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## **7.2.6 Non-Traditional Land and Resource Use**

### **7.2.6.1 Introduction**

This section of the Application for an Environmental Assessment Certificate/Environmental Impact Statement (Application) assesses the potential effects of the proposed Blackwater Gold Project (Project) on Non-traditional Land and Resource Use (NTRLU). The Project has the potential to affect existing land and resource uses as a result of:

- The Project footprint displacing existing land uses, and/or affecting access to existing land uses or resources; and/or
- Other effects from Project activities, i.e., noise and dust disturbances that could disrupt land and resource uses and users.

The identification and selection of representative Valued Component (VC) indicators for land and resource use and the assessment of potential effects of the Project on these indicators, including applicable mitigation measures, are presented in this section. Where residual effects are identified, a Cumulative Effects Assessment (CEA) is undertaken.

The baseline setting for NTRLU is discussed in detail in the NTRLU Baseline Report (**Appendix 7.1.2A**), which includes descriptions and maps of land uses within the Regional Study Area (RSA) and Local Study Area (LSA).

#### **7.2.6.1.1 Selection of Indicators**

The NTRLU VC includes a range of land and resource uses, and associated land use activities, including consideration of the visual landscape. The VC selection and indicator discussion is provided in **Section 7.2.1**. Each representative indicator was evaluated for inclusion in the assessment, taking into account the baseline study findings, the conservation status, and inputs from local stakeholders, government agencies, and regulators. Indicators for the NTRLU VC include:

- Protected Areas and Parks;
- Recreation and Tourism Use;
- Mining Exploration and Mineral Tenures;
- Surface Water Resource Use;
- Groundwater Resource Use;
- Recreational and Commercial Use of Waterways;
- Forestry and Timber Resource Use;
- Hunting, Trapping and Guide Outfitting;
- Fishing and Aquaculture;

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- Agriculture and Grazing (includes range use); and
- Land Ownership<sup>1</sup>.

Effects on VC indicators were assessed using methods defined in **Section 4**. For the purposes of this assessment, a significant residual adverse effect of the Project on the NTLRU VC indicators listed above is one that:

- Is not compatible with adjacent land use activities and plans;
- Will create a major change or disruption affecting existing land uses and users;
- Will prevent land use activities continuing at current levels for extended periods of time; and
- Cannot be compensated.

### 7.2.6.1.2 Relevant Legislation and Legal Framework

NTLRU is addressed under the requirements of the British Columbia *Environmental Assessment Act* (BC *EAA*) for assessing social effects, and it is identified in the approved Application Information Requirements (AIR) document.

Relevant legislation, regulations, plans, bylaws, guidelines, and permits may include, but are not limited to:

- Vanderhoof Land and Resource Management Plan (LRMP) (Government of BC, 1997);
- Vanderhoof Official Community Plan (OCP) (District of Vanderhoof, 2006);
- Vanderhoof Rural OCP (Regional District of Bulkley Nechako, 2009);
- Vanderhoof Access Management Plan (AMP) (Government of BC, 1998);
- *Mineral Tenure Act* (Government of BC, 1996a);
- *Agricultural Land Commission Act* (Provincial Agricultural Land Commission, 2013);
- *Wildlife Act* (Government of BC, 1996b);
- *Land Act* (BC Ministry of Forests, Lands and Natural Resource Operations [BC MFLNRO], 2013f; BC MFLNRO, 2013g);
- *Range Act* (BC MFLNRO, 2013f; BC MFLNRO, 2013g);
- *Forest and Range Practice Act* (BC MFLNRO, 2013g);
- *Water Act* (BC MFLNRO, 2013h);
- *Water Protection Act* (BC MFLNRO, 2013i);

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<sup>1</sup> This includes private land and *Land Act* tenures.

- 2012–2014 Hunting and Trapping Regulations Synopsis (BC MFLNRO, 2012);
- Furbearer Management Guidelines (BC MFLNRO, 2012a; 2013c);
- 2013–2015 Freshwater Fishing Regulation Synopsis (BC MFLNRO, 2013j); and
- 2013–2015 British Columbia Freshwater Salmon Supplement (Department of Fisheries and Oceans [DFO], 2013).

### 7.2.6.1.3 Information Sources and Methods

#### 7.2.6.1.3.1 *Information Sources*

Data sources (primary and secondary) used to compile the baseline and assessment of Project effects on NTLRU include:

- Information from government websites and reports, summarized and referenced;
- Information from Geographic Information Systems (GIS) databases, sorted, summarized, and mapped, where available;
- Stakeholders (i.e., tenure holders, individuals, and companies) familiar with the Project area were contacted and requested to provide comment;
- Transportation and Access Management Plan (TAMP; described in **Section 12.2.1**);
- Allnorth, Blackwater Gold Project – Airstrip Location Study; and
- ERM Rescan, Blackwater Gold Project - Navigable Waters Baseline Report and Technical Assessment, 2014.

#### 7.2.6.1.3.2 *Data Compilation/Analysis*

Where applicable and available, the NTLRU baseline information was compiled and corroborated from baseline reports of other disciplines, such as transportation, vegetation and plant communities, and wildlife, as well as from existing databases. **Table 7.2.6-1** summarizes the main databases reviewed.

Data gaps were not identified during the detailed desktop study due to the large amount of publically-available information related to land and resource use in the Project area. Consequently, no data gap reviews were conducted with relevant local and provincial government agencies.

**Table 7.2.6-1: Example Databases and References Reviewed**

<b>BC Ministry, Reference, or Database</b>	
British Columbia Integrated Land Management Bureau (BC ILMB)	BC Land and Resource Data Warehouse. <a href="http://www.data.gov.bc.ca/dbc/geo/index.page">http://www.data.gov.bc.ca/dbc/geo/index.page</a>
	BC ILMB Discovery Service. <a href="http://apps.gov.bc.ca/pub/geometadata">http://apps.gov.bc.ca/pub/geometadata</a>
	Integrated Land and Resource Registry (ILRR). <a href="https://apps.gov.bc.ca/apps/ilrr/html/ILRRWelcome.html">https://apps.gov.bc.ca/apps/ilrr/html/ILRRWelcome.html</a>
BC MFLNRO	<a href="http://www.ilmb.gov.bc.ca/category/region/coast-bc">http://www.ilmb.gov.bc.ca/category/region/coast-bc</a>
	<a href="http://www.gov.bc.ca/for/">http://www.gov.bc.ca/for/</a>
BC Ministry of Energy and Mines (formerly Ministry of Energy, Mines and Natural Gas)	Minfile Mineral Inventory. <a href="http://www.empr.gov.bc.ca/Mining/Geoscience/MINFILE/Pages/default.aspx">http://www.empr.gov.bc.ca/Mining/Geoscience/MINFILE/Pages/default.aspx</a>
	Exploration and Mining in British Columbia 2008, 2009, and 2010. <a href="http://www.empr.gov.bc.ca/Mining/Geoscience/PublicationsCatalogue/ExplorationinBC/Pages/default.aspx">http://www.empr.gov.bc.ca/Mining/Geoscience/PublicationsCatalogue/ExplorationinBC/Pages/default.aspx</a>
BC Ministry of Finance	March 2013 Major Projects Inventory (released in June 2013). <a href="http://www.jtst.gov.bc.ca/ministry/major_Projects_inventory">http://www.jtst.gov.bc.ca/ministry/major_Projects_inventory</a>
BC Environmental Assessment Office (BC EAO)	Electronic Project Information Center. <a href="http://www.eao.gov.bc.ca/epic/output/html/deploy/epic_Project_list_report.html">http://www.eao.gov.bc.ca/epic/output/html/deploy/epic_Project_list_report.html</a>
Provincial Land and Resource Management Plans	Vanderhoof Land and Resource Management Plan. <a href="http://archive.ilmb.gov.bc.ca/slrp/lrmp/princegeorge/vanderhf/plan/vanderhoof_l_rmp/index.html">http://archive.ilmb.gov.bc.ca/slrp/lrmp/princegeorge/vanderhf/plan/vanderhoof_l_rmp/index.html</a>
	Vanderhoof 2008 Access Management Plan. <a href="http://archive.ilmb.gov.bc.ca/slrp/lrmp/princegeorge/vanderhf/plan/Project.html">http://archive.ilmb.gov.bc.ca/slrp/lrmp/princegeorge/vanderhf/plan/Project.html</a>
Regional Districts	Cariboo Regional District. <a href="http://www.cariboord.bc.ca/">http://www.cariboord.bc.ca/</a>
	Regional District of Bulkley-Nechako. <a href="http://www.rdbn.bc.ca/">http://www.rdbn.bc.ca/</a>
Communities	District of Vanderhoof. <a href="http://www.vanderhoof.ca/District.html">http://www.vanderhoof.ca/District.html</a>
	Village of Fraser Lake. <a href="http://www.fraserlake.ca/">www.fraserlake.ca/</a>
Backroad Mapbook	Cariboo Chilcotin Coast BC. Backroad Mapbook (Mussio Ventures 2010). 2 <sup>nd</sup> Edition.
Fishing	2011–2013 Freshwater Fishing Regulations Synopsis. <a href="http://www.env.gov.bc.ca/fw/fish/regulations/#Synopsis">http://www.env.gov.bc.ca/fw/fish/regulations/#Synopsis</a>
Hunting, Trapping, and Guide Outfitting	Hunting and Trapping Regulations Synopsis (2012–2014). <a href="http://www.env.gov.bc.ca/fw/wildlife/hunting/regulations/">http://www.env.gov.bc.ca/fw/wildlife/hunting/regulations/</a>
	Guide Outfitters Association of BC Member List. Guide Outfitters Association of BC. <a href="http://www.goabc.org">http://www.goabc.org</a> .

The baseline information included both spatial and non-spatial information. Where there was available spatial information, a spatial overlay of all NTLRU tenures, dispositions, and activity areas that intersect areas directly disturbed by the Project (i.e., mine footprint, access and transmission right-of-way [ROW] corridors, main access route) and within the LSA or RSA was undertaken. The results were quantified (i.e., counts, %, ha), which allowed the analysis to be both quantitative and qualitative.

#### 7.2.6.1.4 Spatial and Temporal Boundaries

As described in **Section 4**, a LSA and RSA were used to describe and assess NTLRU potentially affected by the Project. The LSA is the Project footprint plus a 500-metre (m) buffer. The RSA is based on Vanderhoof LRMP and includes all subzones that overlap the LSA or fall within RSAs identified for other disciplines (i.e., aquatics). To provide representative information, the eastern RSA boundary was moved towards the west in order to balance out the area on either side of the proposed transmission and Kluskus Forest Service Road (FSR).

The following study areas were used to describe and assess the NTLRUs potentially affected by the Project:

- Mine site study area;
- Mine site access road study area;
- Airstrip study area;
- Water supply study area;
- Transmission Line study area;
- FSR (Kluskus FSR) study area; and
- NTLRU RSA.

Additional study areas include two alternative re-routes to the transmission line study area in different locations: the Stellako wildlife management area crossing alternative in the northern end of the proposed transmission line study area; and the Mills route alternative located at the southern extent of the transmission line study area. The spatial areas within the two alternative transmission line study areas were assessed separately.

The temporal boundaries used for the assessment of potential NTLRU effects are the same as those outlined for construction, operations, closure, and post-closure timelines described in **Section 4**. Land and resource use effects would occur throughout the full life cycle of the Project, including construction (Years -2 and -1), operations (Years +1 to +17), closure (Years +18 to +45), and post-closure (following Year +35).

#### 7.2.6.2 Valued Component Baseline

This subsection provides detailed baseline information on the VC and the source of the information; identifies past, present or future projects/activities that may impact the VC; and describes traditional ecological or community knowledge, where available.

The source of the information in the baseline is summarized in **Section 7.2.6.1.3**. Traditional knowledge (TK) information is summarized in **Section 7.2.6.2.13**.

There are a variety of non-traditional land uses occurring within the NTLRU RSA. There are also provincially designated lands such as parks, protected areas, and ecological reserves. Non-

traditional land uses overlap with the study areas associated with the various Project components including the mine site, mine site access road, airstrip (and access road), freshwater supply pipeline, transmission line, and Kluskus FSR, collectively referred to as the Project LSA. A detailed description of the NTLRU within the LSA and RSA is provided in the baseline report in **Appendix 7.1.2A**. Future projects or activities that could affect NTLRU include Nulki Hills Project, Fraser Lake Biomass Project, future mineral exploration, and logging. Potential effects from past, present and future projects or activities are noted in **Table 7.2.6-13**.

#### 7.2.6.2.1 Land Use Management Planning

The Vanderhoof LRMP, approved by the Province of BC in January 1997, was reviewed in 2005 to update and incorporate new information due to the impact of the mountain pine beetle (MPB) epidemic and accelerated salvage operations. The AMP, implemented by the Vanderhoof Forest District since 1998, was also reviewed to better manage values on the changing land base. This review indicated a need to: accommodate more motorized recreational activities (4X4, ATVs); provide greater certainty for a variety of recreational opportunities; manage access for wildlife values; and provide operational flexibility for effective management of MPB.

Most of the non-traditional land uses occur at the north end of the NTLRU RSA where both the transmission line and FSR study areas approach Highway 16 and Vanderhoof and Fraser Lake. The southern portion of the Project (including the mine site, mine site access road, airstrip, and freshwater supply) falls within the Davidson Creek Resource Management Zone (RMZ) 17 defined in the LRMP.

The majority of the transmission line and FSR study areas fall within areas designated as Motorized Road Accessible in the AMP. Several areas identified as being more sensitive to motorized vehicles, such as Horne Lake and Boomerang Lake, are adjacent to the FSR study area. The mine site study area is located within the Mt. Davidson and Davidson Creek AMP area, which is designated Semi-Primitive Non-Motorized.

#### 7.2.6.2.2 Local Government Land Use Planning

The mine site, mine site access road, airstrip, and freshwater supply study areas fall within the Cariboo Regional District (CRD). The NTLRU RSA falls with the Regional District of Bulkley-Nechako (RDBN) and the CRD. The northern portion of the transmission line and FSR study areas fall with the Vanderhoof Rural OCP, prepared by the RDBN, which is intended to be used to provide direction regarding planning and development within the Vanderhoof rural area.

#### 7.2.6.2.3 Protected Areas and Parks

Table 3.2-1 and Figure 3.2-1 in **Appendix 7.1.2A** describe the provincial parks, ecological reserves and protected areas within the NTLRU RSA. There are no national parks with the RSA (Parks Canada, n.d.b); no National Historic Sites (Parks Canada, n.d.a.), National Marine Conservation Areas (Parks Canada, 2013), National Wildlife Areas (Environment Canada, 2013a), or migratory bird sanctuaries (Environment Canada, 2013b) are located proximate to the Project.



The Stellako River Wildlife Management Area (WMA), located between Fraser Lake and Francois Lake, is intersected by the transmission line (main) study area. Finger Tatuk Provincial Park is located approximately 3 kilometres (km) east of the access route study area.

#### 7.2.6.2.4 Recreation/Tourism Use

The Recreational Features Inventory (RFI) indicated that no recreational areas rated as having a high sensitivity to disturbance and a high or very high significance overlap the Project study areas. The recreational significance of the north section of the mine site study area is rated as having moderate sensitivity and moderate significance. Several recreational areas rated as having a high significance (moderate sensitivity) are crossed by the transmission line study area including Chedakuz Creek, Greer Creek, Nechako River, and the area east of Francois Lake Protected Area. The FSR study area is located primarily in an area rated as having a low sensitivity and moderate recreational significance. The majority of the freshwater supply pipeline study area crosses an area rated as having a moderate sensitivity and moderate recreational significance, with a small area rated as having a moderate sensitivity and high recreational significance located immediately south of the ROW.

Twenty-three commercial lodges and several camping and forest recreation sites are located within the NTLRU RSA. Many of the lodges are associated with the guide outfitting companies operating in the area.

There are no recreation sites or commercial lodges within 5 km of the mine site, mine site access road, or airstrip. There is a historic non-motorized recreational trail, the Messue Wagon Trail, 13 km directly east of the mine site in a north-south direction. This trail is crossed by an existing resource road (the Kluskus-Ootsa FSR) crossing by the proposed freshwater supply pipeline from Tatelkuz Lake to the mine site. Tatelkuz Resort is located 2 km south of the mine site access road study area and main transmission line study area, and approximately 8.5 km from the proposed mine site. The proposed freshwater supply at Tatelkuz Lake is located between 600 m and 900 m from two recreation sites, Big Bend Meadow and Brewster Lake. These two recreation sites are located proximate to the FSR study area and are intersected by the transmission line study area. The transmission line study area crosses the Nechako River in an area that is a popular canoe trail.

#### 7.2.6.2.5 Hunting, Trapping and Guide Outfitting

Fourteen guide outfitter areas and 69 registered traplines intersect the NTLRU RSA. Of these, nine guide outfitter areas and 22 traplines fall within the NTLRU LSAs. Three guide outfitter areas (500929, 600384 and 601039 as presented in Table 3.6-2 in **Appendix 7.1.2A**) and three registered traplines (TR0512T014, TR0512T027 and TR0601T003 as presented in Table 3.6-7 in **Appendix 7.1.2A**) overlap the mine site study area. Of the three registered traplines (TR0512T014, TR0512T027 and TR0601T003) that are intersected by the Project in the mine site study area, 12% of one of the three traplines (TR0512T027) is overlapped by the Project mine site study area with approximately 1% of their total area overlapped by the other two. The area ranges between 1% and 14% for the 13 traplines falling within the transmission line (and Stellako and Mills Ranch re-routes).

Section 3.6.2 of **Appendix 7.1.2.A** indicates resident hunters in the area most commonly hunt moose, deer, wolf, and black bear. Cougar, coyote, wolverine, lynx, and snowshoe hare are also hunted. Hunting regulations for the Wildlife Management Units (WMUs) overlapped by the Project are summarized in the 2012 – 2014 Hunting and Trapping Regulations Synopsis (BC MFLNRO, 2012). Specific information regarding available resident, non-resident and trapping harvest data for the years 2000 to 2010 is provided in the Wildlife and Wildlife Habitat Baseline Report (**Appendix 3.1.4A**). A valid Hunter Number Card is required for BC residents 18 years of age and older. Recent changes to the hunting licence program (effective 1 April 2013) make it easier for a BC resident 10 to 17 years of age to hunt with a youth licence that is held by the parent or guardian. BC resident hunters are allowed to accompany a Canadian non-resident one time per year, provided they have obtained the appropriate documents.

#### 7.2.6.2.6 Fishing and Aquaculture

There are a number of streams, rivers, and lakes located near Vanderhoof, accessed by paved roads or FSRs, while others are more distant and accessed by kayak, canoe, boat, or floatplane. Fishing areas proximate to the Project include: Nechako River and Reservoir (Knewstubb Lake), Tatuk Lake, Finger Lake, Top Lake, Stellako River, Chedakuz Creek, Big Bend Creek, and Euchineko River. A number of smaller lakes and streams are also found in the area and fished by anglers hiking into the area (Government of BC, 1997) Anglers visiting less-accessible waterbodies will often opt to camp overnight at nearby Forest Services' campsites or at less established camping areas along the shores of lakes and rivers. Visiting anglers also have the option to stay at one of the many fishing lodges located in the area which offer guided fishing, rental boats, and equipment. Many of these lodges also offer floatplane excursions to more distant lakes and fishing spots. In the last 10 years, five lakes (Tachick Lake, Nulki Lake, Casey Lake, Hobson Lake, Chief Gray Lake) have been stocked with fish within the NTLRU RSA.

#### 7.2.6.2.7 Mining Exploration and Mineral Tenures

Mineral tenures overlap 100% of the mine site and freshwater supply study areas and the southern portion of the transmission line and access route study areas (Table 3.4-1 to Table 3.4-6 in **Appendix 7.1.2A**). The New Gold Inc. (Proponent) holds mineral tenures or has agreements in place for all lands that would be used for the mine. Mineral exploration is occurring in the area proximate to the proposed mine site. A review of the MINFILE Mineral Inventory indicated that there are no past, active, or developed producers located within the Project study areas. One active producer is located within the NTLRU RSA i.e., the Endako Mine (MINFILE No. 093K 006), which is located near Fraser Lake approximately 65 km west of Vanderhoof. Two developed prospects are located within the NTLRU RSA i.e., Vanderhoof Limestone and Capoose. Several mining prospects and showings are located within the mine, transmission line and access route study areas. One prospect, Blackwater-Davidson (MINFILE No. 093F 037), falls within the mine site study area and represents a portion of the Project study area being assessed as part of the Project.

#### 7.2.6.2.8 Forestry and Timber Resource Use

The Kluskus FSR was built through this area in 1975 and timber harvesting in the area commenced in the late 1980s. No legal or non-legal Old Growth Management Areas (OGMAs) have been identified within the NTLRU RSA. There are a variety of retired, active, and pending forest tenures in the Project study area. No active forest tenures overlap the mine site study area. The Proponent holds several small tenures, one of which falls entirely within the mine site study area and is identified as pending. The Project study area has been significantly affected by the MPB, and forestry management practices have been adjusted to facilitate recovery. There are approximately 3,240 different forest/timber tenures (with a status of active, pending, or retired) within the NTLRU RSA with 1,973 (61%) of the tenures retired between 2005 and 2011. There are no tree farm licences or community forests proximate to the Project study area. Several woodlots are intersected by the proposed transmission line (and Stellako and Mills Ranch re-routes) and FSR study areas (Table 3.5-1 to Table 3.5-8 in **Appendix 7.1.2A**). The Project intersects numerous active and pending forest tenures and retired cutblocks.

#### 7.2.6.2.9 Agriculture and Grazing (including Range Use)

The expansion of agricultural lands in the Vanderhoof District has been significant in the last two decades. The Vanderhoof OCP states that whenever possible, the routing of future rural roadways and utility lines should avoid fragmenting agricultural lands by following alignments along section, boundary or property lines, road allowances, or existing utility corridors. Utility and road ROW across Agricultural Land Reserve (ALR) lands cannot proceed without the approval of the provincial Agricultural Land Commission. No ALR lands fall within the mine site, mine site access road, airstrip, transmission line, or freshwater supply pipeline study areas. Three ALR properties are overlapped 32% by the existing portion of the FSR study area for a total of 2,065 ha (which accounts for 14% of total FSR study area), (Section 3.8.2 in **Appendix 7.1.2A**).

Eight range tenures are intersected by the Project (RAN075154 A, RAN075967 A, RAN077117 1, RAN077118 1, RAN077136 1, RAN077234 1, RAN077238 1, and RAN077486 as presented in Table 3.8-1 in **Appendix 7.1.2A**). One range tenure (RAN075154) is intersected by all of the Project study areas except for the Stellako and Mills Ranch re-routes. This range tenure occupies 27% of the mine site study area and 90% to 100% of the mine site access road, airstrip, and freshwater supply pipeline study areas. This accounts for a total of 31% of range tenure RAN075154. The transmission line study area intersects six range tenures (RAN075154 A, RAN075967 A, RAN077117 1, RAN077118 1, RAN077234 1, and RAN077238 1 as presented in Table 3.8-1 in **Appendix 7.1.2A**). The range of overlap of the transmission line study area by range tenures is from <1% to 12%.

#### 7.2.6.2.10 Land Ownership

From an ownership perspective, lands within the NTLRU RSA, south of the District of Vanderhoof, are predominately designated as “unknown” (**Table 7.2.6-2**). Information was compiled using available resources from the provincial GeoBC Data Distribution database. Areas appearing as “unknown” are attributed to being unsurveyed Crown land in the database (i.e., there is no historical survey or title registered for those areas). However, there is a small chance that some

areas shown as unsurveyed could be titled property due to historical errors made in the provincial parcel/title repositories (Section 3.9.2 in **Appendix 7.1.2A**).

