Section 2.0

Proposed Project Overview

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2.0 PROJECT OVERVIEW

2.1 Proponent Description

This section provides information, including history, description, and contact information, about Avanti Kitsault Mine Ltd. (proponent). Section 2.1 also includes a background description and contact information for each member on the proposed Kitsault Mine Project (proposed Project) management team, while identifying those qualified professionals who assisted in the development of the proponent's Application for an Environmental Assessment Certificate, made under section 16 of the British Columbia *Environmental Assessment Act* (Application).

The proponent is a wholly-owned subsidiary of Avanti Mining Inc., a junior mine development company listed on the Toronto Venture Exchange (TSX-V: AVT) with its registered office in Vancouver, British Columbia (BC).

The company's Board of Directors includes senior professionals with extensive experience as officers in exploration and mining companies (Avanti 2011). The proponent is focussed on acquiring, exploring, and developing mineral resource projects. The proponent's strategy is threefold: to acquire advanced molybdenum prospects and move them towards development; to purchase by-product molybdenum production streams from copper producers; and to become a consolidator in the junior molybdenum market.

The proponent completed the purchase of an undivided, 100 percent (%) direct interest in the Kitsault molybdenum mine and surrounding mineral tenures in October 2008. The proponent closed a $15,000,000 private placement at the end of 2010. Currently, the proponent is in discussions with Asian steel producers and is looking to sell a portion of the Kitsault property as part of a joint redevelopment venture.

The primary contact information for the management team for the Application includes:

Primary contact for the proponent:
Craig J. Nelsen, President and Chief Executive Officer (CEO)
Avanti Kitsault Mine Ltd.
Address: Suite 175, 12200 E. Briarwood Ave, Centennial, CO 80122, USA
Registered office: Suite 2600, 595 Burrard Street, Vancouver, BC V7X 1L3, Canada
Phone: +1 (303) 565-5491 ext 4471
Fax: +1 (303) 565-5496
Email: cjnelsen@avantimining.com
Internet: www.avantimining.com

Mr. Nelsen is the President, CEO, and Director of the company, and he currently serves as a Director of New Gold Inc. (since June 2008) and Golden Star Resources Ltd. (since May 2011). He was the founder and Chairman of Metallica Resources Inc. (from 1994 to 2008). He previously served as CEO of that company from 1994 to 1999. In June 2008, a three-company merger between Metallica, Peak Gold, and New Gold Inc. was finalised, forming the new, larger gold producer known as New Gold Inc., listed on both the Toronto

Stock Exchange and American Stock Exchange. Mr. Nelsen served as the Executive Vice-President, Exploration, for Gold Fields Ltd. (from 1999 to June 2007), one of the world's largest gold mining companies, listed on the Johannesburg Securities Exchange in South Africa and also on the New York Stock Exchange, London Stock Exchange, Euronext in Paris and Brussels and the SWX Swiss Exchange. Mr. Nelsen holds a Master of Science degree in Geology from the University of New Mexico and a Bachelor of Arts degree in Geology from the University of Montana.

Primary Agent (on behalf of the proponent) contact:
Shane Uren, R.P. Bio. Project Manager
Greenwood Environmental Inc.
Suite 908, 510 Burrard Street, Vancouver, BC V6C 3A8, Canada
Phone: (604) 970-1688
Fax: (604) 689-5762
Email: shaneu@greenwoodenvironmental.ca

Greenwood Environmental Inc. (Greenwood) is a project management company that specialises in Environmental Assessments (EA), permitting, regulator liaison and consultation. Greenwood provided environmental management services that included regulator consultation and engagement, assessment of scope, document review and general management tasks. Mr. Uren is the President of Greenwood and a Registered Professional Biologist with a B.Sc. in Ecology from the University of Western Ontario and a Master of Science degree in Civil Engineering from the University of BC.

Primary Environmental Consultant (on behalf of the proponent) contact
Dennis Krochak, M. Sc., P. Bio., Manager of Environment,
AMEC Earth and Environmental
Suite 600, 4445 Lougheed Highway, Burnaby, BC V5C 0E4, Canada
Phone: (604) 295-8281
Fax: (604) 294-4664
Email: dennis.krochak@amec.com

AMEC Earth and Environmental (AMEC) has extensive experience providing environmental science and engineering solutions to the mining sector. Its western Canada offices have experience with a diverse array of mining projects in BC, across Canada, and internationally. The Vancouver office in particular has been responsible for completing the EA work for high-profile mining projects such as the nearby Mount (Mt.) Milligan Project (Terrane Metals' copper-gold mine in northern BC), the Red Chris Project (Imperial Metals' copper-gold mine in northern BC), and the Raven Project (Compliance Coal Corporation dba Comox Joint Venture's underground coal mine on Vancouver Island). All projects were / are subject to Canadian Environmental Assessment Agency (Agency) review; Mt. Milligan successfully completed a Comprehensive Study under the *Canadian Environmental Assessment Act (CEA Act)* (Government of Canada 1992) and the Raven Project EA will be completed to satisfy *CEA Act* Comprehensive Study requirements.

Additional projects of particular note include the following:

- Silver Coin Gold Project - AMEC has been developing long term baseline environmental monitoring programs for this proposed cyanide gold project near Stewart, BC. It is anticipated the project will undergo a *CEA Act* and a BC *Environmental Assessment Act (BCEAA)* (Government of BC 2002a) review process within the next two to three years; and
- Wapiti Coal Project - AMEC is completing coordination of long-term baseline monitoring programs for this 1.0 million tonnes (Mt) per annum coal mine near Dawson Creek, BC. AMEC is responsible for coordination of all baseline environmental programs as well as First Nations and regulatory engagement.

AMEC worked closely with a variety of sub-consultants with specific expertise in ensuring the proposed Project's Application Information Requirements (AIR) were addressed. Table 2.1-1 summarises the sub-consultants used and their area of expertise.

Table 2.1-1: Sub-Consultants and Their Area of Expertise

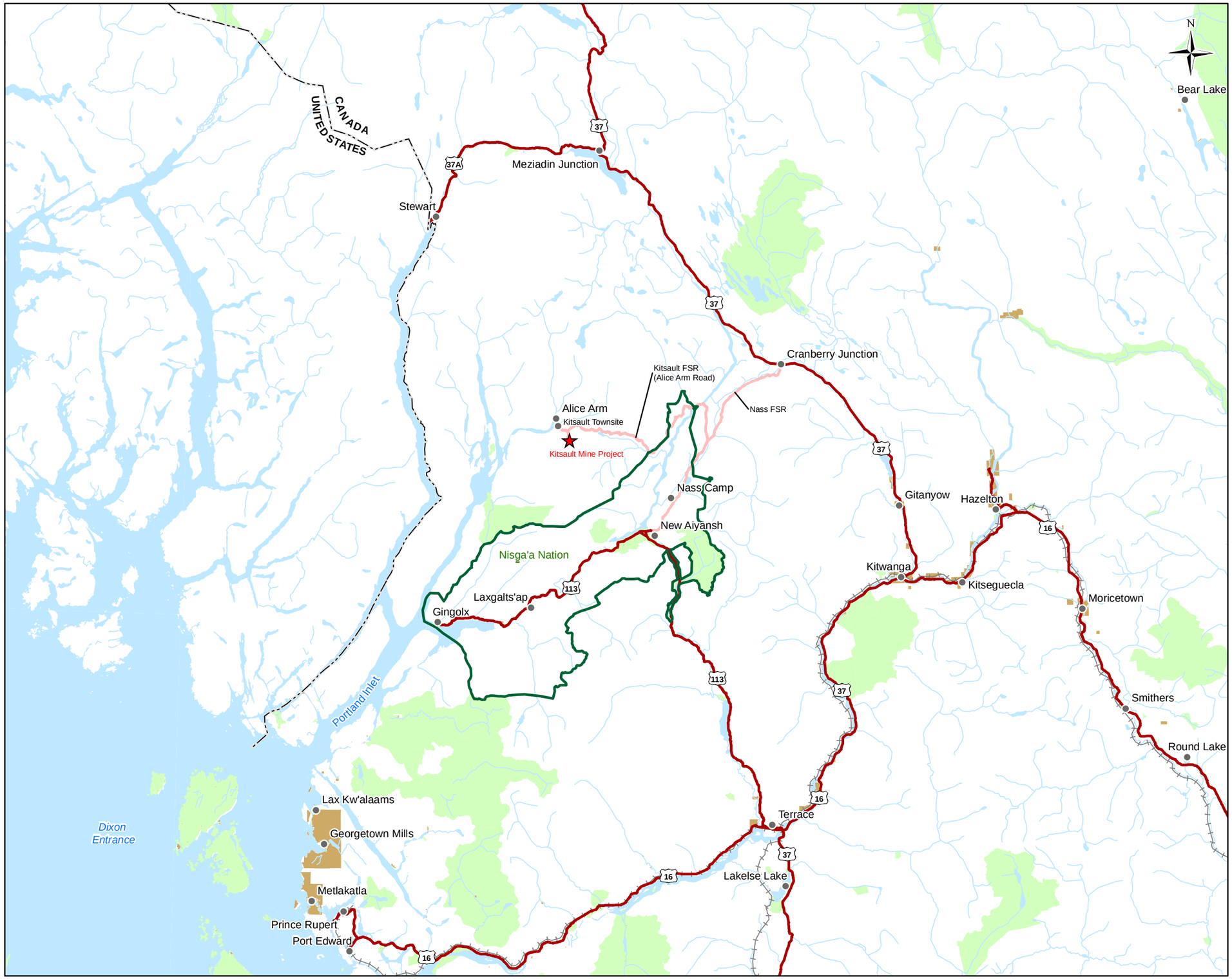
Sub-Consultant	Area of Expertise
Knight Piésold Ltd.	Terrain hazards, hydrogeology (quantity and quality), hydrometeorology (climatology and hydrology), water quality modelling
SRK Consulting (Canada) Inc.	ML/ARD, closure and reclamation
Indigenuity Consulting	Nisga'a Nation and First Nation consultation
Dialectic Research Services	Nisga'a Nation and First Nation chapters

Note: ML/ARD - metal leaching / acid rock drainage

2.2 Proposed Project Description

The following is a brief summary of the proposed Project. A full description of the proposed Project is presented in Section 3.0 (Project Description).

The proposed Project is located in northwestern BC, approximately 140 kilometres (km) north of Prince Rupert (Figure 2.2-1). The proposed Project would entail re-opening an existing molybdenum mine that previously operated from 1968-1972 and 1981-1982. The former Kitsault mine is a permitted brownfield site. The existing brownfield site includes access roads to the site, mine site roads, active power line, an open pit, and approximately 31 Mt of previously mined waste rock. Reclamation of the old mine site commenced in 1996 and was successfully completed in 2006. No surface mine infrastructure remains on-site, and the open pit and the waste rock have been successfully re-vegetated. The successful reclamation work and multi-year environmental monitoring (vegetation growth, water quality, geochemistry) during this time are well documented.



Legend

- Kitsault Mine Project
- Populated Place
- Road
- Highway
- Railway
- International / Provincial Border
- Stream
- Waterbody
- Indian Reserve
- Nisga'a Nation
- Parks & Protected Area

KEY MAP

Scale:1:1,000,000

10 5 0 10 20

Kilometres

Reference

Base Data
Geobase 1:20,000 (TRIM)
Land and Resource Data Warehouse 1:20,000 (TRIM)
Atlas of Canada scale 1:1,000,000.

CLIENT:	Avanti Kitsault Mine Ltd.
PROJECT:	Kitsault Mine Project

Kitsault Mine Project Location

DATE: November 2011	ANALYST: MY	**Figure** 2.2-1
JOB No: VE51988	QA/QC: TT	PDF FILE: Other-50-003_project_location_v3.pdf
GIS FILE: Other-50-003_v3.mxd		
PROJECTION: UTM Zone 9	DATUM: NAD83	

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The proposed Project is located in the Nass Area and Nass Wildlife Area (NWA), which are subject to the provisions of the Nisga'a Final Agreement (NFA) (BC Ministry of Aboriginal Relations and Reconciliation (BC MARR) 2000). As a result, the EA of the proposed Project must comply with the requirements of the NFA in addition to the requirements of both the *BCEAA* and the *CEA Act*.

