6	1.4
		<input type="checkbox"/>	<input checked="" type="checkbox"/>

6. CONCLUSIONS



6. Conclusions

The Alternatives Assessments for the tailings options and the access road alignments for the Schaft Creek Project resulted in the following conclusions:

- Tailings Option A is the preferred option. Potential effects to wildlife habitat as well as cultural and archaeological values were recognized and understood. However, potential safety concerns, closure/legacy consideration and serious engineering/water management challenges associated with Option B and Option C outweighed the potential environmental and Tahltan Community concerns. In addition, effects on wildlife and archaeology will not result in significant adverse effects with proper management and mitigation programs. Copper Fox is committed to working with the Tahltan Nation to mitigate potential effects from the development of Option A to the greatest possible extent.
- The Mess Creek Valley road alignment was selected as the preferred road alignment. Human safety considerations and the serious engineering challenges associated with the Tahltan Highland alignment were the dominating factors in selecting the preferred option. It was recognized that the Valley alignment likely would cause disturbance to moose habitat and that the Tahltan Nation have a strong preference for the Tahltan Highland route based on potential archaeological effects. However, the potential for mitigating some of the effects to wildlife and archaeology and the lack of options for improving operator safety for the Tahltan Highland route resulted in the selection of the Mess Creek Valley alignment as the preferred option. However, Copper Fox acknowledges the important environmental and cultural values associated with this alignment and is prepared to work with the Tahltan Nation to mitigate any potential effects to the greatest extent possible.

During the May 28 (2008) meeting between Copper Fox and the THREAT, the conclusions of the alternatives assessment were presented to the THREAT. The THREAT also provided the conclusions from their assessment of the various alternatives. The THREAT requested the following be conducted in response to their concerns with the preferred alternatives selected through the alternatives assessment process:

- Additional tailings storage facilities should be considered; and
- The Tahltan Highland alignment should be revised to ignore provincial boundaries of Mount Edziza Provincial Park.

Copper Fox requested their consulting engineers to complete these two tasks and comment on any additional tailings options and revisions to the Tahltan Highland alignment. The letter reports from Knight Piesold Consulting Ltd. and McElhanney Consulting Services Ltd. are appended to this report (Appendix 4 and 5, respectively). These two letter reports reaffirm that Tailings Option A and the Mess Creek Valley road alignment are the best alternatives for the Schaft Creek Project.

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**APPENDIX 1
MAY 28 MEETING BETWEEN THE THREAT AND
COPPER FOX: MEETING SUMMARY REPORT.**

Copper Fox Metals Alternative Assessment Report

June 19
2008

This report outlines the alternatives assessment workshop conducted by the proponent and the Tahltan Heritage and Environment Resources Team (THREAT) for the Schaft Creek Project.

Version 4

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Copper Fox Metals & THREAT

Alternatives Assessment Meeting

Wednesday, May 28, 2008

Marriot Hotel Vancouver

In attendance:

Guillermo Salazar – Copper Fox

David Pow – McElhanney

Cam Grundstrom – Copper Fox

Kris Holm – BGC Engineering

Shane Uren – Copper Fox

Nalaine Morin – THREAT

Robert Simpson – PR Associates

Jerry Asp – THREAT

Jessica Delaney – PR Associates

Feddie Louie – THREAT

Sean McKnight – Rescan

Camille Callison – THREAT

Greg Sharam – Rescan

Rick McLean – THREAT

Ken Brouwer – Knight Piesold

Stan Sladen – THREAT

Daniel Friedman – Knight Piesold

Christine Creyke - THREAT

Meeting Purpose

The purpose of the meeting was for Copper Fox Metals (CUU) and the Tahltan Heritage Resources Environmental Assessment Team (THREAT) to present and discuss their alternative assessments for the Schaft Creek Project tailings and road options. Following the presentation, areas of common ground and divergence of opinion were identified and are being reported here.

Executive Summary

CUU and THREAT have been working together for almost one year to determine the most socially, environmentally and economically responsible project design for the Schaft Creek Project. The alternatives assessment evaluated three tailings impoundment options and two road alignment options. The proponent and THREAT both agree environmental and human safety is of high importance; however, consensus is lacking on how to weigh potential environmental impacts and traditional use with engineering and operational challenges.

CUU prefers tailings Option A (Skeeter Lake) and the Mess Creek Valley road alignment (Valley alignment). THREAT, on the other hand, prefers tailings Option B (Hickman Creek) and the Tahltan Highland road alignment (Highland alignment); however, THREAT recognized the engineering challenges and safety concerns with both their preferred tailings option and road alignment. Following the discussion on engineering challenges with tailings Option B, THREAT suggested CUU review the potential for additional tailings options. CUU will work with engineers to determine if this is viable.

Both CUU and THREAT recognized the archaeological potential of both road alignments. However, CUU felt the environmental issues associated with the Valley alignment were manageable, whereas THREAT had concerns with environmental impacts (specifically on moose) of the Valley alignment. Moving forward THREAT has recommended increased archaeology work along both road alignments, and has suggested CUU investigate a revised road alignment for the Highland alignment that would pass through Mount Edziza Provincial Park. CUU raised concerns with permitting a road through the park and potential Tahltan cultural impacts resulting from a road alignment in direct proximity to Mount Edziza. CUU will investigate a revised Highland alignment.

Tailings

Three tailings options were assessed. Option A is Skeeter Lake, Option B is Hickman and Option C is unnamed. (Fig 1). The five categories for assessment were: Environment, Tahltan Community, Safety, Engineering and Closure and Legacy. Based on similar data both parties were asked to review the alternatives and identify a preferred and least preferred option. For CUU the preferred tailings Option is A and the least preferred tailings Option is C. For THREAT the preferred tailings Option is B and the least preferred Option is C; however, THREAT's recommendation is for CUU to identify other site options.



Figure 1 - Tailings Options

Road

Two road alignments were identified. The first is the Mess Creek Valley road alignment (Valley alignment) and the second is the Tahltan Highland road alignment (Highland alignment). The Highland alignment was identified based on feedback from THREAT in July 2007, and was not originally considered by CUU. The four categories for assessment were: Environment, Tahltan Community, Safety and Engineering. Closure and legacy were not considered as they were deemed to be similar and would not be deciding factors. Based on similar data both parties were asked to review the alternatives and identify a preferred and least preferred option. For CUU the preferred road is the Valley alignment and the least preferred is the Highland alignment. For THREAT the preferred is road the Highland alignment and the least preferred is the Valley alignment; however, THREAT had some concerns with the Highland road alignment and suggested a modified road alignment should be investigated to minimize risk to human safety.