**Table 7.2.6-2: Land Ownership (%) Overlapping the Project Study Area**

Ownership	Project Study Areas							FSR (%)
	Mine Site (%)	Mine Site Access Road (%)	Airstrip (%)	Freshwater Supply (%)	Transmission Line (%)			
					Main	Stellako	Mills Ranch	
Crown federal	0	0	0	0	0.05	0	0	0
Crown municipal	0	0	0	0	0	0	0	0
Crown provincial	0	0	0	0.6	17	53	20	11
Private	0	0	0	0	2.5	34	1	14
Unknown*	100	100	100	99.4	80.5	13	79	75

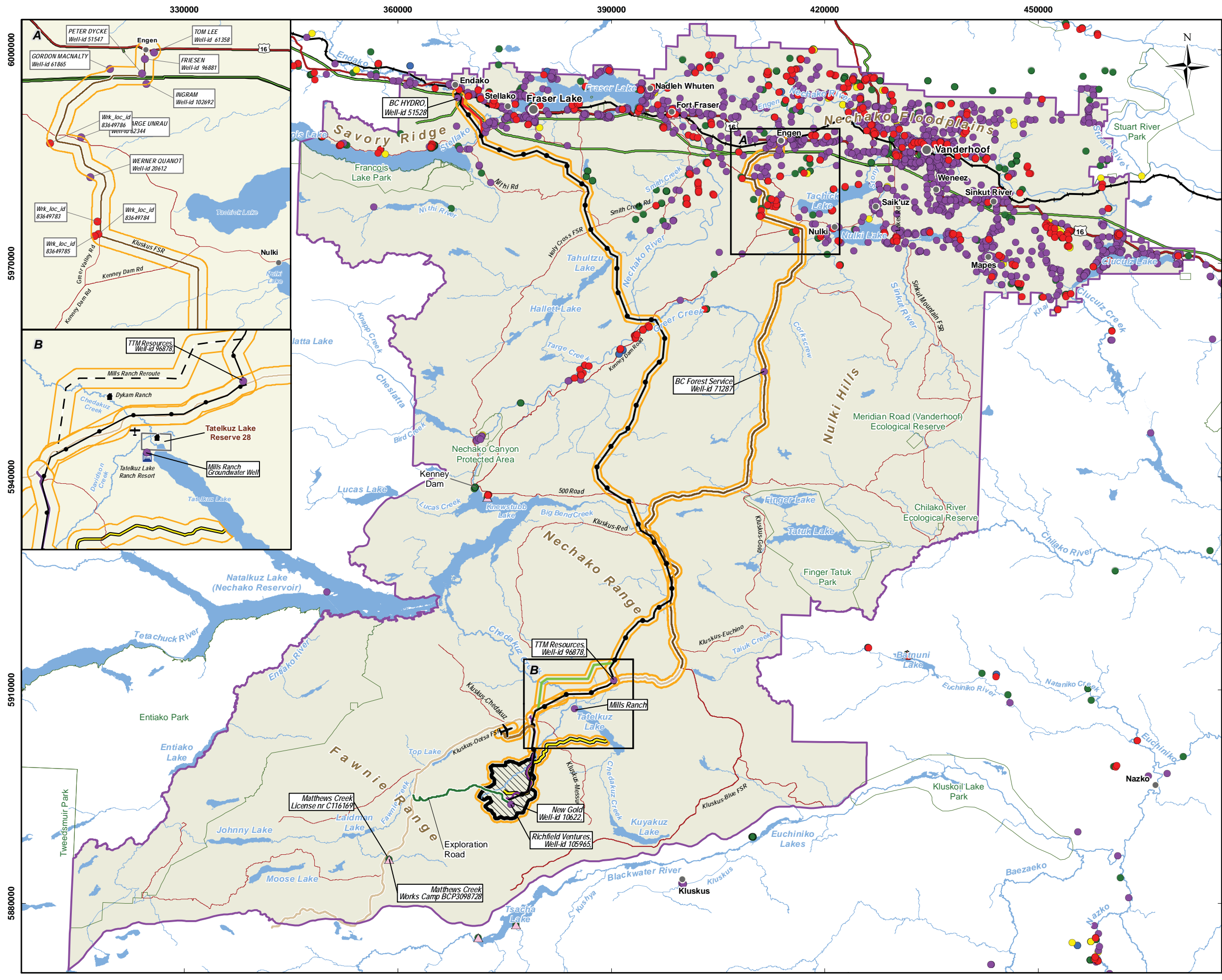
**Note:** \*Areas appearing as “unknown” are attributed to being unsurveyed Crown land in the database (i.e., there is no historical survey or title registered for those areas).

The study area associated with the transmission line (and Stellako and Mills Ranch re-routes) and FSR intersects a variety of *Land Act* tenures ranging from approximately <0.001% to 4%, with the majority less than 1%. Tenures associated with quarrying, agriculture, industrial, residential, environment, institutional, and communication overlap the transmission line and FSR study areas as presented in Table 3.9-3 and Table 3.9-5 in **Appendix 7.1.2A**. A small area (i.e., 0.1%) of the transmission line study area is overlapped by a federal Crown tenure (DL2557 R5C) with a total area of 7.7 ha. No *Land Act* tenures overlap the mine site study area or freshwater supply pipeline study area.

#### 7.2.6.2.11 Surface Water and Groundwater Resource Use

The Crown, on behalf of the residents of the province, owns all water in BC. No licenced springs or water reserves/allocation restrictions occur within any of the Project study areas. Two groundwater wells, both owned by the Proponent, are registered within the mine site study area. No other water licences occur within the mine site study area, mine access road study area, airstrip study area, or freshwater supply pipeline study area. Outside of the mine site LSA, there is a groundwater well at the Mill’s Ranch property, approximately 25 km northeast of the mine site as presented in **Figure 7.2.6-1**. Two groundwater wells groundwater well tag number 96878 and 51528 as presented in Table 3.9-7 in **Appendix 7.1.2A**) are located within the transmission line study area. The FSR study area overlaps nine groundwater licences and four points of diversion for stockwatering.

Y:\GIS\Projects\VE\52095\_Richfield\_Blackwater\Maping\17-100-049\_waterLic\_v3.mxd



**Legend**

- Populated Place
- +— Railway
- Highway
- Existing Transmission Line
- Stream (>=4th Order)
- Waterbody (>= 100ha)

**Forestry Service Roads**

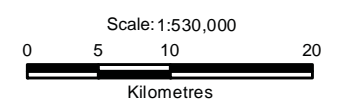
- Kluskus FSR
- Kluskus-Ootsa FSR
- Other FSRs
- Proposed Airstrip Access Road
- Exploration Road
- Proposed Mine Access Road
- Proposed Transmission Line
- Proposed Transmission Line (Stellako Re-route)
- Proposed Transmission Line (Mills Ranch Re-route)
- Proposed Fresh Water Pipeline

**Water Licenses Information**

- Groundwater Well
- Water Licensed Works
- Water Reserve or Water Allocation Restriction
- Licensed Spring
- Current
- Active Application
- Pending
- ▲ Drinking Water Source (Surface Water POD)

**Non-Traditional Landuse**

- Regional Study Area
- Local Study Area



**Reference**  
 BC Government GeoBC Data Distribution  
 NRCAN Geobase  
 Ministry of Forests, Lands and Natural Resource Operations

CLIENT: 		
PROJECT: Blackwater Gold Project		
Water Licenses Overlapping the Non-traditional Land Use Regional Study Area		
DATE: May, 2014	ANALYST: WR	<b>Figure 7.2.6-1</b>
JOB No: VE52420	QA/QC: SB	PDF FILE: 17-100-049_waterLic_v3.pdf
GIS FILE: 17-100-049_waterLic_v3.mxd		
PROJECTION: UTM Zone 10	DATUM: NAD83	

#### 7.2.6.2.12 Recreational and Commercial Use of Waterways

Information on the use of waterways was collected from stakeholder communications, literature research, and the navigable waters baseline report and technical assessment undertaken by ERM Rescan for the Project (ERM Rescan, 2014).

##### 7.2.6.2.12.1 *Mine Site Study Area*

There is no known navigational public use in the upper reaches of the Davidson Creek watershed where the mine site will be located. The consultation record and available information gathered regarding navigational use of Davidson Creek indicates that there is no established use for navigation for recreational and/or commercial purposes and it is not suitable for future navigation. This area is largely made up of wilderness land that for the most part is inaccessible by land and water. The amended access management plan under the Vanderhoof LRMP in the mine site area is restricted to non-road accessible recreation: semi-primitive non-motorized (SPNM). The Project mine site footprint is located within Vanderhoof LRMP's Davidson Creek RMZ 17, which is designated as "Resource Development Emphasis." Access restrictions are a key part of the management of the RMZ (ERM Rescan, 2014).

##### 7.2.6.2.12.2 *Mine Site Access Road Study Area*

Assessment on the navigability of relevant waterbodies within the study area includes Turtle Creek, Chedakuz Creek and Davidson Creek. Navigability of Turtle Creek is unknown and it has very limited access, so it is rated as SPNM restricting public access to be non-motorized. However, it flows into Chedakuz Creek, downstream of Davidson Creek and because Chedakuz Creek is considered navigable; Turtle Creek is also considered to be part of a navigational network (ERM Rescan, 2014). As stated above Davidson Creek is not considered navigable nor has any history of navigation for recreational and commercial purposes.

##### 7.2.6.2.12.3 *Airstrip Study Area*

There is no navigable waterway within the study area.

##### 7.2.6.2.12.4 *Water Supply Study Area*

The main water body that is used for navigation, recreation, traditional subsistence, and cultural purposes in the study area is Tatelkuz Lake. Consultation with stakeholders indicates navigational use of Tatelkuz Lake. Tatelkuz Lake Ranch Resort has a boat, canoes, and kayaks available for lake use for recreational purposes. The Lhoosk'uz Dene Nation (LDN) has members living on Tatelkuz Lake that use the lake for navigation including subsistence fishing, hunting, gathering, and cultural purposes. The Kluskus people and Saik'uz First Nation (SFN) members are also reported to use the lake for navigation. Additionally, there is some limited use by recreationalists. Stakeholders have also reported the use of Tatelkuz Lake by floatplanes.

Under the Vanderhoof LRMP, access to the shores of Tatelkuz Lake is semi-primitive motorized (SPM), which allows for public motorized access, unlike along Davidson Creek which is restricted

to SPNM. Tatelkuz Lake has motorized access to it, connecting it to land transit networks. In addition, there is public access to Tatelkuz Lake and the lands around it. The result of information gathering through Proponent consultation indicated that there is limited but reasonable public access to Tatelkuz Lake via road, trails, water via Chedakuz Creek, as well as floatplane. The lake is also connected to Chedakuz Creek (both where it flows into the lake and out of it), as well as Grease Trails (Messue Wagon Trail). Therefore, it is considered part of a larger navigational network and is accessible from multiple points of access, including potentially by floatplane.

The consultation record indicates navigational use of Chedakuz Creek by canoe or kayak. Access to Chedakuz Creek is reported via road, trails, and by water (i.e., canoe and kayak) from Tatelkuz Lake. Chedakuz Creek is connected to Tatelkuz Lake and therefore considered as part of the same navigational network as Tatelkuz Lake. The creek also becomes a larger channel as it proceeds downstream, where it is also likely connected to other transportation routes. Therefore, Chedakuz Creek is considered as part of a larger navigational network (ERM Rescan, 2014).

#### *7.2.6.2.12.5 Transmission Line Study Area*

Waterways that are used for navigation and other purposes and/or are part of a larger water network within the transmission line study area include the Stellako, Nechako, Big Bend, Tahultzu, and Chedakuz Creeks. Consultation with the Northwest Brigade Paddling Club has reported that the Nechako River sees frequent use at most water levels and on all stretches. The smaller streams would see local use in the fall and spring. Floatplanes are known to access the Nechako River. The Nechako and Stellako Rivers both are accessible via road or floatplane and do not have any access restrictions as per the Vanderhoof AMP. Tahultzu Creek also does not have any access restrictions, while Big Bend Creek crosses through SPM land (some motorized public access). Both the Nechako and Stellako Rivers are larger waterways that have well established navigation, and are considered to serve as navigational network corridors. A map analysis of the connections of Big Bend Creek and Tahultzu Creek indicates that these creeks are connected to other waterways of a size that may be navigable, therefore, these creeks are conservatively rated as being part of a navigational network. Chedakuz Creek is considered to be part of a larger navigational network that crosses the Mills ranch re-route (ERM Rescan, 2014).

#### *7.2.6.2.12.6 FSR Study Area*

Assessment of waterways in the FSR includes one unnamed creek on one bridge crossing. It is not considered navigable (ERM Rescan, 2014).

#### *7.2.6.2.13 Traditional Ecological and Community Knowledge*

This section lists traditional ecological and community knowledge during consultation that are relevant to NTLRU. The assessment of Project effects on the current use of land and resources for traditional purposes is presented in **Section 7.2.7**, including traditional ecological knowledge relevant to current use.

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Based in consultation, Aboriginal and non-Aboriginal communities raised the following concerns related to the Project:

- Effects on water quality and related effects on water and fish consumption, as well as fish habitat in Tatlukuz Lake and in the Nechako Reservoir;
- Effects on caribou and moose from direct and indirect Project impacts (e.g., effects on wildlife movement, traffic collisions, and mortality);
- Effects on trapping and trapline holders (e.g., disturbance of registered traplines and effects on wildlife in the area of the mine site);
- Effects on migratory birds and mammals that could access water in the tailings ponds;
- Effects on the Nechako River from the transmission line crossing, including effects on salmon and water quality;
- Potential effects on black bear populations (e.g., wildlife mortality from collisions, human-bear interactions, increased hunter access);
- Concerns about changes in access to fish camp;
- Concerns about loss of understory vegetation such as berries, mushrooms, as well as food and medicinal plants and materials, due to the potential loss of land base;
- Concerns regarding increased traffic on local roads, and new access to Aboriginal hunting areas for non-Aboriginal hunters;
- Potential for disruption to land used by trappers, guides, ranchers, and lodge owners;
- Potential negative effects on livestock and cattle in the area; and
- Concern that dust that may contaminate the watersheds and affect fish.

Based on information gathered during Proponent consultation with Aboriginal groups in the RSA, trapping typically occurs in the fall in October. Trapping has taken place along Kuyakuz Lake. Community and traditional knowledge provided by local trappers indicate that some trapping still takes place in the LSAs. The extent of trapping activity varies from trapline to trapline. While limited information was provided to the Proponent regarding species trapped, grizzly bear, muskrats, beaver and marten were identified. Rabbits, coyote and wolf may also be trapped (LDN 2013, pers. communication; SFN 2013, pers. communication).

TK provided by LDN and SFN members (2013) indicates that hunting “*occurs throughout the whole area, it’s everywhere.*” The Stoney Creek area may be used for hunting (Joseph pers. comm., 2013). Historically and currently beaver, duck, muskrat, squirrel, moose, rabbits, deer, grouse are some of the sought after game animals. Moose is the most popular big game species hunted. The owner of Trapline TR0512T014 and community elders feel that moose populations have declined in recent years (Jimmie pers. comm., 2013).



Tatelkuz Lake is used for canoeing (for recreation and transportation). However, this is not as frequent as in the past (LDN pers. comm., 2013; SFN pers. comm., 2013). Boats are used to get to other activities such as fishing and hunting. The Nechako Reservoir and Knewstubb Lake are considered particularly important (Doerig pers. comm., 2013).

According to the holder of Trapline TR0512T014, trout fishing takes place in Kuyakuz Lake, Chedakuz Creek between Kuyakuz and Tatelkuz Lakes, Tatelkuz Lake, Hedakuz Creek downstream of Tatelkuz Lake, and major rivers in the area such as the Chilcotin, Blackwater, Dean River, Stellako, and Quesnel Rivers (Jimmie pers. comm., 2013). Fish caught include rainbow and bull trout, suckers, whitefish, and salmon (including kokanee). Community knowledge describes fishing in Davidson Creek, Tatik Lake and Finger Lake, Nechako Reservoir (Erasmus pers. comm., 2013). There are agricultural and grazing lands within the ALR in the area. The Nadleh Whut'en First Nation (NWFN) owns agricultural land in the area.

### **7.2.6.3 Potential Effects of the Proposed Project and Proposed Mitigation**

This section:

- Identifies and analyzes potential adverse effects resulting from the Project's construction, operations, closure, and post-closure phases;
- Identifies and describes any potential adverse effects from other known past, present, certain, and reasonably foreseeable future project or activities in the Project area; and
- Describes measures to mitigate the potential adverse effects identified above.

The assessment included consideration of the Project effects on the following NTLRUs:

- Protected Areas and Parks;
- Recreation and Tourism Use;
- Mining Exploration and Mineral Tenures;
- Surface Water Resource Use;
- Groundwater Resource Use;
- Recreational and Commercial Use of Waterways;
- Forestry and Timber Resource Use;
- Hunting, Trapping and Guide Outfitting;
- Fishing and Aquaculture;
- Agriculture and Grazing (includes range use); and
- Land Ownership.

An identification and confirmation process was used to determine the specific issues associated with NTLRU. The relevance of each issue was validated through considering the proposed issues

in the context of the existing baseline conditions of the Project, reviewing the Project Description, considering identified stakeholder concerns and feedback, and drawing from the professional experience of similar Projects.

Potential issues on NTLRU were identified through consultation with the following groups:

- Provincial government agencies, including BC Ministry of Environment (BC MOE), BC Ministry of Energy and Mines (BC MEM), BC MFLNRO, and BC Environmental Assessment Office (BC EAO);
- Local government agencies;
- Aboriginal groups; and
- The public or relevant stakeholders.

In addition to effects resulting from the Project, past and future effects were identified where they exist and are noted in the subsections below. Due to the relatively wild nature of the area, past effects are limited to some forestry and FSR development, some preliminary mineral exploration, and natural effects including wildfire and MPB infestations.

Future impacts are anticipated to include those similar to past effects. However, with additional access provided by roads and the transmission line resulting from the Project, additional effects could result, including new mining activity, increased recreation and hunting access, and expanded forest harvesting operations.

#### 7.2.6.3.1 Identification and Analysis of Potential Project Effects and Mitigation

The following discussion summarizes how NTLRU in the LSA could be affected by the Project in each of its phases: construction, operations, closure, and post-closure. The discussion considers effects by Project component, RSA, and study areas for the two transmission line alternative re-routes. The types of interactions associated with Project activities and components in relation to the NTLRU VC are classified as: key interactions, moderate interactions, or negligible interactions (**Table 4.3-2** Project Component and Activity Interaction Matrix for Selected VCs, **Section 4**). The focus of the effects assessment on the NTLRU VC deals with the key interactions since there is a direct interaction between the activity and the VC. Moderate interactions have the potential to result in effects and are also considered in the assessment.

During construction, NTLRU and NTLRU users may be affected by:

- Clearing for infrastructure development and construction of mine site facilities and related mine site access road; clearing for transmission line ROW corridor and facilities and surface infrastructure installations (e.g., transmission towers); clearing for airstrip development and associated facilities and access road; clearing and development of water supply intake area construction, water pipeline ROW corridor, and associated service road;

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- Emissions and dust generation from vehicles, construction equipment, mine production equipment, and blasting;
- Noise from on-site vehicles, construction equipment, mine production equipment, and blasting; and
- Project traffic and improved access.

During operations, NTLRU and NTLRU users may be affected by:

- Disruption of the use of tenures in the area of the mine footprint, transmission line, water supply line, access roads, and airstrip;
- Ongoing monitoring and maintenance of ROW corridors, surface installations, access roads, and related facilities;
- Emissions, and dust generation from equipment operation and periodic blasting activity;
- Noise from on-site vehicles and mining equipment during routine operations; and
- Project traffic and improved access.

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. During the decommissioning and closure phase, activities will include mine overburden hauling and resloping, plant decommissioning, and removal of on-site buildings and equipment. The closure phase will end when the open pit is flooded and water begins to discharge to the Tailings Storage Facility (TSF). At that point, pumping water from Tatelkuz Lake will no longer be necessary and decommissioning of the freshwater supply system and transmission line will occur. During the post-closure phase, there will be a few Proponent staff on-site on a continuous basis monitoring flows and taking water samples until the pumping system from Tatelkuz Lake is decommissioned. After the lake pumping station is shut down, there will be no Proponent employees on-site.

Disturbed areas will be revegetated in a manner consistent with end land use objectives. Once it has been established that mine access or internal mine roads are no longer needed, they will be decommissioned and reclaimed. Where the roads can be reclaimed, culverts will be removed, stream crossings re-graded, and surfaces scarified to encourage vegetation growth. The power line corridor will be maintained to support post-closure activities.

Substantially lower traffic volumes are expected during decommissioning and closure than during construction or operations, as transportation of goods, services, and consumables to and from the mine site would cease and there would be far fewer passenger vehicles carrying Project workforce. Heavy trucks and trailers would represent the largest percentage of the traffic mix, particularly during the initial year of decommissioning, when materials need to be disposed or recycled.

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During closure, negligible effects on NTLRU would be expected from:

- Light, emissions, and dust generation from periodic equipment operation and vehicle movement; and
- Short-term noise from on-site vehicles and mining equipment during decommissioning of the mine site infrastructure and associated traffic off-site.

During the post-closure phase, there will be negligible activity at the mine site. Activities will be limited to periodic environmental and water monitoring, which will involve only a few light trucks transporting monitoring equipment and monitors. Potential effects of the Project on NTLRU are assessed quantitatively and qualitatively and summarized in **Table 7.2.6-3**.