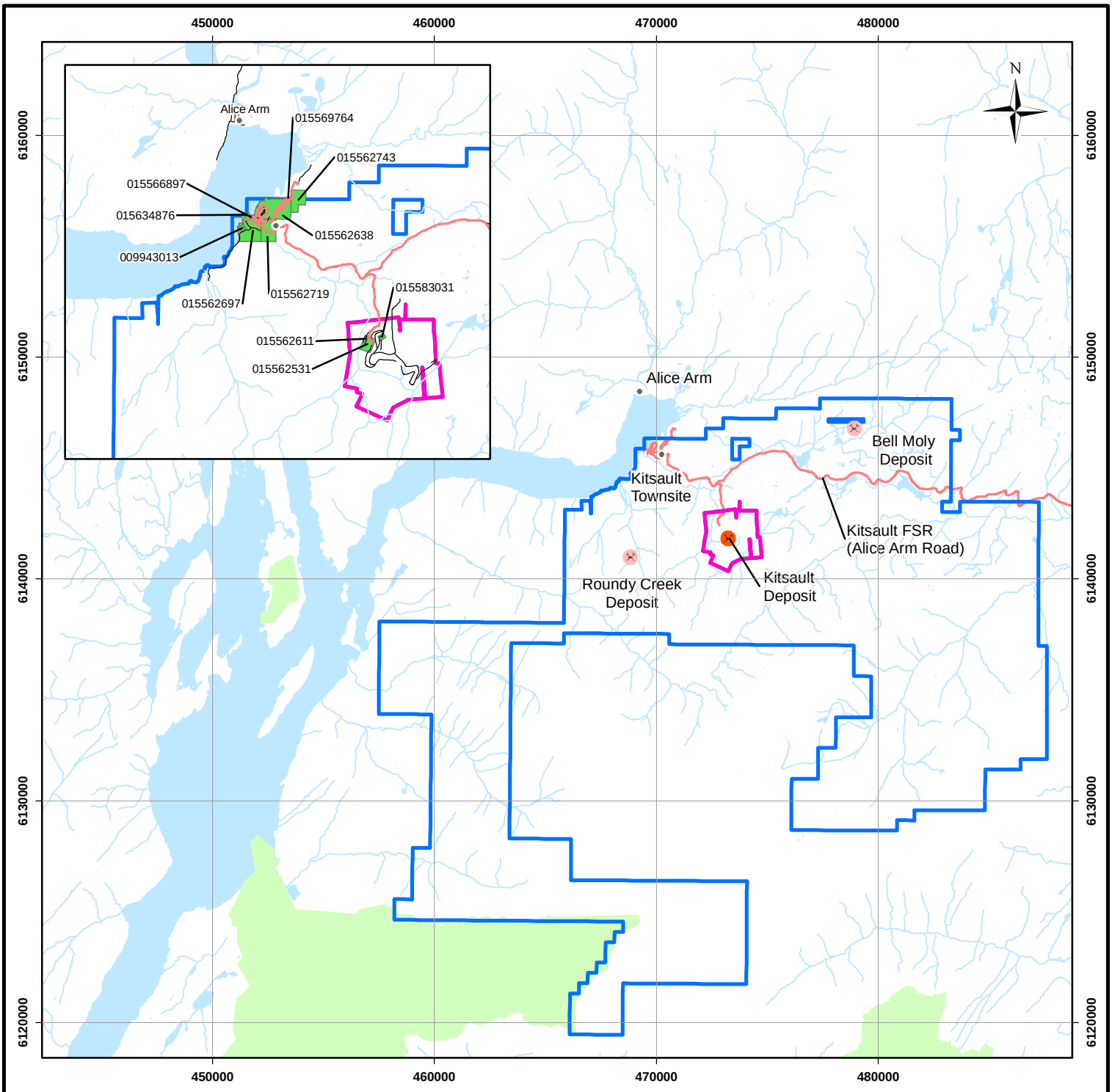
The proponent's mineral tenures and mining leases include three known molybdenum deposits: Kitsault; Bell Moly; and Roundy Creek. Only the Kitsault deposit is considered in the proposed Project. The proponent is currently exploring the mining potential of the Bell Moly and Roundy Creek deposits (Figure 2.2-2).

The proposed Project includes the mining of the Kitsault molybdenum reserve for 15 to 16 years at a milling rate of 40,000 to 50,000 tonnes per day (t/d). The proposed Project will employ up to 700 people during construction and approximately 300 during operations. Mining operations for the proposed Project are characterised by a low stripping ratio (0.75:1 waste to ore tonnes) comprised of bulk molybdenum mineralisation. The Kitsault reserve consists of 232.5 Mt of minable molybdenum ore grading 0.81% molybdenum and 178 Mt of waste rock. Within the material classified as waste is 35 Mt of inferred resource that the proponent hopes to convert to ore upon completion of additional in-fill drilling. Metallurgical results show an 89.9% molybdenum recovery from processing of the ore and molybdenum concentrate grade of 52%.

Figure 2.2-3 presents the general layout of the proposed Project. The preliminary design of the Kitsault Pit was determined to be approximately 1.2 km in diameter and 300 metre (m) deep with a volume of 134,900,000 cubic metres (m^3). Mining will be undertaken using two shovels, one loader, and up to 15 haul trucks with related support equipment. Ore from the Kitsault Pit will be trucked up a haul road to the primary crusher. A conveyor material handling system that meets Canadian Standards Association (CSA) standards will be constructed to deliver the mill feed for processing from the primary crusher. The conveyor system will extend from the primary crusher and run along a constructed conveyor corridor. Approximately 80 tonnes of molybdenum concentrate per day will be produced and transported from the mine site to the Port of Vancouver.

The Tailings Management Facility (TMF) location was selected from 12 alternatives for the following environmental / mine design principles:

- "Design for closure": The site is immediately upstream of the Kitsault Pit, allowing for all drainage during construction, operations, and closure to flow into the Kitsault Pit. This ensures an achievable and precautionary approach (i.e., containment and treatment if required) is accounted for in the mine planning phase;
- "Reduced footprint": By situating the TMF adjacent to other mine facilities, the overall mine footprint is reduced;
- "Avoid sensitive environmental features": The lake located within the area chosen for the TMF does not contain fish; and



Legend

- Access Road
- Stream
- Waterbody
- Parcel
- Parks & Protected Area
- Kitsault Deposit
- Bell Moly Deposit
- Roundy Creek Deposit
- Avanti Kitsault Mine Ltd. Mineral Tenures
- Avanti Kitsault Mine Ltd. Mining Leases

Reference
Base Data: 1:50,000.
Tenure Data: Date March 22, 2011

Scale: 1:250,000
0 2.5 5 10
Kilometres

CLIENT: Avanti Kitsault Mine Ltd.

PROJECT: Kitsault Mine Project

Avanti Kisault Mine Ltd.
Mineral Tenures and Mining Leases

DATE:	ANALYST:	**Figure** 2.2-2
November 2011	MY	
JOB No: VE51988	QA/QC: TT	PDF FILE: Other-50-004_mineral_lease_v6.pdf
GIS FILE: Other-50-004_v6.mxd		
PROJECTION: UTM Zone 09	DATUM: NAD83	

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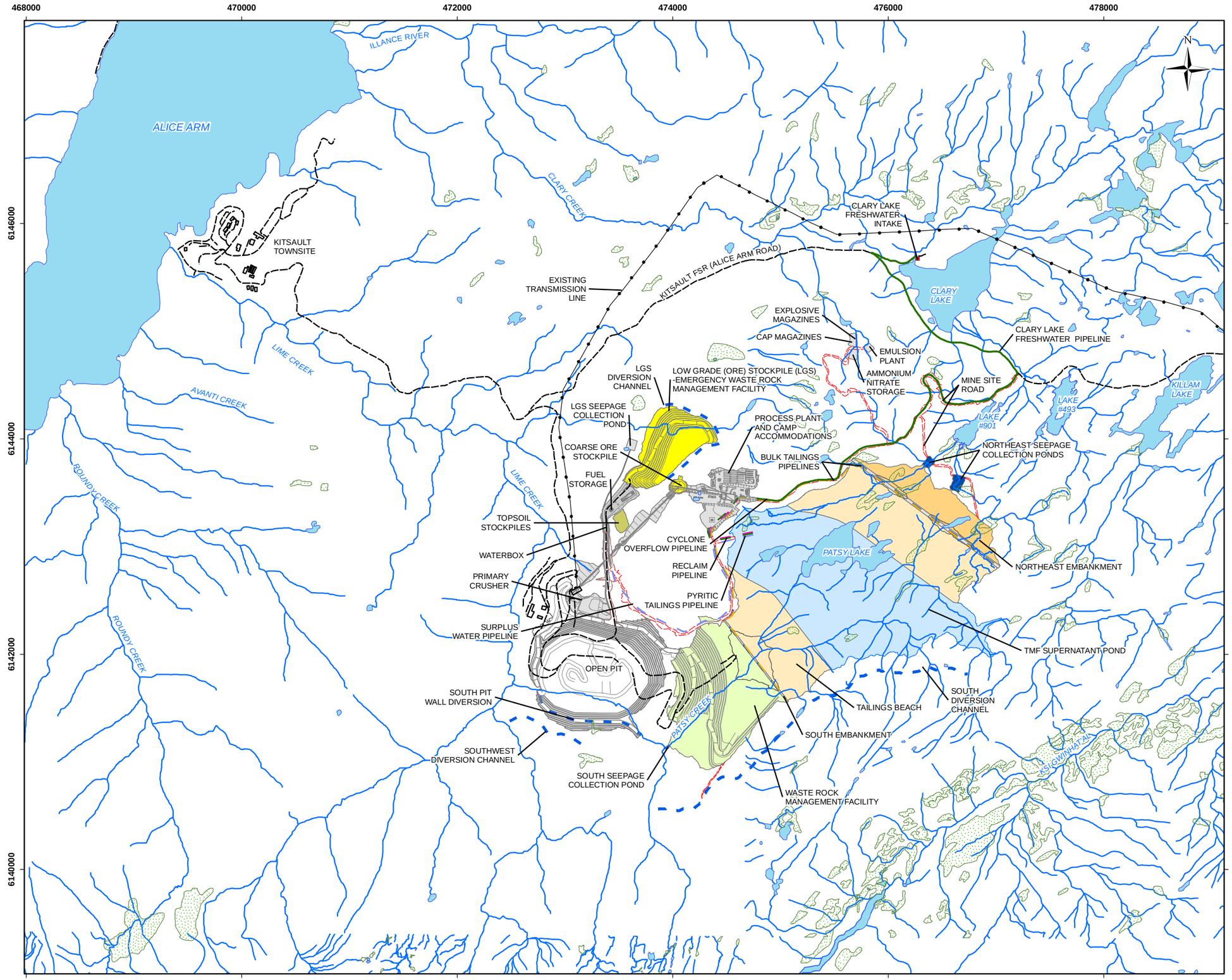

Legend

- Access Road
- Mine Site Road
- Transmission Line
- Stream
- Waterbody
- Wetland
- Diversion Ditch
- Pipeline - Bulk Tailings
- Pipeline - Cyclone Overflow
- Pipeline - Pyritic Tailings
- Pipeline - Reclaim
- Pipeline - Surplus Water
- Pipeline - Freshwater
- Process Plant
- Open Pit
- Ore Stockpile
- Clary Lake Freshwater Intake
- Topsoil Stockpiles
- Waste Rock Management Facility
- Northeast Embankment
- Tailings Beach
- Tailings Management Facility (TMF) Supernatant Pond

KEY MAP

Scale:1:35,000

1 0.5 0 1

Kilometres

Note:

Drawing is preliminary and subject to revision during ongoing design as additional information is obtained.

Reference

1. Base Data
Geobase 1:20,000 (TRIM)
Land and Resource Data Warehouse 1:20,000 (TRIM)
2: Kitsault Mine General Layout
Supplied by AMEC and Knight Piesold on March 2011

CLIENT: Avanti Kitsault Mine Ltd.

PROJECT: Kitsault Mine Project

Kitsault Mine Project General Layout

DATE: November 2011	ANALYST: MY	**Figure** 2.2-3
JOB No: VE51988	QA/QC: TT	PDF FILE: Other-50-012_project_layout_v8.pdf
GIS FILE: Other-50-012_v8.mxd		
PROJECTION: UTM Zone 9	DATUM: NAD83	

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- "Minimise technical risk of failure or accidents": The TMF has lower embankments than other alternatives that were examined. This simplifies the engineering design and reduces construction and operational risk.

