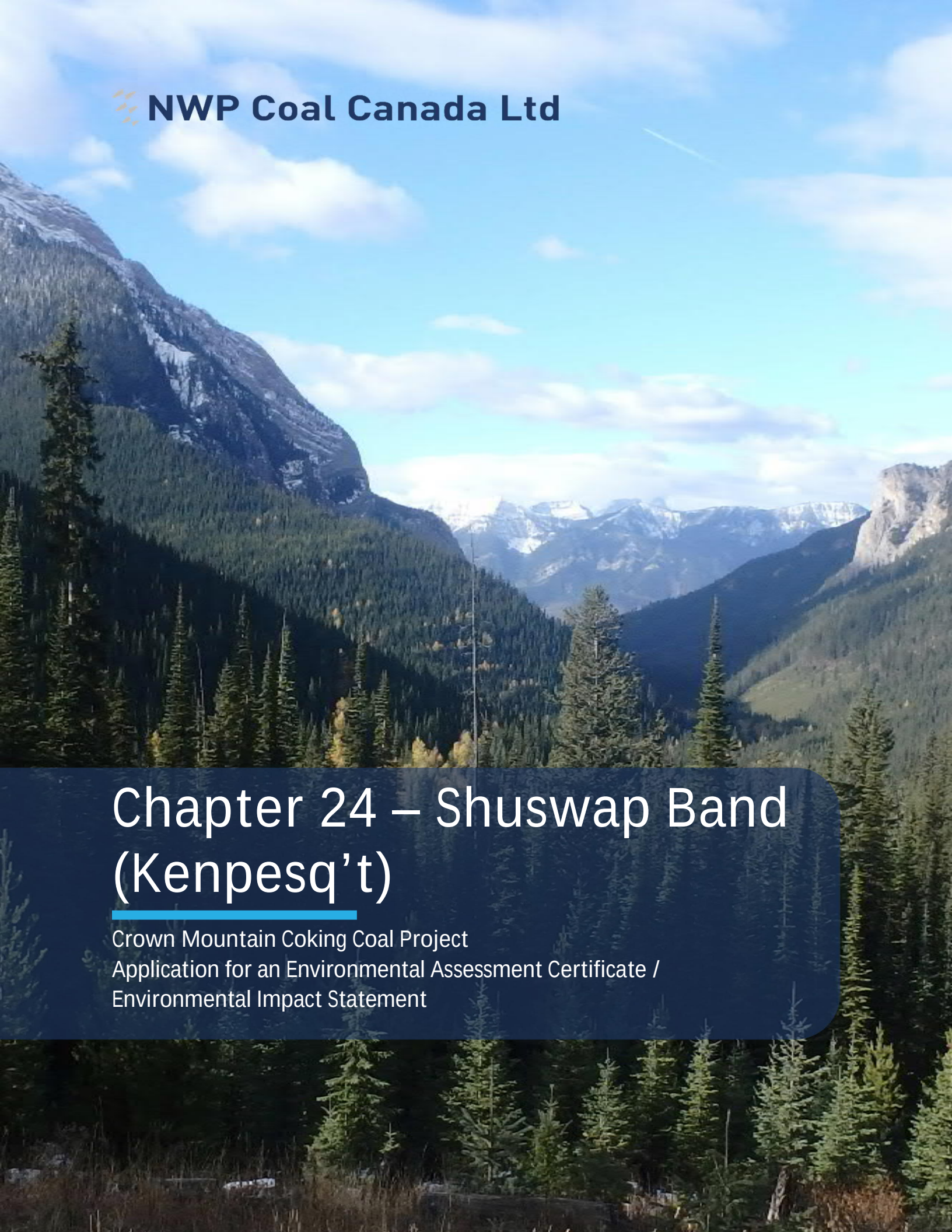
NWP Coal Canada Ltd



Chapter 24 – Shuswap Band (Kenpesq’t)

Crown Mountain Coking Coal Project
Application for an Environmental Assessment Certificate / Environmental Impact Statement

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24. Shuswap Band (Kenpesq't)

24.1 Introduction

Historically, the lands of British Columbia (B.C.) have been used by Indigenous Communities and people for traditional land and resource uses since time immemorial. Traditional land and resource use refers to the activities undertaken by Indigenous peoples that were carried out dating back to Pre-contact periods. These activities may have included the building and settling of encampments, seasonal travel, hunting, fishing, trapping, gathering of food and medicines, practicing ceremonial traditions, and burial activities. Evidence of these traditional land and resource uses can be found in archaeological evidence (e.g., archaeological sites, burial sites, and associated objects) and through Indigenous traditional knowledge.

Indigenous Communities, their traditional knowledge, as well as current and historic land and resource use is an important aspect of environmental impact assessment. This chapter provides an overview of the regulatory and policy setting as well as the environmental setting for the Crown Mountain Coking Coal Project. It includes information about the Shuswap (Indian) Band (Kenpesq't)[1] community, their Aboriginal rights, including traditional land and resource use and descriptions of the Shuswap Band's baseline conditions related to the Project. This chapter includes the assessment of effects of the Project on the environment related to the Shuswap Band, the potential mitigation measures identified, and the assessment of the impacts on the Shuswap Band's rights and interests.

The information presented in Chapter 24 is used to assess potential effects of the Project on Indigenous rights and interests (known as Aboriginal Rights and Interests throughout Chapter 24), as outlined in the *Canadian Environmental Assessment Act*, 2012 (CEA Act, 2012) and the Guidelines for the Preparation of an Environmental Impact Statement for the Crown Mountain Coking Coal Project (EIS Guidelines; Canadian Environmental Assessment Agency [CEAA], 2015).

[1] Shuswap Indian Band is referred to as Shuswap Band throughout this chapter based on feedback received from IAAC during conformity review.

24.1.1 Indigenous Communities

The assessment of potential effects on treaty rights and interests, including land and resource use, was completed for the Indigenous Communities listed in Table 24.1-1. Indigenous Communities required to be consulted as part of the Project were detailed in the provincial Section 11 Order issued for the Project by the federal EIS Guidelines (CEAA, 2015). The Section 11 Order includes Schedules B and C, which specifically name the Indigenous groups requiring consultation, with additional guidance provided in the April 26, 2018 provincial Application Information Requirements document. In October 2020, the British Columbia Environmental Assessment Office (EAO) varied the procedural order for the Project with the issuance of a Section 13 Order, which included the addition of Indigenous groups (Table 24.1-1). Additionally, CEAA provided guidance on February 20, 2015 via the EIS Guidelines, with further direction provided by the Impact Assessment Agency of Canada (IAAC) on March 16, 2020.

Table 24.1-1: Summary of Indigenous Communities Engaged for the Crown Mountain Coking Coal Project

Indigenous Community/Group	Provincial and/or Federal Guidance for Inclusion on the Project
Ktunaxa Nation • Yaq̓it ʔa·knuqǂi ‘it (ʔakink’um‡asnuq‡iʔit or Tobacco Plains Band) • ʔakisq’nuk (Akisqnuk or Columbia Lake Band) First Nation • ʔaq̓am (St. Mary’s Indian Band) • Yaqan Nuʔkiy (Lower Kootenay Band)	• EIS Guidelines (February 20, 2015) • Section 11 Order - Schedule B (May 27, 2015)
Shuswap (Indian) Band	• EIS Guidelines (February 20, 2015) • Section 11 Order - Schedule C (May 27, 2015)
Stoney Nakoda First Nations • Bearspaw First Nation • Chiniki First Nation • Wesley First Nation	• EIS Guidelines (February 20, 2015) • IAAC revised list of Indigenous Groups (March 16, 2020) • Section 13 Order (October 30, 2020) - additions to Schedule C of the Section 11 Order
Kainai First Nation (Blood Tribe)	• IAAC revised list of Indigenous Groups (March 16, 2020) • Section 13 Order (October 30, 2020) - additions to Schedule C of the Section 11 Order
• Piikani Nation	• IAAC revised list of Indigenous Groups (March 16, 2020) • Section 13 Order (October 30, 2020) - additions to Schedule C of the Section 11 Order
Siksika Nation	• IAAC revised list of Indigenous Groups (March 16, 2020) • Section 13 Order (October 30, 2020) - additions to Schedule C of the Section 11 Order
Tsuut’ina Nation	• IAAC revised list of Indigenous Groups (March 16, 2020)
Métis Nation of British Columbia	• EIS Guidelines (February 20, 2015)
Métis Nation of Alberta, Region 3	• IAAC revised list of Indigenous Groups (March 16, 2020)

24.1.2 Regulatory and Policy Setting

24.1.2.1 Indigenous Communities

As identified by the Impact Assessment Agency of Canada (IAAC) (IAAC, 2015a, b; 2020 a-c; 2021 a, 2022) and listed in Table 24.1-1, the Project falls within the asserted traditional territories of the member nations of the Ktunaxa Nation (?akisq'nuk, Yaqan nuykiy, ?aq'am, and Tobacco Plains Band), Shuswap Band, the Kainai, Piikani Nation, and Siksika Nation. The Stoney Nakoda (Chiniki, Bearspaw, and Wesley First Nations), has asserted a Land Claim Area which extends into B.C., outside of Treaty 7 territory where this additional land claim area overlaps with the Project footprint as identified by IAAC (IAAC, 2015c). The Project is also located adjacent to the traditional territories of the Tsuut'ina Nation (IAAC, 2021b). The Elk Valley Métis Nation (EVM Nation) is the closest Métis group to the Project footprint and a Chartered Community within the Métis Nation of British Columbia (MNBC). As determined by IAAC, Elk Valley Métis Nation and MNBC citizens in the region from adjacent chartered communities may be exercising their potential rights within the Project footprint (IAAC, 2015d). The Métis Nation of Alberta – Region 3 are determined by IAAC to be potentially impacted by the Project, as rights-bearing Métis communities are best considered as regional in nature, as opposed to settlement-based (IAAC, 2021c). The closest Reserve Lands to the Project are Bummer's Flat 1 Reserve (approximately 69 km southwest in B.C.), Edan Valley 216 Reserve (Stoney Nakoda; approximately 70 km northeast in Alberta), and Peigan Timber Limit 147B (approximately 52 km east in Alberta).

Specific to the Ktunaxa Nation, the Project falls within the Ktunaxa Nation and the Ktunaxa Kinbasket Statement of Intent Boundary, indicating the extent of asserted Traditional Territory used by the Ktunaxa Nation in B.C. The Ktunaxa Nations maintain underlying sovereign and *sui generis* title[2] to all lands and waters within their territories, including the Elk Valley and the Project footprint. The Ktunaxa Nation currently consists of four member Bands in B.C. and two Bands in the United States, covering approximately 70,000 km^2 of Ktunaxa historical Traditional Territory (Ktunaxa Nation, 2021). Ktunaxa member groups located in B.C. include:

- Yaqit ?a·knuqɬi 'it or ?akink'um‡asnuq‡iʔit or Aqanuxunik (Tobacco Plains Band near Grasmere);
- ?akisq'nuk (Columbia Lake Band near Windermere);
- ?aq'am (St. Mary's Band near Cranbrook); and
- Yaqan Nu?kiy (Lower Kootenay Band near Creston).

The Stoney Nakoda Nations, the Kainai, Piikani Nation, Siksika Nation, and the Tsuut'ina Nation are the Treaty 7 signatories identified by IAAC (IAAC, 2015c; 2020a, b; 2021a, b). In addition to the Treaty 7 rights, the Kainai, Piikani Nation, and Siksika Nation's asserted territory consists of the traditional homeland of the Blackfoot peoples (the Blackfoot Confederacy) which includes the exercise of their Aboriginal rights across the ancestral homeland of the Blackfoot peoples (IAAC, 2020a, b; 2021a).

[2] In Canadian law, Aboriginal title is sui generis (meaning of its own kind or unique), in that the land title originates in an Indigenous Community's occupation of its ancestral lands prior to the European assertion of sovereignty. As such, it is different from other forms of property rights because it is a communal right belonging to specific Indigenous Communities. In that regard, Aboriginal title may not be sold or purchased by individuals; it may only be voluntarily surrendered to the Crown by an Indigenous community through agreements such as treaties. It includes both surface and subsurface resources, such as mineral rights and oil and gas developments (Irwin, 2018).

24.1.2.2 Regulatory Setting

The proposed Project is subject to environmental assessment (EA) under both the C*anadian Environmental Assessment Act* (CEA Act, 2012) and the British Columbia *Environmental Assessment Act* (2002). The Project is also undergoing a coordinated federal-provincial EA process conducted under the principles of the Canada–British Columbia Agreement for Environmental Assessment Cooperation (the Agreement). Under the Agreement, federal and provincial jurisdictions work together on impact assessments for projects that require both a federal and a provincial assessment to increase efficiency and certainty and achieve quality assessments.

24.1.2.2.1 B.C. Environmental Assessment Act

A new coal mine with a production capacity of greater than 250,000 tonnes per year of clean coal or raw coal or a combination of both clean coal and raw coal is considered a Reviewable Project pursuant to the Reviewable Projects Regulation B.C. Reg. 370/2002 under the EAA, 2002 (S.B.C. 2002, c. 43). The Project is therefore considered a Review Project under the EAA, 2002.

Pursuant to Section 2(2) of the EAA, 2002, the B.C. EAO is the authority responsible for provincial review of this proposed Project. NWP submitted the Final Application Information Requirements to the EAO on April 26, 2018 (B.C. EAO, 2018). On May 27, 2015, the EAO issued an Order under Section 11 of the Act, determining the scope of the required environmental assessment and the procedures and methods for conducting the assessment. Section 12 of the Section 11 Order describes consultation with Indigenous Communities. Part G: Section 12.1 of the Section 11 Order states the EAO will consult with the Indigenous Communities listed in Schedule C of the Section 11 Order by providing notification of Project milestones during the environmental assessment (B.C. EAO, 2018). On October 30, 2020, the EAO issued an amendment in the matter of the EAA, 2002 and the environmental assessment of the Project order under Section 13 amending the Section 11 Order to add a new Section 12.5. The added Section 12.5 identifies that the EAO may implement additional measures for consultation and accommodation with any Indigenous Community, after consideration of issues raised where appropriate (B.C. EAO, 2020a).

The EAO requires that all CEA Act, 2012 requirements under subsection 19(1) for assessing environmental effects (e.g., the environmental effects of accidents and malfunctions, cumulative environmental effects, significance of effects, mitigation measures), including paragraph 5(1)(c) effects, be addressed in a dedicated chapter in the EIS. The potential effects assessment for the purposes of paragraph 5(1)(c) environmental effects, including current use of land and resources, is separate from the assessment of the potential effects on Aboriginal rights and interests. Valued Components (VCs), indicators, and any relevant analysis presented in the assessment of impacts to Indigenous Communities related to paragraph 5(1)(c) (e.g., fishing, hunting, trapping, cultural practices, social, health, or economic conditions), are considered on an individual basis for each Indigenous Community identified in any Schedule of the Section 11 Order, regardless of depth of consultation. Where the effect is the same for multiple Indigenous Communities (e.g., for the assessment of environmental effects to social, health and economic conditions), the discussion can be aggregated, provided the rationale is well documented. Summarized results of the Indigenous consultation related to Aboriginal interests and/or other matters of concern to the identified Indigenous Communities are available in Appendix 24-A, Table 24.A-1.

The EAA, 2002 was repealed by the Environmental Assessment Act, 2018 in 2019. As per subsection 78(6) of the EAA, 2018, the environmental assessment process for the Project was continued under the 2002

Act. On May 3, 2023 the Project was transitioned to the EAA, 2018 through a Transition Order under Section 78(7) of the 2018 Act.

24.1.2.2.2 Canadian Environmental Assessment Act, 2012

The construction, operation, decommissioning, and abandonment of a coal mine with a production capacity of more than 3,000 tonnes per day (tpd) is considered a Designated Project pursuant to the *Regulation Designating Physical Activities* SOR/2012-147 under the *Canadian Environmental Assessment Act*, 2012 (S.C. 2012, c. 19, s. 52). The anticipated production capacity of the Project is up to 4.0 million run-of-mine tonnes (M ROMt) per annum (approximately 10,150 tonnes per day [tpd]) for 15 years. The Project is therefore considered a Designated Project under the *Canadian Environmental Assessment Act*, 2012.

Pursuant to Section 15(d) of the *Canadian Environmental Assessment Act*, 2012, the Impact Assessment Agency of Canada (IAAC, formally known as Canadian Environmental Assessment Agency [CEAA]) is the authority responsible for federal review of this proposed Project. The Final Environmental Impact Statement Guidelines were issued by IAAC to NWP on February 20, 2015 for the preparation of an EIS. Section 5.1 of Part 2 of the EIS identifies which Indigenous Communities NWP is required to engage on the Project. As required by the Agency (IAAC, 2020a), NWP will make key environmental assessment summary documents (draft/final EIS, key findings, plain language summaries) accessible to these Indigenous Communities and ensure their views are heard and recorded. For the purposes of developing the EIS, NWP engaged with Indigenous Communities that may be affected by the Project, to obtain their views on:

- Effects of changes to the environment on Indigenous Communities (social, health, and economic issues; physical and cultural heritage, including any structure, site, or thing that is of historical, archaeological, paleontological, or architectural significance; and current use of lands and resources for traditional purposes); and
- Potential adverse impacts of the Project on potential or established Aboriginal or Treaty rights.

With respect to engagement activities, the EIS documents:

- The engagement activities undertaken with Indigenous Communities prior to the submission of the EIS, including the date and means of engagement (e.g., meeting, mail, telephone);
- Any future planned engagement activities; and
- How engagement activities by the proponent allowed Indigenous Communities to understand the Project and evaluate its effects on their communities, activities, potential or established Aboriginal or Treaty rights, and other interests.

Summarized results of the Indigenous consultation related to Aboriginal interests and/or other matters of concern to the identified Indigenous Communities are available in Appendix 24-A, Table 24.A-1. As noted above, the comments received from Indigenous Communities on the draft effects assessment and NWP's responses where applicable are recorded in Appendix 24-A, Table 24.A-2.

The *Canadian Environmental Assessment Act*, 2012 was repealed by the *Impact Assessment Act* (IAA), 2019 in 2019. As per subsection 181(1) of the IAA, 2019, the environmental assessment process for the Project was continued under the 2012 Act.

24.1.2.2.3 Elk Valley Water Quality Plan

The Project is located within the designated area of the Elk Valley Area Based Management Plan, also known as the Elk Valley Water Quality Plan (EVWQP). The EVWQP is a plan to manage the cumulative effects of coal mining on water quality and was developed by Teck in response to a Ministerial Order issued in April 2013 under the *Environmental Management Act* (EMA), 2003.

The Order directed Teck to develop a plan to stabilize and reduce water quality concentrations of selenium, cadmium, nitrate, and sulphate (the Order Constituents) and the rate of formation of calcite in streams. The plan was to include short, medium, and long-term water quality targets for the order constituents for specified locations in the Elk River, Fording River, and the Canadian portion of Lake Koocanusa. The EVWQP was developed with significant consultation with Indigenous Communities, various levels of government, resource tenure holders, the public, and other stakeholders (Teck, 2014a). The Minister of Environment approved the EVWQP on November 18, 2014, and the Minister's approval letter also set out Approval Conditions. The EVWQP and the Minister's Approval Conditions apply to all coal mines in the designated area of the Elk Valley, including the Project.

24.1.2.2.4 Elk Valley Cumulative Effects Framework

As part of the Provincial Cumulative Effects Framework, the Elk Valley Cumulative Effects Management Framework (EV-CEMF) aims to assess the historic, current, and potential future conditions of selected valued components and to support natural resource management decisions within the region. The purpose of EV-CEMF is to develop an approach to understand cumulative effects on the environment from various industries and natural events in the Elk Valley. Impacts are assessed using five region-specific valued components (VC) selected by the EV-CEMF Working Group: Westslope Cutthroat Trout, grizzly bear, bighorn sheep, old growth and mature forest, and riparian habitat. The EV-CEMF will be used as an additional tool in the cumulative effects assessment for the Project for the region-specific VCs.

24.1.2.3 Regional Land Use Policies and Plans

In 1992, the B.C. government directed the development of a strategic-level land use plan to identify a comprehensive and integrative vision for land and resource use in the Kootenay-Boundary region. The East Kootenay Land Use Plan was completed in 1995. This 1995 Plan, which has since been retired, included land use designations of new protected areas, special resource management zones, integrated resource management zones and preliminary enhanced resource management zones. The East Kootenay Land Use Plan (1995) also committed provincial agencies to further regional land planning to refine the enhanced management zones (B.C., 2021). Accordingly, the Kootenay Boundary Land Use Plan Implementation Strategy (KBLUPIS) was released in 1997 (Kootenay Inter-Agency Management Committee, 1997).

The main objectives of the KBULPIS (1997) include:

- Contribute to environmental, social, and economic sustainability;
- Reduce potential for disruptive land use conflicts;
- Support a secure and certain basis for public and private planning as well as investment in resource development and community planning;
- Integrate with other government strategic planning initiatives related to land and resource management; and

- Provide context and strategic direction for detailed, operational levels of land and resource management planning and decision-making.

The KBLUPIS (1997) applies to all public lands and waters in the Kootenay/Boundary regional planning area. It is important to note that the plan does not contain prescriptive direction for private land, rather, as noted above, it aims to provide strategic long-term direction to enhance security and certainty for private planning and investment in resource management.

The KBLUPIS also provides geographically specific resource management guidelines for individual resource values (e.g., connectivity, grizzly bears, ungulate winter range, etc.) (Kootenay Inter-Agency Management Committee, 1997). In 2001, specific provisions outlined in the KBLUPIS were legally established as higher level plan (i.e., the Kootenay-Boundary Higher Level Plan Order) under the *Forest Practices Code of British Columbia Act*. In 2002, the Kootenay-Boundary Higher Level Plan Order was revised and established new resource management zones and objectives. The objectives and guidelines outlined in the Kootenay-Boundary Higher Level Plan Order (2002) are not intended to impact the permitting of subsurface resource exploration and development. These objectives do not affect the operational plans for exploration, development, and production activities when authorized through the other legislation (i.e., *Mineral Tenure Act*, the *Coal Act*, and the *Mines Act*). Building off of the KPLUPIS (1997) and the Kootenay-Boundary Higher Level Order Plan (2002), in 2003, the Southern Rocky Mountain Management Plan was developed. This sustainable management plan covers the portion of the KNRI RSA that includes Flathead and Wigwam, as well as the west side of the Elk River drainage. This Plan was amended in 2010 to reflect the B.C. Government's decision to prohibit mining, oil and gas, and coal exploration and development in the Flathead River Watershed. In 2011, the *Flathead Watershed Conservation Act* was introduced.

The 2005 Cranbrook West Recreation Management Strategy overlaps with a small section of the KNRI RSA and provides the strategic-level direction on backcountry recreation. This plan does not consider industrial access. Since the implementation of this plan, access management areas and snowmobile restrictions have changed and take precedence where they differ from the Cranbrook West Recreation Management Strategy.

24.1.2.3.1 Old Growth Management Areas

Old Growth Management Areas (OGMAs) are a mechanism to protect and attain old-growth forests and enhance biodiversity. The Kootenay Boundary Higher Order Plan (2002) provides legal direction for identifying and defining old and mature seral forests. This order outlines biodiversity emphasis targets for different seral stages by landscape unit and biogeoclimatic unit (Ministry of Sustainable Development, 2002). As previously noted, since 2002, there have been multiple orders that have been approved, which have amended and varied objectives, including the biodiversity emphasis targets and old mature forest objectives. Within the Land Use and Access RSA, the 2005 amendment revised biodiversity emphasis options mapping to enhance timber and biodiversity management in the area.

In 2005, the *Forest Practices Code of British Columbia Act* was repealed and replaced largely by the *Forests and Range Practices Act.* This major change in government direction had implications in terms of how legal objectives related to OGMAs would be considered moving forward. In 2006, the Integrated Land Management Bureau decided not to legalize spatial OGMAs in the Southern Interior region. Non-Legal OGMAs are spatially defined areas of old growth forest that are defined through operational planning or

landscape unit planning processes. When preparing Forest Stewardship Plans, forest licensees are not required to follow OGMA direction and can choose to manage biodiversity targets through alternative methods.

24.2 Environmental Setting

The Project is located in the Elk Valley within the front ranges of the southern Rocky Mountains in south-eastern B.C. The Elk Valley stretches more than 180 km from the mouth of the Elk River at Lake Koocanusa in the south, north to its headwaters in Elk Lakes Provincial Park near the Continental Divide along the B.C.-Alberta border (EV-CEMF, 2018; George et al., 1987). The Elk Valley forms part of the Continental Ranges of the Rocky Mountains. Elevations in the Terrestrial LSA range from 1,170 metres above sea level (m asl) along the Elk River west of Grave Lake up to above 2,700 m asl along the Continental Divide. Key watercourses in the Project footprint, local, and regional study areas include the Elk River, Michel Creek, Alexander Creek, West Alexander Creek, Harmer Creek, and Grave Creek.