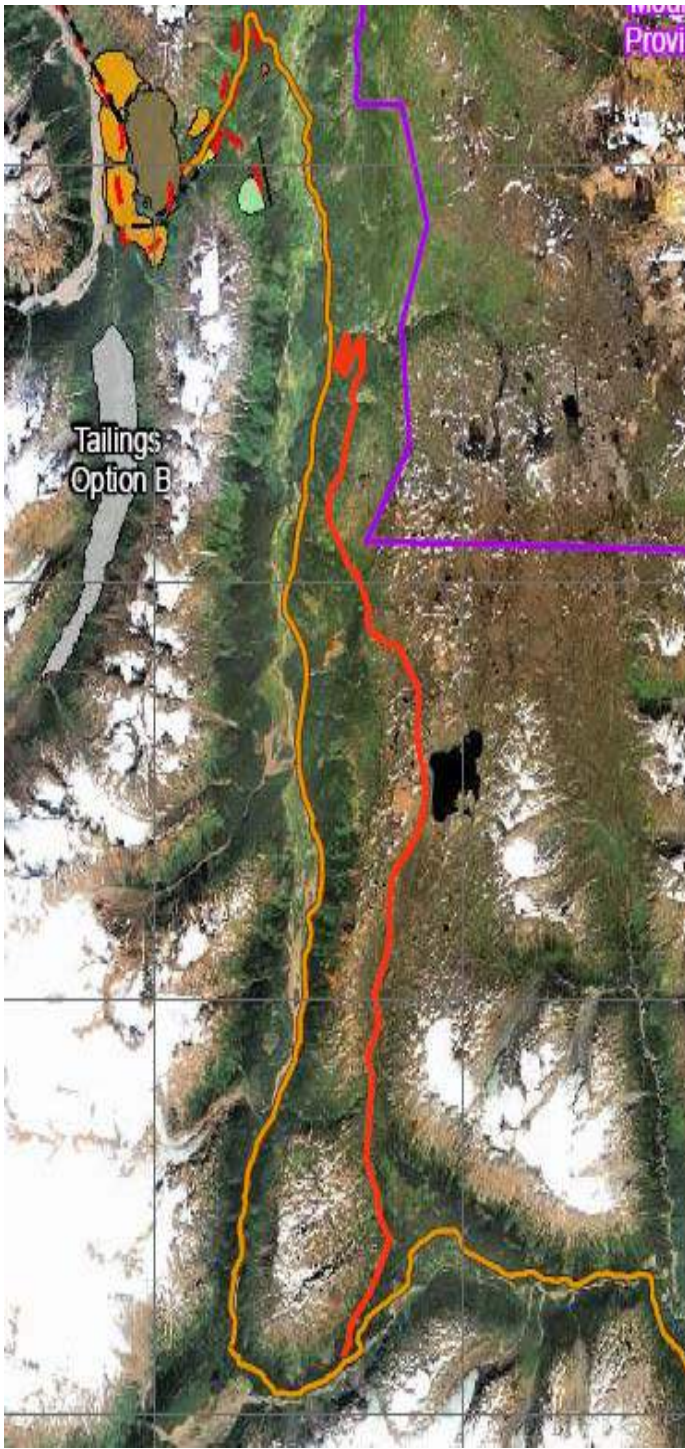


Figure 2 - Road Alignment

Copper Fox Presentation Summary

CUU is committed to working in an open, honest and transparent manner with the Tahltan Nation and the THREAT team. Since July 2007, the two parties have met regularly to discuss various project components. With two years of baseline data, THREAT and CUU took part on a ground breaking activity to each conduct an alternative assessment of project options. This work is amongst the first, if not the first time, THREAT has undertaken an alternative assessment exercise for a project in Tahltan territory.

After working with its consultants, engineers and environmental teams, CUU selected tailings Option A and Mess Creek Valley road alignment (Valley alignment) as their preferred options. The deciding factors in choosing tailings Option A include: a higher risk for sediment loading in tailings Options B and C; serious geohazards and engineering challenges associated with tailings Options B and C; construction and operational challenges with tailings Options B and C; and the risk to human safety associated with tailings Option B and C.

CUU appreciates there are challenges with tailings Option A from environmental and traditional use perspectives, particularly with regards to moose, moose habitat, wetlands and heritage; however, given engineering data, the proponent believes tailings Option A has high reclamation potential than the other options and that mitigation measures can be implemented effectively and safely during all project phases in tailings Option A.

CUU's evaluation of the road alternatives came to similar conclusions as the tailings alternatives. The Highland alignment presents several construction challenges namely, bridge crossing, slope stability and steep grades. Though the exact location of the switchbacks was discussed at some length it is important to note that there are numerous engineering and construction challenges associated with the Highland alignment, namely the bridges required. (Please see Knight Piesold's memo for additional information on the Highland alignment challenges) Operation challenges include low visibility, snow clearing, grading and bridge maintenance. These challenges cumulate in the Valley alignment being the preferred option. Overall, the single largest factor contributing to CUU's decision to select the Valley alignment as their preference was human safety. Human safety is highest in the Valley alignment and much more difficult to ensure with the Highland alignment.

THREAT Presentation Summary

THREAT coordinator Nalaine Morin presented THREAT alternative assessment. Several recommendations on process were made by THREAT. First, archaeological assessments and traditional use studies should have been conducted prior to determining alternatives. By conducting these assessments early in the process areas of lower potential archaeological significance can be identified. Second, it was suggested that the study area, for the project, is not large enough to provide an accurate representation of the wildlife significance of the Mess Valley. Archaeology and wildlife compensation plans were introduced by THREAT. There was also some discussion about how early THREAT was engaged in the process, with THREAT members suggesting they were not able to provide input into selecting the alternatives.

With more information from engineers, THREAT accepted there would likely be some safety challenges with tailings Options B, their preferred option and; therefore, requested that more field work be done to identify additional options for tailings impoundment areas. For THREAT, tailings Option A posed serious risk to wildlife, archaeology and traditional use.

In every criteria, THREAT chose the Highland alignment. While identifying some safety concerns with the alignment, THREAT felt there were opportunities to alter the Highland alignment to make it safer. The primary concerns with the Valley alignment were the potential impact on wildlife, particularly moose, traditional and historic use of the Mess Creek Valley and the concerns of Elders in Telegraph Creek. There was some discussion about cumulative effectives of having multiple projects in the Mess Creek Valley. The potential impacts of stress of herds, increased roads and access to both people and predators (wolves) and potential archaeological finds made the Valley alignment “a no-go” for some members of THREAT.

Tailings - Areas of Common Ground

The table below outlines the comparative ranking for the tailings options. Numerically, CUU and THREAT appear to be in agreement, with tailings Option A being preferred and tailings Option C being least preferred; however, this is not the case. While the same in ranking, THREAT would weigh the importance of Environment and Tahltan Community higher than other categories; thereby, making their preferred tailings Option B. Alternatively, CUU would weigh safety higher than any other category and as such their preference is tailings Option A.

In its current design CUU prefers tailings Option A and THREAT prefers tailings Option B, but would most prefer re-visiting potential tailings sites with the aim of identifying a new option D or E. It should also be noted that

THREAT requested that CUU work with Galore Creek Mining to collaborate on infrastructure requirements to optimize resources and minimize the potential footprint in the Mess, Moore and Galore Creek Valleys. CUU is willing to engage with prospective partners and will continue to work towards building a dialogue with Galore Creek Mining.

There was agreement on the following points for tailings:

1. Tailings Option A has the highest environmental/wildlife value. The Mess Creek valley is important for moose herds.
2. Even without full traditional knowledge reporting, but based on what members of THREAT have shared with CUU it is suggested that tailings Option A has the highest chance for archaeology finds.
3. Tailings Option A is currently used for traditional activities and by tenure holders.
4. Larger flows require greater management and more sedimentation challenges as present in tailings Options B and C.
5. Safety must be a priority during construction, operations and closure.
6. Geohazards are highest in tailings Option B and C.
7. Tailings Option C is the least preferred overall.

Tailings - Areas of Divergence

There was no consensus on tailings preference. The primary points of divergence are identified below.

Points of divergence around tailings options:

1. THREAT's preference was tailings Option B, but with an overall preference to more field work to determine new options.
2. Environmental, wildlife, traditional use and archaeology challenges were the primary challenges with tailings Option A.
3. THREAT suggested they were not given the opportunity to be involved in determining the alternatives and only given the ability to conduct an assessment on the ones chosen by CUU. CUU disagrees based on the July 2007, site visits to each tailings alternative location. For example, the Highland road alignment was only considered based on THREAT's feedback, suggesting there was opportunity to be involved at an early stage in determining alternatives.
4. THREAT suggested there was insufficient data to base their evaluation on – primarily archaeological.

Tailings Options Alternatives

Assessment

Please note 1 is most preferred and 3 is least preferred

Categories	A	A	B	B	C	C
	CUU	THREAT	CUU	THREAT	CUU	THREAT
Environment	3	3	2	2	1	1
Tahltan Community	3	3	2	2	1	1
Closure & Legacy	1	1	2	2	3	3
Safety	1	1	2	3	3	2
Engineering	1	1	2	2	3	3

Changing A Provincial Park Boundary: The Provincial Park Boundary Adjustment Policy, Process and Guidelines (July 2004) outlines in which instances a provincial park boundary could be changed. The Minister of Water, Land and Air Protection considers such proposals where the public interest may warrant modifying park boundaries to remove the affected area from the park. This determination requires guidelines that are based on principles for maintaining the integrity of park values as well as a clear process for evaluation and decision.

In recognition of the public interest in the designation and management of parks, and the integral role parks play in supporting local economies and community based recreation, government has afforded parks a high level of legislative protection.

As a result boundary adjustments require legislation and are normally approved only where there are significant benefits to the Province. If approved by the Minister the proposed change would be drafted as legislation and would need to be passed by the legislature. Adequate consultation and social and environmental studies would be needed to support an application to change the park boundary.

cannot be made at this time.