Existing roads to the proposed Project do not require major upgrades but the existing Nass River Bridge at the Nass River may require some structural rehabilitation from development of the proposed Project in the future. The proponent holds a Special Use Permit (SUP) and a Forest Use Permit (FUP) for sections of the existing roads to the Kitsault property.

Power to the mine site will be via an existing 138 kilovolt (kV) overhead line from the Aiyansh Substation located approximately 42 km away. A new step-down substation located near the Process Plant will reduce the voltage to 13.8 kV which will be used as the Process Plant's main distribution voltage level. In addition, the proposed Project must also meet the need to maintain / provide power to the existing Kitsault Townsite at its present 25 kV level and provide the same voltage to the new camp / accommodations complex. The Process Plant will also include electrical rooms for distribution voltage step-down, motor control centres, and emergency generators.

During the 25 month construction phase of the proposed Project, trucks will be used to transport equipment and aggregate to the mine site on existing roads. Equipment would be sourced from a variety of locations. During operations, molybdenum concentrate would be transported by trucks on existing roads from the mine site to the Port of Vancouver. The frequency of transport trucks from the mine site is expected to remain at two to four per day.

There are two highway routes that may be used during construction and operations:

- From the mine site following the Kitsault FSR (Alice Arm Road) south to the Nass Forest Service Road (FSR) to New Aiyansh, continuing south to Terrace along Highway (Hwy) 113. This route then turns north along Hwy 16 and Hwy 37 to Kitwanga, and then eastward via Hwy 16 to Smithers, continuing along Hwys 16, 97, and 1 towards Vancouver.
- From Kitsault FSR (Alice Arm Road) to the Nass FSR to the Cranberry Connector, leading to Cranberry Junction, and then south on Hwy 37 to Kitwanga. The route then turns east at Kitwanga along Hwy 16 through Smithers, and continues on Hwys 97 and 1 to Vancouver.

The closure and reclamation phase of the proposed Project is estimated at 15 to 17 years. During this phase, the Kitsault Pit will fill with water to a constructed outflow elevation. If the water meets provincial and federal water quality criteria, it will discharge naturally into Lime Creek. However, the proponent is committed to treating water as needed to meet necessary criteria. The post-closure phase is assumed to be five years or more as needed for environmental monitoring and reporting.

2.3 Provincial Scope of the Proposed Project

On 24 November 2010, the proponent received orders under sections 11 and 13 of the *BCEAA* from the BC government that established the formal scope, procedures, and methods concerning the EA for the proposed Project. This section provides an overview of the proposed Project described by the proponent, as the basis for the issuance of the section 11 and 13 Orders, and the plan for the development and management of ore produced from the historic Kitsault open pit mine which last operated in 1982.

The proposed Project would result in the redevelopment of the historic Kitsault open pit mine which last operated in 1982 and is located about 140 km north of Prince Rupert, BC, and south of the head of Alice Arm, an inlet of the Pacific Ocean (Figure 2.2-1). The proponent's mineral tenures and mining leases include three known molybdenum deposits: Kitsault; Bell Moly; and Roundy Creek (Figure 2.2-3), but only the Kitsault deposit is considered in the Feasibility Study (AMEC 2010). The principal mining feature on the property is the historic Kitsault open pit mine. The proposed Project is located within the Nass Area and the NWA as defined by the NFA, which came into effect on 11 May 2000 (Indian and Northern Affairs Canada (INAC) 2010). However, the proposed mine area falls outside of Nisga'a Lands owned by the Nisga'a Nation under the terms of the NFA.

The proposed Project infrastructure will consist of the following facilities: Kitsault Pit; Waste Rock Management Facility (WRMF); Process Plant; TMF and water storage / management / process facilities; reagent handling and storage; assay and metallurgical laboratory; air supply; power supply and distribution; staff accommodations; explosives manufacturing facility and explosives magazines; and solid and waste water management facilities.

The mine plan will be driven by ore production requirements, and possibly by the provision of waste rock for TMF embankment construction. Mining operations for the proposed Project are characterised by a low stripping ratio pit (0.75:1 waste to ore tonnes) comprised of bulk molybdenum mineralisation in a high precipitation and challenging terrain environment. Figure 2.2-3 presents the general layout of the proposed Project. Components of the proposed Project include:

- 15 to 16 year mine life;
- Between 40,000 and 50,000 t/d ore processing;
- Kitsault Pit;
- Mine site road development;
- Existing access roads;
- Existing power Right-of-Way (ROW);
- Transportation of concentrate along existing roads;
- Explosives manufacturing facility and explosives magazines (to be contractor owned and operated);
- Process Plant and ancillary facilities;
- Ore stockpiles (high and low grade);
- Borrow sources;

- Construction and permanent camps;
- WRMF;
- TMF; and
- Water management.

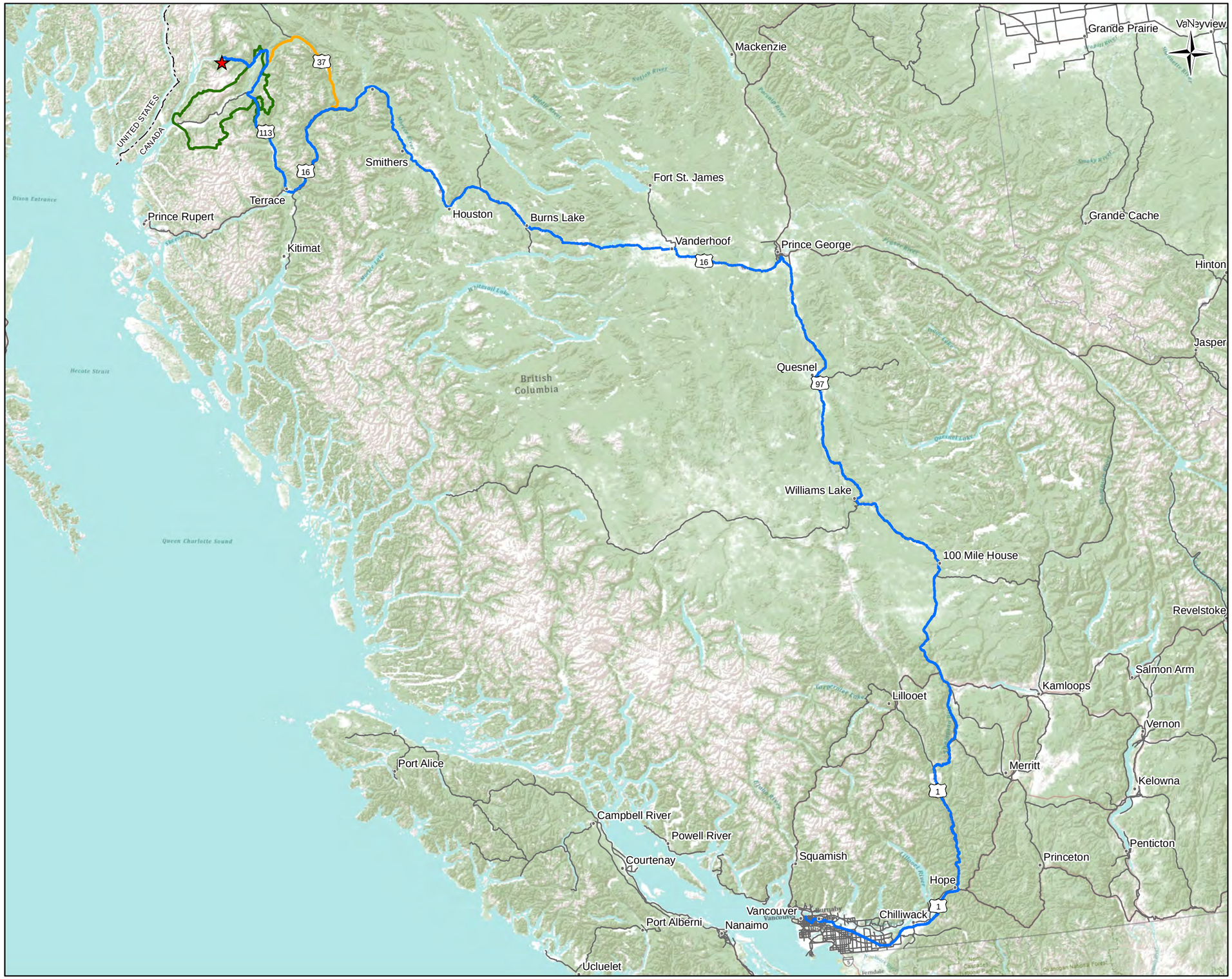
On-site road development will be approximately 12,308 m in total combined length and approximately 28 hectares (ha) in total combined surface disturbance. Surface disturbance for all other areas including the Kitsault Pit and TMF will total approximately 636 ha. The overall surface disturbance is estimated at 664 ha. Mining will be undertaken using two shovels, one loader, and up to fifteen haul trucks with related support equipment.

The preliminary design of the Kitsault Pit was determined to be approximately 1.2 km in diameter and 300 m deep with a volume of 134.9 m^3. The Kitsault Pit design was broken into two phases for scheduling purposes, with 30 m wide ramps at a maximum in-pit grade of 10% included within each phase. Ore from the Kitsault Pit will be trucked up a haul road to the primary crusher. Low grade ore will be stockpiled and processed during the last two years of operation, while higher grade ore will be sent to the Process Plant.

A conveyor material handling system that meets CSA standards will be constructed to deliver the mill feed for processing from the primary crusher. The conveyor system will extend from the primary crusher and run along a constructed conveyor corridor. The Process Plant will be constructed at approximately 917 m to the north of the existing historic open pit, adjacent to the proposed TMF. This site is strategically located with respect to the Kitsault Pit, the TMF, access roads and the existing power line. Molybdenum concentrates will be transported by trucking firms on existing and upgraded access roads. Figure 2.3-1 presents the concentrate truck route to Hwy 16 at Kitwanga, BC, which includes a short alternate section through Cranberry Junction.

Mine life is estimated to be between 15 and 16 years with an additional 25 months for construction. Average life of mine production will be between 40,000 and 50,000 t/d, operating 24 hours per day for 365 days per year, with operations crews working shifts on rotation.

The TMF is located east of the Kitsault Pit. The general arrangement of the TMF is shown on Figure 2.3-2.



Legend

- Kitsault Mine Project
- Populated Place
- Road
- Highway
- Alternative Route
- Truck Route
- International / Provincial Border
- Nisga'a Nation

KEY MAP

Scale:1:3,000,000

0 50 100 200

Kilometres

Reference

Base Data
Geobase 1:20,000 (TRIM)
Land and Resource Data Warehouse 1:20,000 (TRIM)
Atlas of Canada scale 1:1,000,000.

CLIENT: Avanti Kitsault Mine Ltd.

PROJECT: Kitsault Mine Project

Concentrate Transportation Routes from Kitsault Mine Project to Highway 16 and Vancouver, BC

DATE: November 2011	ANALYST: MY	**Figure** 2.3-1
JOB No: VE51988	QA/QC: TT	PDF FILE: Other-50-058_Route_VA_v4.pdf
GIS FILE: Other-50-058_v4.mxd		
PROJECTION: UTM Zone 9	DATUM: NAD83	

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473000 474000 475000 476000 477000

6144000 6143000 6142000 6141000

LGS DIVERSION CHANNEL
LOW GRADE (ORE) STOCKPILE (LGS)
EMERGENCY WASTE ROCK MANAGEMENT FACILITY
SITE ACCESS ROAD
LGS SEEPAGE COLLECTION POND
PROCESS PLANT AND CAMP ACCOMMODATIONS
COARSE ORE STOCKPILE
BULK TAILINGS PIPELINES
NORTHEAST SEEPAGE COLLECTION PONDS
FUEL STORAGE
LIME CREEK
TOPSOIL STOCKPILES
WATERBOX
CYCLONE OVERFLOW PIPELINE
PATSY LAKE
RECLAIM PIPELINE
PRIMARY CRUSHER
SURPLUS WATER PIPELINE
PYRITIC TAILINGS PIPELINE
NORTHEAST EMBANKMENT
TMF SUPERNATANT POND
OPEN PIT
SOUTH DIVERSION CHANNEL
TAILINGS BEACH
SOUTH EMBANKMENT
SOUTH PIT WALL DIVERSION
PATSY CREEK
WASTE ROCK MANAGEMENT FACILITY
SOUTHWEST DIVERSION CHANNEL
SOUTH SEEPAGE COLLECTION POND
KSI GWINHAT'AL

N

Legend

- Access Road
- Mine Site Road
- Transmission Line
- Contour (20 m)
- Contour (100 m)
- Diversion Ditch
- Pipeline - Bulk Tailings
- Pipeline - Cyclone Overflow
- Pipeline - Pyritic Tailings
- Pipeline - Reclaim
- Pipeline - Surplus Water
- Freshwater Pipeline
- Stream
- Waterbody
- Wetland
- Process Plant
- Open Pit
- Ore Stockpile
- Topsoil Stockpiles
- Waste Rock Management Facility
- Northeast Embankment
- Tailings Beach
- Tailings Management Facility (TMF) Supernatant Pond

KEY MAP

Scale:1:15,000

0 250 500

Metres

Reference

1. Base Data
Geobase 1:20,000 (TRIM)
Land and Resource Data Warehouse 1:20,000 (TRIM)
2. Kitsault Mine General Layout
Supplied by AMEC and Knight Piesold on March 2011

CLIENT: Avanti Kitsault Mine Ltd.