24.2.1 Atmospheric Environment

Existing air quality in the Atmospheric LSA and Atmospheric RSA is affected by natural air emissions (e.g., wind-blown dust, forest fires) and anthropogenic air emissions (e.g., existing coal mines, vehicular traffic, construction activities, residential heating, and winter road gritting). Other industrial activities that may affect local and regional air quality and greenhouse gas (GHG) emissions include pulp mills, sawmills, and several oil and gas facilities, in addition to prevalent agriculture and forestry practices.

Air emissions resulting from coal mining and processing include fugitive dust, particulate matter, carbon monoxide (CO), sulphur oxides (SOx), oxides of nitrogen (NOx), volatile organic compounds (VOCs), and GHGs (Province of B.C., 2009; Rout et al., 2014). Emissions of these compounds have the potential to affect human health and aquatic and terrestrial ecosystems. Dustfall is primarily a nuisance issue but may also affect human health, vegetation, water quality, soil quality, and visual aesthetics. Local ambient air quality monitoring data collected by two stations from January 2014 to December 2016 and operated by Teck were used in the baseline analyses. Ambient air concentrations for the selected contaminants of concern all fell below their corresponding B.C. Ambient Air Quality Objectives (AAQOs) for each of their respective averaging periods. Provincial monitoring locations in the Southern Interior Air Zone generally did not exceed the B.C. AAQOs and Canadian Ambient Air Quality Standards (CAAQS) except when influenced by wildfires between 2015 and 2017 (ENV, n.d.). Wildfire smoke is believed to be a factor leading to elevated daily and annual $PM_{2.5}$ concentrations and elevated ozone concentrations.

Meteorological conditions in the Project footprint were determined by collecting data at the Project-specific Crown Mountain meteorological station located within the coal license area at an elevation of 1,920 metres above mean sea level (m amsl) in the headwaters of the Alexander/West Alexander watershed. The mean daily average temperature ranged from 13.4°C in February 2014 to a maximum of 16.6°C in June 2015. Barometric pressure ranged from 78.3 to 82.5 kilopascals (kPa), and was generally higher in the summer, and lower with greater variability in the winter. Average daily humidity varied substantially and ranged from 50.1% (August 2015) to 93.1% (January 2016). Average monthly humidity was typically lowest in the summer months and highest in the winter. The average monthly solar radiation at the Crown Mountain climate station ranged from a minimum of 6.1 watts/square metre (W/m^2) in December 2015 to a maximum of 252.8 W/m^2 in July 2014. The wind rose indicates wind speeds between

2 and 6 kilometres per hour (km/h) were most frequently recorded between January 2014 and May 2016. The most frequent wind direction was traveling west-northwesterly (i.e., from the south-east), at approximately 22.9% of the recorded entries. The lowest precipitation values generally correspond to the summer months (a lowest mean of 35.4 mm in August) and higher precipitation in the early winter months (a highest mean of 89.6 mm in November).

To evaluate baseline GHG emissions for the Project area, total GHG emissions from B.C. and sector specific emissions, particularly emissions from the mining sector were considered. The best available estimate of B.C.'s reported GHG emissions is provided in the 2020 ECCC National Inventory Report (NIR) (GoC, 2021) and 1990-2019 Provincial Inventory (Province of B.C., 2021). GHG emission summaries in the Atmospheric RSA in 2020 indicated a total of 1,695,266 t CO2e/year. The highest fossil fuel emitter was Teck's Fording River Operations (649,846 t CO2e/year). Based on these results, GHG emissions from Single Facility Operations in the East Kootenay region in 2020 accounted for approximately 2.6% of B.C.'s annual emissions, or approximately 0.2% of Canada's total GHG emissions.

24.2.2 Acoustic Environment

The acoustic environment in the Project area near and surrounding the Acoustic LSA comprises natural noise sources (e.g., wind, birds, insects), and anthropogenic sources (e.g., residential, recreational, mining, forestry, transportation). The Project location occurs in a medium relative hazard zone for seismic activity (Natural Resources Canada, 2015), but earthquakes do occur in the area (Natural Resources Canada, 2020). Anthropogenic sources of background vibration may include seismic exploration for mining and oil and gas developments, quarrying and resource extraction, large trucks and earth-moving equipment, and timber harvesting and hauling.

Mining in the East Kootenay region has been ongoing for over a century with coal being the dominant resource extracted in the area. There are several existing metallurgical coal mines in the Elk Valley and Crowsnest coal fields, including Teck's Elkview Operations at approximately 8 km southwest of the Project and the Line Creek, at approximately 12 km north of the Project. Additionally, the Canadian Pacific mainline and the Sparwood/Elk Valley Airport are within the Acoustic LSA which affect the acoustic environment in the Project area. None of the above activities currently occur within the Project footprint or Acoustic LSA; these activities are present within the greater region in which the Project is located.

Ambient baseline noise monitoring was performed for the Project in 2017 to determine ambient noise levels at representative human receptors in the Acoustic LSA. Receptor locations were selected near residences, cabins, and campsites. Of the receptors, only two human receptors (locations of possible, but not occupied, Indigenous dwellings) showed some noise levels in exceedance of guidelines. Wildlife receptors were most affected within the Project site itself up to a distance of 1,500 m for noise and up to 400 m to 500 m for vibration levels. All other receptors results were in compliance with the respective criteria and applicable guidelines. Baseline vibration levels were not assessed as there are no known sources of vibration within the Project footprint.

24.2.3 Soils and Terrain

The Soil Quality and Quantity LSA and the Terrain LSA are underlain by a sequence of numerous sedimentary rock formations ranging in age from Jurassic to Lower Carboniferous. The Grave Prairie,

Upper Grave Creek, West Alexander Creek, and Alexander Creek drainages are largely underlain by Jurassic-aged sandstone, shale, and limestone of the Fernie Formation (Massey et al., 2005; Price et al., 1992). The spine of Erickson Ridge consists of Carboniferous-aged dolomite, limestone, and chert of the Rundle Group (Etherington, Mount Head, and Livingstone Formations). Outcrops of dolomitic siltstone, sandy dolomite, orthoquartzite and limestone of the Rocky Mountain Group flank the Rundle Group rocks. In turn, shale, sandstone, and limestone of the Spray River Group are located between the Fernie Formation and the Rocky Mountain Group. Sandstone, siltstone, and coal of the Kootenay group outcrop along the Crown Mountain ridge top (Massey et al., 2005; Price et al., 1992).

As part of the baseline analysis, a total of 17 Soil Map Units (SMUs) were described and were finalized once a pattern of main soil types was established through field sampling and image analysis. Dominant SMUs consisted of circum-mesic till, moderately shallow soil, and deep colluvium within the LSA and Project footprint. High soil erosion potential was identified along watercourses and on steep slopes throughout the Soil Quality and Quantity LSA.

Soil salvage potential was considered low in the LSA as 59.7% of soils were considered unsuitable for salvage for rehabilitation purposes. Soils with good potential to be salvaged for rehabilitation purposes (i.e., m, m-h, m-l classes) cover 22% of the Project footprint. Another 17% of the Project footprint has fair potential for soil salvage.

Concentrations of metals in the soil samples analyzed during the baseline surveys were found to be below the B.C. Contaminated Sites Regulation (CSR) standards, and Canadian Council of Ministers of the Environment (CCME) Canadian Soil Quality Guidelines (CSQG) with some exceptions that included aluminium, arsenic, barium, cobalt, manganese, nickel, selenium, thallium, and zinc. Four of the 18 polycyclic aromatic hydrocarbon (PAH) parameters analyzed were detected in soil samples. With the exception of one sample collected from near an exposed coal seam northwest of the summit of Crown Mountain, levels were below the B.C. CSR standards and CCME CSQGs. Soil pH levels by SMU varied greatly from strongly acidic to moderately alkaline.

Terrain type, assessed by mapping of surficial materials across the terrain LSA include till, colluvium, aeolian, fluvial, glaciolacustrine, and organic deposits, as well as weathered bedrock and anthropogenic deposits. Glaciolacustrine sediments are found throughout the Terrain LSA and are associated with increased susceptibility to landslides and surface erosion than other materials. Within the Terrain LSA, deposits of glaciolacustrine sediments were found along the Elk River valley bottom, Grave Prairie and the south end of Grave Lake between the elevations of about 1,200 m above mean sea level (amsl) and 1,400 m amsl.

Terrain stability class within the Terrain LSA was high to very high covering approximately 47% of the Terrain LSA. Though karst was not observed within the Terrain LSA by the terrain stability mapping, 892.9 ha (7%) of the Terrain LSA is underlain by Primary Karst likelihood, 977.7 ha (8%) by Secondary Karst likelihood, and 3,818 ha (30%) Tertiary Karst likelihood. The remainder of the area is considered to have a negligible amount of karst potential. Most of the Project infrastructure is located on areas mapped as Tertiary or unmapped. The majority (56.5%) of the Terrain LSA was not classified as a geohazard; slow moving geohazards (5.9%), rapid moving geohazards (32%) or a combination of slow and rapid geohazards (6.1%) were identified in the baseline assessment.

24.2.4 Groundwater and Surface Water

There are two mapped aquifers identified within the catchments of Grave Creek and Erickson Creek located to the southwest of the Project, close to the Town of Sparwood. Aquifer 1078 is a sand and gravel aquifer with a size of 8.5 km^2 and overlies the 1082 bedrock aquifer at its west end. This confined aquifer is comprised of glaciofluvial sands and gravels, and it is located underneath till, in between layers, or underlying glaciolacustrine deposits. The reported yield for the wells screened in this aquifer ranges between 0.3 and 2.5 L/s while their depth to water ranges from 24 to 40 m below ground surface (m bgs). The groundwater flow pattern (i.e., flow direction) is not clear but is likely towards the Elk River. Recharge sources are precipitation, snow melt, and infiltration of surface water. Aquifer 1082 is a confined bedrock aquifer with an area of 1.8 km^2 and a median well yield of 0.41 L/s. Groundwater within this aquifer flows to the southwest through fractured sedimentary rocks, including shale, sandstone, and limestone of the Fernie Formation.

Thirteen private wells, where 12 are owned by Teck were identified within 7 km of the LSA. No registered private wells within the Grave Creek, Erickson Creek, and Alexander Creek catchments were found.

Groundwater quality sampling at Crown Mountain has been completed over two periods between 2013 and 2016, and 2018 through 2020. Within the LSA, baseline groundwater quality exceeds B.C. CSR drinking water criteria for several parameters (cobalt, lithium, sodium, chloride, and fluoride). Most of the exceedances to these criteria occur in and around the projected footprint and above the confluence between West Alexander and Alexander creeks. Monitoring wells that exceed selenium are also located below the confluence between West Alexander and Alexander creeks and are clearly explained by a regional groundwater signature. Several monitoring wells exceed the B.C. CSR for drinking water criteria for lithium, whereas one well exceed B.C. CSR Drinking Water and B.C. Drinking Water criteria for chloride.

As part of the surface water baseline assessment, discharge hydrographs demonstrated the variability of flow conditions within the LSA. Notably, minimal to near zero flows are annually observed in the late-fall to early-spring months at each monitoring station. The onset of annual freshet conditions has been noted to occur as early as the beginning of April in some years (e.g., 2016). The freshet periods over the course of stream flow monitoring were found to generally persist into early July with low summer flows typically occurring at least by the end of August.

Surface water analytical results from the baseline program between May 2012 and June 2019 were compared to the B.C. WQG working and approved short-term guidelines for freshwater aquatic life and long-term and short-term CWQGs for freshwater aquatic life. Elevated concentrations of total aluminum and copper were identified in surface water collected from the Alexander Creek watershed during a high-magnitude precipitation event in June 2013. Nine samples exceeded the guidelines for cadmium within the Alexander Creek watershed in June 2013 and May 2014. These elevated concentrations are associated with high flow volumes and significant precipitation events. Concentrations of key parameters (i.e., nitrate, fluoride, sulphate, aluminum, cadmium, copper, iron, and selenium) were consistently higher in Michel Creek compared to Alexander Creek.

24.2.5 Fish and Fish Habitat

Fish and fish habitat baseline surveys were conducted to describe and quantify existing conditions. The scope of the surveys included fish habitat, fish communities, benthic invertebrates, sediment quality, water quality, and tissue residue analyses of fish, periphyton, and benthic invertebrates.

Field studies were completed in 2014, 2017, 2019 and 2020 and included sampling in winter, spring, summer, and fall. A total of 60.1 km of stream length was assessed; of this, 49.1 km (82%) was determined to be fish bearing. Fish species observed within the Fish and Fish Habitat LSA have included Westslope Cutthroat Trout (listed under Schedule 1 of the *Species at Risk Act* [SARA]), Bull Trout, Eastern Brook Trout, Mountain Whitefish, and Rainbow Trout (Lotic Environmental, 2020). In the Aquatic RSA, additional species observed consisted of Longnose Sucker, Longnose Dace, Torrent Sculpin, Burbot, Kokanee, Peamouth Chub, and Northern Pikeminnow. Distribution of Rainbow Trout, Burbot, Kokanee, Peamouth Chub, and Northern Pikeminnow is limited to downstream of Elko Dam on the Elk River and in Lake Koocanusa (Lotic Environmental, 2020).

As part of the baseline, fish inventories identified Westslope Cutthroat Trout, Bull Trout, Eastern Brook Trout, and Mountain Whitefish. Results of the baseline fish community study indicated the potential presence of two subpopulations of Westslope Cutthroat Trout in Alexander Creek consisting of a "fluvial resident", and "fluvial migratory" population.

Fish habitat surveys during baseline studies were conducted on Alexander Creek, West Alexander Creek, Grave Creek and other tributaries and lentic areas within the Fish and Fish Habitat LSA and Project footprint. Alexander Creek is a fish bearing fourth order tributary of Michel Creek, characterized by cascade-pool and cascade-riffle to riffle-pool morphologies. Overall habitat quality was considered to be good in one reach (ALE1) with mature riparian vegetation, diverse channel units, and sufficient overhead, cover was less available in the remainder of the watercourse. A long bedrock falls was considered to be a barrier to fish migration. Substrate was dominated by cobble and gravel throughout the surveyed reaches. Spawning potential for fish bearing reaches in the Alexander Creek watershed were classified overall to be moderate to good providing areas with adequate spawning gravel size, overhead cover, flow, and water depth for Westslope Cutthroat Trout. Spawning potential was overall limited for fall-spawning species, some sections of Alexander Creek provided appropriate spawning habitat and fall surveys of 2017 identified potential bull trout redds, and one confirmed bull trout redd in 2019.

West Alexander Creek is a second order stream and a tributary of Alexander Creek dominated by cascade-riffle/cascade-glide morphology. Within the reaches surveyed, a moderate amount of cover was provided by woody debris, and boulders. Riparian vegetation primarily consisted of mature coniferous forest, and substrate was dominated by cobble and gravel. Some sections of West Alexander Creek are considered as non-fishing bearing due to the presence of gradients of 45% for over 200 m, and dewatering. A wetland area confirmed to be non-fish bearing is present at the headwaters (WAL4). All four unnamed tributaries of West Alexander Creek were also observed to be non-fishing bearing due to the presence of waterfall barriers and/or gradients greater than 30%. One reach of two surveyed of West Alexander Creek (WAL1) was considered to have good spawning potential which was confirmed by the presence of Westslope Cutthroat Trout fry and Redds.

Grave Creek is a fourth order stream and a tributary of the Elk River located adjacent to the Project footprint with four fish bearing reaches. Due to the presence of a barrier to fish migration, two reaches are considered to contain an isolated population of Westslope Cutthroat Trout. Morphology was characterized by cascade-pool, and step-pool, with dominant substrate consisting of cobble and gravel. Cover ranged from poor to good between reaches and consisted of boulders, woody debris undercut banks present, and overhanging vegetation. Overall, Grave Creek and its tributaries provide moderate to good spawning potential with evidence of spawning activity including one Redd noted during surveys.

Overwintering habitat suitability was variable and was classified as poor, moderate, or good based on depth, temperature, and dissolved oxygen levels.

Twenty-seven wetland (lentic) sites were surveyed in July 2019. Lentic sites were dominated by open water/channelized wetlands with slow moving or stagnant water, including active and inactive beaver impoundments. Most wetlands had emergent vegetation and were surrounded by mature forest. Fish presence surveys indicated that 23 of the 27 wetlands surveyed had potential for fish presence, 12 of which were connected to watercourses and considered fish-bearing after the first year of inventory sampling. Fish captures included juvenile eastern brook trout and one juvenile bull trout.

Benthic invertebrate community sampling was conducted in October 2014 and October 2017 at sites on Alexander Creek, West Alexander Creek, unnamed tributaries of West Alexander Creek, Grave Creek, and the unnamed tributaries on Grave Creek (where streams were considered fish-bearing). In 2017, some Alexander Creek stations had twice as many invertebrates in samples compared to 2014, though community composition remained similar.

24.2.6 Terrestrial Ecosystems and Vegetation

The Project footprint and the Landscapes and ecosystems LSA are characterized by old growth and mature forest, riparian habitat, avalanche chutes, and some grasslands and wetlands. The Biogeoclimatic Ecosystem Classification (BEC) zones present within the Landscapes and Ecosystems RSA and Landscapes and Ecosystems LSA include Montane Spruce (MS), Interior Cedar-Hemlock (ICH), Interior Douglas-Fir (IDF), Engelmann Spruce - Subalpine Fir (ESSF) and Interior Mountain Heather - Alpine (IMA). Fire suppression activities have resulted in a greater abundance of young forests, reducing the occurrence of non-forested structural stages where many listed plants occur (Demarchi et al., 2000; Kirby and Campbell, 1999; Mountain Goat Management Team, 2010; and Poole and Ayotte, 2019).

Baseline Terrestrial Ecosystem Mapping (TEM) was used to map and quantify avalanche chutes, grasslands, riparian habitat, old and old growth and mature forest as well as wetlands. The Project TEM predicted avalanche chutes occur across 69 ha or 5% of the Project footprint, and in 603 ha or 5% of the Landscapes and Ecosystems LSA. Grasslands are predicted to occur across 13 ha or 1% of the Project footprint, and in 200 ha or 2% of the Landscapes and Ecosystems LSA. Old growth and mature forest occur across 851 ha or 66% of the Project footprint, and 5,029 ha or 39% of the Landscapes and Ecosystems LSA. Riparian habitats are predicted across 78 ha or 6% of the Project footprint, and in 1,318 ha or 9% of the Landscapes and Ecosystems LSA. The Project TEM predicts wetlands cover less than 1 ha and less than 1% of the Project footprint, and in 122 ha or 1% of the Landscapes and Ecosystems LSA. Invasive species were found within the grassland (13 species), riparian (six species), and wetland (nine species) habitats.

The wetland baseline study identified four wetlands that occur in the Project footprint, while 32 surveyed wetlands are located adjacent to or outside of the Project footprint in the Terrestrial LSA. Most wetlands surveyed ranged in size from 0.01 to 0.25 ha (n=11) and 0.51 to 0.75 ha (n=10), and represented bog, fen, marsh, swamp, shallow open water, and a transitional/successional marsh-fen classes. The wetland baseline study also identified 11 wetland site associations and three non-wetland site associations in the Terrestrial LSA listed by the B.C. CDC as special concern (Blue-listed) and at risk of being lost (Red-listed). No Red- or Blue-listed wetland site associations were found in the Project footprint and no SARA-listed wetland plant species or communities were found within the LSA or Project footprint. One Red-listed site association was observed in the Terrestrial LSA, and 10 Blue-listed site associations were observed across 14 wetlands in the Terrestrial LSA. The Red-listed was found to occur the same wetland complex in which two Red-listed non-wetland alkaline-saline meadows were observed.

As of May 2021, the B.C. CDC has documented historical observations of 39 listed plants and 11 listed plant communities in the Landscapes and Ecosystems RSA (B.C. CDC, n.d.). Within the Landscapes and Ecosystems LSA, 8 Red-listed and 15 Blue-listed plants have been documented by B.C. CDC. Limber pine and whitebark pine are both considered Endangered by COSEWIC with whitebark pine additionally being listed as Threatened under SARA (2002).

Whitebark pine was detected within the Project footprint and Landscapes and Ecosystems LSA, from an elevation of approximately 1,800 m asl to the ridge top of Crown Mountain (2,230 m asl) with the bulk of observations located at or above 1,900 m asl. Whitebark pine is also found to the north of Crown Mountain along the ridge that extends from Crown Mountain to the northern edge of the Landscapes and Ecosystems LSA in the upper Grave Creek drainage. Additionally, VRI data indicates that whitebark pine is found just outside the Landscapes and Ecosystems LSA to the east and northeast. Though limber pine was not observed within the Landscapes and Ecosystems LSA, the potential for this species to occur cannot be ruled out as seed catches or trees may occur and were not observed during the extensive baseline surveys. Limber pine has been documented south of the Landscapes and Ecosystems LSA (Klinkenberg, 2019) in habitats similar to those found within the Landscapes and Ecosystems LSA.

Baseline field surveys also recorded four listed plant species currently Red-listed by the B.C. CDC within the LSA and include ground plum, shining penstemon, Parry's townsendia, and Drummond's milk-vetch. Of the listed plant species observed during baseline surveys, none are listed as species at risk under the SARA (2002) or are designated at-risk by COSEWIC. Prior to 2019, Cusick's paintbrush was Red-listed. Since 2019, its status has been listed as Unknown (B.C. CDC, n.d.). The four Red-listed plant species within the Landscapes and Ecosystems LSA were observed in the southern portion of the Landscapes and Ecosystems LSA and not within the Project footprint. Cusick's paintbrush was also observed in the southern portion of the Landscapes and Ecosystems LSA and east of the proposed rail loadout within the Gg12 ecological community west of Valley Road. The observation of Cusick's paintbrush in the southern Landscapes and Ecosystems LSA was the first occurrence of this species documented in the Elk Valley.

Habitat conditions for listed plant communities and species in the Landscapes and Ecosystems LSA were observed in low elevations areas of the MSdw (below 1,600 m asl) with warm aspect or soil conditions preventing the establishment of trees. As part of the baseline field surveys, one Red-listed grassland was observed within the Landscapes and Ecosystems LSA. Gg12 *Rough Fescue - (Bluebunch Wheatgrass) - Yarrow - Clad Lichens* (*Festuca campestris* - (*Pseudoroegneria spicata*) - *Achillea borealis – Cladonia* spp.)

was identified through the rare plant field surveys, accounting for 0.21% of the Landscapes and Ecosystems LSA and 0.04% of the Project footprint.

24.2.7 Wildlife and Wildlife Habitat

Comprehensive field surveys were conducted in 2014, 2017, 2018, and 2019 to obtain Project baseline information on wildlife occurrence, abundance, distribution and habitat availability within the Terrestrial LSA.

Baseline surveys showed that the ungulate community (including moose, elk, bighorn sheep and mountain goat) were broadly distributed in the Terrestrial LSA, occurring at various elevations within the Alexander, Grave, and Harmer Creek drainages and transboundary mountain passes (e.g., Deadman Pass) during all seasons. Most detections of each ungulate species were higher in spring/summer than in fall/winter. Moose were most often detected in riparian habitats, wetlands, and transboundary mountain passes. Elk were detected in riparian habitats, avalanche chutes and transboundary mountain passes. Mountain goats and bighorn sheep occurred most frequently in avalanche chutes and transboundary mountain passes.

Carnivores, including grizzly bear, wolverine, American marten, and Canada lynx were found to occur along Alexander, Grave, and Harmer Creek drainages and transboundary mountain passes throughout the LSA. A grizzly bear den was incidentally observed in the avalanche chute directly west of Crown Mountain during July 2018. Baseline surveys showed evidence of breeding females throughout the Terrestrial LSA.

Wolverine tracks were detected in all three Biogeoclimatic Ecosystem Classification (BEC) zones, with no substantial difference between detection in different zones. Active or recently used American badger burrows were only documented in the northwest portion of the Terrestrial LSA, to the south, and southeast of Grave Lake. There were no active or recently used burrows, or burrows indicative of maternal denning found within the Project footprint.