Road – Areas of Common Ground

The table below outlines the comparative ranking for the road options. In this case CUU and THREAT are opposite from one another, with the main point of agreement being human safety.

There was agreement on the following points for roads:

1. The road must be safe for people during construction, operations and closure.
2. All roads are costly to build and will have some impact.
3. Additional archaeology work will be done in the project area.

Road - Areas of Divergence

In every criteria THREAT chose the Highland alignment. While identifying some safety concerns with the Highland alignment, THREAT felt modifications to specific designs could make it safer. The primary concerns with the Valley alignment were the potential impacts on wildlife, particularly moose, the traditional and historic use of the Mess Creek Valley and the concerns of Elders in Telegraph Creek. In addition, potential impacts of stress of herds, increased roads and access to both people and predators (wolves) and potential archaeological finds made the Valley alignment highly unattractive for THREAT.

Points of divergence around road options:

1. THREAT suggested the power line would have to twin the road; therefore, making the Highland road imperative. CUU suggested its studies are not complete and such a conclusion

2. While there is agreement that safety must be a priority there is a divergence in opinion on how best to align a road to ensure the highest level of human safety. THREAT suggested CUU investigate a different road alignment for the Highland alignment going through Mount Edziza Provincial Park and CUU expressed permitting concerns with go through the park. CUU believes Valley alignment is the safest road alignment.
3. THREAT suggests the impact on the environment, wildlife and water would be greatest with the Valley alignment.



Figure 3 - Simon Fraser Bridge in Prince George. The Highland road alignment would require a similar bridge.

Access Road Alternatives Assessment

Please note 1 is most preferred and 3 is least preferred

Categories	Valley	Valley	Highland	Highland
	CUU	THREAT	CUU	THREAT
Environment	1	2	2	1
Tahltan Community	2	2	1	1
Safety	1	2	2	1
Engineering	1	2	2	1

Conclusion

Moving forward CUU has committed to completing more archaeology work for the preferred tailings option and road alignment. In addition, CUU is working with environmental consultants to do more research into wildlife surveys and counts. CUU has requested that its engineers evaluate alternative alignments associated with the Highland road alignment. The proponent's next major milestone will be a pre-feasibility study which will outline the preferred options and associated costs.

**APPENDIX 2
SCREENING TABLE FOR TAILINGS OPTIONS
ASSESSMENT CRITERIA**

**Appendix 2
Screening Table for Tailings Options Assessment Criteria**

ENVIRONMENT CRITERIA (Construction & Operations)		Included (I)	Not Included (N)	Rationale	Available Information
Water Quality	ML/ARD	I		- options are expected to have different ML/ARD potentials	- ML/ARD Phase 2 Report
	Sedimentation	I		- options are expected to have different sediment loadings (diversion channels)	- 2006 Aquatics Baseline - 2007 Aquatics Baseline
	Nutrients	I		- different nutrient loadings from different embankment materials - blasting residue in the tailings will impact downstream water courses	- Project Description (January 2008) - General blasting residue knowledge
Fisheries	Tahltan Knowledge	I		- TK data will be used to assign rankings	- Tahltan Knowledge/Use Report
	Absence/Presence	N		- options are not in fish bearing waters; therefore no difference between options	- 2006 Fisheries Baseline - 2007 Fisheries Baseline
	Number of Species	N		- options are not in fish bearing waters; therefore no difference between options	- 2006 Fisheries Baseline - 2007 Fisheries Baseline
	Species at Risk	N		- options are not in fish bearing waters; therefore no difference between options	- 2006 Fisheries Baseline - 2007 Fisheries Baseline
	Direct Habitat Loss	N		- options are not in fish bearing waters; therefore no difference between options	- 2006 Fisheries Baseline - 2007 Fisheries Baseline
	Indirect Habitat Loss	I		- options are varying distances from fish habitat and have the potential to impact downstream fish habitat	- 2006 Fisheries Baseline - 2007 Fisheries Baseline
	Stream Classification	N		- options are not in fish bearing waters; therefore no difference between options	- 2006 Fisheries Baseline - 2007 Fisheries Baseline
Aquatics	Tahltan Knowledge	I		- TK data will be used to assign rankings	- Tahltan Knowledge/Use Report
	Benthic Invertebrates	N		- relative impacts on benthic invertebrates are incorporated through the fisheries assessment	- 2006 Aquatics Baseline - 2007 Aquatics Baseline
	Periphyton	N		- relative impacts on periphyton are incorporated through the fisheries assessment	- 2006 Aquatics Baseline - 2007 Aquatics Baseline
	Stream Sediment	N		- relative impacts on stream sediment are incorporated through the fisheries assessment	- 2006 Aquatics Baseline - 2007 Aquatics Baseline
Wildlife	Toxicity	I		- the impact of tailings toxicity is relevant to fish and proximity to fish habitat varies with the options considered	- initial tailings toxicity data - assume toxic scenario as worst case
	Direct Habitat Loss	I		- assessed for the following species: grizzly bear, black bear, martin, goat, moose, western toad, migratory birds.	- 2006 wildlife baseline reports - 2007 wildlife baseline reports
	Indirect Habitat Loss	I		- assessed for the following species: grizzly bear, black bear, martin, goat, moose, western toad, migratory birds.	- 2006 wildlife baseline reports - 2007 wildlife baseline reports
	Migration Route	I		- assessed for the following species: grizzly bear, black bear, martin, goat, moose, western toad, migratory birds.	- 2006 wildlife baseline reports - 2007 wildlife baseline reports
	Key Habitat Units	I		- assessed for the following species: grizzly bear, black bear, martin, goat, moose, western toad, migratory birds.	- 2006 wildlife baseline reports - 2007 wildlife baseline reports
	Tahltan Knowledge	I		- TK data will be used to assign rankings	- Tahltan Knowledge/Use Report
Ecosystems	Direct Habitat Loss	N		- not directly included but is covered under wildlife (Direct Habitat Loss) and Country Foods (see Socio-Community Criteria)	- 2007 Vegetation Baseline
	Rare Plants	I		- potential for different rare plants in the various options	- 2007 Vegetation Baseline
	Ecosystem Diversity	I		- ecosystem diversity varies between options	- 2007 Vegetation Baseline
	Tahltan Knowledge	I		- TK data will be used to assign rankings	- Tahltan Knowledge/Use Report
Air Quality	Dust	I		- dust dispersion will vary as topography and climatic conditions vary	- some baseline data - general Project Description information
	Diesel Emissions	I		- diesel emissions will vary with topography and haul distance	- some baseline data - general Project Description information
Noise	Construction	I		- noise impacts will vary with topography and haul distance	- 2007 Noise Baseline/General Project Description Information
	Operation	I		- noise impacts will vary with topography and haul distance	- 2007 Noise Baseline/General Project Description Information
Water Quantity	General Hydrograph	I		- options will have varying impacts on the hydrograph	- 2006 Hydrology Baseline - 2007 Hydrology Baseline
	Peak Flows	I		- options will have varying impacts on peak flows	- 2006 Hydrology Baseline - 2007 Hydrology Baseline
	Low Flows	I		- options will have varying impacts on low flows	- 2006 Hydrology Baseline - 2007 Hydrology Baseline
	Tahltan Knowledge	I		- TK data will be used to assign rankings	- Tahltan Knowledge/Use Report
Groundwater	Quantity	I		- seepage from the three options will vary with ground conditions	- 2007 Groundwater Baseline
	Quality	I		- seepage from the three options will vary with ground conditions	- 2007 Groundwater Baseline
SOCIO-COMMUNITY CRITERIA		Included (I)	Not Included (N)	Rationale	Available Information
Tahltan Traditional Use	Heritage Data	I		- Options will likely differ with respect to Tahltan Traditional Use	- Tahltan Knowledge/Use Report
	Interviews with Elders	I		- Options will likely differ with respect to Tahltan Traditional Use	- Tahltan Knowledge/Use Report
Archaeology	Archaeology Impact Assessment	I		- Options will likely differ with respect to Archaeological value	- 2007 Archaeological Baseline Study Technical Summary
	Archaeology Overview Assessment	I		- Options will likely differ with respect to Archaeological value	- 2007 Archaeological Baseline Study Technical Summary
Current Use	Tenure Holders	I		- Options will affect different tenure holders differently	- Land Use Baseline Report
	Tahltan Current Use	I		- Options will affect different Tahltan Current Use differently	- Land Use Baseline Report
	Recreational Use	I		- Options will affect different Recreational Use differently	- Land Use Baseline Report
	Visual Effects	I		- The visual effects from Mount Edziza Provincial Park would be different for the different options	- Visual impacts from Mount Edziza Provincial Park boundary
Country Foods	Noise effects	I		- The noise effects from Mount Edziza Provincial Park would be different for the different options	-
	Direct Loss of Foods	I		- There are differences in the availability of Tahltan Country foods at the three locations	- Country Foods Baseline Report
Indirect Loss of Foods	I		- There are differences in the availability of Tahltan Country foods at the three locations	- Country Foods Baseline Report	
CLOSURE AND LEGACY CRITERIA		Included (I)	Not Included (N)	Rationale	Available Information
Water Management	Groundwater Protection	I		- Possibility/risks of impacts to sub-surface aquifer varies between options	- Schaft Creek Tailings Options Study, Geohazards (February 5, 2008)
	Hydrograph	I		- Options may affect post-closure hydrograph	- Schaft Creek Project Description (January 2008)
	Diverted or Restored River Flow Stability	N		- covered under water management	"
	Long-term Water Quality	I		- inflow water quality varies between options	"
	Complexity of Water Management	I		- The complexity of the post-closure water management varies between options	"
Tailings Solids	Tahltan Knowledge	I		- TK data will be used to assign rankings	"
	Potential loss of Tailings Solids to receiving environment	I		- Options differ with respect to leach potential/containment	"
Infrastructure Decommissioning	Tahltan Knowledge	I		- TK data will be used to assign rankings	"
	Embankment Structure Decommissioning	I		- Complexity/Stability of post-closure embankment varies between options	"
	Diversion Structure Decommissioning	N		- Decommissioning works will not vary between options	"
Habitat Restoration	Tahltan Knowledge	I		- TK data will be used to assign rankings	"
	Potential for habitat restoration	I		- Potential for restoring habitat varies between options	"
Permanent Loss of Habitat/Features	N		- Same as 'Potential for restoration'	"	