PROJECT: Kitsault Mine Project

Tailings Management Facility General Arrangement

DATE: November 2011	ANALYST: MY	**Figure** 2.3-2
JOB No: VE51988	QA/QC: TT	PDF FILE: Other-50-052_tailings_v6.pdf
GIS FILE: Other-50-052_v6.mxd		
PROJECTION: UTM Zone 9	DATUM: NAD83	

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2.4 Federal Scope of the Proposed Project

This section of the Application provides a description of the scope of the proposed Project to be assessed, as directed by the federal Responsible Authority (RA). The primary objective of the federal EA process is to minimise or avoid adverse environmental effects from a proposed project before they occur and to incorporate environmental factors into decision making.

The *CEA Act* and its associated regulations provide four EA review options: screening; comprehensive study; mediation; and panel review. If the *CEA Act* is triggered, a project receives the level of EA review tailored to its effect potential. Upon review of the proposed Project, the Agency determined that a federal EA is required because certain components of the proposed Project are likely to require a permit, authorisation, license, or approval in accordance with section 5 of the *CEA Act* and as itemised by the following specific requirements:

- Compliance with section 16(a) of the *Comprehensive Study List Regulations* (Government of Canada 1994) of the *CEA Act* which states "that a proposed Project for a metal mine other than a gold mine, as described by the proponent, is subject to a comprehensive study (an EA) if its' ore production capacity exceeds the threshold prescribed in 16(a) of 3,000 t/d or more";
- Federal Authority (FA) requirement for licensing or authorisation as required Fisheries and Oceans Canada (DFO), and Natural Resources Canada (NRCan) as defined by conditions set out in the *Comprehensive Study List Regulations*; and
- Qualification as a project to be classified by the Government of Canada's Major Project Management Office (MPMO) as a Major Resource Project (MRP); which are defined as large-scale resource projects which are subject to a comprehensive study, a panel review, or a large or complex multi-jurisdictional screening under the *CEA Act*.

Under section 16 of *CEA Act*, a comprehensive study must consider the following factors:

- The environmental effects of the proposed Project, including the environmental effects of malfunctions or accidents that may occur in connection with the proposed Project, and any cumulative environmental effects that are likely to result from the proposed Project, in combination with other projects or activities that have been or will be carried out;
- The significance of the environmental effects;
- Comments from the public obtained in accordance with *CEA Act*;
- Measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the proposed Project;
- The purpose of the proposed Project;
- Alternative means of carrying out the proposed Project that are technically and economically feasible and the environmental effects of any such alternatives;

- The need for, and the requirements of, any follow-up program in respect of the proposed Project;
- The capacity of renewable resources that are likely to be significantly affected by the proposed Project to meet present and future needs; and
- Any other matter relevant to the comprehensive study, such as the need for the proposed Project and alternatives to the proposed Project that the RAs may require to be considered.

The proponent commenced the federal comprehensive study-type EA process for the proposed Project in November 2010, at which time it commenced a 30-day public consultation process to gather public views on the proposed Project and the conduct of the comprehensive study. The Agency provided a proposed scope of the potential environmental effects to be considered for the proposed Project in the following reference document: "Background Information for the Initial Federal Public Comment Period on the Comprehensive Study pursuant to the *Canadian Environmental Assessment Act* of the Kitsault Mine Project" (Agency 2010). A table summarising the potential effects is provided in Section 4.2 of this Application.

In addition to meeting the requirements specified in the *CEA Act,* the proposed Project is also subject to the *Species at Risk Act (SARA)* (Government of Canada 2002). Under section 79 of *SARA*, the RAs also must identify adverse effects of the proposed Project on listed species and their critical habitat or residences. The RAs must also ensure that measures are taken to avoid or lessen adverse effects and that these effects must be monitored. Additionally, mitigation measures must be consistent with recovery strategies and action plans for the species.

Section 4.2 of this Application provides detailed information regarding the federal review process, and lists the agencies, departments, and organisations likely to be involved in the review.

2.5 Alternative Means of Undertaking of the Proposed Project

2.5.1 Introduction

This section addresses the alternative means of undertaking the proposed Project. It provides a brief description of the proposed Project alternatives, and identifies key issues in considering the alternative means of the proposed Project that are technically and economically feasible. This section also identifies the rationale for selecting the preferred alternative, and presents the closure implications that were considered for each option as part of the alternatives assessment comparison, using long-term impacts, costs, maintenance requirements, etc. to determine the overall best way of proceeding. In addition, this section refers to Section 3.13 of the proponent's Application, which describes the alternatives to the proposed Project and the reasons for the selection of the preferred options.

2.5.2 Description of Proposed Project Alternatives - Key Issues

At a higher level, exploring the alternative means of undertaking the proposed Project involves an overall examination of whether to proceed with the proposed Project, delay it, or abandon it. Section 3.13 of this Application fully describes these alternatives, and describes the performance objectives used to assess these three proposed Project alternatives:

- Cost-effectiveness;
- Minimises effects on the natural environment;
- Minimises effects on the social and economic environment; and
- Amenability to reclamation.

Following comprehensive analysis of the proposed Project alternatives, which included proceeding with the proposed Project, delaying it, or abandoning it, the conclusion was reached that the preferred alternative is to proceed with the proposed Project in the near-term as planned.

At a lower level, a comprehensive exploration of all available alternatives ensures that each component of the proposed Project represents the best possible alternative in terms of its environmental and economic soundness, its amenability to reclamation, and, where applicable, its effect on the social and economic environment and its technical applicability and / or system integrity and reliability.

The alternative components considered for the proposed Project include:

- On-site infrastructure - processing plant, accommodations complex, and explosives storage and manufacture;
- WRMF;
- TMF;
- Water management;
- Transportation of construction materials;
- Transportation of concentrate; and
- Decommissioning, closure, and reclamation.

Section 3.13 describes these alternatives in greater detail, and reports on the conclusions reached and rationale used to evaluate each alternative, and select the preferred alternative.

2.5.3 Overview Analysis of Key Issues

The key issues identified in considering the alternative means of the proposed Project are described below according to their location, timing, and operational function.

2.5.3.1 Location Alternatives

The former Kitsault mine is a permitted brownfield site with considerable past mining activity and basic infrastructure in place, as well as outstanding reclamation obligations. This

location has been selected as the preferred alternative since the proposed Project will operate within the parameters of an established mine footprint, rather than causing new disturbance to an intact landscape and environment.

2.5.3.2 Timing Alternatives

The only way to proceed with a mining venture is to mine the ore body at its source; therefore, the only alternatives for the proposed Project are to:

- Proceed with the proposed Project in the near-term, as planned;
- Delay the proposed Project until circumstances are more favourable; or
- Abandon the proposed Project.

Proceeding with the proposed Project in the near-term as planned is the preferred alternative. Delaying the proposed Project poses a risk because there cannot be any certainty that the proposed Project will proceed in the medium-term future; abandoning the proposed Project does not meet the goal of the proposed Project and is rejected because it attained an unacceptable rating. An unacceptable rating for any performance objective requires rejection of the alternative.

2.5.3.3 Operational Alternatives

Because of the grade of the deposit, weight, and bulk of run-of-mine (ROM) ore, and the distance to the nearest milling operation that could conceivably handle molybdenum, the alternative of mining the ore body on-site and transporting the ore to another location for processing was not considered.

The alternative operational components of the proposed Project include:

- On-site infrastructure - processing plant, accommodations complex, explosives storage and manufacture;
- WRMF;
- TMF;
- Water management;
- Transportation of construction materials;
- Transportation of concentrate; and
- Decommissioning, closure, and reclamation.

Refer to Section 3.13 of this Application for a detailed description of the alternatives identified for the proposed Project, as well as the selection rationale for each component.

2.5.4 Alternatives Selection Rationale

As required under the *CEA Act*, section 16(e), alternatives to the proposed Project have been considered in this EA. A qualitative assessment approach was used; alternatives were rated based on the following project performance objectives:

- Cost effectiveness;
- Potential for adverse effects on the natural environment;
- Potential for adverse effects on the social and economic environment which included worker and public health, safety and welfare as well as Aboriginal traditional use; and
- Amenability to reclamation and closure.

Performance criteria were rated with three criteria:

- Preferred;
- Acceptable; and
- Unacceptable.

If any of the performance objectives received a rating of unacceptable, the alternative was rejected. Initially the alternative was assessed in terms of its practicality and its function within the economic and engineering constraints of the proposed Project. Given a practical alternative, the other performance indicators were given equal weight. The preferred alternative was one that was not rejected under any of the criteria and provided the best performance under the four objectives. Acceptable alternatives were not rejected but would not provide the same level of performance as the preferred alternative.

2.5.5 Closure Implications

As part of the alternatives assessment comparison, the closure implications of each option were considered. Long-term impacts, costs, maintenance requirements, etc. were used in determining the overall best way of proceeding.

The environmental planning for the proposed Project included ensuring that reclamation and closure planning was integral in the mine design.

Closure and reclamation activities will be carried out concurrently with mine operations wherever possible, and final closure and reclamation measures will be implemented at the time of mine closure.

While environmental effects will result from the development of the proposed Project and cannot be completely avoided, the compact proposed Project design and the planned progressive reclamation activities are present to mitigate the level of disturbance to acceptable levels. The landscape of the former mine site was extensively disturbed in the 1960s and 1980s; the proposed Project includes reclamation activities designed to leave the property in a condition that will mitigate potential environmental impacts and restore the land to an agreed-upon land use and capability. Disturbance will be minimised to the extent practical by the proposed compact Project design and the planned progressive reclamation activities.

Section 3.13 describes closure implications in greater detail.

2.5.6 Conclusion

The ore deposit located within the footprint of the proposed Project can be mined in an environmentally responsible manner and, with proper closure (which is planned) will leave a positive environmental legacy.

Choosing to abandon the proposed Project would fail to fulfill the purpose of the proposed Project and forego employment wages, tax, and royalty revenues, while not capitalising on business opportunities in BC; therefore, project abandonment is considered an unacceptable alternative. Delaying the proposed Project is an acceptable alternative, depending on the circumstances related to future project economics, further project investigations, and future permitting processes. While the current ecosystem function of some landscape features would change and a small proportion of the ecosystem would be permanently lost, moving forward with the proposed Project in the near future represents the demonstrated preferred alternative. Section 3.13 describes the alternatives, key issues, rationale, and analysis in greater detail.

2.6 Proposed Land Use

The section provides a summary of the land ownership and land use regime, including tenures, licenses, permits, or other authorisations that could be potentially affected by the proposed Project. It also provides an overview of key land use management planning areas also found in the area of the proposed Project. The baseline information detail of land use in the vicinity of the proposed Project is provided in Appendix 8.0-B; the assessment of potential effects from the proposed Project on the identified land uses is presented in Section 8.0. The various land use, ownerships, tenures, permits, licenses, and authorisation that could interact with the proposed Project is summarised in the remainder of this section.

2.6.1 Land Ownership and Permits

The proponent holds one active forest tenure (L48548) with a total area of 7,792 ha that surrounds the proposed Project. The proponent holds Permit Number M-10, an “Amended Permit Approving Reclamation Program”, which supports reclamation associated with historical activities at the former Kitsault Mine (Avanti 2010). Since 1996, reclamation has included building demolition, rock dump re-sloping, re-vegetation, and remediation of the pit area. Remediation was concluded in 2006. The proponent holds SUP 9228, issued by the BC Ministry of Forests and Range (BC MOFR). A SUP gives non-exclusive authority to a company or an individual to occupy and use an area of Crown land, within a designated Provincial Forest, when they have demonstrated to the District Manager that the intended use is in accordance with the *Provincial Forest Use Regulation* (Government of BC 1995).