**Table 7.2.6-3: Potential Project Effects by Project Phase on Land and Resource Use and Mitigation Measures**

Project Component	Project Phase	Potential Project Effect	Likelihood of Occurrence	Key Mitigation/Enhancement Measures
Construction of mine site infrastructure, transmission line ROW, and related infrastructure, airstrip infrastructure, water supply line infrastructure, and access road	C	<ul style="list-style-type: none"> <li>Disruption of the use of registered traplines and guide outfitting areas overlapped by the mine footprint, transmission line, water supply pipeline, access roads, and airstrip</li> <li>Impact on access to registered trap lines, guide outfitting and fishing areas overlapped by the mine footprint, transmission line, water supply pipeline, access roads, and airstrip</li> </ul>	Likely	<ul style="list-style-type: none"> <li>Ongoing communication with registered trapline holders and guide outfitters,</li> <li>Compensating affected registered trapline holders in accordance with industry and provincial protocols with associated proof of lost revenue.</li> <li>Notifying affected registered trapline holders, guide outfitters, lodge owners linked to the outfitters in relevant WMUs, and the local offices of the British Columbia Ministry of Forests, Lands and Natural Resource Operations (BC MFLNRO) (which can relay the information to recreational hunters and fishers).</li> <li>Limiting disturbance to the habitat of marten, weasel, beaver, muskrat, and other furbearing species during construction by avoiding, where possible, prime denning and breeding habitat (e.g., mature riparian forests and old forest stands, which are favoured denning habitats for marten).</li> <li>Implementing the wildlife management plan.</li> <li>Implementing the transportation and access management plan.</li> </ul>
		<ul style="list-style-type: none"> <li>Disturbance and disruption of agricultural practices, livestock and equipment</li> <li>Disruption of use of range tenures</li> <li>Disturbance or compaction of topsoils and subsoils, and the potential spread of noxious weeds</li> </ul>	Likely	<p><b>Mitigation for disturbance and disruption of agricultural practices and activities and soil will include:</b></p> <ul style="list-style-type: none"> <li>Implementing the transportation and access management plan.</li> <li>Implementing a traffic control and management strategy along the ROWs.</li> <li>Requiring Project vehicles to use only the ROWs and designated access roads near Project development areas to minimize compaction of agricultural soil</li> <li>Implementing preventative protocols for cleaning of equipment (i.e., construction and excavation) of weeds, according to government and industry standards (i.e., weed control plans and guidelines).</li> <li>Ongoing consultation with farmers and ranchers to resolve issues when required and/or if applicable.</li> </ul> <p><b>Mitigation for disruption to ranching, equipment, or livestock will include:</b></p> <ul style="list-style-type: none"> <li>Notifying livestock owners of the construction schedule and activities to allow livestock to be moved to other pastures if necessary and/or where applicable</li> <li>Facilitating movement of livestock and farm machinery across the ROW corridors, where applicable.</li> <li>Identifying alternative watering locations or options in discussion with the land and livestock owner, if livestock access to water supply is curtailed by mine operations activities or infrastructure.</li> <li>Requiring drivers to close gates properly when Project vehicles require access to the ROW corridors on fenced and gated lands. Ongoing consultation with ranchers and livestock owners to resolve issues, when required and/or if applicable.</li> </ul>
		<ul style="list-style-type: none"> <li>Contribute to spreading of the MPB infestation</li> <li>Disruption of forestry-related activities, forestry access, and FSRs</li> </ul>	Likely	<p><b>Mitigation related to forestry tenures will include:</b></p> <ul style="list-style-type: none"> <li>Providing maps and early notification of Project development and other physical work to affected regional forestry stakeholders.</li> <li>Consulting forest licencees</li> <li>Implementing transportation and access management plan.</li> <li>Actively participating in the Canfor road sharing agreement.</li> <li>Following BC MFLNRO guidelines and requirements for clearing, handling, and hauling beetle-infested wood.</li> </ul>

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Project Component	Project Phase	Potential Project Effect	Likelihood of Occurrence	Key Mitigation/Enhancement Measures
Construction of mine site infrastructure, transmission line ROW, and related infrastructure, airstrip infrastructure, water supply line infrastructure, and access road	C	<ul style="list-style-type: none"> <li>Noise and emissions and dust generation associated with all Project components' infrastructure development may temporarily disrupt land and resource use activities (i.e., trapping, guide outfitting, mineral exploration and forestry, and recreation and tourism activities), users, and local residents</li> </ul>	Likely	<p><b>Mitigation for noise and dust-related disturbance and access disruption will include:</b></p> <ul style="list-style-type: none"> <li>Providing advance notification of Project schedules to relevant recreational stakeholders (i.e., recreational groups, lodges, campsites, etc.), and rural residents who will be in close proximity to Project activities.</li> <li>Erecting appropriate signage on affected recreational and snowmobiling trails, warning users of temporary trail closures, if scheduling to avoid trail users is not possible or feasible.</li> <li>Scheduling construction activities (if avoidance is not possible) during acceptable hours daily until the work is completed.</li> <li>Controlling dust with wetting agent at regular intervals and/or when required, as necessary.</li> <li>Implementing the wildlife management plan.</li> <li>Implementing the transportation and access management plan.</li> </ul>
		<ul style="list-style-type: none"> <li>Disruption of the use of tenures in relation to the mine footprint, transmission line, water supply line, access roads, and airstrip</li> </ul>	Likely	<ul style="list-style-type: none"> <li>Ongoing communication with stakeholders, during all phases of the Project.</li> <li>Providing notice of Project construction activities and schedules to the stakeholders.</li> <li>Implementing the transportation and access management plan.</li> </ul>
		<ul style="list-style-type: none"> <li>Disturbance to water use areas (licensed groundwater wells)</li> </ul>		<ul style="list-style-type: none"> <li>Protecting the well with temporary fencing during construction.</li> </ul>
		<ul style="list-style-type: none"> <li>Impediment to safe navigation and temporary access restrictions across waterways that interact with Project crossings and facilities</li> </ul>		<ul style="list-style-type: none"> <li>Having temporary access restriction at locations where the crossing areas intersect potential put-in places/points for water access.</li> <li>Erecting signs at site locations to inform stakeholders where appropriate.</li> <li>Informing water-based recreational stakeholders about construction activities in advance i.e., Northwest Brigade Paddling Club, nearby lodges, the local offices of BC MFLNRO.</li> <li>Employing appropriate engineering designs and management practices to minimize effects on stream flow;</li> <li>Applying monitoring and adaptive management; and</li> <li>Implementing the water management plan.</li> </ul>
		<ul style="list-style-type: none"> <li>Creation of new linear access where access corridors are currently non-existent. This enhances consumptive and non-consumptive recreational uses as a result of year-round access and may lead to conflicts between resource users</li> </ul>	Likely	<ul style="list-style-type: none"> <li>Implementing the transportation and access management plan.</li> <li>See additional measures outlined in following section for Project component related to access and transportation (Section 7.2.5.3)</li> </ul>
Mining operations, transmission line ROW operations and maintenance, airstrip operations and maintenance	O	<ul style="list-style-type: none"> <li>Disruption of the use of tenures in relation to the mine footprint, transmission line, water supply line, access roads, and airstrip</li> <li>Change in quality of experience for trapline holders, guide outfitters, mineral explorationists and forestry, and the public recreating in the area of the Project</li> </ul>	Likely	<p><b>Mitigation for changes in local ambience, effects on aesthetics (i.e., noise and dust disturbance) and access effects will include:</b></p> <ul style="list-style-type: none"> <li>Providing advance notification of Project schedules to relevant recreational stakeholders (i.e., recreational groups, lodges, etc.), and to rural residents who will be in close proximity to Project activities.</li> <li>Erecting appropriate signage on affected recreational and snowmobiling trails, if adjusting scheduling is not possible or feasible.</li> <li>Using noise abatement and operations scheduling considerations at noise-sensitive locations and times, where appropriate, to limit disruption to sensitive receptors.</li> <li>Implementing the transportation and access management plan.</li> <li>Controlling dust with wetting agent at regular intervals and/or when it is required.</li> <li>See mitigation measures described in the Construction Phase that are also applicable and relevant to the Operations Phase.</li> </ul>

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Project Component	Project Phase	Potential Project Effect	Likelihood of Occurrence	Key Mitigation/Enhancement Measures
		<ul style="list-style-type: none"> <li>Disruption of land and resource users due to noise due to blasting (if applicable), operation of Project equipment, and traffic</li> <li>Project activities and equipment may create emissions and dust and inconvenience to land and resource use stakeholders.</li> <li>Disruption to agricultural practices, equipment, and livestock</li> <li>Disturbance or compaction of topsoils and subsoils, and the potential spread of noxious weeds</li> </ul>		
Access and transportation	C, O, CL	<ul style="list-style-type: none"> <li>Effects associated with Project access and transportation may cause traffic safety issues, inconvenience, dust, and noise pollution, and disrupt land and resource use stakeholders (e.g., trappers, guide outfitters, consumptive recreationers, tenure holders, residents) and their activities (i.e., trapping, guide outfitting, fishing, mining exploration and forestry, and recreation and tourism) related to access, their respective practices, and use of the resource.</li> </ul>	Likely	<ul style="list-style-type: none"> <li>Ensuring all Project-related vehicles abide by the terms and conditions of the Canfor Road Management Agreement.</li> <li>Implementing and enforcement of transportation and access management plan.</li> <li><b>Additional mitigation measures also addressed in the transportation and access management plan include:</b></li> <li>Locking gates will be installed on the mine access road to prevent public use of the road.</li> <li>Posting speed limits on the mine access road, as they are on the FSRs. Travel speeds will be adjusted according to road conditions, weather, and wildlife presence when and where required.</li> <li>Posting signs to alert drivers of potential wildlife presence at wildlife migration corridors and crossing points, and reduced travel speeds will be posted where required. This type of signage currently exists along the FSRs.</li> <li>During dry periods, spraying the mine access road with wetting agents to improve visibility from dust, as needed</li> <li>Ploughing snow from the mine access road when necessary, and using products having low environmental impact (e.g., sand, gravel, non-palatable salts) to ensure safe road conditions.</li> <li>Reporting wildlife sightings to supervisory personnel as soon as possible, and immediately reporting wildlife incidents (e.g., traffic accidents) to supervisory personnel.</li> <li>Busing workforce from Vanderhoof.</li> <li>Obeying posted speed limits.</li> <li>Using radio frequency call-ins when travelling on the FSRs and mine access road.</li> <li>Limiting the potential for road kill of wildlife by reducing Project-related vehicle speeds and reducing vehicle numbers (e.g., using buses to transport workers to the mine site).</li> </ul>
Mine reclamation, access road, water supply line, airstrip, transmission line, and associated infrastructure removal and reclamation	CL	<ul style="list-style-type: none"> <li>Noise and emissions and dust generation associated with Project components' infrastructure development may temporarily disrupt land and resource use activities (i.e., trapping, guide outfitting, mining exploration and forestry, and recreational and tourism activities), users, and local residents.</li> </ul>	Likely	<ul style="list-style-type: none"> <li>All applicable measures listed above including the implementation of reclamation and closure plan.</li> </ul>

**Note:** C = construction; O = operations; CL = decommissioning and closure; PC = post-closure

The following subsections identify potential effects in relation to each of the six study areas for the NTLRU indicators that are carried forward in the assessment, as indicated in **Table 7.2.6-4**.

#### 7.2.6.3.2 Mine Site Study Area

##### 7.2.6.3.2.1 *Protected Areas and Parks*

The Project does not intersect any parks, protected areas, ecological reserves or conservancies. There will be no effects on these areas.

##### 7.2.6.3.2.2 *Recreation/Tourism Use*

There are no recreational lodges or areas and recreation sites within the mine site study area. There are recreational lodges and areas, and trails and related access routes located immediately outside of the study area. Laidman Ec lodge has indicated that the eastern boundary overlaps the western portion of the mine site study area. This represents a small proportion of Laidman Ec lodge's commercial recreation facility. There is the potential that noise and dust disturbance, temporary access disruption and effects to the local ambience could diminish outdoor recreational ecotourism activities or wilderness resource values during all phases of the Project in the areas immediately outside and within the western portion of the mine study area.

Mitigation measures to minimize noise and dust disturbance, changes in local ambience, and temporary access disruption include:

- Ongoing consultation with relevant stakeholders;
- Providing advance notification of Project schedules in local media to relevant recreational stakeholders (i.e., recreational groups, lodges, etc.) and to rural residents who will be in close proximity to Project activities;
- Erecting appropriate signage on affected recreational and snowmobiling trails, if scheduling adjustments are not possible or feasible;
- Controlling dust with wetting agent at regular intervals and/or when it is required;
- Scheduling construction activities (if avoidance is not possible) during acceptable hours daily until the work is completed;
- Implementing the transportation and access management plan; and
- Implementing the reclamation and closure plan.

##### 7.2.6.3.2.3 *Mining Exploration and Mineral Tenures*

There are 31 mineral claims in the mine site study area, of which 29 belong to the Proponent and two mineral claims are held by Little Bear Gold Corp. (694945 and 694063). Less than 1% of the tenures held by Little Bear Gold Corp. are intersected by the Project footprint. There are no mineral producers within the mine site study area.



There are no quarries and gravel pits within the mine site study area.

Access to tenures held by Little Bear Gold Corp. may be affected by the Project. The Proponent will communicate and consult with Little Bear Gold Corp. prior to and following construction to minimize adverse effects during all phases of Project activities. The Proponent will also consult with Little Bear Gold Corp. to resolve any issues related to access as per appropriate industry and provincial standards, guidelines and best practices; and will implement the TAMP (**Section 12.2.1.18.4.14**), which includes a traffic management plan (**Section 12.2.1.18.4.14.7.4**).

#### *7.2.6.3.2.4 Forestry and Timber Resource Use*

There are fourteen future harvesting, one pending, and eight retired forestry tenures located within the LSA. Four active forest tenures (i.e., three occupant licenses to cut and one special use permit) overlap the mine site study area (A17842, A55578, A55578, and A55578). These forestry tenures are located in areas of the Vanderhoof Forest District which are heavily infested by the MPB. Within the area, 74.8% of the forested land base was identified as having severe MPB infestation, and 1.6% of the forested land base was identified as low infestation. Of the tenures within the study areas, portions of all ten future harvesting tenures are overlapped by the mine footprint.

Project disturbance in the mine study area will represent a long-term loss of forestry harvestable land base that precludes reforestation due to the presence of Project facilities, infrastructure, and activities on the land. This will result in a loss of forestry resources due to clearing for mine development and related activities. Where applicable, mining and associated infrastructure disturbance will be progressively reclaimed after use.

Project construction, operations, and decommissioning could disrupt forestry stakeholders' access to timber resources at current access points. An additional potential Project effect is the contribution to the spread of the MPB infestation.

Mitigation measures for forestry tenures and holders include:

- Providing maps and early notification of Project development and other physical work to affected regional forestry stakeholders;
- Consulting tenure holders about Project activities;
- Implementing the transportation and access management plan;
- Actively participating in the Canfor road sharing agreement; and
- Following BC MFLNRO guidelines and requirements for clearing, handling, and hauling beetle-infested wood.

#### *7.2.6.3.2.5 Hunting, Trapping, and Guide Outfitting*

The mine site footprint overlaps three active guide outfitter area (GOA) certificates: 500929/5-12, 5-13 (Euchiniko Lakes Ranch); 600384/6-04 (Moose Lake Lodge); and 601039/6-01 (Batnuni Lake Guide & Outfitters).

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Fawnie Mountain Outfitters (Fawnie Mountain Outfitters, 2013) is operated out of Moose Lake Lodge located approximately 30 km west of the proposed mine site (Moose Lake Lodge, 2013) as well as an outpost cabin on Entiako Lake (located approximately 40 km west of the proposed mine site). Hunting activities offered include moose and bear (grizzly and black bear) and a variety of different fishing is offered.

Batnuni Lake Guide & Outfitters offers moose, bear, wolf, cougar, and lynx hunts as well as fishing (Batnuni Lake, 2013). Batnuni Lake is located approximately 35 km east of the Project access road within guide outfitter area 500948, which runs along the eastern border of the FSR study area.

Euchiniko Lakes Guest Ranch is located on the east shore of Euchiniko Lake and the Blackwater River. Moose, black bear, grizzly bear, caribou, cougar, deer, wolf, and game bird hunting are offered. Winter trapline trips are also available (Section 3.6.3.1 in **Appendix 7.1.2A**).

Three registered traplines overlap the mine site study area: TR0512T027, TR0512T014, and TR0601T003. Trapline 0512T027 accounts for the largest overlap with the mine study area at 80%, which represents 9% of the total area for the registered trapline. Traplines 0512T014 and 0601T003 overlap <1% and 19% of the mine study area, and represent approximately 1% of their total traplines, respectively.

Two of the traplines (TR0512T027 and TR0512T014) are registered to members of LDN within the LSA. Interviews were conducted with the registered trapline holders TR0512T014 and TR0512T027. Trapline TR0512T027 has not been used for 20 years. The Messue Wagon Trail was used to access this trapline. Beaver was a major animal trapped at that time, but big game was not hunted in the trapline area (Trapline TR0512T027 pers. comm.). Trapline TR0512T014 continues to be used today, although the economic return is low due to a number of factors (e.g., price of fuel, fur prices; Trapline TR0512T014 pers. comm.).

The Project has the potential to impact the use of registered traplines in the immediate vicinity of the mine footprint. The Project may also result in sensory and habitat disruption to furbearing and game animals during Project activities related to clearing, construction, operations, decommissioning, and closure phases. This could potentially affect the use of tenures held by trappers and guide outfitters, as well as resident hunters.

Potential measures to mitigate Project-related effects to trapping and hunting activities include:

- Ongoing communication with trappers and guide outfitters;
- Compensating affected trapline holders in accordance with industry and provincial protocols with associated proof of lost revenue;
- Notifying trappers of affected trapline areas, guide outfitters, lodge owners linked to the outfitters in relevant WMUs, and the local offices of the BC MFLNRO (which can relay the information to recreational hunters and fishers);

- Limiting disturbance to the habitat of marten, weasel, beaver, muskrat, and other furbearing species during construction by avoiding, where possible, prime denning and breeding habitat (e.g., mature riparian forests and old forest stands, which are favoured denning habitats for marten) (**Section 5.4.13.8**);
- Implementing the Wildlife Management Plan (WLMP; **Section 12.2.1.18.4.6**); and
- Implementing the TAMP (**Section 12.2.1.18.4.14**).

#### 7.2.6.3.2.6 *Fishing and Aquaculture*

There are no aquaculture sites located within the mine site study area. The Vanderhoof area is a popular recreational fishing destination due to the area's vast network of streams, rivers, and lakes. It is assumed that recreational fishing may occur in the water bodies within the mine site study area but would be limited in scale due to the remote nature of these water bodies. There are fishing areas located immediately adjacent to the mine site study area, in the lakes and rivers of the area.

Due to the construction, operations, and decommissioning phases of the Project associated with mining and infrastructure development, as well as the presence of workers on-site that may indulge in fishing activities, there may be a minimal effect related to fishing abundance in the area. The Project may temporarily affect access to preferred fishing locations, resulting in temporary relocation to other fishing areas. This may affect fishing success rates due to temporary relocation to other fishing areas, inconvenience, and additional fishing effort.

The Proponent will provide information to its employees and contractors on fishing restrictions for certain species, including prohibited fishing periods during the year. As well, the Proponent will consult regularly with relevant fisheries stakeholders (i.e., fishing-related lodge owners and outfitters), and notify and provide information to fisheries stakeholders and to the BC Fish and Wildlife branches (which can relay the information to recreational fishermen), about Project area access, schedules, and activities.

#### 7.2.6.3.2.7 *Agriculture and Grazing (including range use)*

There are no designated ALR lands fall within the mine site study area. Range tenure RAN075154 A intersected by the mine study area, but does not cover or adjacent to the mine footprint. Potential effects to this tenure include disruption to the use of the tenure, equipment, or livestock due to mining-related activities.

As appropriate, mitigation measures for effects on this tenure include:

- Notifying rancher of the construction schedule and activities to allow livestock to be moved to other pastures if necessary and/or where applicable;
- Facilitating movement of livestock and farm machinery across the ROW corridors, where applicable;

- Identifying alternative watering locations or options in discussion with the land and livestock owner, if livestock access to water supply is curtailed by mine operations activities or infrastructure;
- Requiring drivers to close gates properly when Project vehicles require access to the ROW corridors on fenced and gated lands; and
- Conducting ongoing consultation with the rancher to resolve issues, when required and/or if applicable.

#### 7.2.6.3.2.8 *Land Ownership*

There are no fee simple lands or *Land Act* tenures within the mine site study area.

#### 7.2.6.3.2.9 *Surface Water and Groundwater Use*

Two groundwater wells, registered to the Proponent, are within the mine site study area. There are no surface water licences or registered groundwater wells within the mine site study area.

#### 7.2.6.3.2.10 *Recreational and Commercial Use of Waterways*

There is no known public navigational use in the upper reaches of the Davidson Creek watershed, where the Project mine site is located. Consultation with stakeholders indicated that Davidson Creek has no established use for navigation for recreational and commercial purposes nor is it suitable for future navigation.

Based on the findings of the technical screening assessment against the Minor Works and Waters Order (MWWO) which follows the process recommended by Transport Canada, 46 stream crossings and reaches were assessed within the mine site study area. Of the 46 stream crossings and reaches, 30 have been deemed minor, leaving 16 as non-minor. Most of the affected reaches have been found to be minor, except from Reach 9 and downstream along Davidson Creek, and Reaches 1 to 3 of Creek 704454, which is a tributary to Davidson Creek under the TSF footprint. Reach 12 of Davidson Creek is also deemed to be non-minor, in addition to the uppermost section of Reach 13, which is the small Lake 01682LNRS (ERM Rescan, 2014).

In the mine site study area, none of the Project works were deemed to be minor. Works such as TSF dam embankments will block access to waterways, and other works such as diversion structures will divert waters around mine components such as waste dumps, which will eliminate original reaches. Project works interact directly with Reaches 9, 10 and 11 of Davidson Creek that have been deemed to be non-minor, as well as Reaches 1, 2 and 3 of Creek 704454 that have also been determined to be non-minor. Dams downstream of the TSF, such as those to create the freshwater reservoir, interact with Reaches 6 to 8 of Davidson Creek, which are also non-minor. Reaches further downstream along Davidson Creek, which might be affected by flow effects (but will not be affected by tailings since these are not being placed into the creek, but will be managed and contained in the TSF) have also been deemed to be non-minor (ERM Rescan, 2014).

Even though there are Project works that are non-minor and there are non-minor waterways that could potentially interact with Project works, there are no potential effects to recreational and commercial use of waterways because there has been no use of waterways within the mine site study area for recreational and commercial purposes and this is not expected to change in the future.

#### *7.2.6.3.2.11 Transportation and Access*

The Project will require access to the mine site during all phases of the Project for mining activities, maintenance, and monitoring, as well as the transport of equipment and workers to and from the site. These Project activities may have the potential to disrupt or affect access to the resource use areas, as well as create traffic-related safety issues due to increased traffic to the mine site study area.

The Proponent will control access to the Project area and ensure public safety with signage, rollback, and fencing, where necessary. They will also implement the TAMP, which includes a traffic management plan that provides measures that will ensure the safe movement of all mine traffic at the mine site, on the mine site access road, and on the FSRs that provide access to the mine from Highway 16. The traffic management plan is multifaceted including a traffic control plan that contains a road use handout, a road use contract for all road users requiring acknowledgement and compliance with all road safety measures, including the use of radio frequency call-ins when travelling on the FSRs and mine site access road. The Proponent will also be a primary participant in the Canfor Road Use Agreement, whereby the Project will pay a portion of the cost for ongoing road maintenance, repair, and snow removal, based on the projected volume of Project traffic. With the current reduction and possible termination of Canfor timber harvesting south of Highway 16, the Proponent, as primary user of the road, could take over responsibility for ongoing operation and maintenance of the Kluskus FSR prior to or at the time of Project construction.

Potential effects on access related to the mine site are also discussed and assessed in the related study areas (mine site access study area, airstrip study area, and the Project access road, i.e., Kluskus FSR study area), and in the transportation section (**Section 7.2.6.3.3**).

#### **7.2.6.3.3 Mine Site Access Road Study Area**

##### *7.2.6.3.3.1 Recreation and Tourism*

Potential recreational effects would be similar to those of the mine site study area, as they are in close proximity to each other. Applicable mitigation measures would be the same.

##### *7.2.6.3.3.2 Mining Exploration and Mineral Tenures*

There are no quarries and gravel pits identified within the mine site access road study area.

All mineral tenures in the study area are held by the Proponent; therefore, there are no effects to other mineral tenure holders.

#### 7.2.6.3.3.3 *Forestry and Timber Resource Use*

Fifteen active tenures have forest resources that may be harvested in the future. One of these tenures belongs to L&M Lumber Ltd. while the rest are identified as future harvest inventory. These tenures are in an area where 53% of the forest landscape is identified as having severe MPB infestation, and 36% as having low infestation. Of the tenures identified, the proposed access road footprint intersects eleven tenures, including the one identified for L&M Lumber Ltd.

The potential effects on forestry and timber resources would be loss of merchantable timber, reduction of the forestry land base, potential disruption of forestry activities or FSRs, and the potential of Project activities to spread MPB infestation. These effects are same as effects described for the mine site and water supply study areas. Proposed mitigation measures would be comparable and same as well.

#### 7.2.6.3.3.4 *Hunting, Trapping, and Guide Outfitting*

Guide outfitting area TR600384 overlaps 99% of the access road study area, with the remaining 1% overlapped by guide outfitting area TR601039. For both guide outfitting areas, the access road study area accounts for a small portion (less than 0.3%) of their total guide outfitting areas. There is one registered trapline (TR0601T003) that overlaps the entire study area, but represents less than 1% of the total trapline area. Potential effects to hunting, trapping, and guide outfitting and their mitigation will be the same as for identified effects in the mine site study area.

#### 7.2.6.3.3.5 *Fishing and Aquaculture*

There are no aquaculture sites located within the mine site access road study area. The Vanderhoof area is a popular recreational fishing destination due to the area's vast network of streams, rivers, and lakes. It is assumed that recreational fishing may occur in the water bodies within the mine site access road study area but would be limited in scale due to the remote nature of these water bodies. There are fishing areas located immediately adjacent to the mine site access road study area, in the lakes and rivers of the area. Potential effects to fishing and proposed mitigation measures will be the same as for the mine site study area.