(continued)

**Appendix 2
Screening Table for Tailings Options Assessment Criteria (completed)**

SAFETY CRITERIA	Sub-Criteria	Included (I)		Rationale	Available Information	
		Not Included (N)				
Geohazards	Avalanche	I		- Hazard level varies between options	- Comparison of Water Management Considerations (March 27, 2008)	
	Debris Flows	I		- Hazard level varies between options	- Draft of Tailing Site Evaluation Report (March 19, 2008)	
	Deep-seated Sumping	I		- Hazard level varies between options	- Schaft Creek Tailings Options Study, Geohazards (February 5, 2008)	
	Rockfall	I		- Hazard level varies between options	- Schaft Creek Project Description (January 2008)	
	Possible Karst Terrain	I		- Hazard level varies between options	"	
	Tahltan Knowledge	I		- TK data will be used to assign rankings	"	
	Water and Flooding	Outbreak Floods	I		- Hazard level varies between options	"
		Maintaining Diversion Channel	I		- Significantly different flows (i.e. hazards) present for different options	"
		Spillway Modification	I		- Spillway construction hazards will vary between options	"
		Tahltan Knowledge	I		- TK data will be used to assign rankings	"
Construction and Operations	Driving Hazards	I		- Distance and terrain to options vary	"	
	High Pressure Pumps and Pipelines	I		- Some options are located substantially above the mill and hence require high pressure pipeline and life of mine pumping	"	
Other Environmental Hazards	Wildlife Hazards	I		- Each area has different wildlife patterns	- Wildlife baseline reports (2006 & 2007)	
	Tahltan Knowledge	I		- TK data will be used to assign rankings		
ENGINEERING CRITERIA	Sub-Criteria	Included (I)		Rationale	Available Information	
		Not Included (N)				
Construction Challenges	Extensive Design and Investigations Required	I		- Design challenges vary significantly between options	- Comparison of Water Management Considerations (March 27, 2008)	
	Physical Construction Challenges	I		- Construction challenges vary significantly between options	- Draft of Tailing Site Evaluation Report (March 19, 2008)	
	Glacial Reservoir (Pond/Sub-surface) Flooding Risk	N		- Covered in "Water Management" but significant in some options.	- Draft of Tailing Site Evaluation Report (March 19, 2008)	
	Debris Flows	I		- Debris flow potential varies between options	- Comparison of Water Management Considerations (March 27, 2008)	
	Adverse Weather Conditions	N		- Weather is not anticipated to be substantially different at the different locations	- Schaft Creek Tailings Options Study, Geohazards (February 5, 2008)	
	Construction Around Sensitive Habitat	I		- sensitvie areas differ between options		
	Operating Challenges	Effluent Management (Quantity and Quality)	I		- Management of effluent differs between options	- Comparison of Water Management Considerations (March 27, 2008)
		Hazards to Infrastructure	I		- Potential damage to pipes, roads, etc. varies between options	- Draft of Tailing Site Evaluation Report (March 19, 2008)
		Distance from Site (operator response time and support)	N		- Not significant for operations	- Schaft Creek Tailings Options Study, Geohazards (February 5, 2008)
		Glacial Reservoir (Pond/Sub-surface) Flooding Risk	N		- Covered in "Water Management" but significant in some options.	- Draft of Tailing Site Evaluation Report (March 19, 2008)
Operating Season Length (dependant on sub-climate)	N		- Variation in length of summer thaw is not expected to pose significant operating challenges	- Schaft Creek Project Description (January 2008)		
Geotechnical Considerations	Debris Flows	I		- Debris flow potential varies between options	- Comparison of Water Management Considerations (March 27, 2008)	
	Diverted Flow Management	I		- Water management challenges vary between options	- Comparison of Water Management Considerations (March 27, 2008)	
	Diverted Flow Water Quality	I		- Water management challenges vary between options	- Draft of Tailing Site Evaluation Report (March 19, 2008)	
	Diverted Flow Stability/Flooding Risk	I		- Risks vary between options	- Schaft Creek Tailings Options Study, Geohazards (February 5, 2008)	
	Avalanche	I		- Avalanche potential varies between options	- Comparison of Water Management Considerations (March 27, 2008)	
	Sub-surface Geology	I		- Sub-surface conditions vary between options	- Schaft Creek Tailings Options Study, Geohazards (February 5, 2008)	
	Slope Stability	I		- Slope stability varies between options	- Schaft Creek Tailings Options Study, Geohazards (February 5, 2008)	
	Estimated Costs	Estimated Operating Costs	I		- Estimated costs vary between options	- Schaft Creek - Conceptual TSF Site Options Study (February 29, 2008)
		Estimated Capital Costs	I		- Estimated costs vary between options	
		Upfront or spread out	N		- These costs are already considered in the net present value Capital costs	