Baseline acoustic monitoring identified the little brown myotis, northern myotis, and eastern red bat in the Terrestrial LSA. Both the northern myotis and the little brown myotis are federally listed on Schedule 1 of the SARA (2002) as Endangered with their survival imminently threatened by white-nose syndrome (ECCC, 2014). Northern myotis are also provincially Blue-listed. Bat species detected during winter months (November to February) were silver haired bat, big brown bat, and little brown myotis (in order of relative abundance). The highest relative number of acoustic files recorded during winter was at the West Alexander Creek headwaters site, followed by the Alexander Creek wetland, with only one recording of a silver haired bat at the Harmer Creek Reservoir. Results of live capture surveys included the identification of post-lactating females at the Alexander Creek wetland site and the Harmer Creek Reservoir site, indicating successful reproduction occurred at the maternity roost.

Within the breeding bird window of June and July 2014 and 2017 to 2019, a total of 2,088 individual birds of 80 species were observed. The most frequently encountered species across the survey years were Swainson's thrush, pine siskin, and yellow-rumped warbler. Two federal SARA-listed (2002) and provincially Blue-listed species were observed: barn swallow and olive-sided flycatcher. Species that are federally listed under SARA (2002), but provincially Yellow-listed, included common nighthawk and evening grosbeak. Great blue heron are provincially Blue listed, but not federally listed under SARA (2002).

Within the Terrestrial LSA, breeding landbird communities were found to be the most abundant, species-rich, and diverse in grasslands, mixed shrub forests, and wetlands.

During the landbird migration surveys in 2018 and 2019, 51 species were observed during the spring surveys with 878 individuals, and 33 species with 297 individuals were observed during fall surveys. The species observed most frequently were dark-eyed junco, American robin, and pine siskin. Two species of conservation concern (evening grosbeak and olive-sided flycatcher) were observed during the migration seasons. Landbird communities were found to be the most abundant, species-rich, and diverse in the MSdw subzone in mixed shrub forests in the spring and in wetlands in the fall.

During the raptor standwatch surveys in 2018 and 2019, 38 raptor observations comprising 14 species were observed. Seven raptor species were observed during the migration standwatch surveys: bald eagle, golden eagle, osprey, red-tailed hawk, Cooper's hawk, northern goshawk, and turkey vulture. In addition, 48 individual incidental observations during the spring and fall included American kestrel, barred owl, broad-winged hawk, great horned owl, merlin, northern harrier, peregrine falcon, and sharp-shinned hawk. Red-tailed hawk were the most frequently observed resident species in the spring and golden eagle were the mostly frequently observed resident species in the fall. The highest average raptor abundance and species richness was observed along southern Alexander Creek in the spring and along the upper reaches of Grave Creek in the fall.

A total of 583 individual waterbirds comprising 23 species were recorded in the Terrestrial LSA during the spring wetland surveys in April and May 2018 and 2019. Red-winged blackbird, mallard, and northern shoveler were the most abundant species in the wetlands during the spring surveys. A total of 259 individual wetland birds of 14 species were recorded in the Terrestrial LSA during the summer wetland and ephemeral area surveys in June and July 2014 and 2017 to 2019. Mallard, spotted sandpiper, and red-winged blackbird were the most abundant wetland bird species observed in the summer. A total of six birds, consisting of five mallards and one hooded merganser, were the only wetland bird species observed in the fall.

Eighty-three riverine birds and 11 nests were observed in the Terrestrial LSA across 28.3 km of creek habitat assessed over the survey years. Spotted sandpiper were the most abundant riverine bird species observed in the Terrestrial LSA, followed by American dipper and harlequin duck. No riverine birds were observed in Grave Creek upstream of the confluence with Harmer Creek or in the unnamed creek in Deadman Pass. Alexander Creek had the highest riverine bird abundance, species richness, and diversity in the Terrestrial LSA.

A total of 412 amphibian detections were recorded at 18 wetland survey sites and two ephemeral areas in the Terrestrial LSA during the amphibian baseline surveys including the western toad, Columbia spotted frog, wood frog, and long-toed salamander. The western toad is listed as Special Concern under Schedule 1 of the federal SARA (2002) and were documented at wetlands and ephemeral areas in the Terrestrial LSA from May to July across the sampling years.

24.2.8 Physical and Cultural Heritage

The archaeology baseline program was conducted under *Heritage Conservation Act* Section 12.2 Heritage Inspection Permit 2015-0098, and subsequently Multi-Assessment Permit 2018-0014, and commenced with a desktop review of applicable Archaeological Overview Assessments (AOAs) and archaeological potential polygons, and previous archaeological inspections to identify locations where archaeological sites have been previously recorded in proximity to the Project footprint. The field component of the archaeological assessment commenced with reconnaissance surveys (i.e., ground-truthing exercises) within and adjacent to delineated archaeological potential polygons (Choquette 2012; 2014) within the Archaeological LSA, and in particular within or in proximity to (i.e., ± 100 m) the Project footprint. A paleontology field assessment was not conducted because fossils resources are generally anticipated to occur deep below ground surface.

During the baseline archaeological program, numerous archaeological sites and artifacts were identified within the Archaeological LSA through the field reconnaissance (walkover) and sub-surface (shovel and evaluative) testing. Site types included, pre-contact, cultural material, surface lithics, fire-altered rock, and ancestral remains. Though the results of the baseline archaeological inventory and archaeological impact assessment conducted have been completed, subsequent inspections (i.e., shovel testing) will be required on areas within the Project's mine plan that have yet to be subjected to any form of archaeological assessment (e.g., Phase IV, utility corridor west of the Elk River, and recently defined clearing limits of the mine plan).

24.2.9 Social and Economic Conditions

The population near the Project includes a variety of small communities in B.C. and Alberta, including Sparwood, Elkford, Fernie, and Crowsnest Pass. Individuals also live in the Regional District of East Kootenay (RDEK), including Electoral Area A. In 2016, the total population in the RDEK was 60,439, increasing at a rate of 9% between 2006 and 2016. The total Indigenous population in the RDEK was 4,710, increasing by 37.5% between 2006 and 2016. Approximately 65% of the RDEK population was working age (i.e., 15 to 64 years).

The mining industry constitutes the largest component of the regional economy. Currently, Teck has four coking coal mines operating within the Elk Valley, with the RDEK accounting for over 70% of Canada's annual coal exports (Katay, 2017). Several other mines operating in the RDEK produce industrial minerals including silica, magnesite, gypsum, graphite, and phosphate. Placer mining occurs throughout the RDEK, and several small operations produce aggregate, sand and gravel, and dimension stone (Katay, 2017). Other sectors of industry in the RDEK include forestry, agriculture, tourism and energy (i.e., oil and gas).

Within the RDEK, mining employs approximately 10.7% of the population in comparison to the B.C. economy which has 1.1% of workers employed in mining. The area also has more people employed in food services and accommodation; and arts, entertainment and recreation in the RDEK, which is consistent with the focus on tourism development. Employment rates within the economic LSA ranged from 54.0% to 68.7% in 2016. Analysis of the economic diversification of the LSA determined that Sparwood, Elkford, Fernie and the RDEK Electoral Area A was low. This is typical for smaller municipalities where mining is the primary industry, and as in the RDEK, many of the businesses are directly or indirectly related to the sector. In addition, the communities within the RDEK also participate in other primary

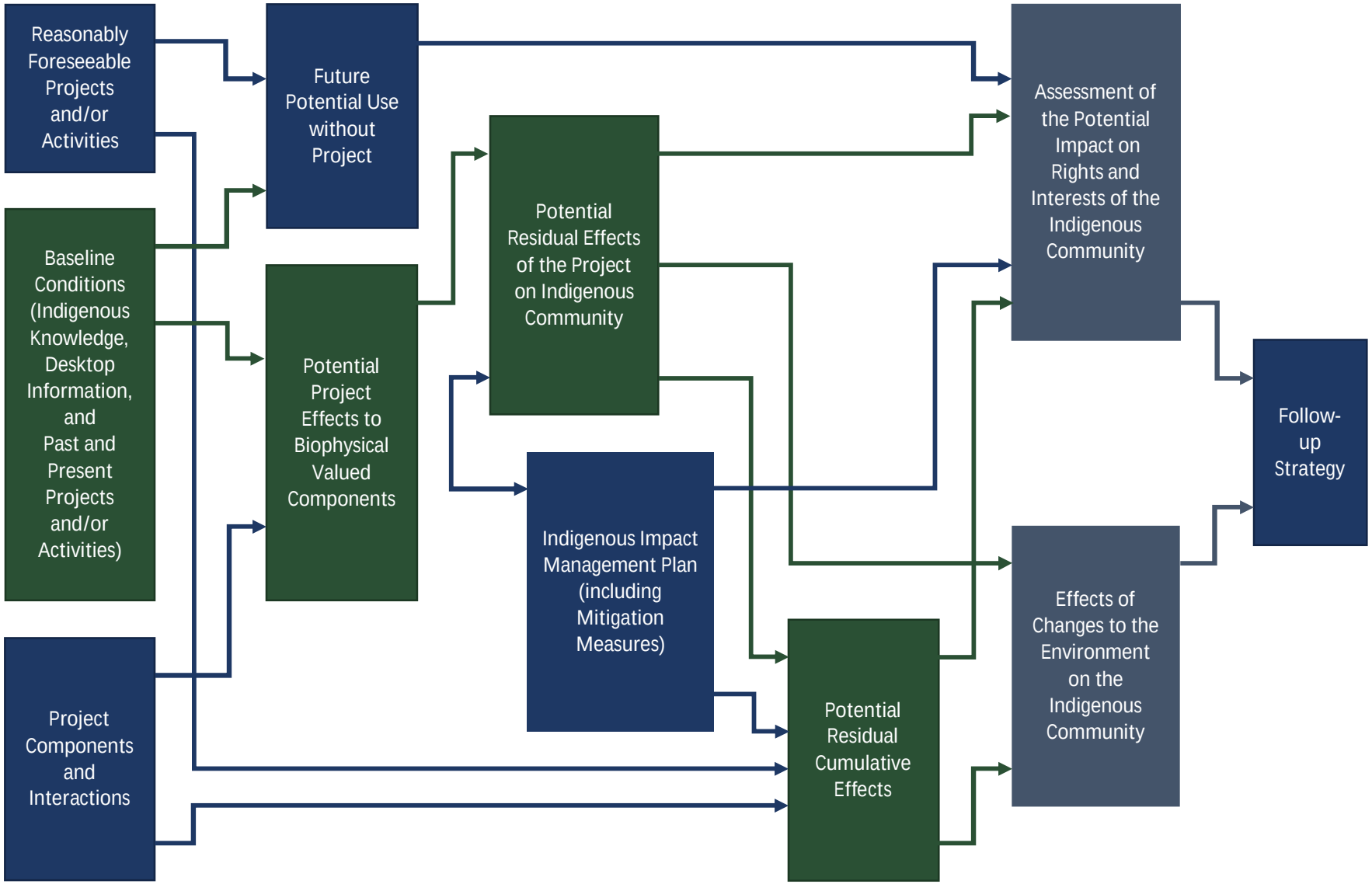
industries and tourism. Annual government revenues range between approximately $8 million and $48 million. The primary revenue source for all municipalities within the Economic LSA is taxation and grants in lieu.

24.3 Overview of the Assessment Methodology

The methods for assessing potential effects on the Indigenous Community's rights and interests in relation to the Project followed the approach outlined in Chapter 5: Effects Assessment Scope and Approach. Figure 24.3-1 outlines the approach used as well as the following:

- Step 1 – Identify the rights and interests of the Indigenous Community considering secondary source information and input provided by the Indigenous Community (Section 24.5);
- Step 2 – Understand how historic and current use or changes to those conditions could affect the Indigenous Community's exercise of their rights and interests related to the Project footprint (and the ATRI LSA and RSA) (Section 24.6.6). Current use as defined in Section 24.6.6 is reflective of current use of lands and resources for traditional purposes as well as potential future use by the Indigenous Community;
- Step 3 – Identify the potential future use and conditions that support the Indigenous Community's exercise of their rights and interests without the Project (Section 24.10.2.1);
- Step 4 – Identifying potential pathways for interactions and adverse effects of the Project components and physical activities (Section 24.7.3.1) and the potential for changes to the environment that could impact on the exercise of the Indigenous Community's rights and interests (Section 24.7.3.2);
- Step 5 – Considering the anticipated residual effects to VCs (i.e., changes to the environment) that are directly related to the Indigenous Community's rights and interests or identified specifically as being of interest to them, identifying the potential for residual effects on the rights and interests of the Indigenous Community and determining the level of significance of these effects (Sections 24.7.3.2.1 to 24.7.3.2.8);
- Step 6 – Assessing the potential for cumulative residual effects on the exercise Indigenous Community's rights and interests and determining the level of significance of resulting cumulative effects (Sections 24.7.4.3 and 24.7.4.4);
- Step 7 – Identify biophysical and rights interests and specific measures to avoid, mitigate and/or otherwise accommodate for potential adverse impacts of the Project on the exercise of the Indigenous Community's rights and interests (Section 24.9: Indigenous Impact Management Plan);
- Step 8 – Consider the results of Step 5 and 6 with respect to Step 7 (the Indigenous Impact Management Plan), to identify and describe the residual impacts on rights considering potential cumulative environmental effects through a comparison of potential future use of the Project footprint (and the ATRI LSA and RSA) with and without the Project and the application of mitigation measures, to assess the severity of any identified adverse impacts (Section 24.10.2.1); and
- Step 9 – Identify additional follow-up strategies and adaptive management techniques to avoid, mitigate, or otherwise accommodate for potential adverse impacts of the Project on the exercise of the Indigenous Community's rights and interests (Section 24.11).

Figure 24.3-1: The Effects Assessment Process Flowchart



As outlined in Chapter 5 and Step 5 above, residual environmental effects are the effects on a VC that remain, or are predicted to remain, after mitigation measures have been implemented. The assessment of residual effects on VCs involves the consideration and evaluation of specific effects assessment criteria based on the degree (i.e., 'level') of potential Project effects. Criteria used to characterize residual effects in this chapter include:

- Duration of time that the effect occurs;
- Magnitude or intensity of the effect;
- Geographic extent, both biophysical and socio-economic scales, of the effect;
- Frequency of the effect (i.e., how often the effect occurs);
- Reversibility of the effect (i.e., if the effect can be reversed); and
- Context (i.e., the sensitivity and resilience of a VC to changes caused by the Project).

If a residual effect on a VC was determined and the VC was also considered a "pathway" for potential effects on another VC, this chapter identifies the linkages between the VCs. A determination of significance was completed for each residual effect using the significance threshold identified for each VC, as outlined in Chapter 5, Section 5.3.4.1, and was informed by the results of the residual effects characterization criteria. Residual effects on VCs were ranked as 'not significant' or 'significant'. If there was a residual effect on a VC, whether significant or not, the effect was carried forward to the cumulative effects assessment. Likelihood, the probability of the predicted significant residual effect of occurring, is presented as applicable for both intermediate and receptor VCs if the significance determination results in a conclusion that the effects of the Project on the VC are significant. In addition, assumptions or limitations to determining the likelihood of a predicted significant residual effect were described. Effects that were determined to be not significant do not require a characterization of likelihood. Confidence refers to the prediction of the significance of a residual effect based on the quality of data used in the assessment, the level of understanding of the residual effect, and the degree to which analyses are complete. The level of uncertainty associated with the residual effects assessment, including the significance determination, was also included in evaluating confidence.

24.4 Introduction to the Shuswap Band

The following sections provide information about the Shuswap Band[3] (Kenpesq't) community, their Aboriginal rights and interests, traditional land and resource use within the following three areas: the Project footprint, the Aboriginal Treaty Rights and Interests Local Study Area (ATRI LSA), and the Aboriginal Treaty Rights and Interests Regional Study Area (ATRI RSA), defined in Section 24.7.2.1. The following sections include a description of the Shuswap Band's baseline conditions related to the Project, including the Shuswap Band's Aboriginal rights and interests[4], the assessment of effects of the Project on their environment, the potential mitigation measures, and the assessment of the impacts on their rights and interests.

[3] Shuswap Indian Band is referred to as Shuswap Band or Shuswap Band throughout this chapter based on feedback received from IAAC during conformity review.

[4] Shuswap Band's Aboriginal rights and interests are defined as those outlined in the correspondence from the Impact Assessment Agency of Canada (IAAC or "the Agency") (formerly the Canadian Environmental Assessment Agency, or CEAA) addressed to Chief Cote and Council of Shuswap Band on February 20, 2015 (IAAC, 2015b), indicating the Agency's preliminary understanding of the nature and extent of the Shuswap Band's Aboriginal rights and interests as described in Section 24.5.4.

The information presented in Chapter 24 was used to support the assessment of potential effects of the Project on the Shuswap Band's Aboriginal rights and interests, which are also outlined in the *Canadian Environmental Assessment Act*, 2012 (CEA Act, 2012), the *Guidelines for the Preparation of an Environmental Impact Statement for the Crown Mountain Coking Coal Project* (EIS Guidelines; Canadian Environmental Assessment Agency [CEAA], 2015; IAAC, 2020a), the *Guidance: Assessment of Potential Impacts on the Rights of Indigenous Peoples*, updated 2022 (IAAC, 2022b), the Application Information Requirements (AIR) pursuant to an Environmental Assessment Certificate (Application) under the section 16(2) EAA (2002), the *Human and Community Well-Being: Guidelines for Assessing Social, Economic, Cultural and Health Effects in Environmental Assessments in B.C., 2020* (B.C. EAO, 2020b); and meetings with the Agency. The information provided below has also been used to identify mitigation measures to remove or reduce the potential for adverse impacts.

24.4.1 Information Sources

The information described herein was obtained through publicly available information sources, listed in Sections 24.5 and 24.6 and through consultation and engagement with the Shuswap Band. The information is intended to provide an overview of traditional land and resource use within the Project footprint, the ATRI LSA, and the ATRI RSA. This information is not intended to supersede or prejudice the traditional knowledge or specific information that may be shared as part of ongoing engagement with the Shuswap Band. It provides information from generally available knowledge and secondary sources of information that is intended to complement additional information that might be available from Shuswap Band in this regard, should they wish to share it. If further information is received through continued engagement with the Shuswap Band, the information will be included where applicable to be considered as part of the overall evaluation of the potential impacts on Shuswap Band's rights and interests as part of the environmental assessment/impact assessment (EA/IA) processes.

24.4.1.1 Limitations of Information Sources

At the time of the Application/EIS submission, a Project-specific Traditional Land-Use Study (TK/TLU) from the Shuswap Band was not available to the NWP. Throughout this Application/EIS, where Indigenous Knowledge was provided by Shuswap Band it has been incorporated where applicable and noted as such. The limitations of the information sources considered include those publicly available (i.e., information provided by Shuswap Band on other relevant EIS/project applications, e.g., including Baldy Ridge Extension Project, the Castle Project, Grassy Mountain Coal Project, and the Line Creek Operations Project) and those activities and correspondence that detail Project-specific information validated by Shuswap Band to be shared publicly. Limitations of information are also noted where no information is provided by Shuswap Band directly related to the baseline conditions established in Section 24.6 and NWP's understanding of Shuswap Band's rights and interests are limited to those confirmed by Shuswap Band in Section 24.5.4.

24.5 Shuswap Band Consultation and Engagement Summary

All information compiled and presented in Section 24.5 has been authored by NWP utilizing secondary sources that are publicly available and the information presented throughout is not intended to supersede

traditional knowledge or specific information of the community members and Elders of the Shuswap Band.

24.5.1 Engagement Protocols

Through desktop review, no formal document outlining the Shuswap Band (also known as SIB) consultation protocols is publicly available. In a letter from Shuswap Band (December 2020) to NWP in response to NWP's Project Notification Letter, the Shuswap Band noted their expectation for NWP to consult on the proposed Project and on "… matters that may affect [their] long-term traditional land use, occupancy and access, including potential cumulative impacts between the proposed activity and other previous or future developments…". NWP intends to communicate openly, honestly, and accurately with Shuswap Band on the proposed Project and matters that may affect Shuswap Band. On April 23, 2021, the Shuswap Band and NWP signed an Agreement regarding the Capacity Funding to support the review of technical materials as related to the early stage of the regulatory process for the Project.

24.5.2 Project Development and Pre-Application Engagement

The Pre-Application phase of consultation includes engagement undertaken up to the submission of the Application/EIS, following issuance of the Section 11 Order by the Environmental Assessment Office (EAO). Pre-Application phase engagement activities have included distribution of a Project Notification Letter and distribution of draft Application/EIS materials for Shuswap Band review. Additional information on consultation and engagement with Shuswap Band is provided in Chapter 4.

On October 21, 2020, a Project Notification Letter was provided to Shuswap Band which outlined the proposed Project and related key components, regulatory requirements, and a brief overview of the Project's history (e.g., exploration activities and baseline surveys). In response to the Project Notification Letter, Shuswap Band provided NWP with a letter on December 11, 2020 outlining their requested for a meeting in early 2021 to discuss the proposed Project with NWP. A virtual meeting between the Shuswap Band and NWP occurred on March 17, 2021, and topics covered included: expectations regarding review and participation in the EA process, the Shuswap Band's proposed engagement protocol, and potential economic opportunities. NWP and Shuswap Band defined key next steps including the preparation of a simple letter of commitment to move things forward in good faith.

On January 26, 2021, NWP provided a draft version of the initial sections of this Application/EIS section for their review and comment. In corresponding dated May 25, 2021, NWP confirmed key contacts for ongoing engagement with the Shuswap Band. The remaining section, complete with the effects assessments, was provided to the Shuswap Band on September 2, 2021. Feedback on the draft section was provided by the Shuswap Band on November 19, 2021 with key concerns related to the timing and inclusion of the traditional land use (TLU) study to highlight Shuswap Band's use within the Project footprint and the ATRI LSA in the Application/EIS identified. NWP responded to the Shuswap Band feedback via correspondence on December 15, 2021. A follow-up meeting was undertaken on January 21, 2022 with the Shuswap Band to discuss the feedback provided, its incorporation into the draft Application/EIS, and the next steps in the assessment processes.

On April 23, 2021, NWP and Shuswap Band signed an agreement regarding support of their continued engagement through capacity. On May 19, 2021, NWP provided the Shuswap Band access to Crown

Mountain Project archaeology reports. Most recently, the Shuswap Band was engaged via video conference on May 25, 2021. NWP provided an update on the Project, including anticipated schedule, and NWP's vision for the Project in terms of environmental sustainability and the development of relationships with regional stakeholders. The Shuswap Band expressed an interest in a site tour, which would tentatively take place in late summer 2021 depending on site conditions.

Summarized results of the Indigenous consultation related to Aboriginal interests and/or other matters of concern to the Shuswap Band are available in Appendix 24-A, Table 24.A-1. As noted above, the comments received from the Shuswap Band on the draft effects assessment and NWP's responses where applicable are recorded in Appendix 24-A, Table 24.A-2.

Overarching themes presented in the feedback received from Shuswap Band include concerns that Shuswap Band's traditional use information collection within the Project footprint and the ATRI LSA is currently ongoing and should be incorporated into the assessment. The Shuswap Band also requested that NWP engages with Shuswap Band on this Project at the high end of the consultation spectrum. In order to improve relations between the Parties and to create efficiencies down the road, Shuswap Band noted that it is actively pursuing amplified recognition of its inherent rights and interests. Shuswap Band noted that a significant historic area is located near the Project: Grave Lake, Grave Creek, and Grave Prairie. Shuswap Band ancestors are tied to a significant event in this area, and it is likely there are unidentified physical and cultural remains throughout the area. Shuswap Band also highlighted further consideration of cumulative effects of the Project related to Shuswap Band as a whole is required (Appendix 24-A, Table 24.A-1). Shuswap Band's views expressed on the effectiveness of the mitigation or accommodation measures where applicable are further outlined in Appendix 24-A, Table 24.A-1 and Table 24.A-2.

It is noted that currently no changes were made to Project design (including the identification of additional Valued Components) and implementation directly as a result of on-going consultation with Shuswap Band. The other matters of concern raised by Shuswap Band not captured in the feedback provided in Appendix 24-A, Table 24.A-2 are addressed in Appendix 24-A, Table 24.A-1 where noted and included in Sections 24.6, 24.7, 24.8, 24.9, and 24.10.

Key issues that remain outstanding and are included in the opportunities for future engagement are the archaeological concerns (specifically the Grave Prairie Cultural Landscape) due to the proposed rail infrastructure within the Grave Prairie which conflicts with important Shuswap Band cultural values. Other issues that remain outstanding include the incorporation of the Shuswap Band's traditional use information collection within the Project footprint and the ATRI LSA that is currently ongoing and should be incorporated into the assessment processes, and the concerns regarding the overall potential cumulative effects within the Elk Valley due to on-going activities. With respect to discrepancies in views shared previously and updates since engagement began with Shuswap Band, NWP continues to work with Shuswap Band to address key issues that have been raised and regards consultation as an iterative process that adapts as in order to identify applicable mitigative measures.