2.6.2 Mining

There are no active mines within the land use Regional Study Area (RSA). The proponent is the only mineral lease holder in the land use RSA, holding 35 leases with a total area of 547.22 ha. Historical exploration activities located within the land use RSA include

Keystone (4 km from the proposed Project), Alice (10 km), Silver Cord (13 km), and San Diego (12 km).

Bell Moly and Roundy Creek, two developed prospects owned by the proponent, are located within the land use RSA. The Roundy Creek deposit is located about 6 km south of Alice Arm. The Bell Moly occurrence is located about 10 km east of Alice Arm.

2.6.3 Forestry

The proposed Project falls within the North Coast Timber Supply Area (NCTSA), which is administered by the BC Ministry of Forests, Lands and Natural Resource Operations (BC MFLRNO) joint North Coast and Kalum Forest District office located in the City of Terrace (BC MFLNRO 2011b). The NCTSA covers 1,830,883 ha, of which, approximately 145,808 ha (8%) is classified as the timber harvesting land base. The remainder of the land base is considered non-productive, inoperable, or unavailable for timber harvesting for various reasons (BC MFLNRO 2011b). Previous cut blocks overlapping the study area are held by the Anyox Hydro Electric Corporation and Durango Capital Corporation in the North Coast Forest District, and Sim Gan Forest Corporation (managed by Interpac) in the Kalum Forest District (Lenardt 2010; Rescan Environmental Services Ltd. (Rescan) 2010). Other than the one active forest tenure held by the proponent, there are currently no active forestry operations within the land use RSA.

2.6.4 Water and Waterpower

Several wind power permits and water power licences are actively held in the immediate vicinity and to the northeast and southeast of Alice Arm. There are ten active water licence applications and three current water licences located within the land use RSA. One registered groundwater well is located proximate to the site of the historical open pit mine.

Syntaris Power Corp. has requested a waterpower licence in a relatively large area that overlaps a small portion of the proposed Project footprint, which includes Lime Creek and Clary Creek. The proposed Project footprint is located directly adjacent to a wind power permit historically held by C-Free Power Corp. (which has since been acquired by Sequoia Energy Inc. (Renewable Energy World 2011).

2.6.5 Kitsault Townsite

The Kitsault Townsite is located 7 km northwest of the proposed Project by road (5.5 linear km). The Kitsault Townsite was built in 1978 to support the molybdenum mining operation of AMAX, a United States (US) based mining company.

Mr. Krishnan Suthanthiran purchased the Kitsault Townsite in 2005 and created Kitsault Resorts Ltd. His vision for the area involves cooperation with Aboriginal groups and environmental conservation by promoting sustainable eco-tourism. Plans include an eco-village and educational facility that honours different cultures and promotes wellness (e.g., training for health care specialists, with the aim of providing health care to Pacific Northwest communities) (Kitsault Resorts Ltd. 2011).

Kitsault Resort Ltd. has active applications for water withdrawals associated with power projects for Clary and Lime Creeks. The Kitsault Resort's Water System (deep water well with up to 300 possible connections) is located within the Kitsault Townsite. The Kitsault Townsite also has an operating groundwater well near Lime Creek, used as a drinking water source.

2.6.6 Hunting and Trapping

The proposed Project falls within the Skeena Region (Region 6), and overlaps predominately with Wildlife Management Unit (WMU) 6-14 and to a smaller degree with WMU 6-16. The study area has moderate value for wildlife harvest compared to other areas of the Skeena Region. Coast Mountain Outfitters, which is also known as Milligan's Outfitting, is owned and operated by Robert Milligan who holds the Guiding Territory Certificate for the entire study area. Registered trap line #0614T-088 encompasses the entire proposed Project area and has been owned and trapped by Charlie and Dana Fleenor since 1994.

2.6.7 Land Use Planning

The proposed Project falls within the planning area outlined by the Coast Land Use Decision and described in the Central and North Coast order. Land use planning processes began on the Central Coast in 1997 and on the North Coast in 2001. Consensus agreements were reached in both areas in 2004 and 2005 and were finalised through consultations between the provincial government and Aboriginal groups.

On 7 February 2006, the Province of BC joined with Aboriginal groups, industry, conservationists, communities, and other stakeholders to announce new land use decisions for the Central Coast and North Coast that would protect a total of 1,800,000 ha (BC Ministry of Agriculture and Land (BC MAL) (2006). The Coast Land Use Decision, which includes both the Central and North Coast planning area was an Ecosystem-Based Management (EBM)[1] decision representing collaboration between Aboriginal groups, industry (e.g., forestry, forest products), environmentalists, government, and other stakeholders (BC MAL 2006).

The Central and North Coast order outlines a number of specific objectives, which are organised under the categories of First Nations, aquatic habitats, and biodiversity (BC MAL 2009). The Central and North Coast order utilises portions of land use objectives outlined in existing legislation such as the *Land Act* (Government of BC 1996c), *Forest and Range Practices Act* (Government of BC 2002) and *Land Use Objective Regulation* (Government of BC 2005). The land use objectives outlined in the Central and North Coast order support implementation of EBM. The implementation of EBM will be monitored to ensure ecosystem integrity is maintained. The implementation committees described below were established to oversee the implementation of the Central and North Coast order.

[1] Adaptive, systematic approach to managing human activities that focuses on the co-existence of healthy, fully functioning ecosystems and human communities

The Nass South Sustainable Resource Management Plan (SRMP) plan area overlaps with a small portion of the Kitsault transportation route Nass-Kwinatahl and Nass-Kinskuch FSRs. The Nass South SRMP was developed in close collaboration with the Gitanyow Hereditary Chiefs, and involvement from the Nisga'a Nation. The plan covers a wide range of topics with associate management objectives, including water, biodiversity, botanical forest products, wildlife, fisheries, cultural heritage resources, timber, and special resource management areas (none of which overlap with the proposed Project).

The land use RSA overlaps the Pacific North Coast Integrated Management Area (PNCIMA), 88,000 kilometres squared (km^2) of BC's northern marine and coastal area. This is a new initiative sponsored by the Canadian government as one of five pilot areas for stakeholder-based integrated management planning. The first PNCIMA forum was held in 2009 with participation from Fisheries and Oceans Canada (DFO), Coastal First Nations, and the North Coast-Skeena First Nations Stewardship Society. Potential PNCIMA stakeholders include coastal communities, industries (e.g., commercial and recreational fishing, aquaculture, marine transport, recreation, tourism, and energy), Non-Government Organisations (NGO), and researchers.

The nearest protected area is Ksi Xts'at'kw / Stagoo, located 18 km south of the site. The protected area is 11,555 ha area, situated on the east side of Observatory Inlet, within the Nass Wildlife Area (NWA) and the Metlakatla First Nation's asserted territory. A range of ecosystems from coastal to alpine, including low elevation productive forests, estuaries, riparian areas, representative fauna and flora and species at risk are protected. The Nisga'a Nation and Metlakatla First Nation have interests in the area. A number of facilities are available and recreation, fishing and hunting are permitted.

The North Coast Land and Resource Management Plan (LRMP) also recommended the establishment of two Special Forest Management Area (SFMA), one of which overlaps with the proposed Project, namely the Kitsault-Stagoo SFMA. The North Coast LRMP specifies that a SFMA is a designated area where commercial forestry and large-scale hydroelectric developments are prohibited, while allowing First Nation traditional activities, mineral exploration and development, tourism, recreation, and other land uses.

2.6.8 Central and North Coast Ecosystem-Based Management

The Central and North Coast EBM planning efforts with relevant Aboriginal groups resulted in a legally-binding order outlining a number of specific objectives, which are organised under the categories of Aboriginal groups, aquatic habitats, and biodiversity (BC MAL 2009). The land use objectives are focussed primarily on maintaining forestry-related measures to ensure preservation of cultural features, fish, wildlife, and vegetation species.

The Central and North Coast order utilises portions of land use objectives outlined in existing legislation such as the *Land Act*, *Forest and Range Practices Act*, and the *Land Use Objectives Regulation*, enacted pursuant to the *Land Act*. The land use objectives outlined in the Central and North Coast order support implementation of EBM. The three land use

zones identified in the Central Coast and North Coast Land Use Decision include (BC Integrated Land Management Bureau (BC ILMB) 2009):

- **Protected Areas:** Provincial parks, conservancies and ecological reserves were included; however, none overlap with the proposed Project or are within the RSA;
- **Biodiversity, Mining, and Tourism Areas (BMTA):** The provincial government legally established BMTAs, which contribute to species, ecosystem, and diversity and conservation, in January 2009. BMTAs are located adjacent to existing conservancies and other protected areas and land uses are restricted within these areas. Commercial hydroelectric development and commercial timber harvesting are prohibited in these areas, while allowing other land uses (e.g., First Nations traditional activities and tourism). BMTAs only apply to public land within BMTA boundaries (BC ILMB 2009). Two of the 21 designated BMTAs are proximate to the proposed Project, including the Ksi Galsgiist / Stagoo (approximately 5 km southwest of the Project) and Gitshool (approximately 3 km north of the proposed Project); and
- **EBM Operating Areas:** Those areas within North Coast and Central Coast LRMP area that are not defined as protected areas or BMTAs are known as EBM Operating Areas. Legal objectives under the *Forest and Range Practices Act* apply to commercial forestry operations in these areas and all land uses are possible in these areas. EBM as defined in the Land Use Agreements between BC and Aboriginal groups is an "adaptive, systematic approach to managing human activities that focuses on the co-existence of healthy, fully functioning ecosystems and human communities". The "EBM Planning Handbook", prepared by the Coast Information Team (CIT) is part of an EBM Framework developed by CIT. Full implementation of EBM will be achieved by ensuring the following goals are defined and implemented: governance framework; human well-being; ecological integrity; and adaptive management (Joint Land and Resource Forums 2007).

2.6.9 Nass Area and Nass Wildlife Area

The NFA is a tripartite agreement between the Nisga'a Nation, BC, and Canada that is constitutionally binding and describes Nisga'a Nation rights to self-government over Nisga'a Lands. The NFA defines Nisga'a Nation title over Nisga'a Lands, rights to natural resources in the NWA and the Nass Area.

The proposed Project is located within the NWA and the larger Nass Area, within which Nisga'a citizens have the right to harvest wildlife, fish, and migratory birds as defined by the NFA. The NWA covers almost 16,101 km^2. About 8% of this area is Nisga'a Lands, within which the NLG has law-making authority and jurisdiction.

The Nisga'a Nation also owns fee simple title to Gits'oohl (Category A lands) and rights to a commercial recreation tenure within 5 km of the proposed Project. The NFA defines Nisga'a Nation rights to use 10% of the volume in Kwinatahl River (approximately 2.5 km southeast of the proposed Project) for domestic, commercial, and industrial purposes.

The Nisga'a Nation also "owns all forest resources on Nisga'a Lands," including timber and non-timber products (BC MARR 2000). The NFA defines responsibilities of the Nisga'a Nation in terms of forest resources on Nisga'a Lands and in the Nass Area (Chapter 5 of the NFA).

Finally, Chapter 6 of the NFA defines rights to access Nisga'a Lands by the public, government of Canada, and the province. According to the NFA, the Crown owns highway and secondary road corridors, including the Nisga'a Hwy (with a width of 30 m), Nass FSR, and Alice Arm Road (SUP 9228). Nisga'a citizens are also provided access rights to areas outside Nisga'a Lands to exercise their treaty rights, including hunting, fishing, and trapping within the NWA and Nass Area. If access is restricted, alternative access should be provided to support Nisga'a citizens' resources use.

2.6.10 Recreation Sites and BMTAs

Gwunya Falls, located more than 5 km north of the proposed Project, is the only recreation site located in the area (Rescan 2010). Details pertaining to recreational use at Gwunya Falls were not available at the time of report preparation. Two BMTAs are located within 5 km of the proposed Project: Ksi Galsgiist / Stagoo, which overlaps the site; and Gits'oohl, located 3 km north of the site. BMTAs are located adjacent to existing conservancies and protected areas to contribute to species and ecosystem diversity and conservation.