#### 7.2.6.3.3.6 *Agriculture and Grazing (including range use)*

Potential effects to range tenure RAN075154 A and related activities, and the proposed mitigation measures is the same as for the mine site study area. The tenure holder is the same for both study areas, and would have similar issues. There are no ALR lands, and therefore no effects on agricultural practices.

#### 7.2.6.3.3.7 *Land Ownership*

There are no private lands or *Land Act* tenures the study area.

#### 7.2.6.3.3.8 *Surface Water and Groundwater Use*

There are no surface water licences or registered groundwater wells within the mine site access road study area. Thus, there are no effects.

#### 7.2.6.3.3.9 *Recreational and Commercial Use of Waterways*

The navigable waters baseline report and technical assessment undertaken in 2014 for the Proponent determined that there are four bridge crossings along the mine site access road. The technical screening assessment against the Minor Works and Waters Order (MWWO) findings' determined that while none of these four bridge crossings along the mine site access road are minor works, two of the waters along these crossings are found to be minor waters (site ids: AP-005 and AP-905), whereas the remaining two crossings are deemed to be over non-minor waters (ERM Rescan 2014).

Assessment on the navigability of relevant water bodies within the study area include Turtle Creek, Chedakuz Creek and Davidson Creek. Navigability of Turtle Creek is unknown and it has very limited access, so it is rated as SPNM restricting public access to be non-motorized. However, it flows into Chedakuz Creek, downstream of Davidson Creek and because Chedakuz Creek is considered to be navigable, Turtle Creek is also considered to be part of a navigational network (ERM Rescan, 2014). Davidson Creek is not considered navigable nor has any history of navigation for recreational and commercial purposes. Potential effects as a result of crossing along Turtle Creek may impede navigation during construction and decommissioning due to the presence of in-stream obstacles and construction and decommissioning related activities. It may also result in temporary access restrictions. There will be no overhead navigation safety issues as the Proponent will design specifications for the bridge that incorporate design criteria such as minimum overhead clearance to ensure navigational safety. Other mitigation measures will include using signs on site locations to inform stakeholders where appropriate, and suitable engineering designs and management practices to minimize effects of stream flow.

#### 7.2.6.3.4 *Transportation and Access*

Effects to and on transportation and access would be similar and comparable to effects described for the mine site, water supply, transmission line, and FSR study areas, described in the following sections. Mitigation measures would be similar to those described for all other study areas, primarily the implementation of the TAMP and adherence of all Project-related vehicles to the Canfor Road Use Agreement, which would address and mitigate Project-related effects in all study areas.

#### 7.2.6.3.5 *Airstrip Study Area*

##### 7.2.6.3.5.1 *Recreation and Tourism*

Potential recreational effects would be the same as those for the mine site and mine site access study areas as they are in close proximity to each other. Mitigation measures would be same and applicable as well.

#### *7.2.6.3.5.2 Mining Exploration and Mineral Tenures*

There are seven mineral tenures in the study area, four of which are held by the Proponent. Of those tenures not held by the Proponent, one is held by Little Bear Gold Corp. (694066), which overlaps 70% of the airstrip footprint or 7.5% of the total tenure area. Access to this tenure could be affected by the Project. There are no quarries and gravel pits identified within the airstrip study area.

The Proponent will consult and coordinate activities with Little Bear Gold Corp. prior to and following construction to minimize adverse effects during all phases of Project activities. The Proponent will also consult with other mineral tenure holders in the study area to resolve any issues related to access, as per appropriate industry and provincial standards, guidelines and best practices, where applicable. The Proponent will also implement the access and transportation plan.

#### *7.2.6.3.5.3 Forestry and Timber Resource Use*

Within this study area, there is an active tenure belonging to L&M Lumber Ltd., and 16 tenures classified as future inventory. Of this forested landscape, 45% is identified as having severe MPB infestation, 1% as having moderate, and 41% identified as having low infestation. The airstrip-related footprint intersects the active tenure belonging to L&M Lumber Ltd. and six of the other future inventory tenures.

Potential Project-related effects would be similar to those described in the mine site, water supply, and mine site access road study areas, as well as effects described in the following sections for the transmission line and FSR study areas. They would include loss of merchantable timber, reduction in forestry land base, potential disruption of forestry activities and traffic on FSRs, and the potential spread of MPB infestation resulting from Project activities. These effects are similar to the effects described in the mine site and water supply study areas. Mitigation measures would be same as that for the mine site and water supply study areas.

#### *7.2.6.3.5.4 Hunting, Trapping, and Guide Outfitting*

Guide outfitting area TR600384 overlaps the entire airstrip study area but this represents less than <1% of this total guide outfitting area. Trapline TR0601T003 overlaps the entire airstrip study area, representing <1% of the total registered trapline area.

Potential effects to hunting, trapping, or guide outfitting, and their mitigation would be the same as for the mine site study area.

#### *7.2.6.3.5.5 Fishing and Aquaculture*

It is assumed that recreational fishing may occur in the water bodies within the airstrip study area but would be limited in scale due to the remote nature of these water bodies. Potential effects on fishing and the proposed mitigation measures would be the same as that for the mine site and mine site access road study areas.



#### 7.2.6.3.5.6 *Agriculture and Grazing (including range use)*

Potential effects to range RAN075154 A and related activities, and their proposed mitigation measures would be the same as that of the mine site study area. The tenure holder is the same for both study areas and therefore, would have similar issues. Range RAN077118 1 is also intersected by the mine site access road study area i.e., 0.2%; which may cause minor disruption to the use of tenure, equipment, or livestock. There are no ALR lands in this study area and therefore, no effects on agricultural practices.

#### 7.2.6.3.5.7 *Land Ownership*

There are no fee simple lands or *Land Act* tenures in the study area.

#### 7.2.6.3.5.8 *Surface Water and Groundwater Use*

There are no surface water licences or registered groundwater wells within the airstrip study area, so there are no effects.

#### 7.2.6.3.5.9 *Recreational and Commercial Use of Waterways*

Within the airstrip study area there is one water course crossing that was screened along the air strip road. This water crossing will have a bridge if it is determined that the stream is fish bearing. If not, the crossing work will be a culvert. The unnamed creek at this crossing (site id: AA-002) was found to be a minor water body through the initial review test in the MWWO screening (ERM Rescan 2014). This stream is not navigable. Therefore, there are no effects to recreational and commercial use of waterways within the study area.

#### 7.2.6.3.5.10 *Transportation and Access*

Effects on transportation and access would be similar and comparable to those described for the mine site, mine site access road, water supply, transmission line, and FSR study areas, as described in the preceding and following sections. The magnitude of effects would be less than in the FSR or transmission line study areas, as the airstrip will be primarily used for fly in/fly out transport of workers, and the travel distance from airstrip to mine site on the FSR is small relative to the overall size of the FSR study area. Mitigation measures would be similar to those described for all other study areas, and primarily consist of implementation of the transportation and access management plan and adherence to the Canfor Road Use Agreement.

#### 7.2.6.3.6 *Water Supply Study Area*

##### 7.2.6.3.6.1 *Recreation/Tourism Use*

The eastern boundary of the study area intersects the southwest shore of Tatelkuz Lake. There are no recreational lodges, areas, or sites within the water supply study area. However, immediately north and outside of the study area (approximately 4.5 km away) is the Tatelkuz Lake Resort, located at the northern end of Tatelkuz Lake, and Tatelkuz Lake South and Tatelkuz Lake Southeast recreation reserves, located across the eastern shore of Tatelkuz Lake. Both recreation

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reserves are within the line of sight of the water supply study area. The Messue Wagon Trail intersects the eastern section of the study area.

Due to the presence of the lake, resort, recreation reserves, and trail, there are land- and water-related recreational and tourism activities occurring within and adjacent to the study area.

Potential effects include intersection of the Messue Wagon Trail by the water supply pipeline infrastructure and associated service road. This effect will primarily last during the construction phase. Additionally, there could be disruption and/or enhancement to recreational activities related to access. Recreational users could use the service road associated with the freshwater supply system pipeline.

During the construction and decommissioning/closure phases, noise and dust disturbance due to the presence of Project-related equipment and vehicles could disrupt outdoor recreational and eco-tourism activities or wilderness resource values in the general area, and particularly activities related to the Tatelkuz Lake Resort and the recreation reserves and Messue Wagon Trail. This effect will be minimal during the operations phase.

Mitigation measures to minimize noise and dust disturbance, changes in local ambience, and temporary access disruption include:

- Providing advance notification of Project schedules to relevant recreational stakeholders (i.e., Tatelkuz Lake Resort and other relevant recreational groups, lodges, etc.);
- Erecting appropriate signage on affected recreational and snowmobiling trails and areas, warning users of temporary trail closures, if adjustment of scheduling to avoid recreation use is not possible or feasible;
- Scheduling construction activities (if avoidance is not possible) during acceptable hours daily until the work is completed;
- Using noise abatement and construction scheduling considerations at noise-sensitive locations and times, where appropriate, to limit disruption to sensitive receptors;
- Controlling dust with wetting agent at regular intervals and/or when it is required; and
- Implementing the TAMP.

### 7.2.6.3.6.2 *Mining Exploration and Mineral Tenures Tenures*

Mineral tenures within the water supply study area include tenures held by the Proponent (607194, 636663, 631024, 631003, 636583, 834533, 834534, and 630984), Mountain Boy Minerals Ltd. (846784), one individual (835434 and 835436), and RJK Explorations Ltd. (694210, 694223 and 694209) Of the mineral tenures not held by the Proponent, six tenures held by three tenure holders overlap the Project footprint (representing a range of between <1% to 5% of their total tenure area). There are no quarries and gravel pits identified within the water supply study area. There is potential for access to mineral tenures to be affected by the Project.

The Proponent will consult and coordinate activities with the three mineral tenure holders, prior to and following construction, to minimize adverse effects during all phases of Project activities. In particular, the Proponent will consult with the holders to resolve any issues related to access in accordance to industry and provincial standards and best practices, where applicable, and will implement the access and transportation plan.

#### *7.2.6.3.6.3 Forestry and Timber Resource Use*

There are 27 forestry tenures that overlap with the study area identified as future harvest inventory and 15 tenures owned by L&M Lumber Ltd. These L&M-held tenures are identified as retired and there is no activity on them. The Proponent has one pending forestry tenure which represents an overlap of <1% with the study area. There are no private forest lands, TFLs, old-growth forests, or woodlot licences within the study area. Of these 27 future forestry inventory tenures, 14 tenures are overlapped by the water supply area footprint, representing 37.5% of the footprint.

The Kluskus-Messue FSR intersects the water supply study area.

Project disturbance as a result of clearing for the pipeline and service road in the water supply study area will represent a long-term loss of future harvestable land base and forestry resources that precludes reforestation. Project construction, operations, and decommissioning could disrupt forestry stakeholders' access to timber resources at current access points. The use of forestry access roads by the Project might interfere with road use needs of forestry stakeholders, create motor vehicle safety issues, or cause additional wear and tear on the road surfaces and increase forestry stakeholders' road maintenance costs.

In addition, Project-related effects related to the potential spread of MPB infestation resulting from Project activities would be similar to those described in the preceding sections for the mine site and mine site access road study areas, as well as effects described in the following sections for the transmission line and FSR study areas.

The Proponent will mitigate with measures that be the same as that for the mine site and mine site access road study areas, as well as measures described in the following sections for the transmission line and FSR study areas.

#### *7.2.6.3.6.4 Hunting, Trapping, and Guide Outfitting*

There are two guide outfitting areas (601039 and 600384) overlapping the water supply study area. It is estimated that 99% of the study area falls within guide outfitting area 601039, but the water supply footprint covers less than 1% of his total outfitting area. It also covers less than 1% of guide outfitting area 600384.

The entire water supply study area falls within one registered trapline area (TR0601T003). This water supply footprint accounts for <1% (i.e., 132 ha) of the total registered trapline (i.e., 101,537 ha).

In addition to the water supply footprint intersecting traplines and guide outfitting areas, trapping and hunting activities could be affected by the Project through sensory disturbance or habitat fragmentation to furbearers and game animals. Other potential effects include damage or encroachment to trappers' and non-resident hunters' trail systems, staging areas, trapping sites (including traps and snares), parking sites, or cabins, which may in turn cause the relocation of traplines, inconvenience, and additional trapping and hunting effort.

Effects related to activities of the water supply pipeline, service road, transmission corridor, and water intake will be more pronounced during the construction, decommissioning, and closure phases, and less noticeable during the operations phase. At the same time, the addition of new access corridors due to the water pipeline, transmission line, and service road could improve access and reduce hunting and trapping effort.

The Proponent will mitigate potential adverse effects on trapping and hunting activities (guided and non-guided) with such measures as:

- Ongoing communication with trappers and guide outfitters;
- Compensating affected trapline holders in accordance with industry and provincial protocols with associated proof of lost revenue;
- Notifying trappers of affected trapline areas, guide outfitters, lodge owners linked to the outfitters in relevant WMUs, and the local offices of the BC MFLNRO (which can relay the information to recreational hunters and fishers);
- Limiting disturbance to the habitat of marten, weasel, beaver, muskrat, and other furbearing species during construction by avoiding, where possible, prime denning and breeding habitat (e.g., mature riparian forests and old forest stands, which are favoured denning habitats for marten);
- Implementing the TAMP; and
- Implementing the WLMP.

#### 7.2.6.3.6.5 *Fishing and Aquaculture*

There are limited fishing sites within the water supply study area except along the western edge of Tatelkuz Lake. There may be some fishing opportunities and activities at this location and adjacent water bodies (e.g., streams, creeks).

During construction, the Project might temporarily affect access to fishing locations, necessitating alternative access to these sites and associated inconvenience.

The Proponent will take measures to not obstruct fishing at the western edge of Tatelkuz Lake and adjacent areas outside of the study area. In addition, it will provide information to its employees and contractors on fishing restrictions for certain species, including prohibited fishing periods during the year. The Proponent will also regularly consult with and provide information to relevant fisheries stakeholders (i.e., Tatelkuz Lake Resort, fishing-related lodge owners and outfitters) and

to the British Columbia Fish and Wildlife branches (which can relay the information to recreational fishers) about Project area access, schedules, and activities.

#### *7.2.6.3.6.6 Agriculture and Grazing (including range use)*

Range tenure RAN075154 A overlaps the study area. There are no designated ALR lands within the water supply study area. The entire extent of the water supply footprint is overlapped by range tenure RAN075154 A, but this represents a small proportion of the total tenure.

Potential effects to the range tenure could affect tenure use in the ROW corridors (e.g., pipeline, service road) and in base areas around the transmission towers. Other effects could include disruption to range land practices, equipment, and livestock, and the disturbance or compaction of topsoils and subsoils. Long-term, minimal disturbance of the range land as a result of operations and decommissioning activities is possible, but would be infrequent and very minor.

Mitigation for effects to the range tenure will be the same as that for the mine site and mine site access road study areas, as well as measures described in the following sections for range lands in the transmission line and FSR study areas.

#### *7.2.6.3.6.7 Land Ownership*

There are no fee simple lands or *Land Act* tenures, permits within the water supply study area.

#### *7.2.6.3.6.8 Surface Water and Groundwater Resource Use*

Within the water supply study area, there are no surface water licences and registered groundwater wells. Thus, there are no potential effects.

#### *7.2.6.3.6.9 Recreational and Commercial Use of Waterways*

For the freshwater supply system to the Project from Tatelkuz Lake, nine works were assessed, which include the water intake at Tatelkuz Lake (site id: FSS-000), seven pipeline crossings which are currently assumed to be buried (site ids: FSS-001, FSS-003, FSS-005, FSS-006, FSS-007, FSS-008, and FSS-009), and one combined pipeline with a bridge upgrade along the existing resource road (site ID: FSS-002). Of these, the seven pipeline crossings have been determined to be minor, except the one paired with the bridge upgrade. For the water assessment, five of the nine crossings have been deemed to be minor waters (ERM Rescan, 2014).

Within the study area, the use of waterways includes Tatelkuz Lake. The lake has established use for navigation. The Tatelkuz Lake Ranch Resort and its guests use the lake and the connected Chedakuz Creek in the North for recreational purposes. LDN members use the entire lake for navigation including for food, social and ceremonial purposes. The members of the Kluskus and SFN are also reported to use the lake for navigational purposes. There is no reported use of waterways for navigation on the crossings (ERM Rescan, 2014).

Potential effects as a result of Project works and operations on Tatelkuz Lake will include access restriction to area in and around the water intake area for safety reasons during all phases of the Project. Mitigation measures will include using signs at the water intake site location to inform stakeholders of its location, as well as provide information to the Tatelkuz Lake Ranch Resort and First Nation stakeholders about timing and schedule of the construction activities.

#### *7.2.6.3.6.10 Transportation and Access*

The Project will require access to the water supply study area during all phases of the Project for Project-related activities, maintenance, and monitoring, as well as the transport of equipment and workers to and from the site. These Project activities may have the potential to disrupt and affect access to the resource use areas, as well as create traffic-related safety issues due to increased traffic on the Kluskus-Messue FSR.

The Proponent will control access to the Project area and ensure public safety with signage, rollback, and fencing where necessary. In addition, the Proponent will implement the TAMP and continue adherence to the terms and conditions of the Canfor Road Use Agreement.

#### *7.2.6.3.7 Transmission Line Study Area*

##### *7.2.6.3.7.1 Recreation/Tourism Use*

The transmission line study area crosses and/or is adjacent to locations that have recreational and tourism-related activities, sites, areas, trails, cabins, or lodges. Recreational areas and sites identified include the Crystal Lake Cabins and Crystal Lake Resort (<1 km and <3 km from the transmission line study area, respectively), the Tatelkuz Lake resort (<3 km from the transmission line study area), the Nechako canoe trail, Big Bend Meadow, Greer Creek, and Brewster Lake recreational sites, and the Cheslatta trail. General recreational activities are carried out on Crown land including fishing, boating, snow-mobiling, camping, sightseeing, hiking, biking, canoeing, water sports, picnicking, and wildlife viewing. The majority of these areas and sites are located within an area rated as having low sensitivity and moderate significance. Several recreational areas rated as having a high significance and moderate sensitivity are traversed by the transmission line study area, including Chedakuz Creek, Greer Creek, Nechako River, and the area east of Francois Lake Protected Area.

Of these, the Cheslatta Trail is intersected by the transmission line Project footprint, and the Brewster Lake and Big Bend recreational sites are located immediately adjacent to the transmission line corridor footprint. Some degree of noise disturbance is expected to result from equipment during construction-related activities (clearing and preparation of transmission ROW corridors and substations), and during the decommissioning and closure phases. The possibility of dust emissions exists during the construction and decommissioning phases.

Additionally, there could be disruption and/or enhancement to recreational activities. The partial or complete intersection of trails and recreation areas by the Project's ROW corridors occurs in the Big Bend Meadow and Brewster Lake recreation sites and the Cheslatta Trail. Temporary access disruption may occur during Project construction, decommissioning, and closure activities on

access roads to these recreational and tourism sites that intersect the Project corridor. This may cause temporary disruption or inconvenience to stakeholders during the course of carrying out a particular activity.

Post-construction, the Project may have a positive effect for recreational stakeholders, through the creation of well-groomed, debris-free areas on the transmission ROW corridors. These transmission ROW corridors also create the potential to expand and connect trails, creating opportunities to access new areas. Additionally, with new and improved access, there is the possibility of increased friction between people engaging in different recreational activities, particularly between those using off-road vehicles and those enjoying non-motorized outdoor pursuits.

Mitigation measures to minimize noise disturbance, dust pollution, changes in local ambience, and access disruption include:

- Providing advance notification of Project schedules to relevant recreational stakeholders (recreational groups, lodges, etc.);
- Erecting appropriate signage on affected hiking, biking, and snowmobiling trails, warning users of temporary trail closures, if scheduling Project work outside of recreational seasons is not possible or feasible;
- Scheduling construction activities (if avoidance is not possible) during acceptable hours daily until the work is completed;
- Spraying access roads and work spaces with wetting agent, as needed;
- Using noise abatement and construction scheduling considerations at noise-sensitive locations and times, where appropriate, to limit disruption to sensitive receptors;
- Implementing the TAMP;
- Implementing the WLMP; and
- Implementing the Reclamation and Closure Plan (RCP; **Section 2.6**).

#### 7.2.6.3.7.2 *Mining Exploration and Mineral Tenures*

Within the transmission line study area, there are 44 mineral tenures held by 16 different tenure holders presented in Table 3.4-4 in **Appendix 7.1.2A**, overlapping 45% of the transmission line study area. Two of the 44 tenures are held by the Proponent. There is a quarry-related tenure located within the transmission line study area but less than 1% or 2 ha of the tenure is overlapped by the study area.

Of the 44 mineral tenure holders, the transmission line footprint intersects 34 tenures held by 15 holders, one of which is the Proponent. Potential Project-related effects include disruption of the use or access to tenures.

The Proponent will consult with potentially affected mineral and quarry tenure holders, and coordinate activities prior to and following construction to minimize adverse effects during all

phases of Project activities. In particular, the Proponent will consult to resolve any issues related to the disruption of the use or access to tenures in accordance with industry and provincial standards and best practices where feasible and applicable and issues relating to access of tenures. Other mitigation measures include the implementation of the proposed TAMP.

#### *7.2.6.3.7.3 Forestry and Timber Resource Use*

Within the transmission line study area, 46 active forestry tenures are held by five different tenure holders, three being private individuals, the other two being Canadian Forest Products Ltd. and West Fraser Mills Ltd. There are no TFLs or old-growth forests within the transmission line study area. However, there are two woodlot licence tenures, held by two different holders: Forestdale Canyon Adventure Ltd., and Guyishton Woodlot Ltd. The study area is located in heavily MPB-infested areas of the Vanderhoof Forest District, where 56% of the forested land base is identified as severely affected, 3% as moderately affected, and 13% as low infestation.

The transmission line footprint intersects the tenure areas of the majority of tenure holders, and <1 ha of a woodlot area, held by Forestdale Canyon Adventure Ltd., representing <1% of its total woodlot area. The transmission corridor traverses several FSRs including the Holy Cross FSR, Kluskus-Red FSR, Kluskus-Ootsa FSR, and Kluskus-Messue FSR.

Project-related disturbance in the transmission line study area will represent a long-term loss of harvestable land base, forestry resources, and reforestation due to clearing for the transmission line corridor and development of related infrastructure. Project construction, operations, and decommissioning could disrupt forestry stakeholders' access to timber resources at current access points. The traverse and use of FSRs by the Project might interfere with road use needs of forestry stakeholders, create motor vehicle safety issues, cause additional wear and tear on the road surfaces, and increase forestry stakeholders' road maintenance costs.

During pre-construction and construction activities, a potential Project effect is the spread of the MPB infestation. During pre-construction, infested logs cleared from the Project development area could facilitate the beetle spreading to new areas. Mountain pine beetles could escape from decked logs if they are left stockpiled during the summer.

The Proponent will implement the following mitigation measures related to forestry tenures:

- Providing maps and early notification of Project development and other physical work to affected regional forestry stakeholders;
- Consulting with tenure holders;
- Implementing the TAMP;
- Actively participating in the Canfor road sharing agreement; and
- Following BC MFLNRO guidelines and requirements for clearing, handling, and hauling beetle-infested wood.