24.5.3 Future Engagement

NWP is committed to creating and sustaining constructive dialogue and relationships with the Shuswap Band over the course of the Project and the Application review phase of the EA. Should the Project be successful in receiving an Environmental Assessment Certificate (EAC), NWP will continue to share

information with the Shuswap Band. Over the course of the Application review phase and post-EAC, NWP will provide the Shuswap Band with Project information, such as the Application/EIS, technical information required through Information Requests that are made public by the EAO and/or Impact Assessment Agency of Canada (IAAC), and other engagement materials such as Project newsletters and Project website updates. NWP will respond to comments received from the Shuswap Band as per the Section 11 Order, subsection 12.5.

It is noted that the Impact Assessment Agency of Canada (IAAC) (formerly the Canadian Environmental Assessment Agency) has indicated that the duty to consult with Shuswap Band in relation to the Project is at the low end of the consultation spectrum (IAAC, 2015b; 2020a). In response to Shuswap Band's request regarding the level of consultation and engagement on the Crown Mountain Coking Coal Project, IAAC issued a revision of their understanding of rights that are included in Section 24.6.5 (IAAC, 2022a). NWP is committed to an ongoing dialogue with the Shuswap Band, including commitment to the following:

- Entering into an agreement to formalize consultation protocols between NWP and Shuswap Band;
- Supporting site visits from representatives of the Shuswap Band;
- Integration of the results of Shuswap Band's Traditional Knowledge and Land Use study where applicable and possible;
- Identifying mitigation and accommodation measures to prevent/offset impacts to Valued Components; and
- Discussing possible mitigation for potential impacts to Shuswap Band rights and interests.

24.5.4 Preliminary Understanding of Rights and Interests

As their vast Traditional Territory includes the Project footprint, there is a potential for the Project to affect the Shuswap Band's rights and related interests. Therefore, the Shuswap Band's cultural and traditional heritage and traditional knowledge and land use must be taken into consideration and accommodated where appropriate in relation to the Project. An activity in the Shuswap Band Territory that has the potential to infringe on the Aboriginal Rights and related interests of the Shuswap Band and will trigger the Crown's duty to consult and accommodate with the Shuswap Band.

Section 24.5.4 of the Project Application/EIS addresses Shuswap Band's rights and interests as identified by the Impact Assessment Agency of Canada (IAAC) (formerly the Canadian Environmental Assessment Agency [CEAA]). Information received from the Agency on February 20, 2015 (IAAC, 2015b), and revised on January 26, 2022 (IAAC, 2022a) indicates the following as their understanding of the nature and extent of the Shuswap Band's Aboriginal Rights and interests.

The following summarizes the Agency's understanding of their rights:

- *"Shuswap Band's Caretaker Area of Secwépemcúlecw occupies a significant area of Southeastern British Columbia, covering the Columbia Basin, including the Elk Valley and extending to the eastern foothills of the Rocky Mountains of Alberta. The area has been used ancestrally, contemporarily, and is intended for future use by Shuswap Band for hunting, gathering, fishing, spiritual purposes, and trade. Shuswap Band's culture and history are deeply embedded in the cultural landscape of its Caretaker Area.*
- *A January 31, 2020 map of Shuswap Band's Area of Caretaker Responsibility was submitted to the Agency.*

- *An 1895 resource sharing treaty with Stoney, Kootenay and Shuswap people highlights the historic and continued sharing of resources on both sides of the mountain range including for hunting.*
- *Shuswap Band resource sharing and trade with the Piikani and Stoney continues today.*
- *The Crowsnest Pass route is an important travel corridor used by Shuswap Band ancestors and contemporary community members. Shuswap Band oral history recalls resource harvesting within Crowsnest Pass, and the presence of significant pictographs. It is a named and storied place"* (IAAC, 2022).

The above is in addition to the following preliminary summary the Agency provided earlier in the process (IAAC, 2015b) that identified the Agency's understanding of their rights:

- *"The site of the proposed mine falls inside the asserted traditional territory of the Shuswap Band. We understand that there are citizens from Shuswap Band who may be exercising their potential Aboriginal right to harvest, hunt, fish, and trap within the proposed project area.*
- *The construction, operation, and decommissioning of the mine and related project infrastructure may pose the following potential impacts to your Aboriginal rights:*
    - Changes to water quality, fish habitat, and specific access points used for fishing may impact potential rights to fish; and
    - Changes to wildlife habitat (including grizzly bear), vegetation, and access may impact potential rights to hunt, trap, and/or harvest" (IAAC, 2015b).

The following summarizes the Agency's revised understanding of interests (IAAC, 2022a):

- "*Hunting and Trapping*:
    - Shuswap Band value culturally significant animals such as sheep, grizzly bear, and mountain goats within their traditional territory.
    - Shuswap Band have long relied on ungulates in their caretaker area for subsistence. Large game, such as deer, elk, moose, and caribou have always been a significant resource to Shuswap Band. Fur bearing species are also of importance.
    - Secwépemc tradition teaches how to obtain everything needed to live from the land, and traditional material production of clothing, regalia, drums, and medicine pouches is still practiced today.
- *Fishing*:
    - Fishing activities by community members on both the west and east sides of Crowsnest Pass. For trout in the small lakes on the southeast side of the mountains, as well as other species, such as burbot and cutthroat in the Elk River to the west.
    - Fishing continues to be an important subsistence activity within Shuswap Band's caretaker area with trout, lingcod, char, and whitefish harvested in various waterways.
- *Harvesting and Gathering*:
    - Sacred medicinal plants are obtained from mountainous areas; the Crowsnest Pass area is used for medicinal plant collection and harvesting.
    - Plant species of importance include Labrador tea, sxʊ̓sem (soapberries), glacier lilies (wild sweet potato), Devil's club, sage, willow, and Canby lovage.
    - Berries are among the most significant plant foods for Shuswap Band, including the following within the Band's caretaker area: sxúsem (soapberries), speqpeq7úẇl (Saskatoons), huckleberries, sessėp (blueberries), s7éytsqwem (raspberries), tekwlóse7 (choke cherries),

and tqítq̓e (strawberries). Given the range of elevations available to berry collectors, harvesting is done at different times for differing elevations.

- *Cultural and Spiritual Heritage*:
  - Secwépemctsín language is tied to many places in the region, demonstrating Shuswap Band's close connection between culture and the land. The Crowsnest Pass area is a named and storied place and access is essential for the protection of the community's interests and way of life.
  - C7istken' (pit house) sites in the east Kootenays, Waterton Lake Park and Banff National Park, are unregistered and registered archaeological sites recalled through oral history.
  - Archaeological quarries have been identified within Shuswap Band's caretaker area. Secwépemc interests in aggregates throughout Secwépemcúĺecw continue to be of importance to the current traditional economy.
  - There is archaeological potential near the confluence of the Kootenay and Elk rivers, with additional patches of archaeological potential in the surrounding mountains.
  - Interests in continued access to areas of key cultural and spiritual significance including trails, travel corridors, waterways, mountains, and burial sites.
  - Spirituality encompasses aspects of belief systems, art and ceremony. Secwépemc people believe that all things, inanimate or animate, have a spirit or soul. Songs and dances are used to by people to connect with the spirit world and to guide their everyday lives, including daily activities such as berry picking or hunting.
  - Spiritual activities and cleanses are done and specific medicinal plants would aid the experience. Women traditionally cleanse using rosewood, whereas men use cedar.
  - Sacred ceremonies such as vision quests typically occur in high alpine regions.
- *Travel and Trade Routes*:
  - Secwépemc traditional way of life is governed by the seasonal round, and necessitated movement throughout the vast Secwépemcúl'ecw.
  - The Shuswap Band have a long-standing movement through the Rocky Mountains for sharing and travel as referenced in the 1895 hunting agreement. Various mountain trails have been used to access resources east of the Rocky Mountains.
  - Shuswap Band's continual travel through the surrounding region follow the highway through the Pass in addition to mountain ranges and waterways for access to specific land-use areas.
  - Certain subsistence activities and physical movements through the territory should be done at specific times of the year. This practice ensures resources are procured at a time that would be best received by the land, incorporating the management and care of areas considered sensitive or of lower production.
  - Non-subsistence activities, including storytelling, camping, travel and settlement, are also intertwined with the seasonal round.
  - Contemporary community members travel to and through the Elk Valley to practice traditional cultural activities; to access lands and for recreation" (IAAC, 2022a).

The following summarizes the Agency's revised understanding of Shuswap Band's assertion of potential Project impacts (IAAC, 2022a):

- *"Potential impacts to hunting and trapping from:*

- Impacts to wildlife and wildlife habitat, migration access, food sources, and noise disturbance hold potential to disturb local ungulates, subsequently impacting harvesters' accessibility to resources. For example, changes to wildlife habitat including grizzly bears and bighorn sheep's overwintering habitat.
- Impacts on populations of endangered and culturally significant species.
- Changes to surface and ground water quality, increased traffic and habitat destruction. Alteration of traditional foods due to habitat disruption, including changes to water quality and air quality.
- Reduced access and disturbance to Caretaker land and surrounding areas impacts the Band's ability to practice traditional activities.
- Alteration of traditional foods due to habitat disruption, including changes to water quality and air quality.

- *Potential Impacts to harvesting and gathering resources from:*
  - Changes to vegetation and access.
  - Increased contaminant from pollution (vehicle traffic, road maintenance, tailing pond leaks) may impact ecological health and traditional land use.
  - Potential impacts to subsistence harvesting, including plant gathering and mineral gathering from changes to surface and ground water quality, increased traffic and habitat destruction.
  - Impacts to culturally significant plants.
  - Carelessness and disrespect to the waters and plants may not always wipe out plant resources, but they will impact their integrity and usability as medicinal plants.
  - Reduced access and disturbance to Caretaker land and surrounding areas impacts Shuswap Band's ability to practice traditional activities.
  - Alteration of traditional foods due to habitat disruption, including changes to water quality and air quality.
- *Potential impacts on fishing from:*
  - The ability to fish in traditional locations continues to be tied to family identity. Contemporary land privatization has restricted access to many fishing sites, and the influx of non-Indigenous traffic and land use interrupts the integrity of these places.
  - Changes to surface and ground water quality and quantity, loss of or changes to fish habitat and specific access points used for fishing.
  - Changes to the health of fish, riparian flora and fauna.
  - Changes to the health and abundance of Westslope cutthroat trout.
  - Increased fishing pressure by either mine employees or the general public.
- *Potential impacts on cultural and spiritual heritage*:
  - Ability to practice the community's way of life and keep traditions intact is directly impacted by impacts to subsistence activities.
  - Loss or inaccessibility to spiritual sites or areas including trails can impact spiritual knowledge and well-being, ability to use traditional skills and traditional knowledge, and the ability to pass on knowledge to future generations.
  - The medicinal integrity of medicinal plants, such as those obtained from mountainous areas, are impacted by the health and spiritual intentions that surround them.
  - Named and storied places are tied to the physical attributes of that place; any alteration to the landscape impacts the integrity of its cultural significance. Further, cultural integrity depends on the community's ability to access them and pass that knowledge on.

    - Impacts to the lands and resources in Shuswap Band's caretaker area will impact the community's ability to pass knowledge and skills on to future generations, access sacred or storied places, and social connections between community members and its caretaker area.
    - Impacts may alter various ceremonies, language access, and the inter-generational transmission of traditional knowledge.
- *Potential impacts on travel and trade routes*:
    - Impacts to resource sharing and trade that continues today between Shuswap Band and the Piikani and Stoney. Shuswap Band continues to trade beadwork, soopolallie, furs, medicines, and tubers with friends and family at the Stoney and Piikani communities and at Pow Wow events.
    - Ecological health and safety of suitable camping sites is paramount to Shuswap Band's ability to access the remote areas of its caretaker area. Damage to the land and resources via pollution (noise and air), vegetation clearing, water and soil contamination, and increased human and vehicle traffic all hold the potential to impact the suitability for seasonal camps.
    - Community members must travel further for subsistence needs due to impacts to the availability of subsistence resources.
- *Potential impacts on the current use of culturally significant areas:*
    - Increase in human and vehicle traffic hold the potential to adversely impact Shuswap Band's ability to access areas of cultural interest in its caretaker area.
    - Potential impacts to archaeological sites and artifact gathering by band members.
    - Loss or inaccessibility to harvesting areas and spiritual sites impact spiritual knowledge and practices, and the ability to pass on traditional knowledge.
- *Potential impacts to health and socio-economic conditions*:
    - Changes to air quality, health and presence of wildlife, quality of water and vegetation will subsequently impact the well-being and health of Shuswap Band.
    - Increased noise impacting human and ecosystem health.
    - Concerns around contamination and toxicity dissuades the community from using and accessing potentially affected areas.
    - Reliance on non-anadromous species to address sustenance requirements for a healthy diet due to impacts on the availability of subsistence resources (alteration of traditional foods).
    - Impacts to the land, water, plants and animals in the project area will directly impact Shuswap Band's ability to rely on traditional food sources.
- Cumulative *effects*:
    - Cumulative effects of land use and development impacts the quality and quantity of resources, and also dissuades the community from using and accessing these areas due to concerns around contamination and toxicity.
    - Within the last 20 years, community members have observed significant declines in the elk populations in their caretaker area.
    - Cumulative loss of habitat including: Bighorn sheep, Grizzly bear, and old growth and mature forests, Grasslands, and Whitebark pine.
    - Cumulative impacts of development throughout the region impact the movements of herds based on access to habitat and food resource and the decline of wildlife such as the Kootenay Mountain Caribou herd, historically the loss of salmon, and a decline in cutthroat trout. Impacts extend to a loss of tradition and stewardship rights and role.

    - Other cumulative impacts in the region include degradation of wildlife habitat and impacts on wildlife migration, contamination of water sources throughout the Columbia River basin, and railway and highway clearing of vegetation. Impacts to vegetation have destroyed crops of plants of interest and suitable food sources and habitat for various animals. These linear disturbances have further impacted the important elk and caribou herds which were once common in the region.
    - Cumulative effects on sustenance resources and its impact to overall cultural well-being.
    - Shuswap Band experienced significant loss of traditionally significant resources when salmon were extirpated from the Columbia Basin with the construction of the Grand Coulee Dam in 1938.
    - Anthropogenic climate change caused by GHG emissions impacting Shuswap Band's area of caretaker responsibility, and its ability to exercise its Section 35 rights.
- *Water:*
    - Sáwllkwa [water] is sacred and must be protected and treated with respect in order for the surrounding ecosystem to function. Water impacts the animals who drink it, plants which are nourished from it, and fish who live in it.
    - Spiritual practices and ceremonies rely on the quality of the water and plant resources involved. Mountainous areas hold the highest quality of water and plant resources for this purpose. It is very important to Shuswap Band's spiritual well-being for these resources to be protected.
    - Changes to water may have impacts on stewardship responsibilities and the transmission of knowledge and practices related to water systems.
    - Brushing off ceremony to take all negativity away requires clean water to bathe in afterwards.
    - Carelessness and disrespect to the water may impact the integrity and usability of plant resources.
- *Governance and Stewardship:*
    - Effects to water, wildlife, and plants, and their ability to protect and restore endangered species impacts the Shuswap Band's stewardship role" (IAAC, 2022a).

The Shuswap Band's Aboriginal rights and interests are identified as those outlined in the correspondence above. At the time of the submission of this Application/EIS, information regarding Shuswap Band's rights and interests was not available to the NWP; therefore, the current understanding of the Shuswap Band's rights and interests is regarded as preliminary.

As per NWP's understanding of the Shuswap Band's rights and/or interests, IAAC (IAAC, 2015b; 2020a) indicated their revised understanding of potential impacts of the Project on the Shuswap Band's Aboriginal rights and interests to include:

- Hunting and Trapping;
- Fishing (and Water);
- Harvesting and Gathering;
- Cultural and Spiritual Heritage (i.e., Culturally Significant) Areas;
- Access and Travel (and Trade) Routes;
- Social, Health, and Economic (i.e., Health and Socio-Economic) Conditions;
- Cumulative effects; and
- Governance and Stewardship.

24.6 Shuswap Band Baseline Conditions and Rights and Interests

This section describes the baseline conditions as they relate to the Project for the Shuswap Band's rights and interests as identified by IAAC (IAAC, 2015b, 2022a) and included in Section 24.5.4. The baseline conditions include a description of the Shuswap Band's governance structures, a brief history of the Shuswap Band, publicly available information regarding demographic data, socio-economic and health conditions, and ethnography. This section also includes information regarding the Shuswap Band's Aboriginal rights and interests based on the preliminary understanding of the Shuswap Band's rights and interests as noted in Section 24.5.4, feedback received from Shuswap Band (Appendix 24-A, Table 24.A-2), publicly available information, and overall consultation activities summarized in Section 24.5 relating to the historic and current use of lands and resources for traditional purposes by Shuswap Band such as fishing (and water), hunting and trapping, harvesting and gathering, ceremonial and sacred sites, access and travel routes, as well as physical and cultural heritage.

All information compiled and presented in Section 24.6 has been authored by NWP utilizing secondary sources that are publicly available and the information presented throughout is not intended to supersede traditional knowledge or specific information of the community members and Elders of the Shuswap Band (IAAC, 2015b, 2022a). The Shuswap Band's rights and interests described in this section are in consideration of the existing and potential future use of the Project footprint, the ATRI LSA, and the ATRI RSA by the Shuswap Band to exercise their rights and interests without the Project. This section also notes where applicable that the potential future use of the Shuswap Band to exercise its rights in the ATRI LSA and RSA has likely been influenced by past and ongoing development activities that have been included in the setting of the baseline conditions utilizing the assessment methodology identified in Chapter 5 and referenced in Section 24.3.

24.6.1 Governance

Secwépemc law is founded upon, inspired by and responsible for the Secwépemc Traditional Territory, known as Secwépemcúl'ecw. It is expressed, among other ways, through the wisdom and teachings of oral histories and stories that have been learned, lived, and passed down through generations (Shuswap Nation Tribal Council [SNTC], 2018a). Secwépemc are responsible under Secwépemc laws for the care and management of Secwépemcúl'ecw, which is the name in the Secwépemctsín language for Secwépemc territories. For thousands of years, the Secwépemc have lived as a self-governing nation composed of independent communities (or "campfires") united by common Secwépemc culture, language, law and connection to Secwépemcúl'ecw. The Secwépemc Nation consisted of 32 campfires, but as a result of the impacts of colonization it currently consists of 17 bands organized into different groupings. The Secwépemc nation has held its territorial authority and sovereignty in Secwépemcúl'ecw through the application of Secwépemc laws and governance processes. Colonization has done damage to the exercise of Secwépemc laws, including by impeding the Secwépemc legal processes used to govern and make decisions about the land, water and sky worlds in Secwépemcúl'ecw (SNTC, 2018b).

Secwépemcúl'ecw was occupied by the Secwépemc prior to contact and this occupation included a network of camps, village sites, and permanent winter villages. Secwépemc governance was generally comprised of three units:

- Family was the basic unit in the complex system of Secwépemc governance. Families were the source of local traditional knowledge and land use which was passed to the next generation. Heads of the families were often given the responsibility of making decisions about resources. Some property was inheritable (Ignace & Ignace, 2017).
- Groupings in the Shuswap Nation correlate to geographic descriptions of where people lived. Each of the geographic areas are governed by caretakers, or Yucwmintn, whom are responsible for being caretakers to the land and managing its resources while acting as guardians of their citizens for the larger Secwépemc Nation (NEB: Oral Presentation from Chief Ignace, 2014).
- Tribal units refer to the larger cultural grouping of the Secwépemc. Land and hunting grounds were viewed as tribal property while each grouping 'owned' fishing, hunting, and trapping grounds that could be accessed freely by other Secwépemc members (Ministry of Attorney General, 2007).

Families interacted within bands and bands interacted within the nation while nations interacted through regional trade and protocol agreements (WLFN, 2021). The goal of the Secwépemc Nation is to move beyond Indian Act bands to restore and revitalize its system of governance according to a shared vision of (SNTC, 2017):

> *"a unified nation operating under our own governance, guided by our own laws, supported by the management of our own resources, and founded in the strength of our language and ceremonies"* (SNTC, 2017).

The Shuswap Band also known historically as Kenpesq't is a band government under the *Indian Act* of the Secwépemc and a member of the Shuswap Nation Tribal Council. The Shuswap Band government is the elected political body responsible for overseeing the administration of the band and developing laws. The Shuswap Band (SIB) government is tasked with making decisions in the best interest of the community and people (SIB, 2020). The term of office for Chief and Councillors is four years, and the next election is scheduled for 2022 (SIB, 2018a).

In an effort to gain greater autonomy in exercising its right to self-govern, the Shuswap Band entered into the *Framework Agreement on First Nation Land Management* with Canada on April 13th, 2012. The community is currently in the Operational Phase of First Nations Land Management. The Shuswap Band, through their Land Code have the ability to develop and manage their own lands while preserving Shuswap culture, heritage, and traditions. The Shuswap Band has exclusive legislative authority over how its reserve lands are used and managed (SIB, 2014a). It should be noted that the Shuswap Band's Land Use Plan, which describes how the community has planned to develop and manage the lands found on the Reserve, was not developed for or intended for use and reference throughout Shuswap Band's broader Traditional Territory (SIB, 2021). The Shuswap Land Use Plan (2018) does not affect lands outside reserve, or new lands that are added to the reserve. Land use planning would have to be revisited in order to address all Shuswap lands (SIB, 2018b). The Shuswap Band entered into a Forest and Range Consultation and Revenue Sharing Agreement with the province of British Columbia in 2014 (SIB, 2014b).

The SNTC, was formed in 1980 as an effort of the Secwépemc Chiefs to advance the issues of Aboriginal rights. Tribal Chief of the SNTC is an elected position that affords direction over the nine Bands that make up the SNTC, and the organization "*works on matters of common concern, including the development of*

self-government and the settlement of the aboriginal land title question" (SNTC, 2020a). The SNTC also provides technical support to member communities to improve services in health, child welfare, employment and training, research on traditional territories, and community development. The SNTC's role is to establish agreements, with the provincial and federal governments, and with the private sector; that recognize and respect Secwépemc self-government and aboriginal rights and title.

Seven Secwépemc signatories, including Shuswap Band (collectively listed as the Stk'emulupsemc te Secwépemc in the document) were part of a Letter of Commitment (March 2019) outlining an agreement between the Secwépemc signatories and the province of B.C. The letter of commitment has committed to developing a series of working groups as a way to collaborate and better integrate Secwépemc governance and laws into lands and resource management. This agreement indicates that, as part of the Secwépemc, Shuswap Band have their own given laws laid out in their oral histories relating to their ways of life and responsibilities (B.C., 2019b). A key piece of this collaboration is implementing the principles of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) (QS, 2021). In British Columbia, Bill 41, the DRIPA was given royal assent on November 28, 2019 (B.C., 2021). The Qwelminte Secwépemc (QS) conducts its work consistent with the Divisions or Campfire and this concept of yecwemíñem relating to territorial areas of responsibility within Secwépemcúl'ecw. Under the Letter of Commitment, the historic Divisions or Campfires of the Secwépemc Nation include (QS, 2021):

- Stk'emlupsemc te Secwepemc Nation: comprised of Tk'emlups te Secwepemc and Skeetchestn;
- Simpcwemc: comprised of Simpcw First Nation;
- Lakes Division: comprised from the Pespesellkwe – Adams Lake Indian Band, Splatsin, Little Shuswap Lake Band; and
- Columbia Basin Division: Shuswap Band.

The Qwelminte Secwépemc Government to Government (G2G) table collectively works at supporting the reconciliation between the province and the seven signatories, by supporting the implementation of the UNDRIP and DRIPA, the recognition of the inherent jurisdiction of the QS and rights to participate in decision making matters that would affect those rights, and collaboration within the G2G relationship consistent with the UNDRIP and DRIPA. The Qwelminte Secwépemc G2G table also collectively works to support engagement with other initiatives and government institutions including other Indigenous Nations and groups within the Secwépemc Nation, and with other provincial ministries and agencies (QS, 2021).