2.6.11 Projects and / or Human Activities Potentially Overlapping the Proposed Project

A Project Inclusion List was developed for incorporation into the cumulative effects assessment (CEA), which summarises those projects or human activities identified as overlapping either spatially or temporally with the proposed Project that may cause changes to the proposed Project setting (Section 5.0 and 21.10). Following a review of the available information and the scope of the biophysical CEA for the proposed Project, other projects and human activities, including major foreseeable projects and human activities, which potentially overlap (to some degree) spatially or temporally with the proposed Project include:

- Historical land use activities:
  - Kitsault mine and exploration;
  - Kitsault Townsite;
  - General land use activities:
  - Transportation and access;
  - Mining exploration;
  - Trapping and guide outfitting;
  - Marine traffic (Alice Arm Lodge water taxi and recreational users);
  - Fishing;
  - Nisga'a Nation and Aboriginal hunting, trapping, fishing and other uses;
- Reasonably foreseeable projects:
  - Northwest Transmission Line (NTL) Project; and

- Kerr-Sulpherets Mitchell Project.

A detailed description of the rationale for the Project Inclusion List to be included in the CEA is provided in Section 5.0 (Assessment Methodology) and Section 21.10 (Cumulative Effects).

2.7 Proposed Project Benefits

This section provides an overview of the social and economic benefits predicted for the proposed Project, which is a proposal of the proponent. This section summarises the potential positive implications of the proposed Project for employment (direct, indirect and induced), personal and business income, and government revenues. Focus is placed on the regional and provincial contexts, but information is also provided at the national and international levels, where appropriate. The summary is organised primarily by phase of Project development – construction, operations, decommissioning / closure and post-closure.

The proposed Project will make a major contribution to social and economic wellbeing in BC, especially in northwestern BC, where proposed Project development will contribute to improve economic and community stability by providing well-paying jobs and helping to reduce local unemployment levels. The proposed Project offers stable and reliable job and income opportunities for people living in the region, including residents of nearby Nisga'a Villages, as well as Terrace, Smithers and other communities. Especially given recent job losses in the forestry sector, the economic impetus provided by the mine will be valuable in helping to develop and diversify sustainable local employment and business opportunities, not only for this mine, but also for other potential future mine projects, and for economic activity in other sectors. The development will also prove beneficial internationally, since it will provide molybdenum in response to an anticipated forecast growth in world market demand.

Highlights of the social and economic benefits associated with the proposed Project include the following:

- Project life - The proposed Project will generate approximately 17 to 18 years of economic activity, including 25 months of construction activity and 15 to 16 years of operations;
- Capital cost - The capital cost of construction is estimated at $837,000,000 over the two-year construction period, with approximately 58% of construction expenditures being made within BC, including $42,000,000 within northwestern BC;
- Construction phase employment - The construction phase will create 1,200 person years (PYs) of direct employment at the mine, with 80% taken by BC residents, including 10% by regional residents. Construction will also generate an estimated 4,363 PYs of supply contractor, indirect and induced employment for BC residents, with some 210 PYs being filled by regional residents;
- Operations phase employment - During operations, the proposed Project will employ about 300 people, with 270 being BC residents, including 60 regional residents.

Operations will also generate an estimated 391 PYs annually of supply contractor, indirect and induced employment within BC, including 26 PYs for regional residents;

- Annual operating expenditures - Proposed Project expenditures during operations will average $120,000,000 annually, with $75,000,000 being made within BC, including $8,000,000 within the region;
- Provincial revenues - The proposed Project will generate about $27,000,000 in provincial revenues during construction, and approximately $29,000,000 annually during operations (including both taxes and production royalties); and
- Regional and municipal revenues - Revenues (direct, indirect, and induced) accruing to local and regional governments will total $3,900,000 during construction and $1,000,000 annually during operations.

Specific economic and employment information, as outlined in the AIR, is presented in detail in Section 7.0 of this Application. Table 2.7-1 shows a summary of proposed Project benefits. Table 2.7-2 shows a summary of direct social and economic effects of the proposed Project in the RSA.

Table 2.7-1: Summary of Proposed Project Benefits

Proposed Project Benefits Summary		
Project Benefit Category		**Proposed Project Benefits**
Construction		
Capital cost estimates	Total capital costs (Figure 7.2.2-1)	$837,000,000 (which includes $114,000,000 in contingencies) based on the following: • Purchases of equipment ($224,600,000) will account for 27% of total construction costs; • Other items (including power and fuel costing $213,800,000), will account for another 26% of construction costs; • On-site labour (including benefits) will account for 20% of construction costs ($166,400,000); • Material purchases ($126,000,000) will account for 15% of construction costs; • Engineering, Procurement and Construction Management will account for another 8% ($64,700,000) of construction costs; • Transportation costs ($41,500,000) comprise the remaining 5% of construction costs; • Construction is expected to commence in 2012 and be complete over a period of about 25 months; and • About 40% of construction activities will be complete in 2012, with the other 60% in 2013 and early 2014.
	Project purchases from provincial, federal and international sources	58% of total construction-related expenditures ($487,000,000) would be made in BC. This would consist of 80% of labour costs and various other items (including fuel and power).
		18% of expenditures ($146,000,000) would be made in other parts of Canada, mainly for materials and equipment, and 20% of overall labour costs.
		24% of costs ($203,000,000) would be used to purchase equipment and materials from other countries, including specialised mining equipment ($157,000,000).
Direct on-site employment	Total	There will be an average of 450 workers on-site during this period, with up to 700 workers onsite during peak construction.
		Total on-site construction employment is estimated to be 1,200 PYs over the 25-month period.
	Number of full time, part time and seasonal workers	The remote nature of the proposed Project location, work schedules and requirements reduces and potentially eliminates the option of part-time and / or seasonal workers.
	Provincial	960 PYs over the 25-month period; 80% of total employment.
	Regional	120 PYs over the 25-month period; 10% of total employment.
	Relevant employment policies and practices	Construction contractors will be encouraged to hire local residents to the extent practical.
		The proponent will insist that its contractors comply with the proponent's policies related to recruitment, training, safety, procurement, and environmental responsibility, to the extent practical.
		The proponent will seek to recruit employees from North-Central BC, particularly from communities within the RSA. The proponent is committed to increasing the percentage of Aboriginal employees both during the construction and operations phases by working closely with the employment and training officers in Aboriginal communities as well as Band Councils to establish conditions at the operation that supports

Proposed Project Benefits Summary		
Project Benefit Category		**Proposed Project Benefits**
		a multi-cultural work force.
	Use of underutilised resource	30% of regional workers are expected to be otherwise unemployed (39 PYs).
Contract and business opportunities	Provincial	Another 2,196 PYs of direct employment will be created in BC businesses that supply contract goods and services.
	Regional	$24,600,000 worth of goods and services will be purchased from regional suppliers.
		157 PYs of direct employment will be created in regional businesses that supply contract goods and services.
	Relevant employment policies and practices	The proponent will use local and regional suppliers when these suppliers can provide products and services at competitive prices and timeframes. The proponent will work with NLG and other local Aboriginal groups to increase the participation of Aboriginal-owned businesses in providing goods and services to the proposed Project to the best of their abilities. A business policy will be developed that will include processes to assist Aboriginal businesses in bidding contracts, and a published list of proposed Project requirements for goods and services.
Indirect employment	Provincial	1,174 PYs of indirect employment will be created in BC during construction. Another 992 PYs of induced employment is expected.
	Regional	38 PYs of indirect employment will be created in the region during construction. Another 15 PYs of induced employment is expected.
	Provincial	Total direct labour costs are estimated to be $133,100,000 during the construction period. The average wage during construction is estimated to be $138,667 per PY. However, there will be considerable variation in income depending on the type of job, with construction managers being paid considerably more than laborers.
		Average wages for other employment generated by the proposed Project include: • $56,466 per PY for people working for businesses that supply contract goods and services; • $49,404 per PY for workers indirectly employed by the proposed Project; and • $48,347 per PY for induced employment.
		Total labour benefits for BC residents during construction will be $363,000,000.
	Regional	Total labour benefits for regional residents during construction will be $28,100,000. Average wages for regional residents will be the same as for BC residents.
Estimated government revenues	Canadian government revenues	Federal tax revenues will directly increase by $33,000,000 as a result of proposed Project spending on labour, goods and services.
		Total effects on federal taxes will be $41,000,000 when induced and indirect effects are included.
	Provincial revenues	Provincial tax revenues will directly increase by $18,000,000 as a result of proposed Project spending on labour, goods, and services.
		Total effects on provincial taxes will be $27,000,000 when induced and indirect effects are included.
	Local government	Municipal tax revenues will directly increase by $3,000,000 as a result

Proposed Project Benefits Summary		
Project Benefit Category		**Proposed Project Benefits**
	revenues	of proposed Project spending on labour, goods, and services.
		Total effects on local government taxes will be $8,000,000 when induced and indirect effects are included.
Healthy living and community development	Regional income	Total labour benefits for regional residents during construction will be $28,100,000.
	Regional employment	One-third 30% of regional residents directly employed by the proposed Project will be otherwise unemployed.
		The proposed Project will account for 31% of expected growth in the regional construction industry in 2012.
	Labour force qualifications	Regional workers will benefit from implementation of the training and hiring strategy.
Operations		
Operating cost estimates	Total operating costs	The mine is expected to operate for 16 years. Annual operating costs are estimated to be $120,000,000 of which: • Milling and ore processing will account for 57%; • Mining activities will account for 30%; and • General and administration functions and plant services will account for 13%.
		Annual expenditures on labour will amount to about $23,500,000 or 20% of total annual operating costs.
		Purchases of power and fuel will cost $25,500,000 per year or 21% of annual costs.
		The balance of costs ($71,000,000) will consist of purchases of other materials and services.
	Project purchases from provincial, federal and international sources	63% of annual operating costs ($75,100,000) would be spent in BC. This would consist of 90% of labour costs, all fuel and power costs, and 40% of other costs.
		20% of costs ($23,700,000) would be spent in other parts of Canada, mainly on other operating costs and 10% of labour.
		18% of costs ($21,300,000) would be spent purchasing other items from other countries.
Direct on site employment	Total	On average, the mine will directly employ about 300 people annually of which: • 36% (108) will be employed in mining operations; • 35% (105) in maintenance; • 20% (60) in processing; and • 9% (27) in general and administrative positions.
	Number of full time, part time and seasonal workers	The remote nature of the proposed Project location, work schedules and requirements reduces and potentially eliminates the option of part-time and / or seasonal workers.
	Provincial	270 jobs (PYs) per year; 90% of total employment.
	Regional	60 jobs (PYs) per year; 20% of total employment.
	Relevant employment policies and practices	The proponent will seek to recruit employees from North-Central BC, particularly from communities within the RSA. The proponent is committed to increasing the percentage of Aboriginal employees both during construction and operations by working closely with the employment and training officers in Nisga'a and Aboriginal communities

Proposed Project Benefits Summary		
Project Benefit Category		**Proposed Project Benefits**
		to establish conditions at the operation that support a multicultural work force.
	Use of underutilised resources	40% of regional workers are expected to be otherwise unemployed (24 jobs).
Contract and business opportunities	Provincial	About $53,900,00 per year in goods and services will be purchased from businesses in BC. Purchases of goods and services to support the mine are expected to create 192 jobs.
	Regional	About $3,600,000 in goods and services will be purchased from regional businesses. These purchases are expected to create 14 jobs.
	Relevant employment policies and practices	The proponent will use local and regional suppliers when these suppliers can provide products and services at competitive prices and timeframes. The proponent will work with NLG and other local Aboriginal groups to increase the participation of Aboriginal-owned businesses in providing goods and services to the proposed Project to the best of their abilities. A business policy will be developed that will include processes to assist Aboriginal businesses in bidding contracts, and a published list of proposed Project requirements for goods and services.
Indirect employment	Provincial	Employment for persons employed by industries indirectly benefiting from the proposed Project are anticipated to create 108 jobs per year during operations.
		Employment for persons providing consumer goods for those providing services to the proposed Project labour force are anticipated to create 91 jobs.
	Regional	Four PYs of indirect employment will be created in the region during each year of operation. Another eight PYs of induced employment are expected.
Labour income and wages	Source	These labour cost estimates were based on a review of current labour rates at two mines in the Yukon and BC.
	Provincial	Annual labour costs for workers directly employed during mine operations will be $21,200,000 per year.
		The average wage will be $78,333 per job, including benefits. There will be considerable variation in income depending on the type of job, with construction managers being paid considerably more than labourers.
		Average wages for other operations employment generated by the proposed Project include: • $62,500 per PY for people working for businesses that supply contract goods and services; • $46,296 per PY for workers indirectly employed as a result of the proposed Project; and • $52,182 per PY for induced employment.
		Total annual labour income benefits for BC residents during operation will be $43,000,000.
	Regional	Total labour benefits for regional residents during each year of operations will be $6,000,000. Average wages for regional residents will be the same as for BC residents.
Estimated government	Canadian government	Federal tax revenues will directly increase by $2,000,000 per year as a result of proposed Project spending on labour, goods and services.