#### 7.2.6.3.7.4 *Hunting, Trapping, and Guide Outfitting*

Recreational hunting, trapping, and guide outfitting activities occur within and adjacent to the study area. Non-resident recreational hunting, guide outfitting, and trapping activities are carried out by six guide outfitters (600384, 601039, 700298, 701137, 601048, and 701156) and thirteen registered trapline area holders (TR0601T003, TR0601T006, TR0711T006, TR0711T007, TR0712T014, TR0712T015, TR0712T029, TR0712T036, TR0712T037, TR0712T039, TR0712T040, TR0712T043, and TR0713T017). For guide outfitters, the portion of their total guide outfitting areas within the study area ranges between <1% to 4%. The transmission line footprint also intersects the areas of these six guide outfitters (600384, 601039, 700298, 701137, 601048, and 701156). The proportion of each individual's total guide outfitting area within the transmission corridor footprint is <1%.

For the thirteen traplines, the proportion of the individual trapline areas located within the transmission line study area ranges between 1% and 22%. This represents between 1% and 14% of the total trapline areas of the 13 traplines. The transmission line corridor ROW footprint overlaps all of the thirteen individual trapline areas.

The Project will create sensory and habitat disruption and loss of land base for furbearing and game animals during clearing, construction, operations, decommissioning, and closure activities on and immediately adjacent to the Project footprint as a result of noise, presence of people and equipment, and potential vehicle/animal collisions. Notwithstanding, the Project could have positive effects on trapping and hunting activities as a result of new access created by the transmission corridor.

Other potential effects to the activities of trappers, guide outfitters, and resident hunters include:

- Construction, operations, and decommissioning activities might damage or encroach upon trappers' trail systems, staging areas, trapping sites (including traps and snares), parking sites, or cabins;
- Transmission line ROW could fragment habitat and inhibit certain species from crossing, affecting trapline success; and
- If hunting and trapping was occurring at or in the immediate vicinity of the Project footprint, this could result in inconvenience and require relocating guided hunts and setting up new traplines, consequently affecting hunting and trapping effort and success.

The Proponent will mitigate the effects to hunting and trapping activities through implementation of the following measures:

- Ongoing communication with trappers and guide outfitters;
- Compensating affected trapline holders in accordance with industry and provincial protocols with associated proof of lost revenue;

- Notifying trappers of affected trapline areas, guide outfitters, lodge owners linked to the outfitters in relevant WMUs, and the local offices of the BC MFLNRO (which can relay the information to recreational hunters and fishers);
- Limiting disturbance to the habitat of marten, weasel, beaver, muskrat, and other furbearing species during construction by avoiding, where possible, prime denning and breeding habitat (e.g., mature riparian forests and old forest stands which are favoured denning habitats for marten);
- Implementing the TAMP;
- Implementing the WLMP; and
- Implementing the RCP.

#### *7.2.6.3.7.5 Fishing and Aquaculture*

There are fishing areas located adjacent to the transmission line study area (recreational sites, areas, lakes, lodges and resorts as identified and discussed in Recreation and Tourism (**Section 7.2.6.3.6.1**) and Hunting, Trapping, and Guide Outfitting (**Section 7.2.6.3.6.4**). Some of these destinations are popular fishing areas due to the extensive network of streams, rivers, and lakes in the region.

During construction, decommissioning, and closure phases, the Project could temporarily affect access to prime fishing locations, resulting in temporary relocation of fishermen to other fishing areas. This might affect fishing success rates due to the associated inconvenience and additional fishing effort. Once Project activities cease, access to fishing locations at or near the transmission line would be restored.

The Proponent will mitigate the access-related effects by providing information to its employees and contractors on fishing restrictions for certain species, including prohibited fishing periods during the year. As well, the Proponent will regularly consult with relevant fisheries stakeholders (i.e., fishing-related lodge owners and outfitters); provide notification to the BC Fish and Wildlife branches (which can relay the information to recreational fishers) of schedules and locations, including maps, well before initiating clearing, construction, and decommissioning activities; and will implement the TAMP.

#### *7.2.6.3.7.6 Agriculture and Grazing (includes range use)*

Within the transmission line study area there are six range tenures (RAN075154 A, RAN075967 A, RAN077117 1, RAN077118 1, RAN077234 1, and RAN077238 1), and four ALR lands. Two of the range tenures are located at the southern end of the study area, and the remaining four are at the northern end of the study area.

Potential effects to ALR lands and range tenures could include disruption to agricultural practices, equipment, livestock, the disturbance or compaction of topsoils, and subsoils, and minor disruption of access.

Mitigation measures for disturbance and disruption to agricultural practices, activities, and soil include:

- Implementing the TAMP;
- Implementing a traffic control and management strategy along the ROWs;
- Requiring Project vehicles to use only the ROWs and designated access roads near Project development areas so no additional agricultural soil will be affected;
- Implementing preventative protocols for cleaning of equipment (construction and excavation) of weeds, according to government and industry standards (i.e., weed control plans and guidelines); and
- Conducting ongoing consultation with farmers and ranchers to resolve issues when required and/or if applicable.

Mitigation measures for disruption to ranching practices, equipment, or livestock include:

- Notifying livestock owners of the construction schedule and activities to allow livestock to be moved to other pastures if necessary if necessary and/or where applicable;
- Facilitating movement of livestock and farm machinery across the ROW corridors, where applicable;
- Identifying alternative watering locations or options in discussion with the land and livestock owner, if livestock access to water supply is curtailed by mine operations activities or infrastructure;
- Requiring drivers to close gates properly when Project vehicles require access to the ROW corridors on fenced and gated lands; and
- Conducting ongoing consultation with ranchers and livestock owners to resolve issues, when required and/or if applicable.

#### *7.2.6.3.7.7 Land Ownership*

Two and a half percent of the lands within the transmission line study area are fee simple lands (PID 010105352, 009280481, 015513581, 015532500, 010105255, 009280481, 025830597, 012541508, 009280481 and, 005369941). The transmission line corridor footprint overlaps <1% of these private lands.

Potential effects to owners of private lands may include short-term noise disturbance during construction, decommissioning, and closure of infrastructure that may be heard if rural residents live near the ROW corridor, substations, or other infrastructure to be constructed and dismantled. The Project could create dust pollution during the construction, decommissioning, and closure phases. Temporary access disruption may occur during the construction and decommissioning phases and, to a lesser extent, during the operations phase. This new linear corridor development will enhance stakeholders' access in the area.

Mitigation measures to minimize noise and dust disturbance, dust pollution, changes in local ambience and temporary access disruption include:

- Providing advance notification of Project schedules relevant private land holders, and residents living adjacent to the area;
- Scheduling construction activities (if avoidance is not possible) during acceptable hours daily until the work is completed;
- Using noise abatement and construction scheduling considerations at noise-sensitive locations and times, where appropriate, to limit disruption to sensitive receptors;
- Spraying access roads and work spaces with wetting agent, as needed;
- Implementing the TAMP; and
- Implementing the RCP.

*Land Act* tenures for agriculture (extensive, grazing), environment conservation and recreation, institutional, quarrying, residential, and utilities overlap the main transmission line study area. Tenures associated with quarrying and institutions are not intersected by the Project footprint.

Project effects is that construction, operations, decommissioning, or closure might conflict with planned activities of tenure holders including access and use of their tenures in the study area.

Mitigation measures for effects on *Land Act* tenure holders by the Proponent include:

- Consulting on an ongoing basis with potentially affected stakeholders during all phases of the Project including providing maps and schedules of Project activities;
- Implementing the TAMP; and
- Implementing the RCP.

#### *7.2.6.3.7.8 Surface Water and Groundwater Resource Use*

Within the transmission line study area, there are two groundwater wells, registered to TTM Resources and BC Hydro, for the purposes of a water supply system and a substation (Endako). The groundwater well licence registered to TTM Resources is also overlapped by the FSR study area. There are no other surface water or groundwater licences within the transmission line study area. Potential effects to groundwater use and its stakeholders may include a disturbance to the groundwater wells during construction. The Project will mitigate this potential construction effect by utilising temporary fencing during construction to protect the wells.

#### *7.2.6.3.7.9 Recreational and Commercial Use of Waterways*

Within the transmission line study area, Nechako and Stellako Rivers are crossed by the Project. They are well known for navigational use in the area. Additionally, Big Bend Creek and Tahultzu Creek are also crossed by the Project. Both these Creeks are conservatively rated as being part

of a navigational network, even though they themselves are not use for navigation. Chedakuz Creek is crossed by the Mills Ranch re-route which is considered part of a larger navigational network and the Stellako re-route is crossed by the Stellako River.

In the screening assessment of 59 aerial crossings for the transmission line, 4 for the Mills Ranch re-route, and 3 for the Stellako re-route, the majority of the Project works qualify as minor works (i.e. 40 along the transmission line, 4 along the Mills Ranch re-route alternative, and 2 along the Stellako re-route alternative) qualify under the MWWO (2009) because the width of the navigable waters over or across the transmission line is less than 15 m, and the works are more than 1,000 m away from a lake. In addition, 38 aerial crossings (i.e., 34 of the transmission line crossings, 3 of the Mills Ranch re-route crossings, and 1 of the Stellako re-route crossings) have been found to be minor waters (ERM Rescan, 2014).

The MWWO screening leaves five aerial crossings of waters by the transmission line - over the Nechako River (TL-1065), Stellako River (TL-937), Tahultzu Creek (TL-1021), and Big Bend Creek (TL-025 and TL 969), and one crossing over the Stellako re-route (SR-003, Stellako River) that are neither minor works or waters (i.e. they are non-minor). The Stellako and Nechako Rivers have widths exceeding 15 m, the Big Bend Creek TL-025 crossing is within 1000 m of Brewster Lake, and the Tahultzu Creek crossing is within 1000 m of Tahultzu Lake, which render these reaches non-minor (ERM Rescan, 2014).

Potential effects of crossings along Nechako and Stellako Rivers, Tahultzu, Big Bend and Chedakuz Creeks may include impediment to safely navigate during construction and decommissioning due to the presence of in-stream obstacles and construction and decommissioning related activities. It may also result in temporary access restrictions during construction and decommissioning where the crossing areas intersect potential water access put-in places/points. There will be no overhead navigation safety issues as the Proponent will design specifications for the bridge that which incorporate/design criteria such as minimum overhead clearance to ensure navigational safety. Mitigation measures include:

- Using signs on site locations to inform stakeholders, where appropriate;
- Informing water based recreational stakeholders about construction activities in advance i.e., Northwest Brigade Paddling Club, nearby lodges, the local offices of BC MFLNRO;
- Implementing appropriate engineering designs and management practices to minimize effects of stream flow;
- Applying monitoring and adaptive management; and
- Implementing the water management plan.

#### *7.2.6.3.7.10 Transportation and Access*

The Project will require access to the transmission line corridors and substation sites during construction, and year-round access during the operations phase for maintenance and monitoring activities. Access to transmission ROW corridors will require the use of existing forestry roads and

the creation of new access. The transmission corridors and the access to the ROW will create new linear access where corridors and access routes are non-existent. An increase in access can have positive and/or negative effects for various land uses and users. Consumptive and non-consumptive recreational uses can be enhanced by year-round access, which the addition of new transmission ROWs may provide. However, the amount of access that will remain open to the public post-construction will be decided in consultation with landowners, regulatory agencies, and resource users.

Project works will generate increased traffic and additional wear on local roads (secondary and FSRs) during the construction phase but negligible effects during the operations phase. During the construction phase, there could be minor disruptions to access and considerations with heavy trucks transporting tower structures, cable, and equipment to the ROW and substation sites via the FSRs. Outside of the construction period, the Project would not disrupt access on FSRs and other local roads because traffic would be minimal and no heavy truck loads are anticipated.

Due to the proximity of the transmission line ROW to a private airstrip at the Mills Ranch near Tatelkuz Lake, there is a safety concern regarding small aircraft using the airstrip. The Proponent could mitigate the safety concern by either re-routing the transmission line at this location or consult with the Mills family about relocating their airstrip to an acceptable alternative location that eliminates the safety concern. If it is determined that this is the preferred alternative and it is mutually acceptable to the Mills family and the Proponent, the Proponent would be responsible for land acquisition and airstrip construction at the new location.

The Proponent will control access to the Project area and ensure public safety with signage, rollbacks, and fencing, as necessary, and by implementation of the transportation and access management plan. The Project will also adhere to the terms and conditions of the Canfor Road Use Agreement, whereby the Project will pay a portion of the cost for ongoing road maintenance, repair, and snow removal, based on the projected volume of Project traffic. Project-related vehicles will comply with traffic safety guidelines when using the FSRs.

Access-related effects and mitigation measures are also discussed in the related study areas (i.e., mine site access study area, airstrip study area, and the Project access road, i.e., Kluskus FSR study area) and in the transportation section (**Section 7.2.5.3**).

#### *7.2.6.3.7.11 Transmission Line Re-Route Alternatives*

There are two proposed minor re-routes within the transmission line corridor: the Stellako re-route alternative, located at the northern end of the transmission line study area, and the Mills Ranch re-route alternative, located at the southern end of the transmission line study area.

##### *Stellako Re-Route Alternative*

The proposed Stellako re-route option is located east of the current transmission line alignment and the route will avoid grasslands and wildlife compared to the original transmission line route. This route was identified in consultation with regulators. This option overlaps 0.9 ha of a 20 ha parcel (PID 015135233) owned by the Nature Trust. The Stellako re-route option also intersects

## BLACKWATER GOLD PROJECT

APPLICATION FOR AN  
ENVIRONMENTAL ASSESSMENT CERTIFICATE /  
ENVIRONMENTAL IMPACT STATEMENT  
ASSESSMENT OF POTENTIAL SOCIAL EFFECTS



three traplines (TR0712T039, TR0712T040, and TR0713T017), a guide outfitter area (601048), forestry tenures (1804709 and 1804024) including a woodlot-related tenure (Guyishton Woodlot Ltd. W1689, 724489), and Land Act tenures related to environment, conservation and recreation (7409548 and 7409549) and utilities (6407425, 0336972, 0257666, 0267730, 0271890, 0287970, 0327970, 0348339, 6401726, and 6403350). Two groundwater wells are intersected by the study area for the Stellako re-route. These groundwater wells are privately owned and their use is classified as private-domestic; and they are outside of the transmission line footprint. Additionally, two quarry related tenures are located within the Stellako re-route study area but outside the footprint.

The potential NTLRU effects and mitigation measures related to the Stellako re-route alternative would be similar to those for the transmission line's current alignment. The exception is that the Proponent will need to conduct ongoing consultation with Nature Trust to arrive at a mutually acceptable agreement in finalizing the transmission line alignment. The Proponent will consider adjusting the transmission line alignment to avoid the federal Crown land parcel.

### *Mills Ranch Re-Route Alternative*

The Mills Ranch re-route alternative of the current transmission line alignment is located at the southern end of the transmission line near the Chedakuz Creek and Tatelkuz Lake. The re-route was chosen to create a suitable buffer between the transmission line and the Tatelkuz Lake airstrip. The current transmission alignment runs between District Lots 1843 R4C and 1849 R4C, close to the existing Tatelkuz Lake airstrip.

In this area, the current transmission alignment follows the Kluskus FSR while the Mills Ranch re-route alternative is located west and north of the current alignment. It would traverse Chedakuz Creek at a new location west of 1851 R4C and pass through wetlands. A new access road would be required along this alignment.

Within the corridor footprint for the Mills Ranch re-route alternative, affected NTLRU and NTLRU users could include 23 forestry tenures, ten mineral tenures (636623, 571638, 571640, 571641, 937689, 846796, 846797, 846798, 846799, and 713462), two guide outfitter areas (600384 and 601039), one trapline (TR0601T003), and a range tenure (RAN077118 1). The Mills Ranch re-route avoids private lands, but is an area that has recreational use and value. No surface water and groundwater licences and tenures to a quarry and activities are overlapped by the Mills Ranch re-route.

The potential NTLRU effects and mitigation measures related to the Mills Ranch re-route alternative would be similar to those for the transmission line's current alignment. The Proponent will carry out all relevant mitigation measures including measures to avoid disruption of existing range land activities.

### 7.2.6.3.8 FSR Study Area

The FSR study area is unlike the other Project study areas in that it refers to the Kluskus and Kluskus-Ootsa FSRs that provide access from Highway 16 at Engen to the mine access road at

km 105. These FSRs were constructed by BC MFLNRO in the late 1980s for the forestry industry to access forestry tenures south of Highway 16. These are well established roads, primarily used by forestry sector companies, and Canfor in particular, to access their forestry tenures. As such, the FSR study area assessment will have minimal effect on the various land uses and users described below, as it is not a new greenfield linear footprint through an undisturbed area.

Other users of the road include mineral exploration companies including the Proponent, rural, Aboriginal and non-Aboriginal residents, forest service staff, farmers and ranchers, a few recreational resort owners, guide outfitters, trappers, and local and regional recreationists.

As the main user of the Kluskus and Kluskus-Ootsa FSR, BC MFLNRO delegated responsibility for upkeep and ongoing maintenance of these FSRs to Canfor. In turn, Canfor drew up a Road Management Agreement i.e., Canfor Road Use Agreement that all other industrial users of these FSRs must sign and abide by in order to use the roads. The agreement includes a cost to industrial users that goes toward maintenance and upkeep, dust suppression, and snow removal. The Proponent is a signatory to this agreement.

As indicated in **Section 7.2.3.2**, the average daily number of return vehicle trips on these FSRs in 2013 was 28, of which 21 (72%) were Canfor vehicles, three (10%) were the Proponent's vehicles, and four (14%) were other private and public vehicles, mainly light trucks.

During the construction phase of the Project, the average daily traffic on the FSRs is estimated to double to 57 vehicle return trips per day. However, the Project-related vehicles must adhere to the terms and conditions of the Canfor Road Management Agreement and the Project Access and Transportation Agreement. In doing so, the effects on motor vehicle safety and road conditions are expected to be negative, but minor in magnitude during the construction and operations phases.

For all NTLRU users, mitigation measures to address effects will be the same as the effect will also be the same for all users. Mitigation measures include the continued adherence of all Project-related vehicles to the Canfor Road Use Agreement and the implementation of the TAMP. The TAMP includes a traffic management plan, which provides measures that, when implemented, will ensure the safe movement of all mine traffic at the mine site, on the mine access road, and on the FSRs that provide access to the mine from Highway 16. The traffic management plan is multifaceted, and includes a traffic control plan containing a road use handout, and a road use contract for all road users that requires acknowledgement and compliance with all road safety measures. These measures include the use of radio frequency call-ins when travelling on the FSRs and mine access road. The TAMP contains access management measures for mine safety and security and for preventing potential effects on livestock and local and regional wildlife populations and habitat.

Access restrictions that are relevant to regional transportation include:

- Locking gates will be installed on the mine access road to prevent public use of the road;



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- Posting speed limits on the mine access road as they are on the FSRs. Travel speeds will be adjusted according to road conditions, weather, and wildlife presence when and where required;
- Posting signs to alert drivers of potential wildlife presence at wildlife migration corridors and crossing points, and reduced travel speeds will be posted where required. This type of signage currently exists along the FSRs;
- To minimize dust, spraying the mine access road with water or chemical dust suppressant during dry periods, as needed;
- Ploughing snow from the mine access road when necessary, and using products with low environmental impact (e.g., sand, gravel, non-palatable salts) as needed to ensure safe road conditions;
- Reporting wildlife sightings to supervisory personnel as soon as possible; and
- Immediately reporting wildlife incidents (e.g., traffic accidents) reported to supervisory personnel.

The descriptions of baseline conditions described in the following sections are brief, as there will be only minor effects on these existing FSRs beyond a short-term increase in Project-related traffic volumes on these roads. Similarly, as the FSRs are well-established roads that have been used by the forestry sector, other industries, and the general public for more than two decades, the effect and mitigation measures is the same for all road users. Therefore, other than the applicable mitigation measures already stated, there should be no requirement for identifying separate mitigation measures for each individual indicator listed below.

### 7.2.6.3.8.1 *Recreation/Tourism Use*

The FSR is an established forestry road also used to access recreational sites, trails, areas, and lodges, and for the purposes of tourism-related activities. Recreational sites and trails within and adjacent to the FSR study area include Big Bend Meadow, Home Lake Trail (which accesses a rustic cabin on an angling lake and leads to other lakes and trails in the area), Johnson Lake Trail (which leads to a rustic campsite on Johnson Lake), Greer Lake Trail (which leads to a four-unit site in Lodgepole Pine on the Nechako River, downstream from the mouth of Greer Trail), Secord-Gluten Lakes trail (a hiking trail that leads to Zippermouth (Secord), and Gluten and Duten Lakes), Greer Creek Falls Trail (a trailhead at km 37.5 on the Kluskus FSR leading to a waterfall), and the Telegraph Trail (the main pioneer route into the Nechako Valley).

Registered camping sites and lodges within or immediately adjacent to the FSR study area (<5 km away) include the Finger Creek Ranch, offering horseback trail rides, located 1 km south of the FSR road; Finger Lake Resort, east of the Finger Creek Ranch and 2 km south of the FSR road, offering log cabin and cottage rentals, RV camping, boat rentals, and fishing opportunities; and the Tachick Lake Resort, approximately 2 km east of the FSR road offering cabins, camping, boat rentals, and fishing opportunities. The area around the Finger Creek Ranch and the Finger Lake Resort is classified as recreationally scenic in the FSR study area.

Within the FSR study area, potential effects to recreation and tourism include minor effects related to an increase in Project-related traffic volumes on these roads. Therefore, potential effects and mitigation measures are the same as for owners of private lands (**Section 7.2.6.3.7.7**).

#### *7.2.6.3.8.2 Mining Exploration and Mineral Tenures*

Within the FSR study area, 46 mineral tenures are accessed via the Kluskus FSR. There are two sand and gravel quarrying related tenures within the FSR study area.

Potential effects and mitigation measures are the same as for owners of private lands (**Section 7.2.6.3.7.7**).

#### *7.2.6.3.8.3 Forestry and Timber Resource Use*

There are sixty-one active forestry and timber resource tenures held by five different corporate and First Nations tenure holders overlapping the FSR study area. Of these tenures, the SFN has a total of 30 active tenures that overlap 2% of the FSR study area. There are no TFLs or old-growth forests. However, within the FSR study area, there are eight registered woodlot licence holders with a total of 13 tenures, representing approximately 8% of the FSR study area. The study area is located in heavily MPB-infested areas of the Vanderhoof Forest District. Within the study area, 53% of the forested land base is identified as being severely affected, 5% as having moderate severity and 7% is identified as low.

Potential effects and mitigation measures to forestry stakeholders are the same as for owners of private lands (**Section 7.2.6.3.7.7**).

#### *7.2.6.3.8.4 Hunting, Trapping, and Guide Outfitting*

Recreational hunting, trapping, and guide outfitting areas and activities occur within and adjacent to the FSR study area. Within the study area, there are seven guide outfitter certificate areas (GOAs) (600384, 601039, 701166, 701137, 701156, 701161, and 500948) held by six guide outfitters and eleven traplines (TR0513T048, TR0601T003, TR0711T005, TR0711T006, TR0711T007, TR0712T009, TR0712T023, TR0712T027, TR0712T028, TR0712T043, and TR0713T013). The percent of each total guide outfitter area overlapping the FSR study area ranges from <1% to 5%. Guide outfitter area 701166 accounts for the largest proportion (23%) of the total FSR study area. A total of 98% of the FSR study area is overlapped by the eleven different registered trapline areas.

Within the FSR study area, potential effects to hunting, trapping, and guide outfitting include minor effects related to an increase in Project-related traffic volumes on these roads. Therefore, potential effects and mitigation measures are the same as for owners of private lands (**Section 7.2.6.3.7.7**).

#### *7.2.6.3.8.5 Fishing and Aquaculture*

There are no fishing or aquaculture sites located within the FSR study area. However, the recreational areas nearby and adjacent to the FSR study area (identified in the recreation and

tourism section, as well as the hunting, trapping, and guide outfitting section) are popular fishing destinations due to the area's vast network of streams, rivers, and lakes. Lakes immediately adjacent to the FSR study area (i.e., Tachick and Nulki Lakes) have been stocked with fish as recently as 2012. Recreational and sports fishing activities attract both residents and visitors to these locations.