Secwépemc jurisdiction is often spoken about in relation to yecwminúl'ecwem, defined as take care of the tmicw (lands and waters). In accordance with Secwépemc law, and within the system of Secwépemc collective ownership and access to the lands and resources that comprise Secwépemcúl'ecw, there existed and continues to exist the caretaker or stewardship role (yecwemíñem). This responsibility is upheld by an interconnected network of families (kwséltkten) over particular areas within Secwépemcúl'ecw, in relation to their seasonal rounds. This collective title and inherent connection with Secwépemcúl'ecw reflects a relationship not only to each other as Secwépemc but all our relatives throughout Secwépemcúl'ecw, including tmicw (QS, 2021).

As Secwépemcúl'ecw is unceded, and due to the collective governance approach of the Secwépemc Nation, with Caretaker Area pockets under the stewardship of specific communities/Bands, it is Shuswap Band's Indigenous right, per UNDRIP, to continue to steward over the lands and resources in its Caretaker

Area (SIB, 2021). For the Shuswap Band this area includes the Columbia Basin Division or Campfire underlining their clear role as caretakers of such a significant watershed (QS, 2021).

24.6.2 History and Ethnography

The Kenpesq't, or Shuswap Band is a member of the Secwépemc (Shuswap) Nation, a division of the larger Interior Salish people who traditionally occupied a vast area in south-central British Columbia (SIB, 2008). Archaeological evidence shows that the Secwépemc have lived in the high plateau of south-central British Columbia for at least over 4,000 years and it is believed that Salish occupation of the area may have followed closely on the retreat of glacial ice 12,000 to 15,000 years ago (SIB, 2008). The ancestors of the Secwépemc have lived in the interior of B.C. for at least 10,000 years and the Interior Salish have occupied the Interior Plateau for an estimated 6,000 to 7,000 years, and diverged from the Coast Salish, between 5,500 and 6,900 years ago (Ignace et al., 2016). The Secwépemc lands are also among the most diverse—geographically, ecologically, and ethnobotanically—of any First Peoples' territory in British Columbia. At the core of Secwépemc territory is the drainage system of the North, South, and Main Thompson rivers and the Fraser River and their tributaries. The southeastern portion, around Windermere, the Canoe River, and the northern Arrow Lakes, is situated in the watershed of the Columbia River. From the valleys and canyon bottoms to the mountain peaks, every part of the landscape has contributed to Secwepemc lifeways and sustenance (Ignace et al., 2016). Following the separation from the other Interior Salish groups, the Secwépemc developed an intricate system of seasonal travel, social, and political systems that governed their interactions with each other (SIB, 2008).

In the past, and for some people still today, families traveled around their territories in a patterned seasonal round, stopping and camping, sometimes for weeks at a time to harvest and preserve the meat, roots, berries, and other resources they needed for year 'round living. Before horses arrived, people traveled by canoe and on foot, sometimes with their dogs (Ignace et al., 2016). Around 1750—before Europeans actually arrived in Secwépemc country—horses had entered the Secwépemc culture and economy through trade and were quickly adopted by the Secwépemc and their neighbours. These animals allowed easier travel over the land, making certain harvesting sites more readily available. They also provided more efficient transportation of foods and other resources from harvest sites to camps and winter village sites, as well as to centres for trading and exchanging goods with neighbouring peoples. The seasonal round and traditional economy involved interactions with other Nations, and included agreements and protocols with neighbouring Nations, including the Ktunaxa, Stoney, Piikani, and Carrier (Dakelh) (SIB, 2021).

The Interior Salish based their economy on salmon and ungulates, concentrated in high-value areas, resulting in a pattern of occupation along river meadows and forest edges (SIB, 2008). The Interior Salish's movement was timed to align with salmon runs and seasonal ripening of food and medicinal plants. Secwépemc society was organized around seeking out food and resources required for survival with a value system that emphasized the "necessity for self-reliance and experience" and the "equality and mutual obligations of both maternal and paternal kin" (SIB, 2008). Traditionally, the Secwépemc depended on the natural resources of the land. Bands usually spent the winter in their own village of pit houses and during the rest of the year most Secwépemc lived a nomadic lifestyle (Tk'emlúps, 2021). The pit house was vital for survival in the harshest season, when water froze, and ground covered in snow, making traveling difficult. These permanent homes/villages can be found by archaeological evidence throughout the Columbia Valley and region (SIB, 2018b). They moved from place to place, as foods

became available in different areas, developing a unique culture that was completely self-sufficient (Tk'emlúps, 2021). It is worth noting that an important aspect of Shuswap seasonal round includes rotating harvest areas as a method of stewardship. This rotation was to ensure no area was ever overstressed, and as a result a wide variety of productive valleys were accessed (SIB, 2021).

The salmon that were abundant in the Columbia River system were integral to the Secwepemc culture and identity. Fishing camps could be found along the Columbia River, mouths of Windermere and Columbia Lakes and they would remain there for large harvests of salmon to be divided amongst families, stored and prepared for long winter months and journeys. Way of life in traditional times were planned for and by the community to ensure everyone was cared for and enough resources (SIB, 2018b).

The Secwépemc were conscious of their place in the environment and of their responsibilities to the places and the other species they depended upon. Guided by their deeply held values of reciprocity and spiritual connections with the places they lived, traveled, and harvested their resources, and with the other lifeforms that sustained them, and by their own experiences and shared observations, they developed methods, strategies, and technologies to maintain and enhance the species and habitats, to make them more productive and more diverse (Ignace et al., 2016). Habitual use and occupation of camping areas and village sites, along with common hunting, fishing, and gathering places, formed the structure that connected networks of families and households together in a band (Ignace et al., 2016).

The traditional Secwépemc lived as a self-governing nation grouped into bands. Though the bands were separate and independent, a common language and a similar culture and belief system united them. Before the smallpox epidemic of 1862 there were thirty-two Secwepemc bands, today, there are 17 remaining bands that make up the Secwepemc Nation (Tk'emlúps, 2021). The Secwépemc shared a tribal or nation-wide system of land tenure and access to resources, with the chiefs of local bands, on behalf of their communities, acting as Stewards or caretakers of designated areas or the benefit of all people of the nation (SIB, 2021).

Oral history and archival documentation attest to Shuswap Band's ancestral use of the Rocky Mountains and the Crowsnest Pass route, for access to subsistence harvesting areas and cross-cultural events or trading with neighbours to the east. Shuswap Band's extensive travel and resource access was acknowledged by James Teit (1909: 447, 471) as he noted their ancestors to be among the "greatest travellers", often trading their salmon resources with neighbouring groups to the east (Teit, 1909). Shuswap Band historic use and Interests in the Rocky Mountains and to areas further east, are reflected in the 1895 resource sharing treaty (Memorandum of Agreement) between Shuswap Band, Stoney Nakoda, and the former Columbia Lake Band (currently known as Akisq'nuk and Aq'am) which showcases the historic and continued sharing of resources on both sides of the mountain range (SIB, 2020b). The Shuswap Band migrated in the early 1800s along the Columbia and Canoe Rivers, settling in the area of Invermere. The move of the Kinbaskets into the Windermere area was thus more of a "resettlement" than a new migration outward (SIB, 2021). The Shuswap named the places of geographical and cultural significance by indicating the area's use, significance, or appearance.

At the time of contact with the first Europeans in the late 18th century, the Secwépemc Nation consisted of approximately 30 bands. Today, 17 Secwépemc bands remain, including the Shuswap Band. In 1883, Gilbert Malcolm Sproat was sent on behalf of the provincial government to allocate reserves for the Kootenay and Shuswap Bands, and in 1884 the Shuswap Reservation was established. Secwépemc bands

were run by a hereditary Chief with the advice of Elders. Prior Chiefs have been noted and certainly existed earlier than Chief Pierre Kinbasket; Chief Pierre was the first documented under Indian Act regulations of the Shuswap Band, which was established in 1884. Chief Kinbasket was a 'hereditary' chief, which is passed down through lineage and not by the formal election process that the band currently follows (SIB, 2021).

Chief Pierre Kinbasket and his twin brother Charlie were some of the first permanent settlers of the Kinbasket Clan in the valley. They built pithouses and salmon caches along the Columbia River to Brisco that are still visible today. The Shuswap people developed an intricate system of travel corresponding with the seasons, as well as an important social and political system that governed their interactions with each other and the use of their traditional lands. The system was passed down from generation to generation, through stories, using a rich oral history that continues to play an important role among the Shuswap to this day (SIB, 2018b). The Kinbaskets traded and were allies with the Stony Tribe of Alberta, as well as their neighbours, the Akisqnuk — part of the Ktunaxa First Nation — resulting in mixed lineage and affiliations that continue to this day. The Kinbasket Shuswap officially withdrew from the Ktunaxa Nation Tribal Council to re-join the Shuswap Nation in 2006 (SIB, 2018b).

24.6.3 Language

The Shuswap people's indigenous language is Secwépemctsín, which is part of the Salish language family. Being spread over a vast territory, there are different dialects which provide different pronunciations and words. The Secwépemctsín language is currently spoken by over 1,600 people (FirstVoices, 2020). Some Shuswap Band members speak the eastern dialect of Secwépemctsín, the language of the Secwépemc people belonging to the Interior Salish group of the Salishan language family. The word Secwépemctsín is formed by the combination of its root cwep "spread out", together with lexical suffixes -emc "people" and -tsin "mouth, talk" (Ignace & Ignace, 2017).

The Secwépemc Cultural Education Society (Secwépemc Cultural Education Society) is a non-profit organization dedicated to preserving and promoting the language, culture, and history of the Secwépemc (SECWEP, 2020). They provide culturally specific training that aims to enhance the opportunities and development for indigenous people (SECWEP, 2020). The Society is governed by a Board of Directors with representation from 13 Secwépemc bands and the Secwépemc Elders Council.

24.6.4 Population

The Shuswap Band's population has been growing steadily over the last 30 years from 148 members in 1983 to 268 members in 2016 (British Columbia Assembly of First Nations, 2021). Based on information reported by the British Columbia Assembly of First Nations (2021), 115 members currently live on-reserve, and 153 members live off-reserve. Over the last 30 years, the Shuswap Band's population demographics have remained fairly steady. There has been a notable increase in members aged 20-44 and 45-64. Table 24.6-1 indicates the key statistics publicly available, based on the census profile for Shuswap Band, Shuswap Reserve (Statistics Canada, 2016; 2022).

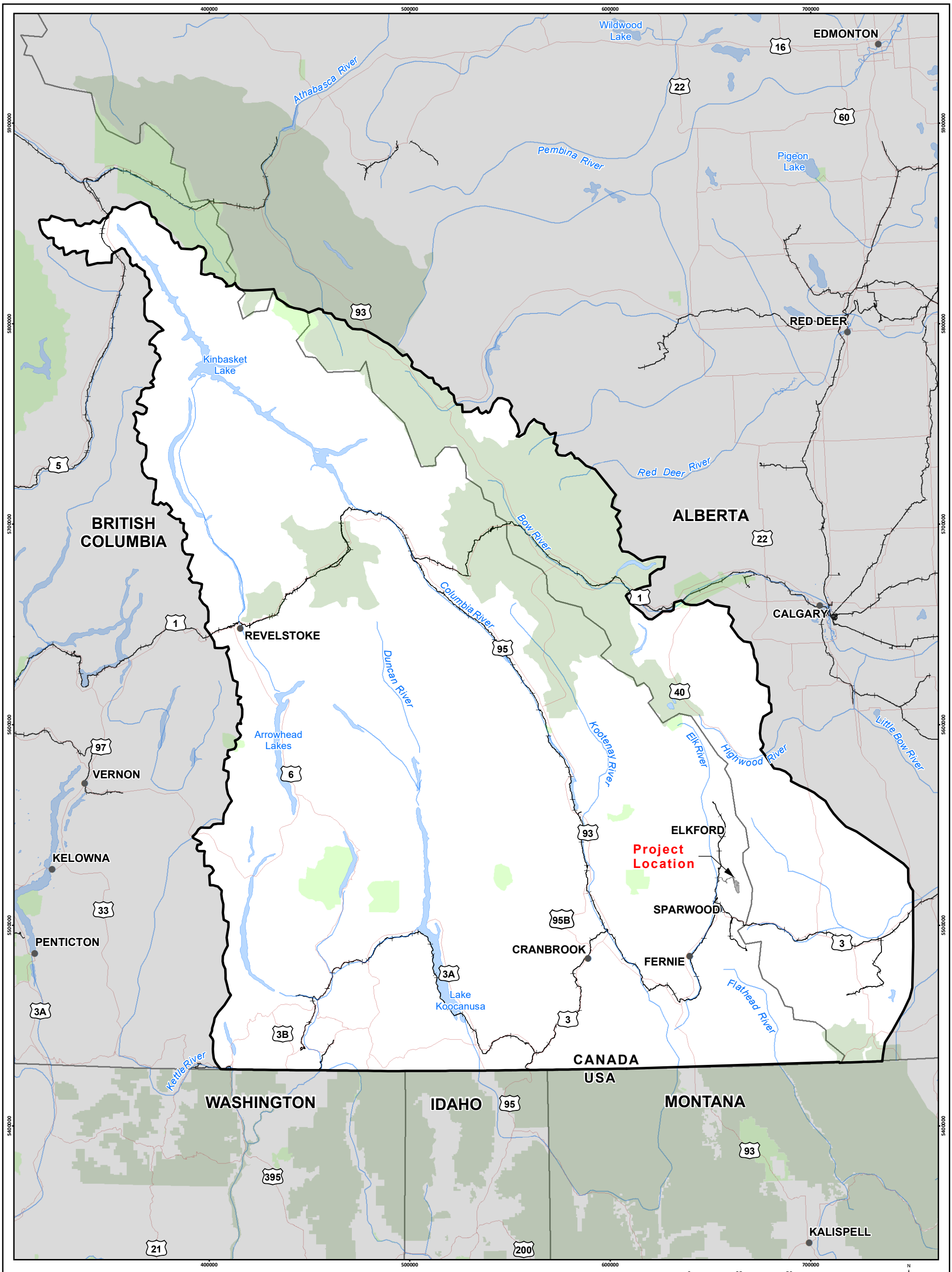
Table 24.6-1: Shuswap, Indian Reserve Population, Education, and Employment Data

Shuswap, IRI Characteristics	Total	Men	Women
Population, 2021	319		
Population, 2016	314		
Population percentage change, 2016 to 2021 (%)	1.6		
Total private dwellings	183		
Median age of the population	37.2	34.4	39.6
Number of total income recipients aged 15 years and over in private households in 2020	280	120	160
Median total income in 2020 among recipients ($)	42,000	44,400	40,400
Labour force participation rate, 2016 (%)	79.2	84.0	70.4
Unemployment rate	7.1	9.5	9.5
Highest certificate, diploma or degree for the population aged 15 years and over in private households, 2016	265	130	135

Source: Statistics Canada, 2016; 2022.

24.6.5 Community, Reserve, and Traditional Territory

The Secwépemc asserted Traditional Territory, also known as Secwépemcúl'ecw, covers approximately 180,000 square kilometers. The territory encompasses the Shuswap region, south to Castlegar and the Columbia River valley and the Arrow Lakes, to the eastern the slopes of the Rocky Mountains, west toward Williams Lake and the Fraser River, and north to the upper Fraser River including the Fraser River valley. Within the greater Secwépemcúl'ecw, Shuswap Band is responsible for the governance of its caretaker area which extends to the eastern foothills of the Rocky Mountains. Shuswap Band's Caretaker Area includes the Columbia Basin watershed, including the eastern foothills of the Rocky Mountains, the north encompassing Kinbasket Lake, and the west including the Kicking Horse River and Columbia River valleys near Golden and Revelstoke. As reflected in the historic record and the Qwelminte Secwépemc G2G structure, Shuswap Band belongs to the Columbia Campfire and implements Secwépemc governance and laws in the Columbia Campfire Region, which includes the Rocky Mountains (SIB, 2021). A map showing the Shuswap Band's asserted territory (Caretaker Area of Responsibility) is referenced in Figure 24.6-1. It is important to note that in Figure 24.6-1 depicts a snapshot in time, and the concept of the extent of Shuswap Band traditional territories is based on an evolving understanding of the landscapes that were occupied by Shuswap Band ancestors and may not fully reflect the up-to-date views of the Shuswap Band due to the lack of this information from Shuswap Band for the Application/EIS. The vast area of Secwépemcúl'ecw provided a wide variety of resources. Traditional activities included gathering plants, fishing, hunting, preserving food, tanning hides for clothing and footwear, and using tree roots and fibre for making textiles, baskets, and shelters (SNTC, 2016).



Crown Mountain Coking Coal Project

Figure 24.6-1
Shuswap Indian Band Asserted Traditional Territory

LEGEND

- Area of Caretaker Responsibility
- Project Footprint
- City/Town
- Highway
- Railway
- Watercourse
- Waterbody
- Provincial/State/Local Park
- National Park
- Province/State Boundary

0 25 50
Kilometres

Scale 1:1,750,000

Map Drawing Information:
Data Provided By NWP Coal Canada Ltd, Dillon Consulting Limited, Province of British Columbia GeoBC Open Data, Government of Alberta Open Data, Natural Resource Canada, ESRI Basedata, Shuswap Indian Band's Area of Caretaker Responsibility submitted to IAAC dated January 31, 2020.

Map Created By: RB
Map Checked By: LKD
Map Coordinate System: NAD 1983 UTM Zone 11N

NWP Coal Canada Ltd

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As a member of the Secwépemc (Shuswap) Nation, Shuswap Band's Aboriginal rights and title have never been ceded, surrendered or extinguished. Under the UNDRIP, Shuswap Band has the following the rights (UN, 2007):

- The right to stewardship and recognition of Indigenous Peoples' right to conserve, protect, and determine related strategies;
- The right to governance and self-determination, and to maintain and develop political institutions over their lands and territories; and
- The right to natural resource decision making that moves from collaboration to consensus and consent-based decision making.

Since contact with the European explorers and settlers, the Shuswap way of life has changed dramatically. Like many other First Nations, the Shuswap Band's Traditional Territory has become increasingly committed to tourism and recreation, as well as industrial and resource development (SIB, 2018b). Shuswap Band has frequently used and moved through the Crowsnest Pass, both in the past (by previous generations) and presently and intend to continue and revive stewardship through the area for future generations. Today, as Shuswap Band move through their caretaker area, land users camp as needed when accessing resources or other land-use sites (SIB, 2020b).

The Shuswap Band was previously a participant in the Ktunaxa-Kinbasket Tribal Council treaty discussions, until their departure in 2005. Due to the shared territory and close connections between community members and traditions, Shuswap Band will continue to be closely consulted on the continuing treaty negotiations underway for the Ktunaxa Nation Council (SIB, 2021). The Shuswap Band does not have ongoing land claims based on the Aboriginal and Treaty Rights Information System (ATRIS).

24.6.5.1 Community and Reserve Lands

Shuswap Band (Kenpesq't) is the furthest southeastern community of the Secwepemc Nation. It is situated on the north end of Lake Windermere, and near the town of Invermere, between the Rocky and Purcell Mountain ranges within the Columbia Valley. The Shuswap Band reserve encompasses a total of 2,663 acres (1,078 ha) of land on the bank of the Columbia River and adjacent to the District of Invermere, with various types of tenure (SIB, 2018b) (refer to Figure 24.6-2). The majority of the land is tenured by Lawful Possession, which is held through a certificate of possession (CP) followed by undesignated lands tenured by the Shuswap Band. Table 24.6-2 summarizes the different tenures that exist on Shuswap Band land and their respective sizes and proportions of total reserve land (SIB, 2018b).

Table 24.6-2: Land Tenure and Area

Land Tenure	Acres	Hectares	% of Total
Band Land	881.24	356.63	33%
Band Land – Surface Permit	108.92	44.08	4%
Designated Land/Band Land	125.25	50.69	5%
Lawful Possession (Certificate of Possession)	986.33	399.15	37%
Lawful Possession/Lease (CP)	57.38	24.22	2%
Lease/Designated/Band Land	503.74	203.85	19%
Total	2662.86	1077.62	100%

Source: SIB, 2018b

565000
570000
5605000
5600000
5595000

Decrespigny Rd
Palmer Creek
Dry Gulch Creek
Columbia River
Horsethief Creek
93
Wilmer Lake
Horsethief Rd
Wilmer Creek
Shuswap Indian Band
Shuswap Creek
Eagle Ranch Trail
Cooper Rd
Panorama Dr
Toby Creek Rd
Toby Creek
Lillian Lake
Neave Creek
Toby Creek
13th Ave
INVERMERE
Dorothy Lake
Windermere Lake
Abel Creek
93
Westroc Mine Rd
Bonnais Creek
Holland Creek

BRITISH COLUMBIA
ALEBRTA
EDMONTON
RED DEER
CALGARY
REVELSTOKE
VERNON
KELOWNA
PENTICTON
ELKFORD
SPARWOOD
CRANBROOK
FERNIE
Map Extent
Project Location
CANADA
USA
WASHINGTON
IDAHO
MONTANA

Crown Mountain Coking Coal Project

Figure 24.6-2
Shuswap Indian Band Reserve Lands

LEGEND

- Shuswap Indian Band Reserve Lands
- Area of Caretaker Responsibility
- Project Footprint
- City/Town
- Highway
- Arterial/Collector Road
- Local/Resource Road
- Railway
- Transmission Line
- Watercourse
- Waterbody
- Wetland
- Provincial Park/Protected Area
- National Park
- Province/State Boundary

0 1 2
Kilometres

N W E S

Scale 1:40,000

Map Drawing Information:
Data Provided By NWP Coal Canada Ltd, Dillon Consulting Limited, Province of British Columbia GeoBC Open Data, Government of Alberta Open Data, Natural Resource Canada, ESRI Basedata/Imagery, Crown-Indigenous Relations and Northern Affairs Canada, Shuswap Indian Band's Area of Caretaker Responsibility submitted to IAAC dated January 31, 2020.

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According to the community's Land Use Map (2018), the largest encompassing land base includes certificate of possession lands, followed by lands used for residential housing and commercial/retail and commercial/recreational uses (SIB, 2018b). Much of the Shuswap Band's Reserve is sparsely populated with an abundance of undeveloped lands. A second Reserve, St. Mary's No. 1A (793 ha) is associated with the Shuswap Band. St. Mary's No. 1A is located approximately 9.6 km north of Cranbrook on the St. Mary's River. According to the Land Use Plan (2018), the Shuswap Band Reserve is provided potable water via community services, and the community's wastewater is treated on-reserve at a wastewater treatment facility located on Capilo Way. The community's 2018 Land Use Plan indicates that there are two potable water reservoirs and existing underground watermains/distribution piping. Upgrades are required and planned in the form of additional distribution piping for water/wastewater treatment services to meet the needs of the community's future growth and development.

24.6.6 Shuswap Band's Rights and Interests: Historic and Current Use of Lands and Resources for Traditional Purposes

This section describes the baseline conditions for the Shuswap Band's exercise of their Aboriginal rights and interests as identified by IAAC (IAAC, 2015b, 2022a) with regard to the Project. This section includes information regarding the Shuswap Band's Aboriginal rights and interests based on feedback from the Shuswap Band (Appendix 24-A, Table 24.A-2), publicly available information, and consultation and engagement activities summarized in Section 24.5 relating to the historic and current use of lands and resources for traditional purposes by the Shuswap Band such as fishing, hunting and trapping, harvesting and gathering, ceremonial and sacred sites, access and travel routes, as well as physical and cultural heritage.

The Shuswap Band has a strong connection to their traditional lands, where their ancestors travelled in annual seasonal migrations for thousands of years following the accessibility and availability of resources (SIB, 2018b). Secwépemcúĺecw (Shuswap asserted Traditional Territory including Shuswap Band self-identified territory area) comprises approximately 180,000 square kilometres and encompasses nine major Biogeoclimatic Zones and a diversity of habitats, resources, and cultural elements (Ignace et al., 2016) (Figure 24.6-1). It is important to note that Figure 24.6-1 depicts a snapshot in time, and the concept of the extent of Shuswap Band traditional territories is based on an evolving understanding of the landscapes that were occupied by Shuswap ancestors and may not fully reflect up to date views of the Shuswap Band. This homeland was not static, and its boundary changed over thousands of years as the Secwépemc cultural, linguistic, and political groups formed and changed (Ignace et al., 2016). Within Secwépemcúĺecw, the Shuswap Band, a member of the Columbia Campfire, is responsible for the governance of its Caretaker Area and Columbia Campfire Region, which extends to the eastern foothills of the Rocky Mountains (SIB, 2020b). Potential for effects to water, wildlife, and plants, and their ability to protect and restore endangered species impacts the Shuswap Band's stewardship role (IAAC, 2022).