**APPENDIX 3
SCREENING TABLE FOR ACCESS ROUTES
ASSESSMENT CRITERIA**

**Appendix 3
Screening Table for Access Routes Assessment Criteria**

ENVIRONMENT CRITERIA	Sub-Criteria	Included (I) Not Included (N)	Rationale	Available Information	
Water Quality	ML/ARD	I	- Potential for differences between ML/ARD characteristics for the two road alignments	- ML/ARD Phase 1 Report	
	Runoff Water Quality	I	- Options are expected to have different sediment loadings	- Aquatics Baseline Reports	
	Sediment	I	- Potential for different sediment loadings for the two road alignments		
	Nutrients	I	- Blasting residue could affect downstream water courses	- Project Description (January 2008)	
	Tahltan Knowledge	I	- TK data will be used to assign rankings	- Tahltan Knowledge/Use Report	
	Fisheries	Absence/Presence	I	- Alignments may differ with respect to the amount of fish habitat	- Fisheries Baseline Report
		Number of Species	N	- Both options have the same number of species	- Fisheries Baseline Report
		Species at Risk	N	- There are no species at risk in the project area	- Fisheries Baseline Report
		Direct Habitat Loss	I	- Direct habitat loss may differ between options	- Fisheries Baseline Report
	Aquatics	Indirect Habitat Loss	I	- Indirect habitat loss may differ between options	- Fisheries Baseline Report
Tahltan Knowledge		I	- TK data will be used to assign rankings	- Tahltan Knowledge/Use Report	
Benthic Invertebrates		N	- Relative impacts on benthic invertebrates are included in the fisheries assessment	- Aquatic Baseline Studies	
Periphyton		N	- Relative impacts on periphyton are included in the fisheries assessment	- Aquatic Baseline Studies	
Wildlife	Stream Sediment	N	- Relative impacts on stream sediment are included in the water quality assessment	- Aquatic Baseline Studies	
	Toxicity	N	- Neither option will result in toxicity to aquatic life	- Aquatic Baseline Studies	
	Direct Habitat Loss	I	- Assessed for the following species: grizzly bear, black bear, martin, goat, moose, western toad, migratory birds.	- Wildlife Baseline Reports	
	Indirect Habitat Loss	I	- Assessed for the following species: grizzly bear, black bear, martin, goat, moose, western toad, migratory birds.	- Wildlife Baseline Reports	
Ecosystems	Migration Route	I	- Assessed for the following species: grizzly bear, black bear, martin, goat, moose, western toad, migratory birds.	- Wildlife Baseline Reports	
	Key Habitat Units	I	- Assessed for the following species: grizzly bear, black bear, martin, goat, moose, western toad, migratory birds.	- Wildlife Baseline Reports	
	Tahltan Knowledge	I	- TK data will be used to assign rankings	- Tahltan Knowledge/Use Report	
	Direct Habitat Loss	N	- Is covered under wildlife (Direct Habitat Loss) and Country Foods (see Socio-Community Criteria)	- 2007 Vegetation Baseline	
Air Quality	Rare Plants	I	- Potential for different rare plants in the various options	- 2007 Vegetation Baseline	
	Ecosystem Diversity	I	- Ecosystem diversity varies between options	- 2007 Vegetation Baseline	
	Tahltan Knowledge	I	- TK data will be used to assign rankings	- Tahltan Knowledge/Use Report	
	Dust	I	- Dust dispersion will vary as topography and climatic conditions vary	- Project Description	
Noise	Diesel Emissions	I	- Diesel emissions will vary with topography and haul distance	- Project Description	
	Construction Noise	I	- Noise impacts will vary with topography and haul distance	- Noise Baseline/General Project Description Information	
Water Quantity	Operation Noise	I	- Noise impacts will vary with topography and haul distance	- Noise Baseline/General Project Description Information	
	General Hydrograph	N	- Neither options has measurable effect on the hydrograph	- Hydrology Baseline Reports	
	Peak Flows	N	- Neither options has measurable effect on peak flows	- Hydrology Baseline Reports	
	Low Flows	N	- Neither options has measurable effect on low flows	- Hydrology Baseline Reports	
Groundwater	Tahltan Knowledge	I	- TK data will be used to assign rankings	- Tahltan Knowledge/Use Report	
	Quantity	N	- Neither options has measurable effect on groundwater	- 2007 Groundwater Baseline	
	Quality	N	- Neither options has measurable effect on groundwater	- 2007 Groundwater Baseline	
SOCIO-COMMUNITY CRITERIA	Sub-Criteria	Included (I) Not Included (N)	Rationale	Available Information	
Tahltan Traditional Use	Heritage Data	I	- Options will likely differ with respect to Tahltan Traditional Use	- Tahltan Knowledge/Use Report	
	Interviews with Elders	I	- Options will likely differ with respect to Tahltan Traditional Use	- Tahltan Knowledge/Use Report	
Archaeology	Archaeology Impact Assessment	I	- Options will likely differ with respect to Archaeological value	- 2007 Archaeological Baseline Study Technical Summary	
	Archaeology Overview Assessment	I	- Options will likely differ with respect to Archaeological value	- 2007 Archaeological Baseline Study Technical Summary	
Current Use	Tenure Holders	I	- Options will affect different tenure holders differently	- Land Use Baseline Report	
	Tahltan Current Use	I	- Options will affect different tenure holders differently	- Land Use Baseline Report	
	Recreational Use	I	- Options will affect different tenure holders differently	- Land Use Baseline Report	
Country Foods	Visual Effects	I	- The visual effects from Mount Edziza Provincial Park would be different for the different options	- Visual impacts from Mount Edziza Provincial Park boundary	
	Direct Loss of Foods	I	- There are differences in the availability of Tahltan Country foods at the three locations	- Country Foods Baseline Report	
	Indirect Loss of Foods	I	- There are differences in the availability of Tahltan Country foods at the three locations	- Country Foods Baseline Report	
CLOSURE AND LEGACY CRITERIA	Sub-Criteria	Included (I) Not Included (N)	Rationale	Available Information	
Potential closure issues are deemed to be equal for both options					

(continued)

**Appendix 3
Screening Table for Access Routes Assessment Criteria (completed)**

SAFETY CRITERIA		Included (I)	Not Included (N)	Rationale	Available Information	
Geo-Hazards	Avalanche	I		- Avalanche hazards varies between options	- Access Route Terrain and Geohazards Mapping (Phase 1 Draft Report, March 6, 2008)	
	Debris Flows	I		- Debris flow hazards varies between options	- McElhanney: Assessment of Hazards along the Proposed Road Alignments for the Schaft Creek Project (March 14, 2008)	
	Deep-seated Slumping	I		- Potential for deep-seated slumping varies between options	"	
	Karst Terrain and Sinkholes	N		- No information on karst terrain present along the road routes	"	
	Rockfall	I		- Potential for rock-fall hazards varies between options	"	
	Operations	Flooding	I		- Flooding risks vary between options	"
		Accidents (likelihood and consequence)	I		- The likelihood and consequences of accidents vary between options	"
		High Mountain Roads	I		- Exposure to high elevation terrain vary between options	"
		Steep Grades	I		- The length and frequency of steep grades vary between options	"
		High Winds	I		- Exposure to windy conditions vary between options	"
		Visibility	I		- Differences in climate and vegetation result in different visibility issues for the two options	"
	Construction	Tight turns/decreasing radius	I		- The road alignments have a different number of tight turns	"
		Rock Work	I		- The extent of rock works is different for the two options	"
Flooding		I		- Flooding risks vary between options	"	
Accidents (likelihood and consequence)		I		- The likelihood and consequences of accidents vary between options	"	
High Mountain Roads		I		- Exposure to high elevation terrain vary between options	"	
Steep Grades		I		- The length and frequency of steep grades vary between options	"	
High Winds		I		- Exposure to windy conditions varies between options	"	
Visibility		I		- Differences in climate and vegetation result in different visibility issues for the two options	"	
Tight turns/decreasing radius		I		- The road alignments have a different number of tight turns	"	
Other Environmental Hazards		Wildlife Hazards	I		- Chances of encountering wildlife varies between the options	- 2006 and 2007 Areal Wildlife Survey
	Recreational or Public Use of Roads	N		- The public will not have access to the road		
	Wildfire	I		- The potential for a wildfire varies between the two options		
ENGINEERING CRITERIA		Included (I)	Not Included (N)	Rationale	Available Information	
Concurrent Powerline Alignment	Follows Powerline Right-of-way	I		- Differnt engineering challenges for following different alignments	- THREAT (February 20, 2008; pers. comm.)	
Construction Challenges	Slope Stability	I		- Slope stability considerations vary between options	- Access Route Terrain and Geohazards Mapping (Phase 1 Draft Report, March 6, 2008)	
	Extent of Cut and Fill	I		- Extent of cut-and-fill vary between options	- McElhanney: Assessment of Hazards along the Proposed Road Alignments for the Schaft Creek Project (March 14, 2008)	
	Adverse Weather Conditions	I		- Exposure to adverse weather conditions varies between options	"	
	Extensive Rock Work	I		- Amount of rock work varies between alignments	"	
	Rock fall	N		- Included in Safety category	"	
	Debris Flow	I		- Options require different engineered structures to manage debris flows	"	
	Flooding Potential	I		- Flooding control measures vary between options	"	
	Timber Falling	N		- Included in indirect/direct habitat loss criteria	"	
	ARD Monitoring and Mitigation	I		- Options differ with respect to ARD monitoring and mitigation requirements	"	
	Creek Crossings & Bridges	I		- Crossings vary in quantity and size	"	
	Construction Around Sensitive Habitat	I		- Options may differ with respect to the extent of sensitive habitat control measures	"	
	Operating Challenges	Snow Clearing	I		- Snow clearing requirements will vary between options	- Access Route Terrain and Geohazards Mapping (Phase 1 Draft Report, March 6, 2008)
		Keeping Culverts Clear	I		- Culvert maintenance efforts vary between options	"
Rock fall		I		- Rock-fall control efforts vary between options	"	
Debris Flow		I		- Debris flow control measures vary between options	"	
Flooding Potential		I		- Flooding control and alert systems vary between options	"	
Grading		I		- Grading requirements vary between options	"	
Bridge Maintenance		I		- Bridge maintenance requirements vary between options	"	
Avalanche		I		- Avalanche control efforts are different for the two options	"	
Length of Operating season		I		- frequency and duration of road closures are likely different for the options	"	
Length of Road		I		- Road length differs for the options	"	
Geotechnical Considerations	Tahltan Knowledge	I		- TK data will be used to assign rankings	"	
	Sub-surface Geology	I		- Foundation considerations are different for the two options	- Schaft Creek Tailings Options Study, Geohazards (February 5, 2008)	
	Slope Stability	I		- Slope stability issues vary for the options	- Schaft Creek Tailings Options Study, Geohazards (February 5, 2008)	
	Tahltan Knowledge	I		- TK data will be used to assign rankings	"	
Estimated Costs	Estimated Operating Costs	I		- Estimated costs vary between options	- Schaft Creek - Conceptual TSF Site Options Study (February 29, 2008)	
	Estimated Capital Costs	I		- Estimated costs vary between options		
	Upfront or spread out	N		- These costs are already considered in the net present value Capital costs		