Within the FSR study area, potential effects to fishing and aquaculture include minor effects related to an increase in Project-related traffic volumes on these roads. Therefore, potential effects and mitigation measures are the same as for owners of private lands (**Section 7.2.6.3.7.7**).

#### *7.2.6.3.8.6 Agriculture and Grazing (including range use)*

Within the FSR study area, there are four range tenures (RAN075154 A, RAN075967 A, RAN077118 1, and RAN077136 1) and three ALR lands. The tenure purpose category of the ALRs are identified as extensive. Two of the range tenures are located at the northern end of the FSR study area and the remaining two at the southern end of the FSR study area.

Potential effects and mitigation measures to relevant stakeholders are the same as for owners of private lands (**Section 7.2.6.3.7.7**).

#### *7.2.6.3.8.7 Land Ownership<sup>2</sup>*

Within the FSR study area, 14% of the lands are identified as private lands and the majority of land within the study area is classified as unknown (75%). Potential effects to residents of the private lands may include minor effects related to an increase in Project-related traffic volumes on these roads. Mitigation measures are described in previous sections.

There are fourteen *Land Act* tenures for agriculture (extensive), environment (fish and wildlife management), industrial (miscellaneous), quarrying (sand and gravel), and residential (rural) overlap the FSR study area. In addition, there is one oil and gas pipeline tenure for the purpose of a ROW and three electric power line tenures, of which two are ROWs and one is a reserve/notation tenure. Within the FSR study area, potential effects to these tenures include effects due to an increase in traffic as a result of the Project. Therefore, potential effects and mitigation measures are the same as for owners of private lands (**Section 7.2.6.3.7.7**).

#### *7.2.6.3.8.8 Surface Water and Groundwater Resource Use*

There are nine registered groundwater wells within the FSR study area. Five of these wells appear to be for private domestic use, one for a freshwater supply system, two that are for unknown well uses and one that is within the Kluskus FP construction.

Additionally, there are four current points of diversion (POD) that are overlapped by the FSR study area. These PODs located near the northern end of the FSR study area and are all for the purposes of stock watering. In addition to the PODs, there are also four water licensed works overlapped by

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<sup>2</sup> This includes private land and *Land Act* tenures.

the FSR study area along the north end. There will be no potential effect to surface water and groundwater uses as the Project will not have any construction and decommissioning related activities in the FSR study area. Project operations will be limited to the existing and operational FSR road. Therefore, the Project will not have and/or add to any additional effects to ground and surface water use and its stakeholders in the FSR study area.

#### *7.2.6.3.8.9 Recreational and Commercial Use of Waterways*

Within the FSR study area, as part of the Kluskus-Ootsa FSR upgrade, there is one bridge crossing (id: AE-914) along the 102-124 km stretch of the Kluskus-Ootsa FSR. Since this is a bridge crossing, this work is classified as non-minor. However, this crossing on an unnamed creek was found to be minor water under the criteria for the MWWO. Based on navigable waters screening and consultation records, this unnamed creek is not considered navigable and/or part of a navigational network nor has any known history of navigation for recreational and commercial purposes (ERM Rescan, 2014).

Thus, there will be no effect as a result of Project related works.

#### *7.2.6.3.8.10 Transportation and Access*

The Project will require access to the mine site, airstrip, water supply intake site, substation sites, and transmission corridors during construction and year-round access during the operations phase for maintenance and monitoring activities. The Kluskus FSR is the main access route for the Project whereby materials and people will be carried in and out from the various Project components during all phases of the Project (i.e., pre-construction through Project closure).

Potential effects and mitigation measures are the same as described for all other indicators. The only exception is that there is a potential positive effect of new access roads created from existing FSRs to get workers, equipment, and transmission tower materials to the transmission line corridor, mine site, airstrip, and the water supply areas. This effect will last throughout the life of the Project.

#### *7.2.6.3.9 Mitigation*

Mitigation measures are presented in the preceding discussion of potential Project effects. **Table 7.2.6-3** summarizes many general mitigation measures. Mitigation measures applicable to specific NTLRUs are presented in the discussions of the potential effects for each Project component or studied area considered.

**Table 7.2.6-4** provides ratings for effectiveness of mitigation measures to avoid or reduce potential effects on NTLRU during mine site development.

**Table 7.2.6-4: Mitigation Measures and Effectiveness of Mitigation to Avoid or Reduce Potential Effects on Non-Traditional Land and Resource Use of Mine Site Development**

Likely Project Effect	Project Phase	Mitigation/Enhancement Measure	Effectiveness of Mitigation Rating
Disruption of the use of and access to traplines, guide outfitting areas and fishing areas associated with the mine footprint, transmission line, water supply pipeline, access roads, and airstrip	Construction	Ongoing communication with registered trapline holders and guide outfitters	High
		Compensating affected registered trapline holders in accordance with industry and provincial protocols with associated proof of lost revenue	High
		Notifying affected registered trapline holders, guide outfitters, lodge owners linked to the outfitters in relevant WMUs, and the local offices of the British Columbia Ministry of Forests, Lands and Natural Resource Operations (BC MFLNRO) (which can relay the information to the recreational hunters and fishers)	High
		Limiting disturbance to the habitat of marten, weasel, beaver, muskrat, and other furbearing species during construction by avoiding, where possible, prime denning and breeding habitat (e.g., mature riparian forests and old forest stands, which are favoured denning habitats for marten)	Moderate
		Implementing the wildlife management plan	Moderate
Disturbance and disruption of agricultural and range land practices, equipment, and livestock  Disturbance or compaction of topsoils and subsoils, and the potential spread of noxious weeds	Construction	<b>Mitigation for disturbance and disruption of agricultural practices and activities and soil will include:</b>	
		Implementing the transportation and access management plan	Moderate
		Implementing a traffic control and management strategy along the ROWs	Moderate
		Requiring Project vehicles to use only the ROWs and designated access roads near Project development areas to minimize compaction of agricultural soil	Moderate
		Implementing preventative protocols for cleaning of equipment (i.e. construction and excavation) of weeds, according to government and industry standards (i.e. weed control plans and guidelines)	High
		Ongoing consultation with farmers and ranchers to resolve issues when required and/or applicable	High
		<b>Mitigation for disruption to ranching, equipment, or livestock will include:</b>	

Likely Project Effect	Project Phase	Mitigation/Enhancement Measure	Effectiveness of Mitigation Rating
		Notifying livestock owners of the construction schedule and activities to allow livestock to be moved to other pastures if necessary and/or where applicable	High
		Facilitating movement of livestock and farm machinery across the ROW corridors, where applicable	High
		Identifying alternative watering locations or options in discussion with the land and livestock owner, if livestock access to water supply is curtailed by mine operations activities or infrastructure	High
		Requiring drivers to close gates properly when Project vehicles require access to the ROW corridors on fenced and gated lands	High
		Ongoing consultation with ranchers and livestock owners to resolve issues, when required and/or if applicable	High
Contribute to spreading of the MPB infestation; Disruption of forestry-related activities, forestry access, and FSRs	Construction	<b>Mitigation related to forestry tenures will include:</b>	
		Providing maps and early notification of Project development and other physical work to affected regional forestry stakeholders	High
		Consultation with tenure holders	High
		Implementation of transportation and access management plan	Moderate
		Active participation in the Canfor road sharing agreement	High
		Follow all BC MFLNRO Guidelines and requirements for clearing, handling, and hauling beetle-infested wood	High
Noise and emissions and dust generation associated with all Project components' infrastructure development may temporarily disrupt land and resource use activities (i.e., trapping, guide outfitting, mineral exploration and forestry, and recreation and tourism activities), users, and local residents	Construction	<b>Mitigation for noise and dust-related disturbance and access disruption include:</b>	
		Providing advance notification of Project schedules to relevant recreational stakeholders (i.e. recreational groups, lodges, campsites, etc.), and rural residents who will be in close proximity to Project activities	Moderate
		Erecting appropriate signage on affected recreational and snowmobiling trails, warning users of temporary trail closures, if scheduling to avoid trail users is not possible or feasible	High
		Scheduling construction activities (if avoidance is not possible) during acceptable hours daily until the work is completed	Moderate
		Controlling dust with wetting agent at regular intervals and/or when required, as necessary	High
		Implementing the wildlife management plan	Moderate
		Implementing the transportation and access management plan	Moderate

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Likely Project Effect	Project Phase	Mitigation/Enhancement Measure	Effectiveness of Mitigation Rating
Disruption of the use of tenures associated with mine footprint, transmission line, water supply line, access roads, and airstrip	Construction	Ongoing communication with stakeholders, during all phases of the Project	High
		Providing notice of Project construction activities and schedules to the stakeholders	High
		Implementing the transportation and access management plan	Moderate
Disturbance to water use areas (licensed groundwater wells)	Construction	Protecting the well with temporary fencing during construction	High
Impediment to safe navigation and temporary access restrictions across waterways that interact with Project crossings and facilities	Construction	Having temporary access restriction at locations where the crossing areas intersect potential put-in places/points for water access	High
		Erecting signs at site locations to inform stakeholders where appropriate	High
		Informing water-based recreational stakeholders about construction activities in advance i.e., Northwest Brigade Paddling Club, nearby lodges, the local offices of BC MFLNRO	High
		Employing appropriate engineering designs and management practices to minimize effects on stream flow	High
		Applying monitoring and adaptive management	High
Creation of new linear access where access corridors are currently non-existent. This enhances consumptive and non-consumptive recreational uses as a result of year-round access and may lead to conflicts between resource users	Construction	Implementing the transportation and access management plan	Moderate
		See additional measures outlined in following section for Project component related to access and transportation ( <b>Section 7.2.5.3</b> )	Moderate
Disruption of use of tenures associated with mine footprint, transmission line, water supply line, access roads, and airstrip	Operations	<b>Mitigation for changes in local ambience, effects on aesthetics (i.e., noise and dust disturbance) and access effects will include:</b>	
		Providing advance notification of Project schedules to relevant recreational stakeholders (i.e., recreational groups, lodges, etc.), and to rural residents who will be in close proximity to Project activities	High
		Erecting appropriate signage on affected recreational and snowmobiling trails, if adjusting scheduling is not possible or feasible	High
		Using noise abatement and operations scheduling considerations at noise-sensitive locations and times, where appropriate, to limit disruption to sensitive receptors	Moderate
		Implementing the transportation and access management plan	Moderate

Likely Project Effect	Project Phase	Mitigation/Enhancement Measure	Effectiveness of Mitigation Rating
Change in quality of experience for registered trapline holders, guide outfitters, mineral explorationists and forestry, and recreationalists	Operations	<b>Mitigation for changes in local ambience, effects on aesthetics (i.e., noise and dust disturbance) and access effects will include:</b>	
		Providing advance notification of Project schedules to relevant recreational stakeholders (i.e., recreational groups, lodges, etc.), and to rural residents who will be in close proximity to Project activities	High
		Erecting appropriate signage on affected recreational and snowmobiling trails, if adjusting scheduling is not possible or feasible	High
		Using noise abatement and operations scheduling considerations at noise-sensitive locations and times, where appropriate, to limit disruption to sensitive receptors	Moderate
		Implementing the transportation and access management plan	Moderate
Disruption of land and resource users to noise due to blasting (if applicable), Project equipment, and traffic	Operations	<b>Mitigation for changes in local ambience, effects on aesthetics (i.e., noise and dust disturbance) and access effects will include:</b>	
		Providing advance notification of Project schedules to relevant recreational stakeholders (i.e., recreational groups, lodges, etc.), and to rural residents who will be in close proximity to Project activities	High
		Erecting appropriate signage on affected recreational and snowmobiling trails, if adjusting scheduling is not possible or feasible	High
		Using noise abatement and operations scheduling considerations at noise-sensitive locations and times, where appropriate, to limit disruption to sensitive receptors	Moderate
		Implementing the transportation and access management plan	Moderate
Creation of emissions and dust affecting land and resource users	Operations	Controlling dust with wetting agent at regular intervals and/or when it is required	High
Disruption to agricultural practices, equipment, and livestock; Disturbance or compaction of topsoils and subsoils, and the potential spread of noxious weeds	Operations	See all mitigation measures described in the Construction Phase that are also applicable and relevant to the Operations Phase	Moderate - High
Effects associated with Project access and transportation may cause traffic safety issues, inconvenience, dust, and noise pollution, and disrupt	Construction, Operations, Closure	Ensuring all Project-related vehicles abide by the terms and conditions of the Canfor Road Management Agreement	Moderate
		Implementing and enforcement of transportation and access management plan	Moderate



Likely Project Effect	Project Phase	Mitigation/Enhancement Measure	Effectiveness of Mitigation Rating
land and resource use stakeholders (e.g., trappers, guide outfitters, consumptive recreationers, tenure holders, residents) and their activities (i.e., trapping, guide outfitting, fishing, mining exploration and forestry, and recreation and tourism) related to access, their respective practices, and use of the resource		<b>Additional mitigation measures also addressed in the transportation and access management plan include:</b>	
		Locking gates will be installed on the mine access road to prevent public use of the road	High
		Posting speed limits on the mine access road, as they are on the FSRs. Travel speeds will be adjusted according to road conditions, weather, and wildlife presence when and where required	Moderate
		Posting signs to alert drivers of potential wildlife presence at wildlife migration corridors and crossing points, and reduced travel speeds will be posted where required. This type of signage currently exists along the FSRs	Moderate
		During dry periods, spraying the mine access road with wetting agents to improve visibility from dust	High
		Ploughing snow from the mine access road when necessary, and using products having low environmental impact (e.g., sand, gravel, non-palatable salts) to ensure safe road conditions	Moderate
		Reporting wildlife sightings to supervisory personnel as soon as possible, and immediately reporting wildlife incidents (e.g., traffic accidents) to supervisory personnel	Moderate
		Busing workforce from Vanderhoof.	Moderate
		Obeying posted speed signs	Moderate
		Using radio frequency call-ins when travelling on the FSRs and mine access road	Moderate
		Limiting the potential for road kill of wildlife by reducing Project-related vehicle speeds and reducing vehicle numbers (e.g., using buses to transport workers to mine site)	Moderate
Noise and emissions and dust generation associated with Project components' infrastructure development may temporarily disrupt land and resource use activities (i.e., trapping, guide outfitting, mining exploration and forestry, and recreational and tourism activities), users, and local residents	Closure	All applicable measures listed above including the implementation of reclamation and closure plan	Moderate - High

In summary, low success rating means mitigation has not been proven successful, moderate success rating means mitigation has been proven successful elsewhere, and high success rating means mitigation has been proven effective.

Effectiveness of the proposed mitigation measures for all potential land and resource use effects is rated between moderate to high because the proposed mitigation measures are consistent with

industry best practices and proven to be effective and acceptable in similar Projects, situations, and locations.

#### **7.2.6.4 Residual Effects and their Significance**

This subsection:

- Identifies and describes any residual effects after mitigation;
- Where residual adverse effects have been identified, provides an assessment of the significance of those residual effects considering context, magnitude, geographic extent, duration, reversibility, frequency;
- Assesses the likelihood of the effect;
- Assesses the significance of the residual effects; and
- Assesses/discusses the level of confidence and risk in the determination of significance and likelihood of the residual effect.

##### **7.2.6.4.1 Mine Site Study Area**

###### **7.2.6.4.1.1 Protected Areas and Parks**

There are no potential effects on parks or protected areas as none exist in the study areas.

###### **7.2.6.4.1.2 Recreation/Tourism Use**

Following mitigation, minor residual adverse noise, dust and access disturbance effects and effects to local ambience in the recreation areas is expected to be of low magnitude, local in geographic extent, long-term in duration, continuous in frequency, and reversible.

The ecological context was rated as low as there are no designated recreation sites, areas, or facilities within the study area, and recreational activities are limited. In addition, the adverse effects are limited to the mine footprint. The likelihood of the residual effect occurring is high. The residual effect is considered not significant (minor), with moderate confidence.

###### **7.2.6.4.1.3 Mining Exploration and Mineral Tenures**

With the implementation of mitigation measures, including consultation, notification and avoidance, where applicable, residual effects are expected to be adverse, of low magnitude, local in geographic extent, long-term in duration, continuous in frequency, and reversible. The ecological context is rated as low as the development is in an area where mining activities are expected to occur. The likelihood of the residual effect occurring is high. The residual effect is considered not significant (minor) with high confidence.

#### *7.2.6.4.1.4 Forestry and Timber Resource Use*

Following the implementation of mitigation measures, effects to the forestry land base, merchantable timber, and access-related effects are considered adverse, low in magnitude, negative in direction, localized, long-term, and continuous. The effects are considered to have a high likelihood of occurring, and to be reversible with reclamation. The ecological context is rated as low as the development is in an area where forestry activities have occurred in the past and will continue in the future. The likelihood of the residual effect occurring is high. The residual effect is considered not significant (minor) with high confidence.

After appropriate mitigation measures, the contributory effect on the spread of the MPB is considered negligible.

#### *7.2.6.4.1.5 Hunting, Trapping, and Guide Outfitting*

Residual effects include sensory disturbance to wildlife and disturbance to the land base. This may affect hunting efforts and success rates. However, the land base lost for hunting will be low, and there are many hunting locations to choose from within the guide outfitters' respective GOAs. Project-specific residual effects on recreational hunting effort and success of guide outfitters are predicted to be adverse, of low magnitude, local, long-term, and reversible. Trapline TR0512T027 accounts for the largest overlap with the mine disturbance footprint, at 9% of the total trapline area, but this trapline has not been used for the past 20 years (see **Section 7.2.7.2**). Two other traplines (TR0512T014 and TR0601T003) overlap the mine footprint, an overlap representing <1% of each of their total trapline areas. Following mitigation related to access and trapping disruption and appropriate compensation, as required, the residual effect on affected trappers is considered to be adverse, of low magnitude, local, short-term, and reversible.

Overall, the Project will have a low adverse effect on trapping and hunting activities. Residual effects are expected to be of low magnitude, local, short term, of continuous frequency, and reversible. The context is rated as low because trapping and hunting activities are existent in the area and will continue in the future. The likelihood of the residual effect occurring is high. This residual effect is not significant (minor), and is predicted with moderate confidence.

#### *7.2.6.4.1.6 Fishing and Aquaculture*

There are no aquaculture sites located within the mine study area and there is limited, if any, fishing activities that may occur in the water bodies within the mine site study area. Therefore, there are no expected residual effects to fishing or aquaculture sites and related activities within the mine site study area.

#### *7.2.6.4.1.7 Agriculture and Grazing (including range use)*

There are no ALR lands within the Project area and a small proportion of range tenure RAN075154 A could be affected. Based on this and the proposed mitigation measures, residual effects on ALR and the range tenure are considered to be neutral.

#### *7.2.6.4.1.8 Land Ownership*

There are no potential effects to private lands in the mine site study area as none exist within the mine site study area.

The effect to *Land Act* tenures is considered to be neutral, as there are none within the study area.

#### *7.2.6.4.1.9 Surface Water and Groundwater Use*

The effect to surface water and groundwater use is considered to be neutral, as the only existing two groundwater wells in the study area are registered to the Proponent.

#### *7.2.6.4.1.10 Recreational and Commercial Use of Waterways*

The effect to use of waterways is neutral in the study area. This is based on information that there has been no current use of waterways within the mine site study area and it is not expected to be used in the future.

A summary of residual effects for land and resource use in the mine site study area is presented in **Table 7.2.6-5**.

#### *7.2.6.4.1.11 Transportation and Access*

Following mitigation, the residual effects on access and transportation within the mine site study area are considered neutral.

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**Table 7.2.6-5: Summary of Residual Effects for Land and Resource Use, Mine Site Study Area**

Project Phase	NTRLRU Key Indicators	Context <sup>1</sup>	Magnitude	Geographic Extent	Duration	Reversibility	Frequency	Likelihood Determination	Level of Confidence for Likelihood	Significance Determination	Level of Confidence for Significance
C,O, CL	Recreation/Tourism Use	Neutral	Low	Local	Long-term	Yes	Continuous	High	High	Not significant (minor)	Moderate
C,O, CL	Mining Exploration and Mineral Tenures	Neutral	Low	Local	Long-term	Yes	Continuous	High	High	Not significant (minor)	High
C,O, CL	Forestry and Timber Resource Use	Neutral	Low	Local	Long-term	Yes	Continuous	High	High	Not significant (minor)	High
C,O, CL	Hunting, Trapping, and Guide Outfitting	Neutral	Low	Local	Long-term	Yes	Continuous	High	High	Not significant (minor)	Moderate
	Fishing and Aquaculture	-	-	-	-	-	-	-	-	-	-
	Agriculture and Grazing (including range use)	-	-	-	-	-	-	-	-	-	-
	Land Ownership	-	-	-	-	-	-	-	-	-	-
	Surface Water and Groundwater Resource Use	-	-	-	-	-	-	-	-	-	-
	Recreational and Commercial Use of Waterways	-	-	-	-	-	-	-	-	-	-
	Transportation and Access	-	-	-	-	-	-	-	-	-	-

**Notes:** <sup>1</sup> Method for the consideration of context is discussed in Section 4, Assessment Methodology.  
C = construction; O = operations; CL = closure; PC = post-closure

#### 7.2.6.4.2 Mine Site Access Road Study Area

##### 7.2.6.4.2.1 *Recreation/Tourism Use*

Potential recreational effects in the mine site access road study area would be very similar to those for the mine site study area, as the two study areas are adjacent. However, in addition, this new linear development could result in a positive effect over the Project life cycle.

After mitigation, adverse residual effects are expected to be of low magnitude, local, long-term, continuous, and reversible. Wildlife is expected to return to the area after Project activities cease. The context is rated as low, because trapping and hunting activities occur in the area and will continue in the future. This residual effect is not significant (minor).

##### 7.2.6.4.2.2 *Mining Exploration and Mineral Tenures*

There is a neutral effect to mineral tenures as the Proponent is the only holder of tenures in the area.

##### 7.2.6.4.2.3 *Forestry and Timber Resource Use*

Effects on forestry and timber resources and related disruption to access or activities would be similar to those for the mine site study area. Therefore, adverse residual effects following mitigation would be low in magnitude, negative in direction, localized, long-term, and continuous. The effects are considered to have a high likelihood of occurring and to be reversible with reclamation. The ecological context is rated as low as the development is in an area where forestry activities have occurred in the past and will continue in the future. The residual effect is considered not significant (minor).

##### 7.2.6.4.2.4 *Hunting, Trapping, and Guide Outfitting*

As previously stated, effects to consumptive recreational activities in the mine site study area and the mine site access road study area is similar. Therefore, residual effects are assessed overall as low on trapping and hunting activities. Adverse residual effects are expected to be of low magnitude, local, short-term, continuous, and reversible. The context is rated as low, as trapping and hunting activities take place in the area and will continue in the future. The likelihood of the residual effect occurring is high. This residual effect is not significant (minor) and is predicted with moderate confidence.

##### 7.2.6.4.2.5 *Fishing and Aquaculture*

Residual effects are considered neutral following mitigation.

##### 7.2.6.4.2.6 *Agriculture and Grazing (including range use)*

Residual effects on range land in the study area are considered to be low, negative, local, long-term, and continuous. The effects are considered to have a high likelihood of occurring and to be

reversible with reclamation. The ecological context is rated as low as the development area is an area where ranching and other range land activities have occurred in the past and will continue in the future. The likelihood of the residual effect occurring is high and predicted with moderate confidence. The residual effect is considered not significant (minor).

#### *7.2.6.4.2.7 Land Ownership*

There are no potential effects to private lands as there are none in the area.

There are no potential effects to *Land Act* tenures as there are none in the area.

#### *7.2.6.4.2.8 Surface Water and Groundwater Resource Use*

There are no potential effects to groundwater and surface water use as there are no water licences or registered wells within the study area.

#### *7.2.6.4.2.9 Recreational and Commercial Use of Waterways*

Residual effects on the use of waterway on Turtle Creek following mitigation would be low in magnitude, adverse in direction, localized, short-term, continuous, and the context is rated as low. The likelihood of the effect occurring is high. The residual effects are considered not significant (minor) stated with moderate confidence.