There are areas within the Shuswap Band's Reserves that are environmentally and culturally significant and outlined as thus on the basis of known wildlife corridors in the Shuswap Band's Land Use Plan (SIB, 2018b). For Shuswap Band, sáwllkwa (water) is sacred and must be protected and treated with respect in order for the surrounding ecosystem to function. Water impacts the animals who drink it, plants which are nourished from it, and fish who live in it. Spiritual practices and ceremonies rely on the quality of the water and plant resources involved. Mountainous areas hold the highest quality of water and plant resources for this purpose. It is very important to Shuswap Band's spiritual well-being for these resources

to be protected. Potential for changes to water may have impacts on stewardship responsibilities and the transmission of knowledge and practices related to water systems. Water features prominently in the brushing off ceremony which is utilized to take all negativity away and requires clean water to bathe in afterwards thus carelessness and disrespect to the water may impact the integrity and usability of plant resources (IAAC, 2022a). As water is an overarching issue, historic and current use of lands and resources for traditional purposes related to water are fishing, hunting and trapping, harvesting and gathering, ceremonial/sacred areas, and access and travel routes. Specific to the Project, historic and current use of lands and resources for traditional purposes are addressed within fishing due to the effects assessment for the interconnections between surface and groundwater quality and quantity, where applicable.

As indicated in Section 24.6.5, a large portion of the Reserve borders the Columbia River, a significant waterway to the Shuswap people and to the Columbia River Treaty (USA-Canada). Areas along the Columbia River and the riparian area along other waterbodies within the bounds of the Reserve (e.g., the Shuswap Creek) have been allocated as designated Environmentally and Culturally Significant Areas for future land use (i.e., not allocated for other types of development) within the Shuswap Band's Land Use Plan (SIB, 2018b).

While preserving environmental and cultural values/areas within the community is an important element to the community's current land use and traditional practices (SIB, 2018b), due to the stewardship of the Shuswap Band, the Elk River which flows southwest through the broad sweep of the Elk Valley until it meets Lake Koocanusa and the mighty Columbia River, is also considered a priority area (SIB, 2021). The Elk River and the valley it flows through are essential to its human, fish and wildlife inhabitants, providing economic, cultural, and ecological benefits that ripple far beyond the valley. It provides a critical bridge between continental-scale ecosystems, connecting a vast habitat that includes the Traditional Territory of the Shuswap Band (SIB, 2021). The traditional and recognizable land markers that designate the Secwepemc territory are called the "Coyote Rocks", which are large visual land markers the Secwepemc used to mark their traditional territories. They are described as large mounds of earth and/or rock with a large, rounded rock balancing on top of the other (SECWEP, 2020). Ecological health and safety of suitable camping sites is paramount to Shuswap Band's ability to access the remote areas of its caretaker area. Damage to the land and resources via pollution (noise and air), vegetation clearing, water and soil contamination, and increased human and vehicle traffic all hold the potential to impact the suitability for seasonal camps. Secwépemc tradition teaches how to obtain everything needed to live from the land, and traditional material production of clothing, regalia, drums, and medicine pouches is still practiced today (IAAC, 2022).

Traditional practices of the Shuswap Band in both historic and current times are described below. It is understood that present day availability of lands for the practice of traditional activities is reduced from the increased pressure on those lands by agriculture, residential development, mining, forestry, and park creation, among other modern developments. There is recognition within this process that current use may not be reflective of desired current use, as Indigenous Communities have been impacted in many ways that may have impeded their ability to undertake some traditional activities (e.g., loss of knowledge between generations due to acts of cultural oppression, under the assimilation efforts of the Indian Act and Residential School system) (SIB, 2021).

As noted in Section 24.5, at the time of the Application/EIS submission, the Shuswap Band did not provide a Traditional Land-Use Study (TK/TLU) to NWP. Where Indigenous Knowledge was provided by the

Shuswap Band (during the review of Project Planning and Design documents and during Pre-Application Engagement) it has been incorporated into the effects assessment for the use of lands and resources in relation to the Project. As such, the limitations of the information sources considered include those publicly available (e.g., other development project EA/IA applications including Baldy Ridge Extension Project, the Castle Project, Grassy Mountain Coal Project, and the Line Creek Operations Project) and those activities and correspondence that detail Project-specific information available to be shared publicly related to traditional activities. Where the Shuswap Band did provide information related to mitigation measures, those have been included in the Indigenous Impact Management Plan (Section 24.9).

Limitations of information for assessing the Project effects to the Shuswap Band's rights and interests include the lack of specific information regarding the spatial distribution of site-specific knowledge and use values reported by Shuswap Band's community members in the Project footprint and the ATRI LSA based on subsistence sites, ceremonial and cultural/spiritual uses, transportation features, habitation values, and environmental features. In addition to any tangible site-specific values mapped by Shuswap knowledge holders and based on Shuswap oral histories, any intangible non-site specific values that may include reported Shuswap cultural properties or heritage sites in the vicinity of the Project including particular oral histories regarding Elders, ceremonies, and events that took place in the area and non-site specific values associated with oral histories of the area were those included from publicly available sources as no Project-specific information was available at the time of the writing of this chapter. For this chapter, wherever practicable, these intangible cultural heritage resources are included within the physical and cultural heritage information.

For the use of lands and resources for traditional purposes, site-specific knowledge and use values associated with subsistence sites, transportation, and related environmental features including seasonal access and usage from Shuswap knowledge holders would further support and guide the assessment of Project-related effects within the Project footprint, the ATRI LSA, and the ATRI RSA in terms of potential interactions during the Project lifecycle.

It is understood that present day availability of lands for the practice of traditional activities is reduced from the increased pressure on those lands by agriculture, residential development, mining, forestry, park creation, and other modern developments. There is recognition within the assessment processes that current use may not be reflective of desired current use as Indigenous Communities have been impacted in many ways that may have impeded their ability to undertake some traditional activities (e.g., loss of knowledge between generations). Current use as defined in Chapter 24 is reflective of current use of lands and resources for traditional purposes as well as potential future use as desired by Shuswap Band.

As a Project-specific Traditional Land-Use Study (TLU) from the Shuswap Band was not available at the time of the writing of this chapter, the information available to describe the baseline conditions for the Shuswap Band's rights and interests in the following sections was based on publicly available information and those activities and correspondence that detail Project-specific information available from the Shuswap Band to be shared publicly. NWP's understanding of the Shuswap Band's rights and interests is limited to those confirmed by the Shuswap Band in Section 24.5.4 with limitations identified in Section 24.4.1.1. As such, no information on the description and characterization of the location of hunting camps and cabins within the ATRI LSA and RSA to inform the determination of the appropriate spatial boundaries to describe the baseline information was available from the Shuswap Band or publicly available. No information on the description of commercial activities of the Shuswap Band within the ATRI

LSA/RSA were available from the Shuswap Band or publicly available. No information on the description of Shuswap Band community members' recreational uses were available from the Shuswap Band or publicly available. No input from the Shuswap Band was directly provided in establishing the baseline conditions related to health and socio-economics.

Further information on the Shuswap Band's use of navigable waters, forestry and logging operations, commercial fishing, hunting, trapping, and gathering activities, commercial outfitters, and recreational use, including wildlife viewing, will be updated through continued engagement with the Shuswap Band during the assessment processes where applicable. For the Shuswap Band's physical and cultural heritage, the information provided by Shuswap Band and publicly available is included in Sections 24.6.6.4, 24.6.6.5, and 24.6.6.6.

Country foods include traditionally used resources that are fished, hunted, trapped, harvested, gathered, or grown by Indigenous Communities for subsistence or medicinal purposes outside of the commercial food chain. In relation to the Shuswap Band's country food consumption, food insecurity has been increasing in recent years and has been further exacerbated by the global pandemic, temporary supply chain disturbances, and the rising cost of living. In the coming years, other factors will influence food security, including the conversion of arable land for natural resources developments and climate change, which will put traditional food systems (i.e., country foods) at risk, and might lead to further serious consequences for livelihoods and health. Food security, as defined by the Food and Agriculture Organization of the United Nations (FAO)[5] , exists when all people, at all times, have physical and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life. The four pillars of food security are: food availability, food access, utilization, and stability (FAO, 2016).

There are many considerations when discussing food insecurity, as food insecurity may be long term or temporary. It may be influenced by several factors including income, employment, race/ethnicity, and disability. A number of factors can affect food security including population growth, climate change, urbanization, industrialization, land use shifts, water scarcity, income growth, nutritional trends; and trends in global energy supply and food trade. The impact of food insecurity on health extends beyond diet and nutrition. In addition to income, housing tenure is an economic risk factor for food insecurity (Morrison, 2008). As relationship with the land is fundamental for the Shuswap, food security is an important driver of subsistence harvesting as country foods are fundamental to Indigenous cultures; disruptions to access to these resources impacts food security for the Shuswap Band.

As noted in Section 24.5.4, Sáwllkwa (water) is considered sacred by Shuswap Band and must be protected and treated with respect in order for the surrounding ecosystem to function (IAAC, 2022a). For Shuswap Band, water impacts the animals who drink it, plants which are nourished from it, and fish who live in it. Spiritual practices and ceremonies rely on the quality of the water and plant resources involved. Mountainous areas hold the highest quality of water and plant resources for this purpose. It is very important to Shuswap Band's spiritual well-being for these resources to be protected. Shuswap Band notes that changes to water may have impacts on stewardship responsibilities and the transmission of knowledge and practices related to water systems. For Shuswap Band, brushing off ceremony to take all

[5] Defined at the World Food Summit, 1996 (FAO, 2016).

negativity away requires clean water to bathe in afterwards and carelessness and disrespect to the water may impact the integrity and usability of plant resources (IAAC, 2022a). In Chapter 24, water quality and quantity assessment is included in the determination of the significance of effect on fish and fish habitat and physical and cultural heritage. Water access is addressed under ceremonial/sacred areas and access and travel routes.

For this Project, the potential for disproportionate effects to diverse or potentially vulnerable population groups or subgroups was explored from an economic and socio-community lens as noted in the *Human and Community Well-Being: Guidelines for Assessing Social, Economic, Cultural and Health Effects in Environmental Assessments in B.C.* (B.C. EAO, 2020b). The Gender Based Analysis Plus (GBA+) analysis to support this impact assessment was undertaken in 2022 and 2023 through two studies. As part of the first study undertaken in 2022, in addition to reviewing gender related issues in the Elk Valley for contextual information, a desktop review of gender related issues in the mining industry at a national, provincial, and local level was completed. The GBA+ study undertaken in 2023 considered socio-community barriers faced by Indigenous Communities, and Indigenous women, girls, and Two-Spirited[6] and Indigenous LGBTQIAA+[7] peoples in the context of mining both in Canada and the Elk Valley region (Chapter 18: Socio-Community Assessment, Section 18.4.4.6).

24.6.6.1 Fishing

24.6.6.1.1 Historic Use

Fishing for the Secwépemc was not only an essential source of food but also intrinsic to their culture. Fishing activities, particularly for Salmon and other anadromous fish species such as species of Sucker (Kuhnlein et al., 2016), have been the foundation of the Secwépemc's (and other First Nations peoples') economic, cultural, and social lifestyle (SNTC, 2016).

The Plateau region of south-central B.C. provided a variety of fish, including Largescale Suckers, Longnose Suckers, Grayling, Northern Pikeminnow, Peamouth, Mountain Whitefish, Spring Trout, Rainbow Trout, Dolly Varden Trout, Cutthroat Trout, Lake Trout, Kokanee, Lingcod, and Sturgeon. These species provided a constant staple in the Secwépemc's diet with some available seasonally and some year-round (SNTC, 2016).

The Secwépemc territory provided an abundance of Salmon to the historic Secwépemc. The primary species fished along the interior rivers were Chinook and Sockeye. Before contact, Chinook salmon was the most plentiful salmon resource to the Secwépemc, the population began to decline in the early twentieth century, at which time, Sockeye salmon became the more abundant. Coho and Pink salmon were also fished, though less desirable. (SNTC, 2016).

All of the Secwépemc bands had salmon streams in their territory, important fishing areas include the Fraser, Thompson, North Thompson, and South Thompson River, and major tributaries. The Columbia

[6] Two-Spirited is used by some Indigenous people to refer to having both a masculine and feminine spirit and can indicate sexual, gender, and/or spiritual identity.
[7] LGBTQQIA+ stands for: L- Lesbian, G-Gay, B-Bisexual, T-Trans, Trans-gendered or Trans identified, Q-Queer, Q- Questioning, I-Intersex, A-Asexual, and +-any identity not represented by the acronym. Note that there are different acronyms that can/may be used by different groups.

River system also supplied salmon bed sites (SNTC, 2016) and was crucial to Shuswap Band survival, spirituality, and overall way of life prior to the salmon extirpation. Athalmer salmon beds and Brisco were central to Shuswap Band ancestors and were a base of cross-cultural interactions and trade with other neighbouring groups, such as the Ktunaxa and the Stoney (SIB, 2021).

24.6.6.1.2 Current Use

The ability to fish in traditional locations continues to be tied to family identity. Contemporary land privatization has restricted access to many fishing sites, and the influx of non-Indigenous traffic and land use interrupts the integrity of these places. Today, fishing activities by community members occur on both the west and east sides of Crowsnest Pass. For trout in the small lakes on the southeast side of the mountains, as well as other species, such as Burbot and Cutthroat in the Elk River to the west. Fishing continues to be an important subsistence activity within Shuswap Band's caretaker area with Trout, Lingcod, Char, and Whitefish harvested in various waterways (IAAC, 2022a).

The Secwépemc Fisheries Commission is the First Nations fisheries body that works within the mandate of Shuswap Nation Tribal Council communities and Tribal Chiefs. As part of the SNTC's larger initiative to establish self-government, the SFC advocates for First Nations rights and title with respect to fisheries interests. Central to the SFC's mission is a commitment to protect existing fisheries resources and promote integrated, holistic approaches to ecosystem conservation and management (SNTC, 2020b). One of the Shuswap Band's advocacy roles includes the restoration of the salmon fishery and habitat within the Columbia River. This restoration is viewed as an important step to re-establish cultural, spiritual, communal, and economic losses (SIB, 2020c). The area around Invermere has numerous fishing sites but four stand out in importance. The lakes near Jubilee Mountain, the lakes near Steamboat Mountain, Whiteswan Lake, and the lakes to the west of Invermere are favourite places (SIB, 2008). The Elk River and the Old Man River within the ATRI RSA are also fishing areas that are utilized (SIB, 2021).

As identified in Section 24.5.4, to practice their fishing rights, the Shuswap Band require access to healthy streams and rivers within their Traditional Territory (IAAC, 2015b; 2020a). Changes to water may have impacts on Shuswap Band's stewardship responsibilities and the transmission of knowledge and practices related to water systems. Changes to surface and ground water quality and quantity, loss of or changes to fish habitat and specific access points used for fishing are part of the Shuswap Band's fishing rights and interests. Changes to the health and abundance of Westslope Cutthroat Trout, changes to the health of fish, riparian flora, and fauna, and increased fishing pressure by non-Indigenous users can result in impacts to the Shuswap Band's fishing rights. Due to the lack of Project-specific information available from the Shuswap Band at the time of the writing of this chapter, while the Shuswap Band have not currently identified watercourses within the Project footprint that are utilized, it is expected that the Shuswap Band utilize the ATRI LSA for fish and fishing opportunities (IAAC, 2015b; 2020a).

It is noted that the exercise of Shuswap Band's rights and interests related to fish and fishing opportunities in the ATRI LSA and RSA have likely been impacted by past and ongoing development activity (e.g., reduction in fish populations, reduced access to waterways, water quality concerns in the Elk Valley), and while it is unknown as to the extent to which fishing activities are undertaken in the ATRI LSA and RSA by the Shuswap Band at this time due to the lack of information available from the Shuswap Band, the potential future use of these areas for fishing opportunities without the Project is expected to be similar

to the existing conditions (i.e., past and ongoing development activities may impact potential future fishing activities in the ATRI LSA and RSA).

For the Shuswap Band's traditional fishing rights and interests, site-specific knowledge and use values that may include fishing sites/locations of fish species of interest, cultural values and teachings related to certain fish species, Shuswap knowledge on fish health, and perspectives on fish abundance from the Shuswap knowledge holders would support and guide the assessment of Project-related effects within the Project footprint, the ATRI LSA, and the ATRI RSA. For traditional fishing, seasonal access and usage information from the Shuswap knowledge holders on the fish species would support and guide the assessment of Project-related effects in terms of potential interactions during the Project lifecycle. At the time of the assessment, as this information was not available from the Shuswap Band, the lack of this specific information requires continued consultation with the Shuswap Band.

24.6.6.2 Hunting and Trapping

24.6.6.2.1 Historic Use

Hunting traditionally provided the Secwépemc with an essential source of protein and was essential to their way of life (Kuhnlein et al., 2016). The most abundant big game animals hunted in the Plateau by the Secwépemc were mule deer, elk, caribou, moose, mountain sheep, mountain goat, and bear. Elk populations declined after the nineteenth century, followed by caribou populations in the early twentieth century (SIB, 2008).

Historically, bison were an important source of protein for Shuswap Band. The 1895 Hunting Agreement demonstrated the prominence the animal had for sustenance and in cross-cultural relationships. The 1895 Memorandum of Agreement among the Stoney Nakoda Nation, Ktunaxa Nation, and the Shuswap Tribal Council affirmed Stoney Nakoda Nation access to hunting lands west to the Columbia and Kootenay Rivers in exchange for granting Ktunaxa Nation and Shuswap Band access to hunting lands east to the Rocky Mountains and the eastern slopes. This agreement resulted in significant movement of Shuswap Band ancestors through the Elk Valley in pursuit of bison and to trade local resources (SIB, 2021). While big game was always sought after, smaller animals and fowl provided Shuswap Band with additional rations of meat and were relied upon during times of shortage. These animals included gophers, squirrel, groundhogs, marmots, muskrats, rabbits, porcupine, grouses, and waterfowl (SIB. 2008).

Hunting occurred on travel routes throughout the territory based on seasonal availability/accessibility to game. The Findlay Creek area is the most significant area identified. Other significant areas include stretches of the Kootenay and White Rivers, Toby Creek, Jumbo Creek, and Horsethief Creek. The area now covered by Kootenay National Park was also an important hunting area (SIB, 2008).

Trapping and snaring have played an important role in the Secwépemc search for fur and food. Prior to the fur trade, fur-bearing animals were trapped for use in clothing, ceremonial regalia, drums, medicine pouches, and mats and blankets. In the early 1800's, animals were trapped for their furs and pelts to trade for European items (TRU, 2010). Small animals that were either snared or trapped included: marten, mink, fisher, beaver, marmot, rabbit, grouse, fox, coyote, and lynx (SIB, 2008).

24.6.6.2.2 Current Use

Hunting, an important traditional activity of sustenance, has now also become a recreational activity for members of the Shuswap Band. It remains an important social and inter-generational educational activity for community members. The Shuswap Reserve is home to ungulate populations that are an important food source for members (SIB, 2018b). Hunting areas are used and accessed in the Elk Valley. As part of Shuswap Band's approach to land management and stewardship, hunting areas are rotated to reduce stress on animal populations. As such, the Elk Valley is an area part of this resource management system. While the cumulative effects of the Elk Valley do impact Shuswap Band community members' ability to reliably hunt in the region, hunting does occur there today (SIB, 2021).

In the 1920s, government officials began mapping trapping lines. Traplines were assigned in the watersheds and mountains, in the hunting and gathering areas of the Secwépemc. In the 1960s, many traplines were lost and taken by settlers. Traplines are an important resource to the Shuswap Band representing security and the right to use one's lands for survival. Traplines are an important area where Band members can hunt, trap, and gather other resources. During early engagement activities for the Castle Project[8], animal species of importance harvested by Shuswap Band members were noted to include elk, deer, and fur bearing species (B.C. EAO, 2020b).

As identified in Section 24.5.4, to practice their hunting rights, the Shuswap Band require access to healthy ecosystems where traditionally hunted and trapped species occur within their Traditional Territory (IAAC, 2015b; 2020a). The Shuswap Band continue to value culturally significant animals such as sheep, grizzly bear, and mountain goats within their Traditional Territory and as part of their hunting rights the Shuswap Band have long relied on ungulates in their caretaker area for subsistence. Large game, such as deer, elk, moose, and caribou have always been a significant resource to Shuswap Band (IAAC, 2015b, 2022a). Due to the lack of Project-specific information available from the Shuswap Band at the time of the writing of this chapter, while the Shuswap Band has not currently identified hunting and trapping areas within the Project footprint that are utilized, it is expected that the Shuswap Band utilizes the ATRI LSA for traditional activities (IAAC, 2015b, 2022a).

It is noted that the exercise of Shuswap Band's rights and interests related to hunting and trapping in the ATRI LSA and RSA have likely been impacted by past and ongoing development activity (e.g., reduction in wildlife populations, reduced access to areas for traditional activities). As noted above, due to the lack of information available, it is unknown as to the extent to which hunting and trapping activities are undertaken in the ATRI LSA and RSA by the Shuswap Band at this time, the potential future use of these areas for hunting and trapping without the Project is expected to be similar to the existing conditions (i.e., past and ongoing development activities may impact potential future hunting and trapping activities in the ATRI LSA and RSA).

For the Shuswap Band's rights and interests in relation to traditional hunting and trapping, site-specific knowledge and use values that may include kill sites/traplines, noted locations of species of interest, further information on cultural values and teachings related to certain species, Shuswap knowledge on species health, and perspectives on species abundance would support and guide the assessment of

[8] The Castle Project was recently renamed the Fording River Extension Project

Project-related effects within the Project footprint, the ATRI LSA, and the ATRI RSA. For traditional hunting and trapping, seasonal access and usage information from Shuswap knowledge holders on the species of interest would support and guide the assessment of Project-related effects in terms of potential interactions during the Project lifecycle. At the time of the assessment, as this information was not available from the Shuswap Band, the lack of this specific information requires continued consultation with the Shuswap Band.

24.6.6.3 Harvesting and Gathering

24.6.6.3.1 Historic Use

Secwépemc oral history (stsptekwll) embodies how Secwépemc engagement with plants harkens back to the beginning of their existence in Secwépemcúĺecw (Ignace et al., 2016). Secwépemc territory has a rich diversity of landscapes, incorporating at least nine Biogeoclimatic Zones: Alpine Tundra, Sub-Boreal Pine – Spruce, Sub-Boreal Spruce, Engelmann Spruce - Subalpine Fir, Montane Spruce, Bunchgrass, Ponderosa Pine, Interior Douglas-fir, and Interior Cedar - Hemlock (Meidinger and Pojar, 1991; Parish et al., 1996). These ecosystems and the habitats they support are dynamic and have changed over time in response to forest growth, human impacts, and environmental disturbances. The environments of Secwépemcúĺecw provide a wealth of plant foods for the Secwépemc such as cow parsnip (*Heracleum maximum; syn. H. lanatum*), yellow glacier lily (*Erythronium grandiflorum*), spring beauty (*Claytonia lanceolata*), balsamroot (*Balsamorhiza sagittata*), saskatoon berry (*Amelanchier alnifolia*), various blueberries and huckleberries (*Vaccinium spp.*), wild raspberries (*Rubus idaeus*), hazelnuts (*Corylus cornuta*), inner bark of trees such as lodgepole pine and Ponderosa Pine (Turner et al., 2016).

24.6.6.3.2 Current Use

Many medicines, foods and materials that are provided by their Traditional Territory are still important to the members of the Shuswap Band. Agricultural land use is currently identified in three areas on the Shuswap Band's Reserve, and these lands are used for light grazing and keeping horses (SIB, 2018b). During the community's 2018 Land Use Plan engagement activities, it was identified that the community would like to promote the development of community gardens and the agricultural production/cultivation of food and medicines on the community's lands in an environmentally conscious manner (SIB, 2018b).

Sacred medicinal plants are obtained from mountainous areas; the Crowsnest Pass area is used for medicinal plant collection and harvesting. Spiritual activities and cleanses are done and specific medicinal plants would aid the experience. Women traditionally cleanse using rosewood, whereas men use cedar. Berries are among the most significant plant foods for Shuswap Band, including the following within the Band's caretaker area: sxúsem (soapberries), speqpeq7úẇl (Saskatoons), huckleberries, sessép (blueberries), s7éytsqwem (raspberries), tekwlóse7 (choke cherries), and tqítq̓e (strawberries). Given the range of elevations available to berry collectors, harvesting is done at different times for differing elevations (IAAC, 2022). Current use (also traditionally relevant) plants in the region also include: mullein, cranberries, juniper, fireweed, spruce, yarrow, thimbleberry, and Antennaria (SIB, 2021).

During early engagement activities for the Castle Project9, Labrador tea, glacier lilies (wild sweet potato), Devil's club, willow, and Canby lovage were indicated as species harvested by the Shuswap Band (B.C. EAO, 2020b).