Proposed Project Benefits Summary		
Project Benefit Category		**Proposed Project Benefits**
revenues	revenues	Total effects on federal taxes will be $4,000,000 when induced and indirect effects are included.
	Provincial revenues	Provincial tax revenues will directly increase by $3,000,000 per year as a result of proposed Project spending on labour, goods and services.
		Total effects on provincial taxes will be $4,000,000 when induced and indirect effects are included.
		Net smelter royalty payments will average about $4,000,000 per year while pre-tax cash royalty payments will be about $20,700,000 per year.
	Local government revenues	Municipal tax revenues will directly increase by $1,000,000 per year as a result of proposed Project spending on labour, goods, and services.
Healthy living and community development	Regional income	Total labour benefits for regional residents during operations will be $6,000,000 per year.
	Regional employment	40% of regional residents directly employed by the proposed Project will be otherwise unemployed.
		The proposed Project will account for 11% of expected employment in the regional mining sector in 2014.
	Labour force qualifications	Regional workers will benefit from implementation of the training and hiring strategy.
Closure and Decommissioning		
Cost estimates	Total costs	The majority of the closure phase costs are scheduled to take place between 2030 and 2032 at a cost of $27,200,000.
	Project purchases from provincial, federal and international sources	100% of closure and decommissioning costs would be spent in BC: • 40% ($10,800,000) in 2030; • 30% ($8,200,000) in 2031; and • 30% ($8,200,000) in 2032.
Direct on site employment	Total	Total direct employment will amount to 51 PYs: • 29% (15 PYs) in 2030; • 31% (16 PYs) in 2031; • 24% (12 PYs) in 2032; and • 16% (8 PYs) in total between 2033 and 2046.
	Number of full time, part time and seasonal workers	The remote nature of the proposed Project location, work schedules and requirements reduces and potentially eliminates the option of part-time and / or seasonal workers.
	Provincial	Total direct employment will amount to 51 PYs: • 15 PYs in 2030; • 16 PYs in 2031; • 12 PYs in 2032; and • 8 PYs in total between 2033 and 2046.
	Regional	Total direct employment will amount to 29 PYs (67% of total): • 10 PYs in 2030; • 10 PYs in 2031; and • 8 PYs in 2032.
	Relevant	The proponent will seek to recruit employees from North-Central BC,

Proposed Project Benefits Summary		
Project Benefit Category		**Proposed Project Benefits**
	employment policies and practices	particularly from communities within the RSA. The proponent is committed to increasing the percentage of Aboriginal employees both during the construction and operations phases by working closely with the employment and training officers in Aboriginal communities as well as Band Councils to establish conditions at the operation that support a multicultural work force.
	Use of underutilised resources	All workers would be otherwise employed, so there would be no use of underutilised resources.
Contract and business opportunities	Provincial	About $24,900,000 in goods and services will be purchased from businesses in BC over the first three years. Purchases of goods and services to support the mine are expected to create 97 PYs.
	Regional	$3,200,00 worth of goods and services will be purchased from regional suppliers.
		19 PYs of direct employment will be created in regional businesses that supply contract goods and services.
	Relevant employment policies and practices	The proponent will use local and regional suppliers when these suppliers can provide products and services at competitive prices and timeframes. The proponent will work with NLG and other local Aboriginal groups to increase the participation of Aboriginal-owned businesses in providing goods and services to the proposed Project to the best of their abilities. A business policy will be developed that will include processes to assist Aboriginal businesses in bidding contracts, and a published list of proposed Project requirements for goods and services.
Indirect employment	Provincial	55 PYs of indirect employment will be created in BC during the three years and 46 PYs of induced employment are expected.
	Regional	6 PYs of indirect employment will be created in the region and another two PYs of induced employment is expected over the first three year period.
Labour income and wages	Source	Calculated using coefficients from the BC Input / Output model.
	Provincial	Total direct labour costs are estimated to be $4,000,000 over the first three years of closure. The average wage is estimated to be $78,333 per PY.
		Average wages for other employment generated by the proposed Project include: • $63,872 per PY for people working for businesses that supply contract goods and services; • $50,175 per PY for workers indirectly employed by the proposed Project; and • $47,904 per PY for induced employment.
		Total labour income benefits for BC residents during decommissioning / closure will be $15,000,000 (94% in the first three years).
	Regional	Total labour benefits for regional residents over the first three years of closure will be $4,400,000. Average wages for regional residents will be the same as for BC residents.
Estimated government revenues	Canadian government revenues	Federal tax revenues will directly increase by $500,000 as a result of proposed Project spending on labour, goods, and services.
		Total effects on federal taxes will be $900,000 when induced and indirect effects are included.

Proposed Project Benefits Summary		
Project Benefit Category		**Proposed Project Benefits**
	Provincial revenues	Provincial tax revenues will directly increase by $700,000 as a result of proposed Project spending on labour, goods, and services.
		Total effects on provincial taxes will be $900,000 when induced and indirect effects are included.
	Local government revenues	Municipal tax revenues will directly increase by $300,000 per year as a result of proposed Project spending on labour, goods, and services.
		Total effects on municipal taxes will be $300,000 when induced and indirect effects are included.
Healthy living and community development	Regional income	Total labour benefits for regional residents during construction will be $3,800,000.
	Regional employment	Two-thirds (67%) of total project labour force will involve regional residents.
	Labour force qualifications	Regional workers will benefit from implementation of the training and hiring strategy.
Post-Closure		
Cost estimates	Annual costs	Post-closure would start in 2047, after the mine has been closed and decommissioned, and would continue five years or more. Ongoing activities would include inspection and maintenance of embankments, surface and ground water monitoring, and water management. Costs over this period are expected to total about $4,100,000, or be about $800,000 per year.
	Project purchases from provincial, federal and international sources	100% of closure and decommissioning costs would be spent in BC.
Direct on site employment	Total	Direct employment will be 22 PYs.
Contract and business opportunities	Provincial	All post-closure activities will be undertaken by provincial contractors. Annual expenditures will directly generate 0.6 PYs per year.
	Regional	All post-closure activities will be undertaken by regional contractors. Annual expenditures will directly generate 0.6 PYs per year.
	Relevant employment policies and practices	The proponent will use local and regional suppliers when these suppliers can provide products and services at competitive prices and timeframes. The proponent will work with NLG and other local Aboriginal groups to increase the participation of Aboriginal-owned businesses in providing goods and services to the proposed Project to the best of their abilities. A business policy will be developed that will include processes to assist Aboriginal businesses in bidding for contracts, and a published list of proposed Project requirements for goods and services.
Indirect employment	Provincial	It is expected that a regional company would be contracted for the work.
	Regional	3.2 PYs of indirect employment will be created in BC each year and 5 PYs of induced employment is expected.
Labour income and wages	Source	Calculated using coefficients from the BC Input / Output model.
	Anticipated provincial & regional income	Average wages for other employment generated by the proposed Project include: • $63,872 per PY for people working for businesses that supply

Proposed Project Benefits Summary		
Project Benefit Category		**Proposed Project Benefits**
	and wages (Note values presented are viewed as equal for provincial and regional effects)	contract goods and services; • $50,175 per PY for workers indirectly employed by the proposed Project; and • $47,904 per PY for induced employment. Total labour income benefits for BC residents will be $280,000 per year.
Estimated government revenues	Tax revenues – all governments	Tax revenues for all levels of government will increase by $20,000 per year.
Healthy living and community development	Regional income	Annual labour benefits for regional residents during closure will be $70,000.
	Regional employment	All activities will be undertaken by regional residents.
	Labour force qualifications	n/a

Note: BC - British Columbia; NLG - Nisga'a Lisims Government; n/a - not applicable; % - percent; PY - person year; RSA - Regional Study Area

Table 2.7-2 provides a summary of the anticipated employment and income effects in the main community centers surrounding the proposed Project for each of its development phases - construction, operations, decommissioning / closure and post closure. This includes direct jobs provided (in PYs) in each community, and the number of PYs of employment falling to otherwise unemployed persons. The table also indicates the total annual labour income accruing to each location.

Table 2.7-2: Summary of Direct Project Effects Within the Regional Study Area

	Construction		Operations	Closure and Decommissioning[2]			Post - Closure
	2012	**2013**	**Annual**	**2030**	**2031**	**2032**	**Annual**
Direct Employment (PYs)							
Terrace	29	43	24	5	5	4	3
Smithers	2	4	0	0	0	0	0
Kitimat Stikine	7	11	12	0	0	0	0
LSA	10	14	24	5	5	4	0
RSA Total	**48**	**72**	**60**	**10**	**10**	**8**	**3**
Otherwise Unemployed (PYs)							
Terrace	9	13	7	0	0	0	0
Smithers	0	0	0	0	0	0	0
Kitimat Stikine	2	3	5	0	0	0	0
LSA	5	7	12	0	0	0	0
RSA Total	**16**	**23**	**24**	**0**	**0**	**0**	**0**

[2] Most decommissioning / closure employment expenditures occur in the first three years

	Construction		Operations	Closure and Decommissioning[2]			Post - Closure
	2012	2013	Annual	2030	2031	2032	Annual
Direct Employment (PYs)							
Direct Labour Income (millions)							
Terrace	$3.0	$4.4	$1.9	$0.4	$0.3	$0.3	$0.04
Smithers	$0.2	$0.4	$0.0	$0.0	$0.0	$0.0	0
Kitimat Stikine	$0.7	$1.1	$0.9	$0.0	$0.0	$0.0	0
LSA	$1.0	$1.5	$1.9	$0.4	$0.3	$0.3	0
RSA Total	**$4.9**	**$7.4**	**$4.7**	**$0.8**	**$0.6**	**$0.6**	**$0.04**

Note: LSA - Local Study Area; PY - person year; RSA - Regional Study Area

The economic analysis information was prepared using accepted, standard best practices for mining projects in BC. This included using two primary information sources:

1. Information on capitals, sustaining capital and operating / closure expenses supplied by the proponent; and
2. Information derived from the provincial BC Stats Input / Output Model (Appendix 7.0-B).

The information derived from the proponent was in the form of a feasibility study (Appendix 3.0-A) and a National Instrument 43-101 (NI 43-101) compliant report. Both reports can be found on the Sedar website (www.sedar.com) as required by Canadian listed companies. Appendix 7.0-B contains information from BC Stats on the results of the Input Output model. As noted by BC Stats, the model tends to underestimate Gross Domestic Product (GDP) contributions and thus is considered conservative in this respect.

The economic impact assessment was completed under the direction by John P. Thompson, a senior resource economist with AMEC. Mr. Thompson has more than 30 years experience in assessing and evaluating the economic and social effects of natural resource management projects, programs and policies in western and northern Canada. He has worked as a consultant, as a senior economist for the Alberta government, and as senior social and economic staff for regulatory boards in Alberta. Mr. Thompson was formerly Director, Board Reviews and Senior Economist / Social Scientist, Natural Resources Conservation Board, Edmonton from 1997 to 2003.

2.8 Applicable Permits

The proponent has held initial meetings with the Northwest Mine Development Review Committee (NWMDRC) to discuss the permitting of the proposed Project. The proponent is seeking “Synchronous Permitting” through the One Project One Process initiative of the NWMDRC. Synchronous Permitting will allow the proponent to advance primary and secondary applications for all required authorisations while the EA process proceeds. However, the EA process must be completed before authorisations can be issued.

Table 2.8-1 and 2.8-2 provide preliminary lists of permits, licenses, and authorisations that may be required by the BC and Canada regulatory agencies, respectively. This list is not intended to be comprehensive, as it is expected that the agencies will determine ultimate requirements during the review process and that due to regulatory processes, amendments and authorisations will be required as the proposed Project develops.