#### *7.2.6.4.2.10 Transportation and Access*

Following mitigation, residual effects on access and transportation are considered neutral.

A summary of residual effects of land and resource use in the mine site access road study area is presented in **Table 7.2.6-6**.

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**Table 7.2.6-6: Summary of Residual Effects for Land and Resource Use (Mine Site Access Road Study Area)**

Project Phase	NTRLU Key Indicators	Context <sup>1</sup>	Magnitude	Geographic Extent	Duration	Reversibility	Frequency	Likelihood Determination	Level of Confidence for Likelihood	Significance Determination	Level of Confidence for Significance
C,O, CL	Recreation/Tourism Use	Neutral	Low	Local	Long-term	Yes	Continuous	High	High	Not significant (minor)	Moderate
	Mining Exploration and Mineral Tenures	-	-	-	-	-	-	-		-	-
C,O, CL	Forestry and Timber Resource Use	Neutral	Low	Local	Long-term	Yes	Continuous	High	High	Not significant (minor)	High
C,O, CL	Hunting, Trapping, and Guide Outfitting	Neutral	Low	Local	short-term	Yes	Continuous	High	High	Not significant (minor)	Moderate
	Fishing and Aquaculture	-	-	-	-	-	-	-		-	-
C,O, CL	Agriculture and Grazing (including range use)	Neutral	Low	Local	Long-term	Yes	Continuous	High	High	Not significant (minor)	Moderate
	Land Ownership	-	-	-	-	-	-	-		-	-
	Surface Water and Groundwater Resource Use	-	-	-	-	-	-	-		-	-
C, CL	Recreational and Commercial Use of Waterways	Neutral	Low	Local	short-term	Yes	Continuous	High	High	Not significant (minor)	Moderate
	Transportation and Access	-	-	-	-	-	-	-		-	-

**Notes:** <sup>1</sup> Method for the consideration of context is discussed in Section 4, Assessment Methodology.  
C = construction; O = operations; CL = closure; PC = post-closure



#### 7.2.6.4.3 Airstrip Study Area

##### 7.2.6.4.3.1 *Recreation/Tourism Use*

Following mitigation, minor residual noise, dust and access disturbance effects in recreational areas are expected to be adverse, low magnitude, local, short-term, continuous, and reversible. The residual effect is considered not significant with high confidence. Access-related residual effects would be positive over the life of the Project.

The ecological context was rated as low as there are some limited recreational activities within the study area that will likely continue in the future. The likelihood of the residual effect occurring is high. The residual effect is considered not significant (minor), with moderate confidence.

##### 7.2.6.4.3.2 *Mining Exploration, and Mineral Tenures*

With implementation of mitigation measures including consultation, notification and avoidance, where applicable, adverse residual effects are expected to be of low magnitude, local in geographic extent, long-term in duration, continuous in frequency, and reversible. The ecological context is rated as low as the development is in an area where mining activities are expected to occur. The likelihood of the residual effect occurring is high. The residual effect is considered not significant (minor) with high confidence.

##### 7.2.6.4.3.3 *Forestry and Timber Resource Use*

Similar Project activities and proposed mitigation measures as those for adjacent study areas, the mine site access and airstrip study areas will result in similar residual effects. Therefore, residual effects following mitigation will be low in magnitude, adverse, local, long-term, and continuous. The effects likelihood of occurring is high and is reversible with reclamation. The ecological context is rated as low as the development is in an area where forestry activities have occurred in the past and will continue in the future. The likelihood of the residual effect occurring is high, stated with high confidence. The residual effect is considered not significant (minor).

##### 7.2.6.4.3.4 *Hunting, Trapping, and Guide Outfitting*

Residual effects on consumptive recreational activities would be similar to those for the mine site access road study area. Therefore, it is expected that there will be both negative and positive effects on hunting, trapping, and guide outfitting.

Adverse residual effects are expected to be of low magnitude, local, short-term, continuous, and reversible. The context is rated as low as trapping and hunting activities currently exist in the area and will continue in the future. This residual effect is not significant (minor).

##### 7.2.6.4.3.5 *Fishing and Aquaculture*

Following mitigation, residual effects on fishing activities would be neutral.

#### *7.2.6.4.3.6 Agriculture and Grazing (including range use)*

Since it is the same range tenure holder in the mine site access road and airstrip study areas, the effects and mitigation measures will be similar. Therefore, adverse residual effects on range land tenure, its holder, and related activities is considered as low, negative, local, long-term, continuous, and reversible with reclamation. The ecological context is rated as low as the development area is an area where ranching and other range land activities have occurred in the past and will continue in the future. The residual effect is considered not significant (minor).

#### *7.2.6.4.3.7 Land Ownership*

Effect is neutral because there are no private lands.

As there are no *Land Act* tenures within the study area, there will be no Project-related residual effects.

#### *7.2.6.4.3.8 Surface Water and Groundwater Resource Use*

There are no potential effects to surface water and groundwater use as there are no water licences in the area.

#### *7.2.6.4.3.9 Recreational and Commercial Use of Waterways*

The effect on use of waterways is neutral because the stream within the study area where there will be a Project water crossing is not navigable.

#### *7.2.6.4.3.10 Transportation and Access*

Following mitigation, the residual effects on access and transportation are considered neutral.

A summary of residual effects for land and resource use in the airstrip study area is presented in **Table 7.2.6-7**.

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**Table 7.2.6-7: Summary of Residual Effects for Land and Resource Use (Airstrip Study Area)**

Project Phase	NTLRU Key Indicators	Context <sup>1</sup>	Magnitude	Geographic Extent	Duration	Reversibility	Frequency	Likelihood Determination	Level of Confidence for Likelihood	Significance Determination	Level of Confidence for Significance
C, O, CL	Recreation/Tourism Use	Neutral	Low	Local	Long-term	Yes	Continuous	High	High	Not significant (minor)	Moderate
C, O, CL	Mining Exploration and Mineral Tenures	Neutral	Low	Local	Long-term	Yes	Continuous	High	High	Not significant (minor)	High
C, O, LC	Forestry and Timber Resource Use	Neutral	Low	Local	Long-term	Yes	Continuous	High	High	Not significant (minor)	High
C, O, LC	Hunting, Trapping, and Guide Outfitting	Neutral	Low	Local	short-term	Yes	Continuous	High	high	Not significant (minor)	Moderate
	Fishing and Aquaculture	-	-	-	-	-	-	-		-	-
C, O, LC	Agriculture and Grazing (including range use)	Neutral	Low	Local	Long-term	Yes	Continuous	High	High	Not significant (minor)	Moderate
	Land Ownership	-	-	-	-	-	-	-			-
	Surface Water and Groundwater Resource Use	-	-	-	-	-	-	-			-
	Recreational and Commercial Use of Waterways	-	-	-	-	-	-	-			-
	Transportation and Access	-	-	-	-	-	-	-		-	-

**Notes:** <sup>1</sup> Method for the consideration of context is discussed in Section 4, Assessment Methodology.  
C = construction; O = operations; CL = closure; PC = post-closure

#### 7.2.6.4.4 Water Supply Study Area

##### 7.2.6.4.4.1 *Recreation and Tourism*

Following the implementation of mitigation measures, residual adverse noise and access disturbance effects on recreational areas are expected to be of low magnitude, local, short-term, continuous, and reversible. The ecological context was rated as moderate as there are recreational activities within the study area that are expected to continue in the future. The residual effect is considered not significant (minor). In addition, access will have positive effects on recreation and tourism.

##### 7.2.6.4.4.2 *Mining, Exploration, and Mineral Tenures*

After the implementation of mitigation measures, that includes consultation, notification and avoidance, where applicable, residual effects are expected to be of low magnitude, local in geographic extent, long-term in duration, continuous in frequency, and reversible. The ecological context is rated as low as the development is in an area where mining activities are expected to occur. The likelihood of the residual effect occurring is high. The residual effect is considered not significant (minor) with high confidence.

##### 7.2.6.4.4.3 *Forestry and Timber Resources*

Following the implementation of mitigation measures, effects on the forestry land base and merchantable timber are considered low in magnitude, negative, localized, long-term, continuous, and reversible.

The ecological context is rated as low as the development is in an area where forestry activities have occurred in the past and will continue in the future. The residual effects are considered not significant (minor).

After the implementation of mitigation measures, the residual effect on the spread of MPB is considered negligible. The prediction of neutral residual effects from forestry access disruption presumes that the mitigation is reasonably effective. Effects are further discussed in the following access section of the water supply study area (**Section 7.2.6.4.4.8**) and in the regional transportation section (**Section 7.2.3**).

##### 7.2.6.4.4.4 *Hunting, Trapping, and Guide Outfitting*

Residual effects on hunting, trapping, and guide outfitting activities related to land base disturbance in the water supply study area are considered low. For both guide outfitters and trapline holders, the total area affected by the footprint relative to their resource use areas is <1%. Low residual effects on wildlife, including sensory disturbance, are predicted, and would primarily occur during the construction and decommissioning phases of the Project. The context is rated as low, as trapping and hunting areas and activities occur in the area and are expected to continue in the future.

Overall, the Project will have a low, negative and positive effect on trapping and hunting activities. Residual effects are expected to be of low magnitude, local, long-term, continuous, and reversible. This residual effect is likely to occur, and confidence in the prediction is moderate. Overall, the residual effect is considered not significant (minor).

The positive effect of additional access due to the service road, pipeline, and transmission line could benefit trappers, guide outfitters, and hunting stakeholders and their respective activities.

#### *7.2.6.4.4.5 Fishing and Aquaculture*

There are no expected residual effects to fishing or aquaculture sites and activities as the mitigation measures are expected to be effective.

#### *7.2.6.4.4.6 Agriculture and Grazing (including range use)*

Residual effects on the range tenure RAN075154 A holder are considered a low negative in direction, local, long-term, continuous, and reversible with reclamation. The likelihood of the effects occurring is high. The ecological context is rated as low as the development area is in an area where ranching and other range land activities have occurred in the past and will continue in the future. The residual effects are considered not significant (minor), stated with moderate confidence.

#### *7.2.6.4.4.7 Land Ownership*

There are no potential effects to private lands as there are no communities or rural residents in the water supply study area.

As there are no *Land Act* tenures within the study area, the effect is considered to be neutral.

#### *7.2.6.4.4.8 Surface Water and Groundwater Resource Use*

Potential effect within the water supply study area is neutral, since there are no registered groundwater and surface water licences.

A summary of residual effects for land and resource use in the water supply study area is presented in **Table 7.2.6-8**.

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**Table 7.2.6-8: Summary of Residual Effects for Land and Resource Use (Water Supply Study Area)**

Project Phase	NTRLU Key Indicators	Context <sup>1</sup>	Magnitude	Geographic Extent	Duration	Reversibility	Frequency	Likelihood Determination	Level of Confidence for Likelihood	Significance Determination	Level of Confidence for Significance
C, O, CL	Recreation/Tourism Use	Neutral	Low	Local	Long-term	Yes	Continuous	High	High	Not significant (minor)	Moderate
C, O, CL	Mining Exploration and Mineral Tenures	Neutral	Low	Local	Long-term	Yes	Continuous	High	High	Not significant (minor)	High
C, O, CL	Forestry and Timber Resource Use	Neutral	Low	Local	Long-term	Yes	Continuous	High	High	Not significant (minor)	High
C, O, CL	Hunting, Trapping, and Guide Outfitting	Neutral	Low	Local	Short-term	Yes	Continuous	High	High	Not significant (minor)	Moderate
	Fishing and Aquaculture	-	-	-	-	-	-	-	-	-	-
C, O, CL	Agriculture and Grazing (including range use)	Neutral	Low	Local	Long-term	Yes	Continuous	High	high	Not significant (minor)	Moderate
	Land Ownership	-	-	-	-	-	-	-	-	-	-
	Surface Water and Groundwater Resource Use	-	-	-	-	-	-	-	-	-	-
C, O, CL	Recreational and Commercial Use of Waterways	Neutral	Low	Local	short-term	Yes	Continuous	High	High	Not significant (minor)	Moderate
	Transportation and Access	-	-	-	-	-	-	-	-	-	-

**Notes:** <sup>1</sup> Method for the consideration of context is discussed in Section 4, Assessment Methodology.  
C = construction; O = operations; CL = closure; PC = post-closure

#### *7.2.6.4.4.9 Recreational and Commercial Use of Waterways*

Residual effects on the use of waterways on Tatalkuz Lake and its stakeholders, following mitigation would be low in magnitude, adverse in direction, localized, short-term, continuous, and the context is rated as low. The likelihood of the effect occurring is high. The residual effects are considered not significant (minor), stated with moderate confidence.

#### *7.2.6.4.4.10 Transportation and Access*

Following mitigation, the residual effects on access and transportation are considered neutral.

#### *7.2.6.4.5 Transmission Line Study Area*

##### *7.2.6.4.5.1 Recreation/Tourism Use*

Following mitigation, residual adverse noise effects and effects on access to recreational areas are expected to be of low magnitude, local, long-term, continuous, and reversible. The ecological context was rated as low as land and resource use activities and designated recreational sites, areas, and facilities currently exist within and adjacent to the study area and are expected to continue in the future. The residual effect is considered not significant (minor). Access-related effects due to the creation of the linear developments (i.e., transmission corridors) on recreation and tourism are considered positive and negative as a result of increased access within the study area. With increased access, there is the possibility of increased friction between people engaging in different types of recreation activities, particularly between those enjoying off-road vehicle use and those engaging in NMOP.

##### *7.2.6.4.5.2 Mining Exploration and Mineral Tenures*

After the implementation of mitigation measures, including consultation, notification and avoidance, where applicable, residual effects are expected to be of low magnitude, local in geographic extent, long-term in duration, continuous in frequency, and reversible. The ecological context is rated as low as the development is in an area where mining activities are expected to occur. The likelihood of the residual effect occurring is high. The residual effect is considered not significant (minor) with high confidence.

##### *7.2.6.4.5.3 Forestry and Timber Resource Use*

Following the implementation of mitigation measures, effects on the forestry land base, merchantable timber, and access are considered low in magnitude, negative, local, long-term, continuous, and reversible. The likelihood of the effect occurring is high. The ecological context is rated as low as the development is in an area where forestry activities have occurred in the past and will continue in the future. The residual effect is considered not significant (minor).

After the implementation of mitigation measures, the Project's effect on the spread of MPB is considered negligible. Effects are further discussed in the following access section

(**Section 7.2.6.4.5.8**) of the transmission line study area and in the regional transportation section (**Section 7.2.3**).

#### *7.2.6.4.5.4 Hunting, Trapping, and Guide Outfitting*

Residual effects on the disruption to hunting, trapping, and guide outfitting activities in the transmission line study area are low in magnitude. Residual effects on wildlife related to sensory disturbance are also considered to be low. The new linear development and its use by hunting, trapping, and guide outfitting is considered a positive effect that is expected to last well into the post-closure phase of the Project.

Overall, the Project's adverse residual effects are expected to be of low magnitude, local, long-term, continuous, and reversible. This adverse residual effect is not significant (minor). The context is rated as low as hunting, trapping, and guide outfitting areas and activities occur in the transmission line study area at present and are expected to continue in the future.

#### *7.2.6.4.5.5 Fishing and Aquaculture*

As the mitigation measures are expected to be adequate, no residual effects on fishing or aquaculture sites and activities are expected.

#### *7.2.6.4.5.6 Agriculture and Grazing (including range use)*

The effects on agriculture and range tenures are considered to be low in magnitude, negative, localized, long-term, continuous, and reversible. The ecological context is rated as low as the development is in an area where agriculture and range land activities have occurred in the past and will continue in the future. The residual effect is considered not significant (minor).

#### *7.2.6.4.5.7 Land Ownership*

The residual effects on noise, dust, and access to private land are minor and it will only occur in the construction and decommissioning phases.

Disturbance effects on private land will be adverse, of low magnitude, long-term, intermittent, localized, but ultimately reversible. The ecological context is rated as medium. The residual effects are considered not significant (minor), stated with moderate confidence.

The effects on *Land Act* tenures are considered low in magnitude, negative, localized, long-term, continuous, and reversible. The ecological context is rated as low as the development area is in an area where Crown land activities have occurred in the past and will continue in the future. The likelihood of the residual effect occurring is high and is predicted with high confidence. The residual effect is considered not significant (minor).



#### *7.2.6.4.5.8 Surface Water and Groundwater Resource Use*

Residual effects on the surface water and groundwater use and its stakeholders, following mitigation would be low in magnitude, adverse in direction, localized, short-term, continuous, and the context is rated as low. The likelihood of the residual effect occurring is high and is predicted with high confidence. The residual effect is considered not significant (minor).

#### *7.2.6.4.5.9 Recreational and Commercial Use of Waterways*

Following mitigation measures, the residual effect on the use of waterways on Nechako and Stellako Rivers, Tahultzu, Big Bend and Chedakuz Creeks is considered to be low in magnitude, negative in direction, localized, short-term, and continuous. The context is rated as low because water related activities on navigable waters have occurred in the past and will continue in the future. The likelihood of the residual effect occurring is high and is predicted with moderate confidence. The residual effect is considered not significant (minor).

#### *7.2.6.4.5.10 Transportation and Access*

Following mitigation, the positive and negative effects on access and transportation related to land and resource uses and users are considered to be of moderate magnitude, localized, long-term, continuous, and reversible. The ecological context is rated as medium as the development is in an area where some access exists, but not a linear transmission corridor. The residual effect is considered not significant (minor).

#### *7.2.6.4.5.11 Transmission Line Stellako Re-Route Alternative*

The mitigation measures and residual effects on land and resource uses and users in the Stellako re-route would mirror those for the transmission line study area where all effects are low in magnitude. All effects are considered not significant (minor).

A summary of residual effects for land and resource use in the transmission line study area is presented in **Table 7.2.6-9**.

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**Table 7.2.6-9: Summary of Residual Effects for Land and Resource Use (Transmission Line Study Area)**

Project Phase	NTLRU Key Indicators	Context <sup>1</sup>	Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Likelihood Determination	Level of Confidence for Likelihood	Significance Determination	Level of Confidence for Significance
C, O, D/C	Recreation/Tourism Use	Neutral	Low	Local	Long-term	Continuous	Yes	High	High	Not significant (minor)	Moderate
C, O, D/C	Mining Exploration and Mineral Tenures	Neutral	Low	Local	Long-term	Continuous	Yes	High	High	Not significant (minor)	High
C, O, D/C	Forestry and Timber Resource Use	Neutral	Low	Local	Long-term	Continuous	Yes	High	High	Not significant (minor)	High
C, O, D/C	Hunting, Trapping, and Guide Outfitting	Neutral	Low	Local	Long-term	Continuous	Yes	High	High	Not significant (minor)	Moderate
	Fishing and Aquaculture	Neutral	-	-	-	-	-	-	-	-	-
C, O, D/C	Agriculture and Grazing (including range use)	Neutral	Low	Local	Long-term	Continuous	Yes	High	High	Not significant (minor)	Moderate
C, O, D/C	Land Ownership	Neutral	Low	Local	Long-term	Continuous	Yes	High	High	Not significant (minor)	High
	Private Lands	Neutral	Medium	Local	Long-term	Continuous	Yes	High	High	Not significant (minor)	Moderate
C, O, D/C	Surface Water and Groundwater Resource Use	Neutral	Low	Local	short-term	Continuous	Yes	High	High	Not significant (minor)	High
C, O, D/C	Recreational and Commercial Use of Waterways	Neutral	Low	Local	short-term	Continuous	Yes	High	High	Not significant (minor)	Moderate
C, O, D/C	Transportation and Access	Neutral	Low	Local	Long-term	Intermittent	Yes	High	High	Not significant (minor)	High

**Notes:** <sup>1</sup> Method for the consideration of context is discussed in Section 4, Assessment Methodology  
C = construction; O = operations; D/C = decommissioning and closure; PC = post-closure

#### *7.2.6.4.5.12 Transmission Line Mills Ranch Re-Route Alternative*

The mitigation measures and residual effects on land and resource uses and users in the Mills Ranch re-route would be similar to those for the transmission line study area. However, unlike the Stellako re-route, the proposed Mills Ranch re-route corridor is located further away from private residents and land owners. Therefore, effects on all land and resource uses and users, including private lands, will be negligible to low and not significant (minor).

#### *7.2.6.4.6 FSR Study Area*

##### *7.2.6.4.6.1 Recreation/Tourism Use*

Residual effects after the implementation of mitigation measures would be adverse for noise, dust and access disturbance in the recreational areas. The effects will be low magnitude, local, short-term, continuous, and reversible. The residual effect is considered not significant (minor). The ecological context is rated as low.

##### *7.2.6.4.6.2 Mining Exploration and Mineral Tenures*

After the implementation of the mitigation measures, the residual effects on mining, and mineral tenures are expected to be neutral.

##### *7.2.6.4.6.3 Forestry and Timber Resource Use*

Assuming the implementation of mitigation measures are reasonably effective, residual effects on forestry traffic and practices are considered low in magnitude, negative, local, long-term, continuous, and reversible. The ecological context is rated as low as the development is in an area where forestry activities have occurred in the past and will continue in the future.

The Kluskus FSR is a long-standing road used by the forestry sector and a number of other local and regional stakeholders. The residual effect is considered not significant (minor).

The residual effect on the potential spread of MPB is considered negligible after appropriate mitigation measures.

##### *7.2.6.4.6.4 Hunting, Trapping, and Guide Outfitting*

Residual effects related to wildlife and furbearers, including sensory disturbance are considered minimal as these activities occur in an area where forestry- and non-forestry-related traffic has occurred for many years. As there will be no disturbance to traplines, and appropriate mitigation measures will be implemented, the Project will have negligible effects on trapping and hunting activities.

#### *7.2.6.4.6.5 Fishing and Aquaculture*

There are no expected residual effects on fishing or aquaculture sites and activities as the proposed mitigation measures are expected to be adequate.

#### *7.2.6.4.6.6 Agriculture and Grazing*

The residual effects on agriculture and range tenures are considered low in magnitude, negative, localized, long-term, and continuous. The Project's residual effect on farmers and ranchers with grazing livestock and other agricultural activities in and adjacent to the FSR study area includes increased traffic, noise, and dust disturbances that are continuous and reversible. The ecological context is rated as low as the development is in an area where agriculture- and range land-related activities occur within and adjacent to the area. The residual effect is considered not significant (minor).

#### *7.2.6.4.6.7 Land Ownership*

The residual effects of noise and dust effects, and effects on access to private land are low and will occur in the construction, operation, and decommissioning phases after which they will cease to exist. The effect on private land will be adverse, low in magnitude, long-term, continuous, localized, but ultimately reversible. The ecological context is rated as low. The residual effect is considered not significant (minor).

Residual effects on *Land Act* tenures, are considered negligible as they are located outside the Project footprint (i.e., Kluskus FSR). The only residual Project effects on tenure holders pertain to access, traffic, and safety. These will be addressed with the proposed mitigation measures.

#### *7.2.6.4.6.8 Surface Water and Groundwater Use*

The effects to existing surface water and groundwater uses will be negligible. The mitigation measures to address issues of access, traffic, and safety will be addressed with the proposed mitigation measures.

A summary of residual effects for land and resource use in the FSR study area is presented in **Table 7.2.6-10**.