As identified in Section 24.5.4, to practice their rights to gather food and medicinal plants, the Shuswap Band require access to healthy ecosystems and culturally significant plant species within their Traditional Territory (IAAC, 2015b; 2020a). Due to the lack of Project-specific information p available from the Shuswap Band at the time of the writing of this chapter, while the Shuswap Band has not currently identified harvesting and gathering sites within the Project footprint that are utilized, it is expected that the Shuswap Band utilizes the ATRI LSA for traditional activities (IAAC, 2015b, 2022a).

It is also noted that the exercise of Shuswap Band's rights and interests related to harvesting and gathering sites in the ATRI LSA and RSA have likely been impacted by past and ongoing development activity (e.g., reduced access to areas for traditional activities) and the potential future use of these areas for harvesting and gathering opportunities without the Project is expected to be similar to existing conditions (i.e., past and ongoing development activities may impact potential future harvesting and gathering activities in the ATRI LSA and RSA).

For the Shuswap Band's rights and interests in relation to traditional harvesting and gathering, site-specific knowledge and use values that may include further information on culturally significant plant species, their sites/locations, cultural values and teachings related to certain plant species, Shuswap knowledge on plant species health, and perspectives on the seasonality of access and usage from the Shuswap knowledge holders would support and guide the assessment of Project-related effects within the Project footprint, the ATRI LSA, and the ATRI RSA in terms of potential interactions during the Project lifecycle. At the time of the assessment, as this information was not available from the Shuswap Band, the lack of this specific information requires continued consultation with the Shuswap Band.

24.6.6.4 Ceremonial/Sacred Areas

24.6.6.4.1 Historic Use

Secwépemctsín language is tied to many places in the region, demonstrating Shuswap Band's close connection between culture and the land (IAAC, 2022). As discussed above, the Shuswap Band's ancestral connection to Secwépemcúĺecw, their traditional lands, included annual seasonal migrations following the accessibility and availability of floral and faunal resources (SIB, 2018b). Many ceremonial practices and sacred areas were around habitats and the seasonal trends of fish, game mammals, and plants; these were strongly linked to the traditional hunting, fishing, and gathering areas of each community (Peacock et al., 2016). These public ceremonies initiated and, in some ways, governed the communal use of these resources and helped to foster deeper connections and stewardship (Peacock et al., 2016). Site specific locations for ceremonial and sacred use places are not shared; mountainous areas and those near water are typically associated. Both of these landscape features occur near the proposed Project.

[9] The Castle Project was recently renamed the Fording River Extension Project

24.6.6.4.2 Current Use

It is acknowledged that the intimate ceremonial practices and sacred areas of the Shuswap Band are held closely to its members and may not be fully described or divulged in detail in publicly available information sources. It is also acknowledged that the ceremonial practices of the Shuswap Band are tied to the environmental and ecological attributes of their lands, as they were with their ancestors. Spirituality encompasses aspects of belief systems, art and ceremony. Secwépemc people believe that all things, inanimate or animate, have a spirit or soul. Songs and dances are used to by people to connect with the spirit world and to guide their everyday lives, including daily activities such as berry picking or hunting. Sacred ceremonies such as vision quests typically occur in high alpine regions (IAAC, 2022a).

Based on the community's 2018 Land Use Plan, areas of Environmental and Cultural Significance within the community's Reserve lands are associated with the lands adjacent to the Columbia River and Shuswap Creek. These types of sites are not limited to those listed in the Land Use Plan which only focuses on areas near the Reserve. The community's use of their ceremonial and sacred areas across Secwépemcúl'ecw are tied to those areas used by their ancestors for sustenance (both spiritual/cultural and resource-based sustenance). Site specific locations for ceremonial and sacred use places are not shared; mountainous areas and those near water are typically associated. Both of these landscape features occur within the ATRI LSA. Interests in continued access to areas of key cultural and spiritual significance including trails, travel corridors, waterways, mountains, and burial sites is important. The Crowsnest Pass area is a named and storied place and access is essential for the protection of the community's interests and way of life (IAAC, 2022a).

As identified in Section 24.5.4, to practice their rights, the Shuswap Band require access to areas of cultural and spiritual importance within their Traditional Territory (IAAC, 2015b; 2020a). Due to the lack of Project-specific information available from the Shuswap Band at the time of the writing of this chapter, while the Shuswap Bandhas not currently identified ceremonial sites and sacred areas within the Project footprint that are utilized, as noted earlier it is expected that the Shuswap Band utilizes the ATRI LSA for undertaking traditional and ceremonial activities (IAAC, 2015b, 2022a).

It is noted that the exercise of Shuswap Band's rights and interests related to ceremonial practices and sacred areas in the ATRI LSA and RSA have likely been impacted by past and ongoing development activity (e.g., reduced access to cultural sites) and the potential future use of these areas without the Project is expected to be similar to existing conditions (i.e., past and ongoing development activities may impact potential future activities in the ATRI LSA and RSA).

For the Shuswap Band's rights and interests in relation to traditional ceremonial/sacred areas, site-specific knowledge and use values that may include further information on culturally significant areas, their sites/locations (e.g., locations for sources used for ceremonial bundles), cultural values and teachings related to certain ceremonial/sacred areas, Shuswap oral histories related to areas used for ceremonial/sacred purposes, and perspectives on the seasonality of access and usage from Shuswap knowledge holders would support and guide the assessment of Project-related effects within the Project footprint, the ATRI LSA, and the ATRI RSA in terms of potential interactions during the Project lifecycle. At the time of the assessment, as this information was not available from the Shuswap Band, the lack of this specific information requires continued consultation with the Shuswap Band.

24.6.6.5 Access and Travel Routes

24.6.6.5.1 Historic Use

The Shuswap Band and other Secwépemc lived harmoniously with the seasons and resources throughout their territory. In the past, families traveled around their territories in a patterned seasonal round, stopping and camping, sometimes for weeks at a time at places like Neskonlith Meadows or Blackdome Mountain to harvest and preserve the meat, roots, berries, and other resources they needed for year-round living (Turner et al., 2016).

Along with the intricate system of travel corresponding with the seasons, the Shuswap and other Secwépemc developed an important social and political system that governed their interactions with each other and the use of their traditional lands (SIB, 2018b). As noted in Section 24.6.2 above, oral history and archival documentation attest to Shuswap Band's ancestral use of the Rocky Mountains and the Crowsnest Pass route, for access to subsistence harvesting areas and cross-cultural events or trading with neighbours to the east (SIB, 2020b). Crowsnest Pass is a named and storied place as the Shuswap Band's oral history recalls resource harvesting within Crowsnest Pass, and the presence of significant pictographs (IAAC, 2022a).

24.6.6.5.2 Current Use

Secwépemc traditional way of life is governed by the seasonal round, and necessitated movement throughout the vast Secwépemcúl'ecw. Certain subsistence activities and physical movements through the territory are done at specific times of the year. This practice ensures resources are procured at a time that would be best received by the land, incorporating the management and care of areas considered sensitive or of lower production. Non-subsistence activities, including storytelling, camping, travel and settlement, are also intertwined with the seasonal round (IAAC, 2022a).

As noted above, the Shuswap Band have a long-standing movement through the Rocky Mountains for sharing and travel as referenced in the 1895 hunting agreement. Resource sharing and trade continues today between Shuswap Band and the Piikani and Stoney. Shuswap Band continues to trade beadwork, Soopolallie, furs, medicines, and tubers with friends and family at the Stoney and Piikani communities and at Pow Wow events (IAAC, 2022). Various mountain trails have been used to access resources east of the Rocky Mountains. Shuswap Band's continual travel through the surrounding region follow the highway through the Pass in addition to mountain ranges and waterways for access to specific land-use areas. Contemporary community members travel to and through the Elk Valley to practice traditional cultural activities; to access lands and for recreation. The Crowsnest Pass route is an important travel corridor used by Shuswap Band ancestors and contemporary community members (IAAC, 2022).

The Shuswap Band takes part in present day traditional practices and stewardship of the lands Secwépemcúĺecw, their Caretaker Area and Columbia Campfire Region (SIB, 2020a); whereby accessing these areas through modern-day roads and access points in combination with using their traditional knowledge and wisdom of their territory. As noted in Section 24.6.5 above, as Shuswap Band move through their caretaker area, land users camp as needed when accessing resources or other land-use sites. Continued access to, and use of, Shuswap Band's trails is necessary for the protection of the community's Indigenous Interests and way of life (SIB, 2020b).

As identified in Section 24.5.4, to practice their rights, the Shuswap Band require access to areas within their Traditional Territory (IAAC, 2015b; 2020a). Due to the lack of Project-specific information available from the Shuswap Band at the time of the writing of this chapter, for this assessment it is assumed that while Shuswap Band has not currently identified access and travel routes within the Project footprint, as noted earlier it is expected that the Shuswap Band utilizes the ATRI LSA for undertaking traveling throughout the region (IAAC, 2015b, 2022a).

It is noted that the exercise of Shuswap Band's rights and interests related to access and travel in the ATRI LSA and RSA have likely been impacted by past and ongoing development activity (e.g., the few relatively undisturbed east-west corridors that provide "gaps" in the Elk Valley mining region for the movement of land users), and the potential future use of these areas without the Project is expected to be similar to existing conditions (i.e., past and ongoing development activities may impact access and travel through the ATRI LSA and RSA).

For the Shuswap Band's rights and interests in relation to traditional access and travel routes, site-specific knowledge and use values that may include further information on culturally significant access routes, their specific sites/locations, cultural values and teachings related to certain access and travel routes, Shuswap oral histories related to areas used for access and travel routes, and perspectives on the seasonality of access and usage from Shuswap knowledge holders would support and guide the assessment of Project-related effects within the Project footprint, the ATRI LSA, and the ATRI RSA in terms of potential interactions during the Project lifecycle. At the time of the assessment, as this information was not available from the Shuswap Band, the lack of this specific information requires continued consultation with the Shuswap Band.

24.6.6.6 Physical and Cultural Heritage

24.6.6.6.1 Historic Use

Archaeology of the plateau region is characterized as having three major periods: Early, Middle and Late periods, as described below in Table 24.6-3 (Wollstonecroft and Baptiste, 2016).

Table 24.6-3: Archaeological sequence for the Mid-Fraser-Thompson River Drainage Area

Years Before Present	Archaeological Period	Archaeological Units	Climate Period	Paleoclimate
1200 - 200	LATE	Kamloops Horizon	Post-hypsithermal	modern climate
~2400 - 1200		Plateau Horizon		
~3500 - 2400		Shuswap Horizon		
~5000 – 3800~		Lochnore Phase		
~6000 – 4500~	MIDDLE	Lehman Phase		cooling trend and increase in moisture; warmer than today
~7200 – 5500~		Early Nesikep	Hypsithermal	
~11,000 - 7200	EARLY	Mixed early cultural traditions		hot and dry; warmer and dryer than today
				cold and moist

Source: Wollstonecroft and Baptiste, 2016

Little is known about the peoples of the Early and Middle time periods; archaeological records suggest that these people followed a highly mobile life focussed on opportunistic hunting and gathering from primarily upland resources (Wollstonecroft and Baptiste, 2016). A shift to semi-sedentary pit-house settlement systems and radiating mobility strategies (based on abundance and accessibility of a variety of resources) occurred during the final Middle period and early Late Period (i.e., much like the traditional livelihoods of the Secwépemc).

As stated in the Shuswap Land Use Plan (2018), in the winter, Shuswap Band entered their "winter homes" in November and would remain in that location throughout the season. Semi-underground pit-houses (kekulis) are traditional habitation sites that are evidence of the traditional way-of-life and cultural connection to the land (SIB, 2018b). The pit-house was vital for survival in the harshest season, when water froze, and ground covered in snow, making traveling difficult. These permanent homes/villages can be found by archaeological evidence throughout the Columbia Valley and the region. Anthropological and archaeological discoveries, particularly the evidence of "kekulis", connect the early Shuswap culture and way of life to the Upper Columbia Valley (SIB, 2018b). Shuswap Band's oral history recalls resource harvesting within the Crowsnest Pass, as well as the presence of significant pictographs connected to the Band's ancestors (SIB, 2020b).

24.6.6.6.2 Current Use

Archaeological records in the Shuswap Band's Traditional Territory are incomplete. The resources are considered to be impacted by natural sedimentary processes and more recent development in areas that would have been heavily used by pre-contact cultures, particularly along old travel corridors, trails, and campsite locations (SIB, 2018d). Archaeological excavations in the Columbia Trench and the Rocky Mountains have occurred sporadically mostly focussed on assessing development impacts. Previously conducted impact assessment of heritage resources spanning much of the Columbia River valley between Golden and Canal Flats have resulted in the recording of over 200 sites. None of these sites were investigated in detail but the study indicated that there were significant archaeological resources in the area (SIB, 2018d). Kekulis and other archaeological sites of interest to Shuswap Band are also present in the eastern portion of Shuswap Band's Caretaker Area, including the Elk Valley (SIB, 2021).

C7istken' (pit house) sites in the east Kootenays, Waterton Lake Park and Banff National Park, are unregistered and registered archaeological sites recalled through oral history. Archaeological quarries have been identified within Shuswap Band's caretaker area. Secwépemc interests in aggregates throughout Secwépemcúĺecw continue to be of importance to the current traditional economy. There is archaeological potential near the confluence of the Kootenay and Elk rivers, with additional patches of archaeological potential in the surrounding mountains (IAAC, 2022a).

Based on the community's 2018 Land Use Plan, it was identified that there is a need to develop a cultural center and museum within the community. Crowsnest Pass further connects Shuswap Band to land use sites including those used for medicinal plant collection and fishing, as well as a named and storied place (SIB, 2020b). It is acknowledged that Shuswap Band considers the restoration and protection of physical and cultural heritage sites to be a high priority. The physical and cultural heritage of the Shuswap Band is immensely important. As stewards of the area, Shuswap Band requires cultural monitors from its community to be involved in all developments in its Caretaker Area, which includes the Elk Valley (SIB, 2021). Based on information provided by Shuswap Band via feedback received on the draft effects

assessment chapter (Appendix 24-A, Table 24.A-2) and on-going consultation and engagement activities (Appendix 24-A, Table 24.A-1), Grave Prairie has been identified as a significant historic area. Shuswap Band ancestors are tied to a significant event in this area, and it is likely there are unidentified physical and cultural remains throughout the area. Grave Prairie is located within the Project footprint and the area is currently known as the "Grave Prairie Cultural Landscape" and contains two "zones"; a "Culturally Significant Area" where no new activities or infrastructure will be accepted and a "Culturally Sensitive Area" which requires rigorous in-depth assessments (Appendix 24-A, Table 24.A-2).

As identified in Section 24.5.4, to practice their rights, the Shuswap Band require access to areas of cultural and spiritual importance within their Traditional Territory (IAAC, 2015b; 2020a). Due to the lack of Project-specific information available from the Shuswap Band at the time of the writing of this chapter, while the Shuswap Band has not currently identified physical and cultural heritage sites within the Project footprint other than the Grave Prairie Cultural Landscape, it is expected that a structure, site, or thing that is of historical, archaeological, paleontological, or architectural significance to the Shuswap Band could be within the ATRI LSA (IAAC, 2015b, 2022a).

It is noted that the exercise of Shuswap Band's rights and interests related to physical and cultural heritage in the ATRI LSA and RSA have likely been impacted by past and ongoing development activity (e.g., the few relatively undisturbed east-west corridors that provide "gaps" in the Elk Valley mining region for the movement of land users), and the potential future use of these areas without the Project is expected to be similar to existing conditions (i.e., past and ongoing development activities may impact access and travel through the ATRI LSA and RSA).

For the Shuswap Band's physical and cultural heritage resources, site-specific knowledge and use values that may include further information on culturally significant areas, their specific sites/locations, cultural values and teachings related to certain Shuswap physical and cultural heritage resources, Shuswap oral histories related to physical and cultural heritage resources, and perspectives on the seasonality of access and usage from Shuswap knowledge holders would support and guide the assessment of Project-related effects within the Project footprint, the ATRI LSA, and the ATRI RSA in terms of potential interactions during the Project lifecycle. At the time of the assessment, as this information was not available from the Shuswap Band, the lack of this specific information requires continued consultation with the Shuswap Band.

24.6.6.7 Social and Health Conditions

The Shuswap view their rights and related interests as including the protection of the use and enjoyment of the Shuswap Band's Traditional Territory for present and future generations, including the cultural, environmental, social, and economic benefits of that Territory, and the protection, continuation, and preservation of the cultural, social, economic, and environmental connection of the Shuswap to their lands and resources. As such, for the Application/EIS, the social and health conditions are regarded as the Shuswap Band's interests within their Traditional Territory based on publicly available information (IAAC, 2015b; 2020a).

24.6.6.7.1 Housing, Transportation, and Social Services

According to the 2016 Canadian Census, the approximately 319 members of the population are housed in single or multi-family households, in a total of 141 private households. Housing is sparsely distributed

within the reserve lands and made up of serviced mixed single detached homes on rural subdivision lots or smaller lots associated with mini homes. In 2014, the community's Land Use Plan reported that over 50% of the population resided off-reserve; with 121 members being reported to live on-reserve and 146 members live off-reserve (SIB, 2018b).

The Shuswap Band has enacted a social housing policy, which was approved by the Council in 2018. The social housing policy aims to provide quality, affordable housing to band members (SIB, 2018c). According to the Band website, the community is in the process of planning and building new housing units.

The Ktunaxa Kinbasket Child & Family Services (KKCFSS) is a non-profit Delegated Aboriginal Agency governed by the Shuswap Band Council Social Sector Board. KKCFSS is available to Ktunaxa citizens, First Nations, Métis, and Inuit living on and off-reserve in the Ktunaxa Traditional Territory. The KKCFSS program was established in 1992 after all five Bands of the Ktunaxa Kinbasket Tribal Council decided to conduct pre-planning work on the transfer of family support and child protection services mandate from the B.C. government, at the time under the Ministry of Social Services. In December 1996, the Ktunaxa Kinbasket Child and Family Services Society was established with the support of the five communities based out of Cranbrook, B.C. In 2007, the ʔakisq̓nuk (Windermere) office began delivery of delegated Child Protection Services which provides services to both ʔakisq̓nuk First Nation and Shuswap Band.

The KKCFSS supports all Aboriginal children and family living in the Ktunaxa Traditional Territory in a culturally relevant manner. KKCFSS believes in a holistic approach to providing services with fundamental beliefs that focus on supporting healthy communities and programs that provide children and families with culturally relevant services that emphasize community involvement. KKCFSS's integrated, multi-disciplinary teams deliver holistic services through key programs areas including Intake and Child Protection, Guardianship and Family Delegated Services, Kinship and Residential Care, Aboriginal Family Support Services, Prevention, Early Intervention, and Therapies Programs, Child and Youth Mental Health Wellness and Family Counselors, the Early Years Program, Reconnection and Cultural Support, Justice Support Services, Aboriginal Youth Services, and Admin Support Services and Maintenance. Involvement of family, culture, and community are encouraged through all programs. The KKCFSS receives funding from both the Ministry of Children and Family Development and Indigenous Services Canada's First Nations Child and Family Services program (KKCFSS, 2021).

The community is accessed by the Kootenay Highway (Nos. 93/95), which bisects the reserve lands. The other main thoroughfares within the Reserve include Eagle Ranch Trail and Wilmer Pontoon Road. Various off-road trails are also dispersed amongst the landscape.

24.6.6.7.2 Health Services

The B.C. First Nations Health Governing Structures consists of four bodies:

1. Tripartite Committee on First Nations Health: "the forum for coordinating and aligning programming and planning efforts between the FNHA, B.C. Regional and Provincial Health Authorities, the B.C. Ministry of Health, and Health Canada partners". Responsible for delivering the Tripartite First Nations Health Plan (First Nations Leadership Council (FNLC), 2007).
2. First Nations Health Council (FNHC): A provincial-level advocacy group representing and accountable for First Nations health within B.C. (FNHC, 2011).

3. First Nations Health Authority (FNHA): single provincial First Nations Health Authority in the province, working to reform the way health care is delivered to First Nations in B.C. (FNHA, 2020a).
4. First Nations Health Directors Association (FNHDA): A professional umbrella association in support of health directors delivering First Nation community health care across B.C. (FNHDA, 2020a).

As of October 2015, Shuswap Band has a new Health Centre located in the back of the Shuswap Band Office offering confidential services from three different office spaces to the Shuswap Band Members. The Health Programs provide ongoing basis services related to Nursing Assessment, Care Management, and Nursing Care, Home Support Services, a fully functional Primary Care Clinic, annual Seabird Diabetes team onsite, flu clinics as well as tetanus shots, facilitation for substance use treatment, medical transportation, sexual health testing, mobile mammography, Community Support, and Child's Health – Dental Outreach. Other services include referral services to other health professionals and facilitation for medical benefits under the Non-Insured Health Benefits program (SIB, n.d.).

At the time of the submission of this Application/EIS, based on desktop review of publicly available information, NWP was unable to determine health indicators specific to the Shuswap Band due to the lack of Project-specific information available from the Shuswap Band. The Human Health and Ecological Risk Assessment (HHERA; Chapter 22: Human and Ecological Health Assessment) utilizes localized receptors for both Indigenous and non-Indigenous persons to address identified health indicators used to simulate the potential exposure of human and wildlife to contaminants of potential concern over the life of the mine and beyond, and in the case of cancer risks, over the lifetime of an individual.

As noted in Section 24.5.4, the Shuswap Band have the right to access their traditional lands used to carry out activities (e.g., fishing, hunting and trapping, harvesting and gathering for country foods) and the potential impact on the long-term or permanent displacement of access to lands may impact the ability to carry out traditional use activities. The Shuswap Band's interests in relation to social and health conditions may potentially be impacted as a result of Project-related effects that may result in the reduction of access to healthy country foods and the potential risk for contamination to areas where country food resources are utilized by the Shuswap within the Project footprint and the ATRI LSA.

It is noted that the exercise of the Shuswap Band's interests related to access to country foods in the ATRI LSA and the ATRI RSA has likely been impacted by past and ongoing development activity (e.g., reduced access to cultural sites and the few relatively undisturbed east-west corridors that provide "gaps" in the Elk Valley mining region for the movement of land users), and the potential future use of these areas without the Project is expected to be similar to existing conditions (i.e., past and ongoing development activities that may impact access and travel through the ATRI LSA and RSA).

For Shuswap Band's social and health conditions, site-specific knowledge and use values associated with subsistence sites, water and land transportation, and related environmental features in relation to country foods, including seasonal access and usage from Shuswap knowledge holders would support and guide the assessment of Project-related effects within the Project footprint, the ATRI LSA, and the ATRI RSA in terms of potential interactions during the Project lifecycle. At the time of the assessment, as this information was not available from the Shuswap Band, the lack of this specific information requires continued consultation with the Shuswap Band.

24.6.6.7.3 Education and Training

With the Shuswap Reserve bordering the Town of Invermere, children and youth of the Shuswap Band primarily attend schools in Invermere (Rocky Mountain School District #6 (RMSD6), 2020):

- K to Grade 3 - Eileen Madson School;
- Grades 4 to 6 - LA Laird School;
- Grades 8 to 12 - David Thompson Secondary School; and
- Grades 10 to 12 - Open Doors - Senior Alternate School.

Rocky Mountain School District #6 is located on the Traditional Territory of both the Shuswap and the Ktunaxa people. The school district has more than 500 students who identify as having aboriginal ancestry. The school district has an aboriginal support services program and 12 Aboriginal Education Support Workers (AESWs). The AESWs work with their Principals to develop a Service Delivery Plan each year which connects to the School and District Plans for Student Success, and the Aboriginal Enhancement Agreement. The Service Delivery Plan outlines how resources will target identified areas of need in that school among the Aboriginal student population (RMSD6, 2020). The Shuswap Band is located in the Windermere Zone of the District. An Aboriginal Education Enhancement Agreement is in place for the District to help level the academic playing field for Aboriginal students and to monitor their success by grades, subjects, attendance, and other key indicators (RMSD6, 2019). Programs that are offered for the support of Aboriginal students include: Youth/Elder learning, support for teachers, support for all aspects of schoolwork/homework, education and support for families, and Ready, Set, Learn Programs among many others (RMSD6, 2019).

Post-secondary education is available in larger towns and cities such as Kamloops, where the Thompson Rivers University is located among other colleges and diploma programs, Golden, and Canmore, Alberta among others. Daycare services were identified as a need within the community according to the Shuswap Band's 2018 Land Use Plan.