Table 2.8-1: BC Provincial Permits, Licenses, and Authorisations

Statute	Authorisation or Requirement	Agency	Statutory Decision Maker	Purpose	Category EA=EA Process 1=Primary 2=Secondary 3=Tertiary 4=Quaternary
BCEAA	EA Certificate	BC EAO	Minister of Environment and Minister of Energy and Mines	Required prior to undertaking any activity on proposed major projects. Reviews major projects to assess potential effects. Ensures project meets environmental, economic, social goals of sustainability. Ensures issues and concerns of public, Aboriginal groups, stakeholders and government agencies are considered.	EA
Condition of provincial EA	Fish and Wildlife Mitigation and Monitoring Plans	BC EAO or BC MFLRNO	Ministers as above; or, Section Head - Fish and Wildlife	Plans required prior to undertaking activities. Preferably these plans will be created through the EA process so that when an EA decision is made, the plans are in place prior to beginning activity. Alternatively, the conditions for these plans are placed in the EA Certificate and development of plans is through the permitting process.	EA
Mines Act and *Environmental Management Act*	Joint Application for a *Mines Act* Permit and Effluent Discharge Permit	BC MEM and BC MOE	Chief Inspector of Mines and Regional Manager - EP or Section Head	*Mines Act* Permit: Authority for exploration, construction, development, production, closure, reclamation and abandonment of mine site, and associated gravel pits. Effluent Discharge Permit: Authority to discharge effluent into the environment.	1
Mineral Tenure Act	Mining Lease (LEASE) - Part 3	BC MFLRNO	Chief Gold Commissioner	Conversion of mineral claims to a Mining Lease is necessary for long-term production.	2
Forest Act	Occupant Licence to Cut - Sec 47	BC MFLNRO	District Manager Kalum District	Authority to cut and remove trees. Examples include: minesite, TMF, access roads and power line, widening of access road(s) for permanent access and / or the power line, widening of highway ROW.	2

Statute	Authorisation or Requirement	Agency	Statutory Decision Maker	Purpose	Category EA=EA Process 1=Primary 2=Secondary 3=Tertiary 4=Quaternary
Forest Protection Code (FPC) Act, Provincial *Forest Use Regulations*, *Forest and Range Practice Act*	SUP	BC MFLNRO	District Manager Kalum District	Authority to use a new or existing road to access *Mines Act* Permit area when company does not hold mineral tenure along route alignment.	2
FPC Act, Provincial *Forest Use Regulations, Forest and Range Practice Act*	RUP	BC MFLNRO	District Manager Kalum District	Grants Permittee non-exclusive right during term of permit to use roads. Usually a requirement to carry out maintenance on roads.	2
Water Act, Water Regulation	Approval or Notification of "changes in or about a stream" (s.8/s.9)	BC MFLNRO	Water Section Head	An approval is a written authorisation for changes in and about a stream of a complex nature. Notifications are used for works that do not involve any diversion of water, may be completed within a short period of time, and will have minimal impact on the environment or third parties.	2
Water Act, Water Protection Act	Water Licence	BC MFLNRO	Water Section Head	Authority to store, use and / or divert surface water including installation of works. May or may not be required for capturing and recycling water for industrial use.	2
Heritage Conservation Act	s. 14 Inspection Permit	BC MFLNRO	Archaeology Branch Manager	Authority to inspect a property for the presence of archaeological deposits, to assess potential effects to archaeological deposits by a proposed development, to evaluate the significance of the site(s), and to provide enough information to formulate management recommendations for the site(s).	2

Statute	Authorisation or Requirement	Agency	Statutory Decision Maker	Purpose	Category EA=EA Process 1=Primary 2=Secondary 3=Tertiary 4=Quaternary
Heritage Conservation Act	s. 14 Investigative Permit	BC MFLNRO	Archaeology Branch Manager	Authority to mitigate impacts to sites through the recovery of data after an impact assessment has been completed under an inspection permit, and when a site has been determined to be too significant to go straight to an alteration permit [even with a provision for monitoring during construction]. Investigation permits are part of the *HCA*'s practice of "preservation through record," which is designed to collect enough information from an archaeological deposit to mitigate the damage caused by a proposed development.	2
Heritage Conservation Act	s. 12 Site Alteration Permit	BC MFLNRO	Archaeology Branch Manager	Authority to alter or destroy the site in accordance with the terms and conditions of the permit. Issued in the name of the developer, who is responsible for fulfilling the conditions of the permit. Requires that site alteration permits not be issued concurrently with investigation or inspection permits, but that First Nations or other interested parties, be given the opportunity to have their views considered prior to making a decision on whether to issue a permit.	2
Environmental Management Act	Fuel Storage Permit	BC MOE	Regional Manager - EP or Section Head - EP	Authority to store fuel over a certain amount.	2
Environmental Management Act - Hazardous Waste Regulation	Hazardous Waste Registration	BC MOE	Electronically generated number	Registration and application for a provincial identification number is required in order to produce, store, treat, recycle or discharge more than a prescribed quantity of hazardous waste within 30 days.	2
Environmental Management Act	Air Discharge Permit	BC MOE	Regional Manager - EP or Section Head - EP	Authority to discharge air contaminants into the environment (e.g., Incinerator for camps serving >100 persons).	3

Statute	Authorisation or Requirement	Agency	Statutory Decision Maker	Purpose	Category EA=EA Process 1=Primary 2=Secondary 3=Tertiary 4=Quaternary
Environmental Management Act	Refuse Permit	BC MOE	Regional Manager - EP or Section Head - EP	Authorisation for municipal solid waste (solid waste from camps >100 persons).	3
Environmental Management Act - Municipal Sewage Regulation	Sewage Registration	BC MOE	Regional Manager - EP or Section Head - EP	Authority to construct and use a sewage disposal facility (if necessary depending on design for sewage flow of camp) for camps >100 persons.	3
Wildfire Act	Burning Permit	BC MFLNRO	n/a	Any burning requires a burning reference number. To get one call 1-888-797-1717.	2
Wildfire Act	*Amendment to Closed Area Regulations*	BC MFLNRO	Section Head - Fish and Wildlife	To restrict use of firearms within vicinity of mine site.	3
Transportation Act, Motor Vehicles Act	Access Permit (MOTI-A)	BC MOTI	Senior Development Approvals Technician	Authority to construct proposed routes that originate off of BC MOTI roads or authority to enter onto a public road.	3
Motor Vehicles Act	Approvals for oversize loads or bulk haul	BC MOTI	Senior Development Approvals Technician	Approvals for oversize loads or bulk haul applications for ore may be required.	3
Drinking Water Protection Act and Regulation	Construction Permit - Sec 2	NHA	NHA - Public Health Engineer	Authority to commence construction, installation, alteration or extension of a water supply system. Required for commissioning of a new water system and also for every structural or mechanical change to an existing water system that may occur over time, but not required for routine maintenance. Construction, installation, alteration, or extension of any part of a water supply system without a valid Construction Permit is an offence under s. 45 of the Act.	3

Statute	Authorisation or Requirement	Agency	Statutory Decision Maker	Purpose	Category EA=EA Process 1=Primary 2=Secondary 3=Tertiary 4=Quaternary
Drinking Water Protection Act and Regulation	Operating Permit - Part 2	NHA	NHA - Environmental Health Officer	Authority to provide a drinking water service to users.	3
Public Health Act – Food Premises Regulation, and *Drinking Water Protection Act*	Food Premises Permit	NHA	NHA - Environmental Health Officer	Prior to opening a food premise, approval must be obtained from the Environmental Health Officer (EHO). In order to obtain approval, plans and specifications of the premise must be approved by the EHO and approval is granted upon the application meeting the requirements of the *Food Premise Regulations (Public Health Act).*	3
Public Health Act – Sewage Disposal Regulation	Filing of Certification Letter - Sec 32	NHA	Environmental Health Officer	A certification letter needs to be filed with Northern Health by an 'Authorized Person' for <22,700 L/d of sewage. If >22,700 L/d, then *Municipal Sewage Regulation* under the *Environmental Management Act* applies.	3
Safety Standards Act	Permit	BC Safety Authority	Regional Officer	Permit required for electrical services or gas-fired equipment for kitchens and bunkhouses in camp.	
Wildlife Act	Fish or Wildlife Permits	BC MFLNRO	Section Head - Fish and Wildlife	Permits are required before you disturb or harass wildlife on Crown land (e.g., for ground or aerial surveys, collection, or sampling of fish or wildlife).	
Mining Right of Way Act	Mining Right of Way Permit	BC MEM	Chief Inspector	Allows proponent to take or use crown or private land for a ROW access to mine.	n/a
Land Act	Investigative Use Permit	BC MFLNRO	Lands Section Head or Lands Officer	Issued to any proponent requiring access to the land for appraisals, inspections, analyses, inventories, surveys or other investigations of Crown land or its natural resources, or where otherwise required. No buildings or other improvements may be placed on the land.	n/a

Statute	Authorisation or Requirement	Agency	Statutory Decision Maker	Purpose	Category EA=EA Process 1=Primary 2=Secondary 3=Tertiary 4=Quaternary
Land Act	Licence of Occupation	BC MFLNRO	Lands Section Head or Lands Officer	Authorisation for quarries, camps and staging areas. ***NOTE: Only investigative and temporary permits and licences of occupation are used for projects in the early stages of mine development. Licences may be converted to long term tenure, as appropriate, when a project is approved by government. See mining policy: http://www.al.gov.bc.ca/clad/Documents/LPSB/Policies/mining.pdf.	n/a
Mines Act	Explosive Storage and Use Permit	BC MEM	Mine Inspector	Authorisation for storage of explosive magazine on-site. Note: Magazines to meet Federal Requirements	n/a

Note: *BCEAA* - British Columbia *Environmental Assessment Act;* BC EAO - British Columbia Environmental Assessment Office; BC MEM - British Columbia Ministry of Energy and Mines; BC MFLRNO - British Columbia Ministry of Forests, Lands and Natural Resource Operations; BC MOE - British Columbia Ministry of Environment; BC MOTI - British Columbia Ministry of Transportation and Infrastructure; EA - Environmental Assessment; EHO - Environmental Health Officer; EP - Environmental Protection; FPC - Forest Practices Code; *HCA - Heritage Conservation Act;* L/d - litres per day; n/a - not applicable; NHA - Northern Health Authority; ROW - Right-of-Way; RUP - Road Use Permit; SUP - Special Use Permit; TMF - Tailings Management Facility

The Primary to Quaternary rating is a simple hierarchy relating to the level of technical requirements, level of process, and / or the construction / execution schedule of the project.

Table 2.8-2: Federal Provincial Permits, Licenses, and Authorisations

Statute	Authorisation or Requirement	Agency	Statutory Decision Maker	Purpose	Category EA=EA Process 1=Primary 2=Secondary 3=Tertiary 4=Quaternary
CEA Act	EA Decision - Comprehensive Study (EA-Canada)	Agency	Minister of Environment	To minimise or avoid adverse environmental effects before they occur and incorporate environmental factors into decision-making. The Project is described in the comprehensive study list and an environmental assessment of the Project is required. Under s. 5 of the *CEA Act*, an EA is required in relation to this Project because DFO may issue a permit or license under subsection 35(2) of the *Fisheries Act* and NRCan may issue a permit or license under paragraph 7(1)(a) of the *Explosives Act.*	EA
MMER under *Fisheries Act*	Compliance and Reporting	EC	n/a	Compliance and Reporting Responsibilities for discharges from the mine site.	2
Fisheries Act	Authorisations under s.35(2) - Approval of final FHCP (HADD)	DFO	The Minister of Fisheries and Oceans	Authorisation for the HADD of fish habitat. Specific to this project: for flow changes on Patsy / Lime Creeks and HADD on Lake 901 expected in Construction Phase 3 (12 to 18 months).	2
	Authorisation under s.36(3) – Schedule 2 Amendment under the *MMER*			Schedule 2 Amendment under the *MMER* authorising the deposition of a deleterious substance within waters frequented by fish.	1
Explosives Act	Licence under s.7(1)(a)	NRCan	The Minister of NRCan	Authorisation for an explosives factory or magazine explosives licence.	n/a
Radio Communication Act	Licenses	Industry Canada	n/a	Authorisation for use of radios on mine site.	

Note: Agency - Canadian Environmental Assessment Agency; *CEA Act - Canadian Environmental Assessment Act;* DFO - Fisheries and Oceans Canada; EA - Environmental Assessment; EC - Environment Canada; FHCP - Fisheries Habitat Compensation Plan; HADD - harmful alteration, disruption or destruction; *MMER - Metal Mining Effluent Regulations;* n/a - not applicable; NRCan - Natural Resources Canada;

The Primary to Quaternary rating is a simple hierarchy relating to the level of technical requirements, level of process, and / or the construction / execution schedule of the project.