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**Table 7.2.6-10: Summary of Residual Effects for Land and Resource Use (FSR Study Area)**

Project Phase	NTRLRU Key Indicators	Context <sup>1</sup>	Magnitude	Geographic Extent	Duration	Reversibility	Frequency	Likelihood Determination	Level of Confidence for Likelihood	Significance Determination	Level of Confidence for Significance
	Recreation/Tourism Use	Neutral	Low	Local	Long-term	Yes	Continuous	Moderate	High	Not significant (minor)	High
	Mining Exploration and Mineral Tenures	-	-	-	-	-	-	-	-	-	-
C, O, D/C	Forestry and Timber Resource Use	Neutral	Low	Local	Long-term	Yes	Continuous	Moderate	High	Not significant (minor)	High
C, O, D/C	Hunting, Trapping, and Guide Outfitting	-	-	-	-	-	-	-	-	-	-
	Fishing and Aquaculture	-	-	-	-	-	-	-	-	-	-
C, O, D/C	Agriculture and Grazing (including range use)	Neutral	Low	Local	Long-term	Yes	Continuous	Moderate	High	Not significant (minor)	High
	Land Ownership	-	-	-	-	-	-	-	-	-	-
	Private Lands	Neutral	Low	Local	Long-term	Yes	Continuous	Moderate	High	Not significant (minor)	Moderate
	Surface Water and Groundwater Resource Use	-	-	-	-	-	-	-	-	-	-
	Recreational and Commercial Use of Waterways	-	-	-	-	-	-	-	-	-	-
C, O, D/C	Transportation and Access	Neutral	Low	Local	Long-term	Yes	Continuous	Moderate	High	Not significant (minor)	High

**Notes:** <sup>1</sup> Method for the consideration of context is discussed in Section 4, Assessment Methodology.  
C = construction; O = operations; D/C = decommissioning and closure; PC = post-closure

#### *7.2.6.4.6.9 Recreational and Commercial Use of Waterways*

Since the one new proposed bridge crossing is over a water course within the FSR study area and the water course is not used for navigation and related uses, the effect to water course is negligible.

#### *7.2.6.4.6.10 Transportation and Access*

Following the implementation of mitigation measures, the residual effects on access and transportation related to land and resource uses and users are considered to be negative, low, local, long-term, continuous, and reversible. There is an additional positive effect due to the creation of new access from existing FSRs in order to transport workers, equipment, and tower materials to the transmission line corridor, mine site, airstrip, and water supply areas. The new creation of access would be a long-term benefit to resource users. The ecological context is rated as low as the development is in an area where an active forestry road exists and will continue to be used by forestry and non-forestry stakeholders. The residual effect is considered not significant (minor).

#### *7.2.6.4.7 Summary of Effects*

The following section summarizes the overall effects of the Project, i.e., the combined effect in all study areas presented by indicator.

#### *7.2.6.4.7.1 Recreation/Tourism Use*

When considering the Project as a whole (all study areas), the residual environmental effect of access, noise, and dust disturbances on designated recreation areas, non-consumptive recreation activities, and tourism areas is not significant (minor). Effects on recreation of access creation due to new linear developments will be positive. Residual effects of access and noise disturbances are also not expected to act synergistically. Mitigation will be implemented appropriately.

#### *7.2.6.4.7.2 Mining Exploration and Mineral Tenures*

For mining and mineral exploration, the Project's components and activities are expected to affect access to mineral tenures. Given the mitigation measures that will be implemented, where applicable, the residual effect is not significant (minor).

#### *7.2.6.4.7.3 Forestry and Timber Resource Use*

Project activities will affect the forestry land base, and will remove merchantable timber and disrupt access to forestry activities and forestry roads. The Proponent will implement appropriate mitigation measures for all effects. Thus, the overall residual Project effects on forestry and timber resources are not significant (minor).

#### *7.2.6.4.7.4 Hunting, Trapping, and Guide Outfitting*

Residual environmental effects on traplines and hunting will be reduced through mitigation measures including cooperative planning with users to limit effects on access and harvesting activities, as well as increased access by public users. Mitigation for trapping will include compensation based on industry and government protocols if resource areas are affected as a result of the Project. Additionally, the proportions of resource areas directly affected are relatively minor. As a result, the overall residual effect of the Project on hunting, trapping, and guide outfitting is concluded to be not significant (minor).

#### *7.2.6.4.7.5 Fishing and Aquaculture*

The sole Project effect on fishing in all study areas is the temporary obstruction of access to prime fishing locations resulting in temporary relocation to other fishing areas. This effect will be effectively mitigated and therefore, residual effects are not significant (negligible).

#### *7.2.6.4.7.6 Agriculture and Grazing (including range use)*

The residual environmental effect on agriculture and range tenure is disruption to the use of the tenure, equipment, or livestock due to mining-related activities. This is minor in the context of the overall Project study areas. Other effects include effects on access to range tenures, traffic, and the disruption of use of agricultural and range tenures.

The Proponent will implement appropriate mitigation measures to address the effects on agriculture and range tenures, and address issues according to standard industry and provincial protocols and best practices. Thus, the overall residual effect of the Project on agriculture and range land use is not significant (minor).

#### *7.2.6.4.7.7 Land Ownership*

Generally, the short-term, residual, low environmental effect on private land use is that of noise, dust, and access disturbance in all study areas. The disruption of private land base is minor when considering the Project as a whole, and occurs only if the Stellako re-route alternative is adopted.

In the content of the entire Project area, *Land Act* tenures occur only in the transmission line study area. Project components and activities are not expected to impose future restrictions on access of the use of tenures after construction activities. Given the mitigation measures that will be implemented, based on standard industry and provincial protocols and best practices, the residual effect is not significant (negligible).

#### *7.2.6.4.7.8 Surface Water and Groundwater Resource Use*

The residual effect on water licences is minor in the context of the overall Project study areas, as it occurs only in two areas in the transmission line study area. The Proponent will implement appropriate mitigation measures by utilising temporary fencing during construction to protect the

wells. Thus, the overall residual effect of the Project on surface water and groundwater use is not significant (negligible).

#### *7.2.6.4.7.9 Recreational and Commercial Use of Waterways*

In the context of the overall Project, the only minor effects on recreational and commercial use of waterways occur in the transmission line study area during construction and decommissioning. The residual effects of safety, access, water-flow on use of waterways will be effectively mitigated. Therefore effects to recreational and commercial use of waterways are considered not significant (negligible).

#### *7.2.6.4.7.10 Transportation and Access*

The residual effects of the Project on transportation and access are expected to be both positive and negative. These effects will vary across the Project areas. Negative residual effects by Project works will include disruption and wear and tear on roads (i.e., highways, secondary roads, and FSRs), disruption of access, and safety issues. Positive residual effects will include the creation of new linear developments (i.e., transmission line ROW, service road, water pipeline ROW, and access road) that may be used by a variety of stakeholders. **Section 2.2.4.4.1** provides details related to temporary or permanent transmission line access road. The final location of the transmission line access roads will be determined during the detailed engineering and permitting stage, and will consider traditional knowledge and traditional use information provided by Aboriginal groups, as appropriate. Its design will follow the same principles of using existing roads avoiding sensitive habitat to the extent possible. Given the mitigation measures related to road sharing and implementation of the TAMP which addresses safety, increased traffic, and other stakeholder-specific issues, the adverse residual effect is not significant (minor).

### **7.2.6.5 Cumulative Effects Assessment**

This section determines the need for assessing cumulative effects and assesses potential cumulative effects;

Residual effects within the six study areas and two transmission line alternatives (i.e., Stellako and Mills Ranch re-routes) include disturbances to the land base and disruption of various NTLRU activities. These residual effects (i.e., effects of noise and dust-related aesthetics on private lands, effects to non-consumptive (general outdoor recreation) recreation activities, mining, prospects, exploration, quarries, gravel pits and mineral tenures, forestry, trapping and fishing and range tenures); of the Project are carried forward for a CEA to assess effects in combination with the residual effects of one or more other Projects or human activities (see **Table 7.2.6-11** and **Table 7.2.6-12**).



**Table 7.2.6-11: Project-Related Residual Effects; Rationale for Carrying Forward into the CEA**

Project Component	Project Phase	NTLRU Key Indicators	Rationale	Carried Forward in Cumulative Effects Assessment
Mine site, airstrip, transmission line, freshwater supply pipeline and access roads	C, O, D/C	Recreation/ Tourism Use	Disruption to recreational activities	Yes
Mine site, airstrip, transmission line, freshwater supply pipeline and access roads	C, O, D/C	Mining Exploration and Mineral Tenures	Land Base disturbance will occur	Yes
Mine site, airstrip, transmission line, freshwater supply pipeline and access roads	C, O, D/C	Forestry and Timber Resource Use	Disturbance and disruption to forestry land base and related activities	Yes
Mine site, airstrip, transmission line, freshwater supply pipeline and access roads	C, O, D/C	Hunting, Trapping, and Guide Outfitting	Land base disturbance and disruption to hunting, trapping and guide-outfitting activities	Yes
Mine site, airstrip, transmission line, freshwater supply pipeline and access roads		Fishing and Aquaculture	No Project Effect	No
Mine site, airstrip, transmission line, freshwater supply pipeline and access roads	C, O, D/C	Agriculture and Grazing (including range use)	Minimal disruption to range land tenures will occur	Yes
Mine site, airstrip, transmission line, freshwater supply pipeline and access roads		Land Ownership	Negligible effects to <i>Land Act</i> tenures will be mitigated	No
		Private Land	Residual noise and dust disturbance and access related disruption will effect private land.	Yes
Transmission line	C, O, D/C	Surface Water and Groundwater Resource Use	Negligible Project effects to two water licences will be mitigated	No
Mine site, airstrip, transmission line, freshwater supply	C, O, D/C	Recreational and Commercial Use of Waterways	Negligible Project effects will be mitigated	No

<b>Project Component</b>	<b>Project Phase</b>	<b>NTLRU Key Indicators</b>	<b>Rationale</b>	<b>Carried Forward in Cumulative Effects Assessment</b>
pipeline and access roads				
Mine site, airstrip, transmission line, freshwater supply pipeline and access roads	C, O, D/C	Transportation and Access	Project related Transportation and access related effects will occur throughout the life of the Project within the LSA	Yes

**Note:** C = construction; O = operations; D/C = decommissioning and closure.

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**Table 7.2.6-12: Interactions between NTLRU and other Past, Present, and Future Projects/Activities**

NTLRU Key Indicators	Historical Land Use							Representative and Current Land Use						Future Land Use	Carried Forward into CEA?	
	Forestry (cutblocks and woodlots)	Agriculture and Rangeland tenures	Recreational (trails, fishing and lodges)	Trapping and guide outfitting	Tenures (Mining (, quarries, water	Transportation and Access	Natural disturbance (Fire and MPB)	Forestry (cutblocks and woodlots)	Agriculture and Rangeland tenures	Recreational (trails, fishing and lodges)	Trapping and guide outfitting	Tenures (Mining (current prospecting, quarries, water, Other)	Transportation and Access	Natural disturbance (Fire and MPB)		Nulki Hills Project, Fraser Lake Biomass Project, future mineral and Crown tenures, and logging activities
Recreation/Tourism Use	I	I	I	I	I	I		I	I	I	I	I	I	I	I	Yes
Mining Exploration and Mineral Tenures	I	I	I	I	I		NI	I	I	I	I	I	I	I	I	Yes
Forestry and Timber Resource Use	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	Yes
Hunting, Trapping, and Guide Outfitting	I	I	NI	I	I	I	I	I	I	I	I	I	I	I	I	Yes
Fishing and Aquaculture	NI	NI	I	NI	NI	NI	NI	NI	NI	I	NI	NI	NI	NI	NI	No
Agriculture and Grazing (including range use)	NI	I	NI	NI	NI	I	NI	I	NI	NI	NI	NI	NI	NI	I	Yes
Land Ownership	I	NI	NI	NI	I	I	NI	I	NI	NI	NI	I	I	NI	NI	No
Private Land	I	I	I	I	I	I	NI	I	I	I	NI	NI	I	NI	I	Yes
Surface Water and Groundwater Resource Use	NI	NI	NI	NI	I	NI	NI	NI	NI	NI	NI	I	NI	NI	NI	No
Recreational and Commercial Use of Waterways	NI	I	I	NI	NI	NI	NI	NI	NI	I	I	NI	NI	NI	NI	No
Transportation and Access	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	Yes

**Note:** I = interaction, KI = key interaction, NI = no interaction

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### 7.2.6.5.1 Significance of Residual Cumulative Effects

Land uses within the RSA (i.e., mining, mineral exploration, quarrying, forestry, hunting, trapping, ranching and outdoor recreation, etc.) could be affected by the Project by disrupting access to or use of tenures. This will be caused by ongoing industrial activity within the RSA (e.g., mineral exploration and related activities, Endako Molybdenum mine, and forestry and logging activities), and anticipated future industrial activities (e.g., Nulki Hills Project, Fraser Lake Biomass Project, future mineral exploration and related activities, and logging activities). Logging activities would continue where economically feasible and unaffected by MPB. However, in the regional context, the non-anthropogenic MPB epidemic is the biggest contributor to land base disturbance, with over half (52%) of the forested land base identified as severely affected by the MPB infestation, 2% as moderately affected, and 7% as low. The summary of cumulative effects is in **Table 7.2.6-13**.

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**Table 7.2.6-13: Summary of Significance of Cumulative Effects**

Project Phase	NTRLU Key Indicators	Context <sup>1</sup>	Magnitude	Geographic Extent	Duration	Reversibility	Frequency	Likelihood Determination	Level of Confidence for Likelihood	Significance Determination	Level of Confidence for Significance
C, O, D/C	Recreation/ Tourism Use	Neutral	Low	Regional	Long-term	Yes	Intermittent	Moderate	High	Not Significant (minor)	Moderate
C, O, D/C	Mining Exploration and Mineral Tenures	Neutral	Low	Regional	Long-term	Yes	Continuous	Moderate	High	Not Significant (minor)	Moderate
C, O, D/C	Forestry and Timber Resource Use	Neutral	Low to Medium	Regional	Long-term	Yes	Continuous	Moderate	Moderate	Not Significant (minor)	Moderate
C, O, D/C	Hunting, Trapping, and Guide Outfitting	Neutral	Low	Regional	Long-term	Yes	Continuous	Moderate	Moderate	Not Significant (minor)	Moderate
	Fishing and Aquaculture										
C, O, D/C	Agriculture and Grazing (including range use)	Neutral	Negligible to Low	Regional	Long-term	Yes	Continuous	Moderate	Moderate	Not Significant (negligible)	Moderate
	Land Ownership										
C, O, D/C	Private Lands	Neutral	Low	Regional	Long-term	Yes	Continuous	High	High	Not significant (minor)	High
	Surface Water and Groundwater Resource Use										
	Recreational and Commercial Use of Waterways										
C, O, D/C	Transportation and Access	Neutral	Low	Regional	Long-term	Yes	Continuous	Moderate	High	Not Significant (minor)	Moderate

**Notes:** <sup>1</sup> Method for the consideration of context is discussed in Section 4, Assessment Methodology.  
 C = construction; O = operations; D/C = decommissioning and closure; PC = post-closure

#### 7.2.6.5.2 Recreation/Tourism Use

In the long-term future, it is expected that there will be an increase in the number of people engaging in non-consumptive recreation, adding to the demand for off-road areas, and potentially increasing the number of people seeking motorized vehicle and non-motorized access to and within the RSA. The creation of additional and improved access in the RSA could provide greater access for non-consumptive recreational use. Improved access will facilitate an increase in the intensity of ATV and/or snowmobile riding, camping, hiking, and/or wildlife viewing in the RSA. However, it is unknown how many non-consumptive recreation enthusiasts will act on an increase in access in the RSA resulting from industrial linear developments. Nevertheless, it is anticipated that the cumulative effect of improved access on outdoor recreation opportunities will be positive, moderate in magnitude, long-term, regional, and continuous, and predicted with high confidence. With increased access, there is the possibility of increased friction between people engaging in different recreational activities, particularly between those using off-road vehicles and those enjoying non-motorized outdoor pursuits. The level of increased friction between people engaging in different types of recreational activities is expected to be of low magnitude, long-term, infrequent, and regional. The magnitude of the Project's contribution to effects on general recreation is low.

The Proponent will enhance and coordinate access management via the TAMP and continued adherence to the terms and conditions of the Road Use Agreement. Ultimately, in the future, the proponent may take over from Canfor the responsibility for management and enforcement of the road use agreement prior to the start of construction. The proponent will coordinate with neighbouring industrial, government, and recreational stakeholders to further reduce the risk of harmful cumulative effects on non-consumptive outdoor recreation. The likelihood of the effect occurring is moderate and is stated with moderate confidence. The overall cumulative effect including that of the Project on non-consumptive outdoor activities is not significant (minor).

#### 7.2.6.5.3 Mining Exploration and Mineral Tenures

Regionally, if all tenures and activities were to reach their full extent of planned and approved development during the same timeframe, the total disturbance to the land base is expected to represent a low magnitude, negative, regional, long-term, continuous, and reversible effect. This is due to the fact that the contribution of development of future mineral tenures is expected, but would not add significantly to the loss in the land base and that the Project's contribution to land base disturbance is low. The Proponent will communicate in a timely manner with applicable tenure holders in the Project area to coordinate activities and avoid active tenures. The likelihood of the effect occurring is moderate. Thus, the overall cumulative effect of the Project is not significant (minor).

#### 7.2.6.5.4 Forestry and Timber Resource Use

Within the RSA, the cumulative, multiple effects of all industrial developments will be to reduce the harvestable timber land base, reduce the merchantable timber for forestry tenure holders, alter the sequence and timing of timber harvesting and processing (if the tenure holder is contracted by the Proponents to harvest and process timber from their respective Project footprints), and increase access to the remaining harvestable timber.

Industrial stakeholders within the RSA will reforest areas cleared for Project facilities following decommissioning, and/or progressively reclaim throughout the life of the Project, as applicable. Although forest productivity may improve after reclamation, the cumulative effect of the industrial footprint on the harvestable timber land base is estimated to be low in magnitude, negative, regional, long-term, continuous, and reversible. The increases in access routes associated with industrial development within the RSA may make it easier for forestry stakeholders to harvest a larger area of the timber resource in their forestry tenures within the RSA by lowering access road construction costs and making access less time consuming and safer. Despite the lack of available analytical results quantifying the relationship between decreased resource access time, road construction costs, and increased operational safety with an increase in linear access density for the forestry industry, based on professional judgment, it is predicted that the facilitation of forestry activities by increasing access is a low to moderate magnitude, positive, regional, long-term, continuous, and reversible effect. In the regional context, the Project's contribution to forestry is low. The residual effect on forestry is considered low. The likelihood of the effect occurring is moderate and is stated with moderate confidence. Thus, the overall cumulative effect on forestry is not significant (minor).

#### 7.2.6.5.5 Hunting, Trapping, and Guide Outfitting

The cumulative effects on consumptive outdoor activities may include a decrease in the total area within the RSA available for use, an increase in access to the RSA, and the decline of and disruption to wildlife and furbearer species.

Consumptive outdoor recreation will be precluded at, and in the immediate vicinity of, all industrial facility areas within the RSA. However, the maximum amount of land lost for consumptive outdoor recreation activities in the RSA due to the industrial footprint (excluding cutblocks, recent burn, and MPB-affected land base) is expected to be low. Thus, this loss of harvestable land base for consumptive outdoor activities in the RSA is a low magnitude, negative, long-term, regional, continuous effect. Cumulatively, in the regional context, increased and improved access will facilitate consumptive outdoor activities. However, increased access could lead to conflicts between different resource users. Although these effects cannot be quantified, these negative effects are anticipated to be low in magnitude, regional, long-term, and continuous. The Project's contribution to these effects is low.

Additionally, correlations between varying levels of industrial and associated access development and variable population sizes among furbearer and big game species, and correlations between wildlife population sizes and hunting and trapping success rates, are not well known. However, industrial disturbances such as noise, human presence, and habitat loss may lead to a decline or dispersion in wildlife populations that are sensitive to disturbance, or that need large, continuous home ranges. This decline or dispersion in wildlife populations in the RSA may lead to decreased hunting and trapping success and associated revenues for both guide outfitters and trappers. The effect of decreasing wildlife populations on hunting and trapping success rates is expected to be low in magnitude, negative, regional, long-term, and continuous. The Project's contributions to effects on consumptive outdoor activities are low. The likelihood of the effect occurring is moderate

and is stated with moderate confidence. The overall cumulative effect of the Project on consumptive outdoor activities is not significant (minor).

#### 7.2.6.5.6 Agriculture and Grazing (including range use)

The Project's contribution to residual effects on range tenures is low. There are no residual effects on ALR lands as Project components are outside of ALR lands. The cumulative effect on range tenures is expected to be of negligible to low magnitude, negative, regional, long-term, continuous, and reversible. The overall aesthetic cumulative effect of the Project on agriculture and range tenures is not significant (negligible). This effect is moderately likely to occur and is stated with moderate confidence.

#### 7.2.6.5.7 Land Ownership

The Project will generate disturbances related to noise and dust and disruptions to access that will potentially affect private land owners. These disturbance effects might interact cumulatively with the disturbance from existing Projects and other existing activities in the region. However, these existing and future projects and activities are interspersed throughout a relatively large region. The contribution of the Project is low. Regionally, cumulative effects on noise, dust and disruptions to access are estimated to be low in magnitude, negative, regional, long-term, continuous, and reversible. The likelihood of the effect occurring is high and is stated with high confidence. Therefore, the overall aesthetic cumulative effect of the Project is not significant (minor).

#### 7.2.6.5.8 Transportation and Access

Land and resource uses are affected by a combination of increases in both population and access in the region. These effects are both positive and negative for a variety of land and resource uses and users as a result of the cumulative effect of industrial and associated access development in the RSA. The planned and baseline industrial developments within the RSA will contribute to access development. Utility and pipeline corridors and access roads open areas for both recreational and consumptive uses (e.g., ATV use, snowmobiling, non-motorized recreation, hunting, fishing, and trapping) and additional industrial uses (i.e., forestry, oil and gas, and aggregate exploration and extraction/harvesting).

Based on the network of roads within the RSA and the contributions of future developments to access, the magnitude of cumulative access development in the RSA is considered a low, regional, long-term, and continuous effect, and is stated with moderate confidence. The likelihood of the effect occurring is moderate. In the regional context, the Project's contribution to access effects is moderate. The overall cumulative effect of the Project is not significant (minor).

#### 7.2.6.6 Limitations

This subsection presents assumptions and limitations relative to the assessment of Project effects and the assessment of cumulative effects.



Limitations for the land and resource use effects assessment are directly associated with the availability of representative and current land use information. Existing land and resource uses may not necessarily remain the same, as land uses and users may change over time. In addition, there is the limitation of the uncertainty of planned future Projects and activities, where proposed future Projects and activities may or not proceed, depending on various economic, regulatory, or other factors.

#### **7.2.6.7 Conclusion**

This assessment has considered Project effects throughout the Project life cycle and addressed potential cumulative effects on NTLRU. The majority of Project-specific NTLRU effects in all study areas will be low in magnitude, due to sound Project design and the implementation of appropriate mitigation measures, including compensation where applicable. The remaining Project-specific land and resource use effects will be negligible after mitigation.

The primary effect of clearing land for industrial use will be a reduction to the available land base for other land and resource uses. Progressively, throughout the Project and following decommissioning, the Proponent will revegetate and reclaim cleared areas to make them available for other land use activities. This will be carried out in accordance with the RCP (**Section 2.6**).

An increase in access creates both positive and negative effects on NTLRU. It facilitates land use activities by opening new areas and reducing travel times to target areas. Conversely, new access increases pressure on land use and resources and the potential for conflict between users. The Proponent will implement the TAMP, adhere to the terms and conditions of the Canfor Road Use Agreement and may in the future take over prime responsibility for implementation of the agreement, and work with forestry and other stakeholders to address ongoing and current access issues. In cooperation with locally affected trappers, guide outfitters, farmers, ranchers, and private land holders, the Proponent will develop and implement mitigation measures, according to established industrial and provincial protocols and best practices.

Results of the cumulative effects on NTLRU (i.e., community and private lands, recreation and tourism, forestry, mining, mineral exploration quarries, gravel pits and mineral tenures, trapping and hunting, ranching and access) were considered low. Therefore, all cumulative effects are deemed not significant (minor).