APPENDIX 4
“SCHAFT CREEK: PRELIMINARY TAILINGS STORAGE
FACILITY ALTERNATIVES SCREENING STUDY”
(KNIGHT PIESOLD CONSULTING LTD. JUNE 24, 2008)

Our Reference: VA101-329/2-A.01
Continuity Nbr.: VA08-01268

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June 24, 2008

Mr. Cam Grundstrom
VP Operations
Copper Fox Metals Inc. (Calgary)
650,340 - 12 Ave. S. W.
Calgary, Alberta T2R 1L5

Dear Cam,

Re: Schaft Creek– Preliminary Tailings Storage Facility Alternatives Screening Study

1. INTRODUCTION

Knight Piésold Ltd. (KP) has completed a preliminary identification and assessment of potential Tailings Storage Facility (TSF) alternatives for the Schaft Creek project, in addition to the previously identified Options A, B, and C. The purpose of this study is to identify additional tailings disposal sites and to assess the technical viability of these sites for further study.

The assessment includes:

- Identification of potential TSF locations within 50 km of the Schaft Creek Deposit;
- Depth-area-capacity comparison for the TSF sites;
- Catchment area, approximate distance to pit and relative elevation comparisons; and
- Identification of key challenges, critical issues, and fatal flaws.

2. TAILINGS IMPOUNDMENT STORAGE REQUIREMENTS

The total measured and indicated resource at Schaft Creek is estimated to be approximately 800 Million tonnes. The mill throughput will be at a nominal rate of 100,000 tonnes per day. The TSF will need to accommodate approximately 570 Mm³ of tailings solids over the 23 year life of the mine, assuming an average dry density of 1.4 t/m³. It is unlikely that Potentially Acid Generating (PAG) waste rock will be stored in any of the facilities evaluated in this assessment. Given the increased distance from the open pit beyond Options A, B, and C, it is currently estimated that material handling costs will preclude co-disposal in the TSF. An additional water retaining waste management facility will therefore be required in the vicinity of the mine for storage of PAG waste rock.

3. STUDY OF POTENTIAL SITES

National Topographic System (NTS) maps for the area surrounding Schaft Creek were used to identify additional potential TSF sites. The selection criteria are based on suitable topography, distance from the mine, basic water management considerations, and proximity to environmentally sensitive areas. Additional factors such as operational and capital cost, detailed water management, geotechnical characteristics, geohazards and land ownership will ultimately influence feasibility, but are beyond the scope of this study.

The study area shown on Figure 1 encompasses a 50 km radius around the Schaft Creek site, and is limited by a number of environmentally sensitive areas and natural geographic barriers. These include the Mount Edziza Provincial Park and the numerous glaciers which extend over a large portion of the study area.

The site layouts were developed using NTS 1:250,000 scale mapping with contour intervals of 150 meters. All the identified sites have adequate capacity to contain the 800 Mt of tailings, however, a study using more detailed mapping would be required to provide a more precise representation of the actual facility sizes and elevations.

The locations of the 12 sites are shown on Figure 1, with their approximate footprints and catchment areas displayed.

The approximate embankment height, catchment area, straight-line distance and relative elevation for each site are shown in Table 1. All distances are measured in a straight line from the middle of the pit to the farthest most point of the facility. The size of the confining embankment will have a large influence on capital cost and poses engineering challenges as the height increases. Distance and relative elevation between the open pit, mill, and TSF influence both operating and capital costs. Provisions for the transport of ore, or tailings and water, to the TSF site will account for a large portion of the facilities' capital and operating costs. There would likely be an opportunity for optimisation by locating the mill closer to the TSF and conveying ore to the mill. This would reduce the length of pipelines required, but necessitate a long overland conveyor.

The catchment area that contributes runoff to the TSF is important because it gives an indication to the extent of surface water management needed at the facility. Larger catchment areas will result in higher peak inflows, as well as a larger annual water surplus that will need to be suitably managed. The hydrological characteristics of the basins will vary between the various TSF sites. Those sites to the west and to the south are located in different hydrologic sub-zones and will generally experience higher mean annual precipitation. The cost associated with managing surplus water will increase as more water is allowed to enter the facility.

Valley slopes and natural geography are both important considerations. Steep valleys create engineering challenges with respect to surface water diversions. Geographic barriers are not reflected in the reported straight-line distance to the facility, but glaciers, ridges and mountains will increase the effective distance to the mine.

Brief descriptions of each site and its key characteristics are provided below:

- Site D, located west of Schaft Creek, requires a relatively high embankment, has very steep valley walls, is surrounded by glaciers, has a fairly large catchment area of approximately 70 km², and will require tailings to be pumped. This site also requires a crossing of Schaft Creek and approximately 26 km of new access road.
- Site E has similarly undesirable geographic characteristics to Site D and a very large confining embankment. It has a manageable catchment area of approximately 35 km², however, relatively high flows could be expected given the large glacier fraction in the watershed. It is farther from the pit and will require pumping of tailings, a crossing of Schaft Creek, and approximately 22 km of new access road.

- Site F is in the Mess Creek catchment immediately upstream of the Mess Creek main stem, has very steep valley walls, and requires a large embankment. This site appears to have the smallest ultimate capacity of the sites studied. It has the smallest catchment area at about 30 km², and only needs 7 km of new access road.
- Site G lies immediately adjacent to Mount Edziza Provincial Park. It is in shallow valley, but requires both an upstream and downstream dam. It has an approximately 40 km² catchment with a small glacier fraction, but sits on Arctic Lake Plateau, and requires pumping of tailings up a significant vertical distance. Approximately 21 km of new road would be required. This site is fatally flawed, as water would be impounded against the north dam, creating a pond within the Mount Edziza park boundary. Diverting water around the facility would probably not be technically or economically feasible.
- Site H is located in the headwater of Mess Creek. It is situated at a higher elevation than the mine, and would likely require tailings to be pumped to the site. It has a very large catchment area of approximately 95 km², with a large glacier fraction. The currently proposed access road would need re-routing to accommodate this site.
- Site I is located on the headwater of More Creek and has a large catchment area of approximately 90 km². It is located between two large glaciers to either side of the facility. The glaciers would make surface water diversion extremely challenging, would pose potential geohazards, and limit the ultimate capacity of the facility. It would require the tailings to be pumped uphill over a distance of 33 km and the proposed access road would require re-routing.
- Site J has is the furthest from the mine. It is located in an extremely large catchment area of approximately 120 km², is in close proximity to a number of glaciers, requires moderately sized dams upstream and downstream, and would require 16 km of new access road.
- Site K requires a large dam, and has a moderately sized catchment of approximately 50 km² that does not contain a large glacier fraction. It lies in a fairly steep sided valley and requires 34 km of new access road. Tailings would need to be pumped to the ultimate facility elevation.
- Site L is located in a relatively shallow valley and drains into Yehiniko Creek, which is reported as fish bearing. It requires a large dam and has a moderately sized catchment area of approximately 50 km², that is only partially glaciated. Tailings would require pumping upgradient and would need 42 km of access road.
- Site M is located in a shallow valley draining into Yehiniko Creek, and has a heavily glaciated catchment of approximately 45 km². The confining embankment would be relatively small, tailings would likely have to be pumped, and 56 km of new road is required.
- Site N is located in a steep sided valley that drains into Yehiniko Creek, and requires a large dam. It has a large catchment area of about 80 km², with a small glacier fraction. Tailings would need to be pumped up a significant vertical rise, and 56 km of new access road would needed.
- Site O has an extremely large, heavily glaciated catchment of 170 km². It fills Yehiniko Lake, which is most likely not viable from an environmental permitting perspective. It is lower in elevation than the mill, requires only a small dam and is situated in a shallow valley. It requires 50 km of new access road.

4. SUMMARY AND RECOMMENDATIONS

The preliminary evaluation of additional potential TSF sites for the Schaft Creek project indicates that none of the alternate sites provide any technical advantage over Options A, B, or C.

Sites D, E, and K are the best of the additional sites assessed in this study. However, they do not offer any benefits over Option C. They are located far from the site, and require a major river crossing over Schaft Creek.

Sites L, M, N, and O are farther than Options D, E, and K, have significant water management challenges, require at least one major river crossing, and drain into the salmon bearing Yehiniko Creek.

Sites H, I, and J are located in large, highly glaciated catchments. Sites H, I, and J are located in close proximity to the Forrest Kerr hydrologic zone, that shows markedly higher precipitation and unit runoff when compared to the Schaft Creek site (Forrest Kerr ~2900 mm, More Creek ~1800 mm). These catchments will likely share similarities with Galore Creek. It is expected that Sites H, I, and J will face significant water management challenges, beyond what was estimated for Option B.

Site G would not be practical given its inevitable impact on the Mount Edziza Provincial Park.

Site F appears to be reasonable from a water management perspective, although the contributing catchment is steep and heavily glaciated. The site does not offer good storage efficiency, and will require a large, high dam immediately upstream of the Mess Creek main stem.

This study confirms that the previously identified Option A remains the best water and waste management facility for the Schaft Creek project.

Yours Truly,

KNIGHT PIÉSOLD LTD.

for 
Daniel Friedman
Project Engineer


Ken Brouwer, P.Eng.
Managing Director

Enclosed: Table 1 Rev 0 Tailings Storage Facilities – Comparison of Additional Options
 Figure 1 Rev 0 Tailings Storage Facilities – Overview Plan of Additional Options

cc: Shane Uren (shane.uren@copperfoxmetals.com)

aw/df

TABLE 1

COPPER FOX METALS INC.
SCHAFT CREEK

TAILINGS STORAGE FACILITIES
COMPARISON OF ADDITIONAL OPTIONS

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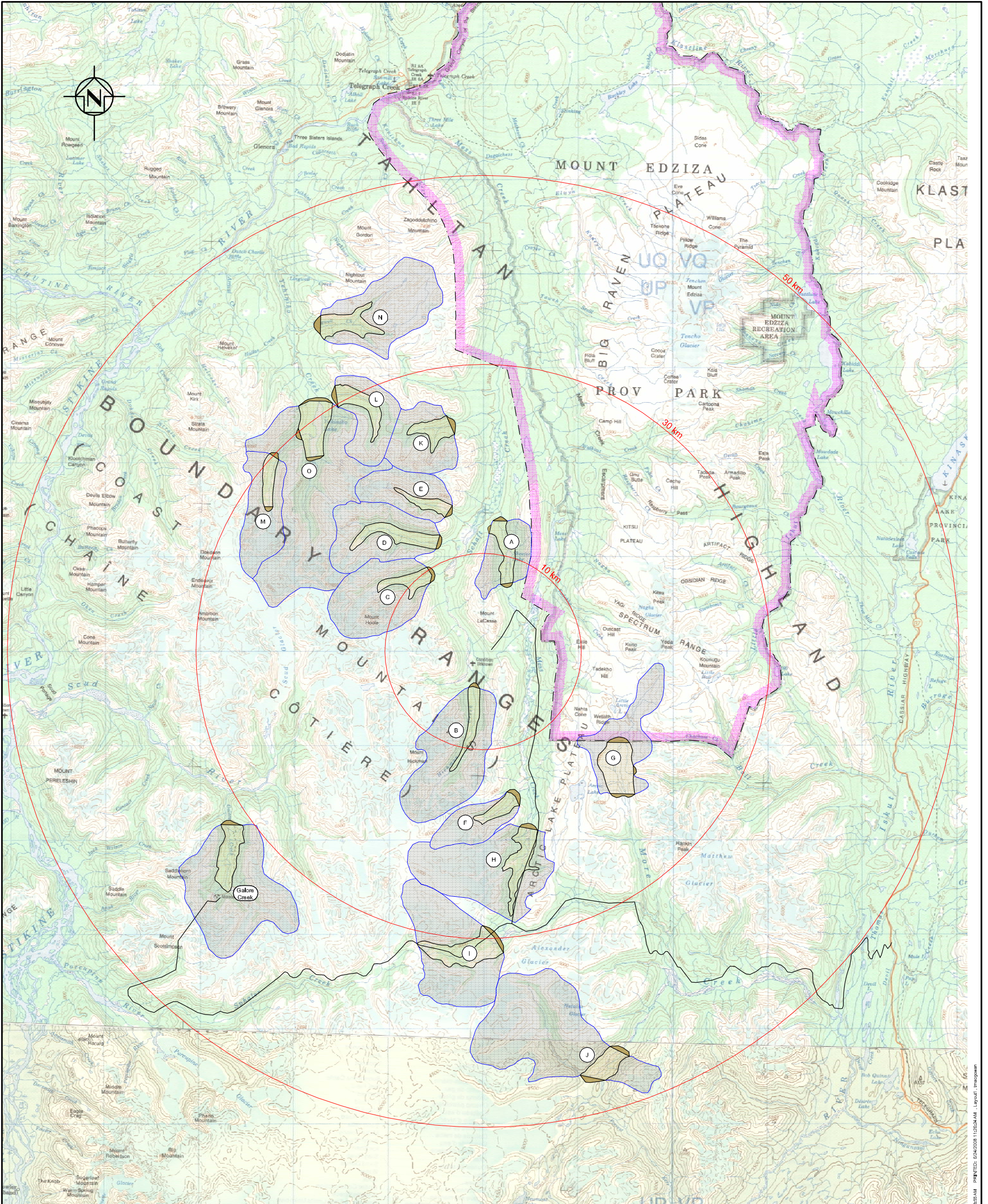
M:\1\01\00329\02\A\Correspondence\VA08-01268\Table 1.xls

Rev'd June/17/08





Option	Approximate Embankment Height (m) ⁵	Catchment Area (km ²) ³	Relative Elevation ¹ (m)	Distance to Mine ² (km)	Distance to Access Road ⁴ (km)	
					Direct	Around Barriers
A	130	36	minus 220	16	12	13
B	205	86	plus 95	13	14	14
C	195	58	minus 35	13	12	14
D	300	70	plus 50	15	18	26
E	350	35	plus 200	18	18	22
F	300	30	plus 200	17	7	7
G	150	40	plus 350	22	9	21
H	200	95	plus 200	25	0	0
I	150	90	plus 50	33	0	0
J	150	120	minus 400	45	15	16
K	300	50	plus 200	25	22	34
L	300	50	plus 200	30	23	42
M	150	45	plus 50	30	28	56
N	300	80	plus 200	38	32	56
O	150	170	minus 100	30	26	50

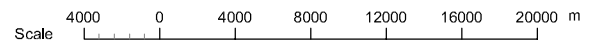
Notes:

- 1) Approximate elevation difference between proposed mill and high point of storage facility.
- 2) Distance to mine is a straight line to the centre of the facility.
- 3) Catchment includes TSF area.
- 4) Distance to access road measured to farthest end of TSF.
- 5) Approximate, as estimated using 1:250,000 scale mapping.



LEGEND:

-  TAILINGS STORAGE FACILITY
-  APPROX. CATCHMENT
-  PROVINCIAL PARK
-  PROPOSED ROAD



COPPER FOX METALS INC.	
SCHAFT CREEK PROJECT	
TAILINGS STORAGE FACILITIES OVERVIEW PLAN OF ADDITIONAL OPTIONS	
<i>Knight Piésold</i> CONSULTING	PROJECT/ASSIGNMENT NO. VA101-329/2
	REF. NO. VA08-01268
FIGURE 1	
REV. 0	0

APPENDIX 5
“ALTERNATIVE TAHLTAN HIGHLAND ROUTES”
(MCELHANNEY CONSULTING LTD. JUNE 26, 2008

June 26, 2008

File: 2341-1242-3

Cam Grundstrom
VP Operations
Copper Fox Metals Inc.
Suite 650, 340 12 Avenue SW
Calgary AB T2R 1L5

Alternative Tahltan Highland Routes

McElhanney has investigated alternative routes traveling along the Tahltan Highland Plateau without the restriction of remaining outside of Mount Edziza Park. Two routes have been investigated that would remove the need for multiple switchbacks and long bridge structures these have been designated Alternate A and B and are shown in Figure 1.

The routes follow the Tahltan Highland route to 14km at which point they wrap around the west and north sides of Artic Lake and part at 35km. The following is a description of the routes.

Alternative A

Following the west and north shores of Artic Lake the route enters Mount Edziza Park at 21.8km and leaves at 30.1km, re-entering at 34.8km to again exit at 37.6km for 0.9km then continues north through the park. The route travels north east for 1.7km then descends to the Mess creek Valley and leaves the park at 43.4km: continuing up the west side of the valley for 5.4km to rejoin the Mess Creek Route at 35.4km and continuing on to the end at Snipe Lake.

Alternative B

Following the west and north shores of Artic Lake the route enters Mount Edziza Park at 21.8km and leaves at 30.1km, re-entering at 34.8km. At 35km the route switchbacks and travels south for 6 km then switchbacks to the north and connects with the Mess Creek route at 29.8km.

The route crosses an avalanche area for approximately 1 km north of the switchback and then again for approximately 1 km after leaving the switchback.



Table 1 Route Comparisons

ITEM	TAHLTAN HIGHLAND ROUTE	ROUTE A	ROUTE B
Common length	14.0 km	35.0 km	35.0 km
Distance to connect with Mess Creek Route	31.0 km	48.8 km	42.8 km
Point of connection	20.0 km	35.4 km	29.8 km
Total distance to end of route	43.6 km	53.0 km	52.6 km
Length in Mount Edziza Park	0 km	16.0 km	9.0 km

Items of concern for these routes are:

- Arctic Lake Plateau is a relatively flat barren expanse, which is highly exposed due to minimal vegetation.
- The road leaves the Galore Creek Road at an elevation of 1045m and rises to 1540m on the Arctic Lake Plateau before dropping back down to Mess Creek at an elevation of 830m for Alternate B and 720m for Alternate A.
- Winter operating conditions will be difficult due to the high elevation and openness of the terrain along the plateau.
- The possibility of closing these routes due to safety concerns will be higher than the Mess Creek route.
- Route B passes through an avalanche chute for approximately 2 km.
- Route B requires that the road reverse direction for approximately 6 km to obtain the distance required to obtain reasonable road grades.
- Route A returns to the valley floor and must then travel south before connecting with the original route up the side of Mount LaCasse.

Recommendations

Alternate Route B crosses approximately 2 km of avalanche area and would require the installation of barriers and continuous maintenance. This area would also continue to pose safety concerns and is not suitable for long term access to the mine site.

Alternative Route A that traverses north through Mount Edziza Park provides a road that has reasonable grades and avoids the need to install extensive bridge structures. The



Alternate Route A&B
Page 3

construction of the route would be difficult due to the lack of building materials and the need for extensive ripping and blasting of the rock.

Operating conditions along this route would be difficult due to the high elevation and lack of forested areas to reduce the wind and blowing snow conditions that would be encountered during most of the year. Typical conditions are shown in the photos around Artic Lake.

The Mess Creek route continues to be the preferred route of choice to provide a safe and efficient access to the Schaft Creek project with minimal environmental impacts.

We trust that this information will assist you in your evaluation of the routes. If there is additional information that you may require please contact us.

Yours truly

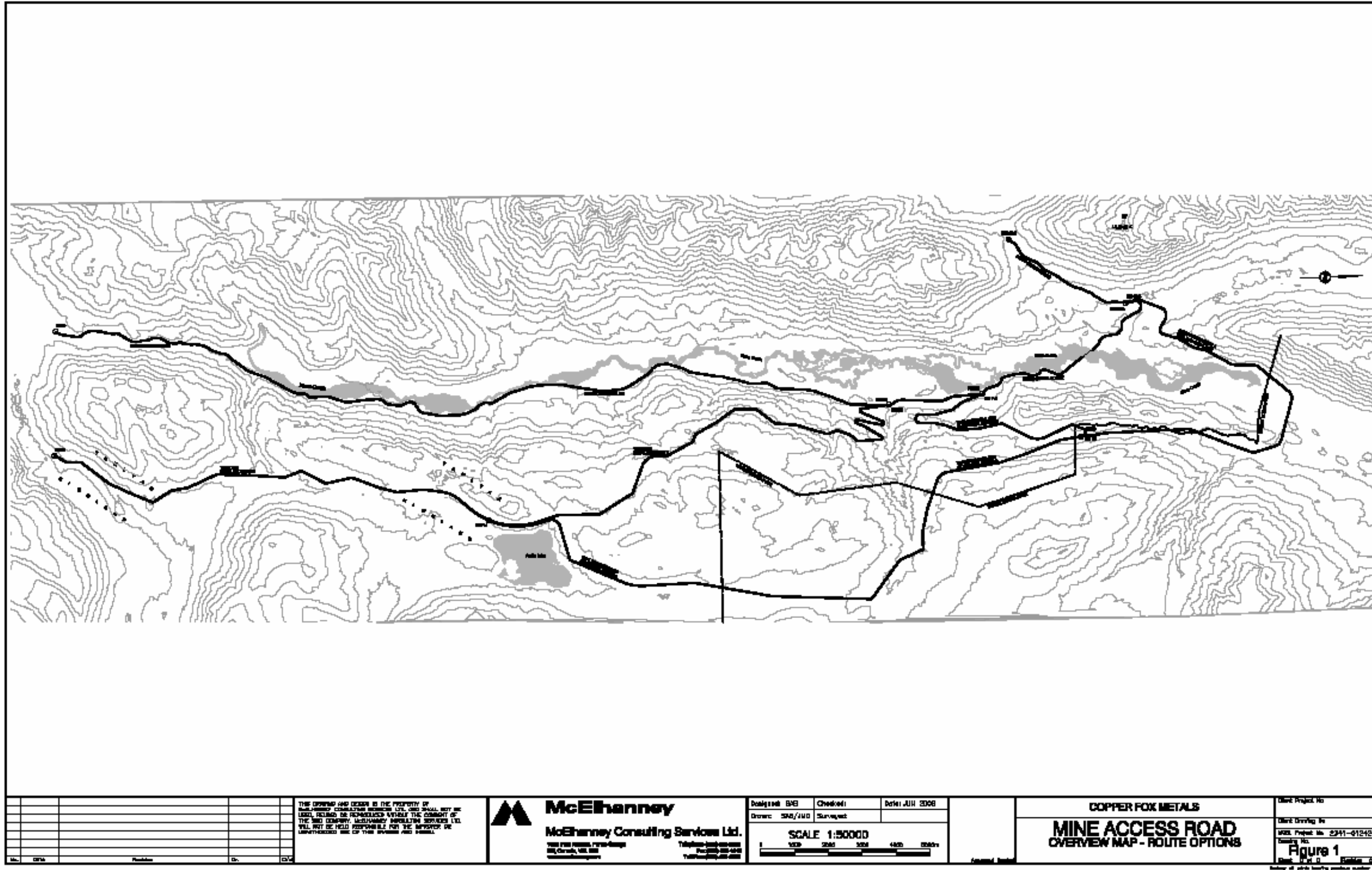
McElhanney Consulting Services Ltd.



David Pow PEng
Project Manager/Mining Specialist



FIGURE 1 ROUTE LAYOUTS





Looking south towards Moore Valley



Plateau area south of Artic Lake



Artic Lake looking north