24.6.6.7.4 Employment

Aboriginal Skills Employment & Training Strategy (ASETS) receives funds from Human Resources & Skills Development Canada (HRSDC) to provide training and employment opportunities to Aboriginal people within the Central Interior of British Columbia. The objectives of ASETS are to:

- Increase Aboriginal participation in the Canadian Labour Market.
- Strengthen and facilitate flexible programming that meets the unique and varied needs of Aboriginal people and employers.
- Provide employers with skilled workers.

According to the 2016 Canadian Census, the Shuswap Band has a total of 265 members of the population that are 15 years and over by Labour force status. Of the 265 members, 205 are included in the labour force, with 190 employed and 15 unemployed, representing a 79.2% participation rate and a 71.7% employment rate (Statistics Canada, 2016). The average total income of households in 2015 was $61,204. The median total income of households in 2015 was $52,352. Table 24.6-4 provides a summary of employment by industry category.

Table 24.6-4: Employment by Industry Category

Industry Category	Total Members Employed
Agriculture, forestry, fishing, and hunting	10
Utilities	10
Construction	20
Manufacturing	10
Retail trade	20
Real estate and rental and leasing	10
Administrative and support, waste management and remediation services	10
Educational services	10
Health care and social assistance	25
Arts, entertainment, and recreation	10
Accommodation and food services	50
Other services (except public administration)	10
Public administration	15

Source: Statistics Canada, 2016

24.6.6.7.5 Gender Related Baseline Information

The GBA+ study carried out in 2023 was focused on socio-community barriers affecting Indigenous employment in mining (overlapping with Chapter 17: Economic Conditions Assessment), as well as the safety and security of Indigenous women, girls and Two-Spirited and Indigenous LGBTQQIA+ people in relation to mining. These sub-groups were identified based on:

1. The potential for Indigenous Peoples to benefit from employment in mining but with an awareness of socio-community barriers that can prevent them from reaching that potential; and
2. Safety and security issues associated with mining which Indigenous women, girls, and Two-Spirited and Indigenous LGBTQQIA+ people in the Elk Valley region as well as other mining areas across Canada may experience.

Both a desktop review of existing literature and primary data collection was undertaken as part of the 2023 GBA+ study. Indigenous Peoples comprise a critical potential current and future workforce for the mining industry based on living in relative proximity to many mine sites in Canada, as well as having a relatively young demographic compared to the rest of the Canadian population. In addition, economic opportunities in mining may help to provide a pathway out of colonial-induced poverty and deprivation for Indigenous groups. There remain important barriers and opportunities to understand in relation to the aforementioned issues. These issues were explored first through a desktop review of the broader literature concerning opportunities and barriers to economic participation of Indigenous Peoples in mining in Canada and also focused on safety and security issues for Indigenous women, girls, and 2SLGBTQQIA+ [10] people as well as socio-demographic and incident-based crime statistics. Existing literature on these topics was found to be fairly limited. This phase also included interviews at the local

[10] 2SLGBTQQIA+ stands for: 2S-Two-Spirited, L- Lesbian, G-Gay, B-Bisexual, T-Trans, Trans-gendered or Trans identified, Q-Queer, Q-Questioning, I-Intersex, A-Asexual, and +-any identity not represented by the acronym. Note that there are different acronyms that can/may be used by different groups.

scale with Indigenous Nations and Communities, as well as mining councils to better understand barriers and opportunities to economic participation in mining that may be specific to the Elk Valley Region and also comprised of interviews with representatives of potentially impacted Indigenous Nations and community members concerning socio-community barriers to economic development and employment and safety issues in mining.

The GBA+ analysis also included a review of statistical information to identify potential safety and security issues for Indigenous women, girls and 2SLGBTQQIA+ people who may be living in Sparwood, Elkford, or Fernie. Based on the socio-demographic and crime statistics for the Elk Valley (Chapter 18, Section 18.4.4.6.3), both Elkford and Sparwood had higher than provincial rates of those identifying as Indigenous and Women+ in 202 while Fernie's population identifying as Indigenous and Women+ was lower than the provincial rate. In general, the Elk Valley region has a lower level of crime than the provincial average with the exception of Fernie which has a higher rate of harassing communications. While these statistics indicate that the Elk Valley is a relatively safe region, they do not indicate whether crimes were committed against Indigenous women, girls, and Two-Spirited and Indigenous LGBTQQIA+ people. It is to be noted that data may also be unavailable as some crimes are never reported to the police especially relevant to where Indigenous Peoples and Indigenous women are extremely distrustful of police in Canada based on the forced removal of Indigenous children into the residential school system and apprehensions during the Sixties Scoop, experiences of violence and mistreatment by the police, and racism pervading law enforcement (McKay, 2021).

As previously noted, the GBA+ study undertaken in 2023 considered socio-community barriers faced by Indigenous Communities, and Indigenous women, girls, and Two-Spirited and Indigenous LGBTQIAA+ peoples in the context of mining both in Canada and the Elk Valley region (Chapter 18, Section 18.4.4.7). The GBA+ interviews revealed a variety of socio-community related barriers and concerns related to the mining industry in Canada and the Elk Valley region. While there will not be temporary work camps for the Project, and the workforce will be primarily drawn locally, hyper-masculine and sexist cultures can still pervade mining regions (NWAC 2020), including urban areas where off-reserve Indigenous women, girls, and 2SLGBTQQIA+ people may reside for this Project. The themes have been classified as housing barriers, childcare, cost of living, the safety of Indigenous women, girls, and Two-Spirited and Indigenous LGBTQIAA+ people, health barriers, and other social and cultural barriers. The focus of the interviews was to understand Indigenous perspectives and knowledges with respect to socio-community barriers in the mining industry. In addition, while the above themes have been separated and parsed out in order to generate understanding and meaning, there is also some overlap across these themes and those presented in Chapter 17. It is to be noted that positive responses received, and interviews conducted with leaders, female, youth, and Elders as members of the Shuswap Band may have included perspectives of the interviewees that may not be representative of the Shuswap Band. Interviewees highlighted barriers[11] associated with socio-community conditions specific to mining in the Elk Valley region, or to mining in general and the highlights of themes and findings are further outlined in Chapter 18.

24.6.6.8 Economic Conditions

The Shuswap view their rights and related interests as including the protection of the use and enjoyment of the Shuswap Band's Traditional Territory for present and future generations, including the cultural,

[11] Note that not all of these barriers are not necessarily specific to Indigenous People, but may apply to non-Indigenous peoples as well.

environmental, social, and economic benefits of that Territory, and the protection, continuation, and preservation of the cultural, social, economic, and environmental connection of the Shuswap to their lands and resources. As such, for the Application/EIS, the economic conditions are regarded as the Shuswap Band's interests within their Traditional Territory based on publicly available information.

The Shuswap Band's Reserve land is located in the Columbia Valley tourist corridor, also known as "the Calgary Playground", where nearby resorts, golf courses and national parks, like Radium Hot Springs, Fairmont Hot Springs, Panorama Ski Resort, and Lake Windermere, attract thousands of people from Calgary, the rest of Alberta, and British Columbia.

To help attract investment and provide developers and businesses with certainty, Shuswap Band entered into Aboriginal Affairs and Northern Development Canada's (AANDC) (now Indigenous Services Canada (ISC)) land designation process giving them the ability to develop and manage their own lands.

Since 2019, the Shuswap Band and the District of Invermere have participated in the First Nation – Municipal Community Economic Development Initiative (CEDI), a national program delivered jointly by Cando (the Council for the Advancement of Native Development Officers) and the Federation of Canadian Municipalities (FCM). Together, the two communities are working to build and strengthen their inter-community relationships, and to build capacity for joint community economic planning and development.

Since July 2012, the Shuswap Band and the Ministry of Forests, Lands, Natural Resource Operations and Rural Development have been undertaking a Forest Tenure Opportunity Agreement (signed in March 2013), the purpose and objectives of this Agreement are to:

- Provide an opportunity for Shuswap Band to identify and pursue socio-economic objectives in its community and, in connection with those objectives, to assist Shuswap Band in achieving progress towards closing socio-economic gaps between members of the Shuswap Band and non-Aboriginal people in British Columbia.
- Promote and increase Shuswap Band's participation in the forest sector by offering forest tenure opportunities.
- Provide an accommodation in respect of potential impacts of forestry decisions and operations within the Traditional Territory on Shuswap Band's Aboriginal Interests.

In the 1990s, the Shuswap Band developed an economic development program focussed on commercial, residential, and land development (British Columbia Indigenous Business and Investment Council (BCIBIC), 2020). It was identified that the Shuswap Band is located within the heart of the Columbia Valley tourist corridor, where there are nearby resorts and attractions in B.C. and Alberta. From the economic development program, the Shuswap Band entered into the Land Designation Program through AANDC (now ISC), where they obtained the approval for designation of 500 acres of reserve lands for development. This allowed them to form the Kinbasket Development Corporation (KDC) (BCIBIC, 2020).

The Shuswap Band, through the KDC, generates revenue within the community through the Eagle Ranch Golf Resort, where golf excursions, rentals, and resort facilities are offered. The community also has a modest commercial Park (Timber Rock Commercial Park) that hosts local commercial businesses. Another source of revenue for the community is via the regional wastewater treatment facility located on Capilo

Way. This facility treats wastewater for the surrounding areas and generates revenue through these neighbouring service agreements (SIB, 2014a).

The Shuswap Band also has a financial assistance policy that aims to provide support to band members, to help create a vibrant community. The eligible band members can apply to the financial assistance program administered through the policy (SIB, 2017).

As noted in Section 24.5.4, the Shuswap Band have the right to access their traditional lands used to carry out activities (e.g., fishing, hunting and trapping, harvesting and gathering for country foods) and the potential impact on the long-term or permanent displacement of access to lands may impact the ability to carry out traditional use activities. The Shuswap Band's interests in relation to economic conditions may potentially be impacted as a result of Project-related effects to the reduction of access to country foods and increased food security concerns, and the reduction or elimination of potential commercial activities (e.g., tourism, activities related to cultural knowledge transfer and transmission, commercial harvesting) within the ATRI LSA.

It is noted that the exercise of the Shuswap Band's interests related to access to areas of traditional activities (e.g., country foods to support the rights-based economy) in the ATRI LSA and the ATRI RSA has likely been impacted by past and ongoing development activity (e.g., reduced access to cultural sites and the few relatively undisturbed east-west corridors that provide "gaps" in the Elk Valley mining region for the movement of land users), and the potential future use of these areas without the Project is expected to be similar to existing conditions (i.e., past and ongoing development activities that may impact access and travel through the ATRI LSA and RSA).

For the Shuswap Band's economic conditions, site-specific knowledge and use values associated with subsistence sites, water and land transportation, and related environmental features in relation to country foods, including seasonal access and usage from Shuswap knowledge holders would support and guide the assessment of Project-related effects within the Project footprint, the ATRI LSA, and the ATRI RSA in terms of potential interactions during the Project lifecycle. At the time of the assessment, as this information was available from the Shuswap Band at the time of the writing of this chapter, the lack of this specific information requires continued consultation with the Shuswap Band.

24.6.7 Summary of Shuswap Band's Rights and Interests

The following Table 24.6-5 presents a summary of the Shuswap Band's rights and interests as identified within the background and contextual information provided in Section 24.6 and based on the preliminary consultation with Shuswap Band in relation to the Project as well as the feedback received on this section (Appendix 24-A, Table 24.A-2). All information compiled and presented in this summary of Section 24.6 has been authored by NWP utilizing secondary sources that are publicly available due to the lack of Project-specific information available from the Shuswap Band at the time of the writing of this chapter. The information presented is not intended to supersede traditional knowledge or specific information of the community members and Elders of the Shuswap Band.

Table 24.6-5: Summary of Shuswap Band's Rights and Interests in Relation to the Project

Indigenous Rights & Interest	Indigenous Resource, Use, or Species of Interest
Fishing	Based on available information, fishing is understood to be a traditional activity undertaken by the Shuswap Band within their Traditional Territory. The Shuswap Band have the right to fishing and fish species are a potential valuable food source to the Shuswap Band. Shuswap Band has indicated that (Sockeye and Chinook) salmon are a keystone species of importance. Fish species such as Largescale Suckers, Longnose Suckers, Grayling, Northern Pikeminnow, Peamouth, Mountain whitefish, Spring trout, Rainbow trout, Dolly Varden trout, Cutthroat trout, Lake Trout, Kokanee, Lingcod, Char and Sturgeon provided a constant staple in their diet as well. Access to healthy aquatic systems for fish to support fishing is important to Shuswap Band. While information has not been provided by the Shuswap Band to NWP that confirms that community members fish in waterbodies within the Project footprint or in the ATRI LSA, there is the potential for this rights-based activity to occur. It is the perspective of the Shuswap Band that fish, fish habitat, and fishing opportunities have been impacted by past and ongoing development activity in the ATRI LSA and the ATRI RSA. While it is unknown as to the extent to which fishing activities are undertaken in the ATRI LSA and RSA by the Shuswap Band at this time, the potential future use of these areas for fishing opportunities without the Project is expected to be similar to the existing conditions likely influenced by past and ongoing development activities.
Hunting and Trapping	Shuswap Band members have the right to hunt the following species: • Ungulates – deer, elk, caribou, moose, mountain goat, mountain sheep, bison • Carnivores – black bear, grizzly bear, lynx, fox, coyote • Small mammals – marten, mink, fisher, beaver, rabbit, marmot, porcupine, gopher, muskrat, groundhog, squirrel • Birds - grouse, waterfowl (ducks and geese) Hunting and trapping rights continue to be a traditionally and culturally important activity for subsistence, medicinal, and ceremonial purposes for the Shuswap Band. These rights are also important for use in medicine bundles and ceremonies. Due to the lack of Project-specific information available from the Shuswap Band at the time of the writing of this chapter, while the Shuswap Band has not currently identified hunting and trapping areas within the Project footprint that are utilized, there is potential for Shuswap Band to utilize the ATRI LSA for traditional activities. It is the perspective of the Shuswap Band that the exercise of Shuswap Band's rights and interests related to hunting and trapping in the ATRI LSA and RSA have likely been impacted by past and ongoing development activity. While it is unknown as to the extent to which hunting and trapping activities are undertaken in the ATRI LSA and RSA by the Shuswap Band at this time, the potential future use of these areas for hunting and trapping without the Project is expected to be similar to the existing conditions likely influenced by past and ongoing development activities.
Harvesting and Gathering	The Shuswap Band have the right to harvest plants in their Traditional Territory and based on publicly available information, they harvest various plant species for nutritional, spiritual, and medical significance. Shuswap Band members harvest plants and medicines available such as cow parsnip, yellow glacier lily, spring beauty,

Indigenous Rights & Interest	Indigenous Resource, Use, or Species of Interest
	balsamroot, Saskatoon berry, chokecherry, Soopolallie, various blueberries and huckleberry, wild raspberry, hazelnut, lodgepole pine, and Ponderosa Pine. Labrador tea, Devil's club, cedar, rosewood, willow, and Canby lovage were indicated as species harvested by the Shuswap Band. Additional plants of interest, which are located in the Elk Valley include: mullein, cranberries, juniper, fireweed, spruce, strawberry, yarrow, thimbleberry, soapberries, and Antennaria. Due to the lack of Project-specific information available from the Shuswap Band at the time of the writing of this chapter, while the Shuswap Band has not currently identified plant harvesting and gathering sites within the Project footprint that are utilized, the Shuswap Band may exercise these rights in the ATRI LSA based on publicly available information for undertaking traditional and ceremonial activities. Based on publicly available information, it is likely that the exercise of the Shuswap Band's rights and interests related to gathering and harvesting in the ATRI LSA and ATRI RSA have been impacted by past and ongoing development activity and have impacted their harvesting activities.
Ceremonial/Sacred Areas	Based on the preliminary understanding of the Shuswap Band's rights and interests and publicly available information, the right to conduct traditional activities in their ceremonial/sacred areas is undertaken within the Shuswap Band's Traditional Territory. Based on publicly available information, Shuswap Band members potentially have ceremonial/sacred activities tied to environmental and ecological attributes available within the Project footprint. The Crowsnest Pass area is a named and storied place and access is essential for the protection of the community's interests and way of life. Sacred ceremonies such as vision quests typically occur in high alpine regions and mountainscapes are often used for various activities in this category. Interests in continued access to areas of key cultural and spiritual significance including trails, travel corridors, waterways, and burial sites. Waterways particularly are considered highly sacred. Due to the lack of Project-specific information available from the Shuswap Band at the time of the writing of this chapter, further details are not available. Based on publicly available information, the exercise of Shuswap Band's rights and interests related to ceremonial practices and sacred areas in the ATRI LSA and RSA have likely been impacted by past and ongoing development activity (e.g., reduced access to cultural sites).
Access and Travel Routes	Based on the preliminary understanding of the Shuswap Band's rights and interests and publicly available information, the right to access traditional travel routes is related to the Shuswap's cultural heritage within their Traditional Territory. Based on publicly available information, the Shuswap Band members have travel routes tied to hunting trails or wildlife trails or key habitat types such as waterbodies available within the Project footprint. Several travel routes are documented and/or used in the Elk Valley both north-south and east-west. The Shuswap Band have a long-standing movement through the Rocky Mountains for sharing and travel. Various mountain trails have been used to access resources east of the Rocky Mountains.

Indigenous Rights & Interest	Indigenous Resource, Use, or Species of Interest
	Due to the lack of Project-specific information available from the Shuswap Band at the time of the writing of this chapter, while the Shuswap Band has not currently identified Project-specific access and travel routes within the Project footprint, as noted it is expected that the Shuswap Band utilizes the ATRI LSA for maintaining their seasonal round. It is the perspective of the Shuswap Band that the exercise of Shuswap Band's rights and interests related to access and travel in the ATRI LSA and RSA have likely been impacted by past and ongoing development activity.
Physical and Cultural Heritage	Shuswap Band potentially has physical and cultural heritage sites related to the archeological potential within the Project footprint which relate to the Shuswap's cultural and spiritual rights within their Traditional Territory. Grave Prairie has been identified as a significant historic area and is located within the Project footprint, the area is currently known as the "Grave Prairie Cultural Landscape". Shuswap Band has strong interests in all archaeological remains within its Caretaker Area. Due to the lack of Project-specific information available from the Shuswap Band at the time of the writing of this chapter, while the Shuswap Band has not currently identified physical and cultural heritage sites within the Project footprint other than Grave Prairie, it is expected that a structure, site, or thing that is of historical, archaeological, paleontological, or architectural significance to the Shuswap Band could be within the ATRI LSA. It is noted that the exercise of Shuswap Band's rights and interests related to physical and cultural heritage in the ATRI LSA and RSA have been impacted by past and ongoing development activity.
Social and Health	Based on publicly available information, social and health conditions for the Shuswap Band are regarded as an interest within their Traditional Territory. With a higher birth rate, on- and off-reserve residence, the quality, and conditions of housing, as well as access issues including adequate stocks and affordability are the challenges the Shuswap Band has expressed a commitment to addressing. The Shuswap Band has enacted a social housing policy, which aims to provide quality, affordable housing to band members and the community is in the process of planning and building new housing units. Shuswap Band has a new Health Centre located in the back of the Shuswap Band Office offering confidential services from three different office spaces to the Shuswap Band Members. With the Shuswap Reserve bordering the Town of Invermere, children and youth of the Shuswap Band primarily attend schools in Invermere. Post-secondary education is available in larger towns and cities such as Kamloops, where the Thompson Rivers University is located among other colleges and diploma programs, Golden, and Canmore, Alberta among others. Daycare services were identified as a need within the community according to the Shuswap Band's 2018 Land Use Plan. Aboriginal Skills Employment & Training Strategy (ASETS) provides training and employment opportunities to Aboriginal people within the Central Interior of British Columbia. The GBA+ study carried out in 2023 was focused on socio-community barriers affecting Indigenous employment in mining as well as the safety and security of Indigenous women, girls and Two-Spirited and Indigenous LGBTQQIA+ people in relation to mining.

Indigenous Rights & Interest	Indigenous Resource, Use, or Species of Interest
Economic Conditions	These sub-groups were identified based on the potential for Indigenous Peoples to benefit from employment in mining but with an awareness of socio-community barriers that can prevent them from reaching that potential and safety and security issues associated with mining which Indigenous women, girls, and Two-Spirited and Indigenous LGBTQQIA+ people in the Elk Valley region as well as other mining areas across Canada may experience. The GBA+ interviews revealed a variety of socio-community related barriers and concerns related to the mining industry in Canada and the Elk Valley region. The themes have been classified as housing barriers, childcare, cost of living, the safety of Indigenous women, girls, and Two-Spirited and Indigenous LGBTQIAA+ people, health barriers, and other social and cultural barriers. The GBA+ analysis also included a review of statistical information to identify potential safety and security issues for Indigenous women, girls and 2SLGBTQQIA+ people who may be living in Sparwood, Elkford, or Fernie. In general, the Elk Valley region has a lower level of crime than the provincial average with the exception of Fernie which has a higher rate of harassing communications. While these statistics indicate that the Elk Valley is a relatively safe region, they do not indicate whether crimes were committed against Indigenous women, girls, and Two-Spirited and Indigenous LGBTQQIA+ people. It is the perspective of the Shuswap Band that the exercise of the Shuswap Band's interests related to access to country foods in the ATRI LSA and the ATRI RSA have likely been impacted by past and ongoing development activity. Based on publicly available information, economic conditions for the Shuswap Band are regarded as an interest within their Traditional Territory. The Shuswap Band developed an economic development program focused on commercial, residential, and land development and from it, the Shuswap Band entered into the Land Designation Program, where they obtained the approval for designation of 500 acres of reserve lands for development. This allowed them to form the Kinbasket Development Corporation, which generates revenue within the community through various businesses. The Shuswap Band also has a financial assistance policy that aims to provide support to band members, to help create a vibrant community. It is the perspective of the Shuswap Band that the exercise of the Shuswap Band's interests related to access to areas of traditional activities in the ATRI LSA and the ATRI RSA have likely been impacted by past and ongoing development activity.

24.7 Assessment of the Effects of the Changes to the Environment on Shuswap Band

This section outlines the assessment of the effects of the changes to the environment as a result of the Project and its components and activities that are understood to be important to Shuswap Band (IAAC, 2015b; 2022a). The effects assessment in this section is focused on the environmental factors identified by Shuswap Band which categorize their use of lands and resources for traditional purposes in terms of fishing, hunting and trapping, harvesting and gathering, ceremonial and sacred sites, access and travel routes, as well as physical and cultural heritage, and social, health, and economic conditions.

The assessment of the effects of the changes to the environment compares projected future conditions with the Project against projected future conditions without the Project and considers that both existing and future conditions are influenced by past and ongoing development activities. These have been considered in the description of the baseline conditions in Section 24.6. This assessment of the effects of changes to the environment is considered in the assessment of impacts on the rights and interests of the Shuswap Band that is subsequently presented in Section 24.10. The methods for assessing potential effects on the Shuswap Band in relation to the Project followed the approach outlined in Chapter 5 and is included in Section 24.3.

In the absence of specific input being received from Shuswap Band at the time of this assessment (e.g., no Project-specific Traditional Knowledge/Traditional Land and Resource Use study for the Project footprint and the ATRI LSA), components of the environment of potential importance to Shuswap Band were determined through the review of their potential rights and interests as previously described in Section 24.5, the preliminary understanding of the Shuswap Band's rights and interests (Section 24.5.4), and consultation and engagement activities described in Section 24.5.3. This assessment of changes to the environment is largely based on the assessment work of other study disciplines/VCs as described in detail elsewhere in this Application/EIS in combination with the information sources described previously. All information considered in the assessment of potential Project effects is not intended to supersede traditional knowledge or specific information of the community members and Elders of the Shuswap Band. This effects assessment may be revised and updated as a result of continued consultation with the Shuswap Band during the assessment processes.

24.7.1 Thresholds for Determining the Significance of Residual Effects

Threshold criteria used to determine the significance of residual effects on each relevant VC (i.e., receptor, specified intermediate VCs, and federal VCs) are as outlined in Chapter 5. Significance thresholds were established in consideration of the technical guidance for Determining Whether a Designated Project is Likely to Cause Significant Adverse Environmental Effects under the CEAA 2012 as well as the Ktunaxa Nation Council's *Recommended Minimum Standards for Proponents in Determining Significance of Effects in Environmental Assessments (EAs) in the Elk Valley* (Candler, 2020). Thresholds used to determine the significance of residual effects to Shuswap Band's rights and interests related to the Project include:

- Potential change to use of lands and resources for traditional purposes - A significant residual effect to current use of lands and resources for traditional purposes is defined as the permanent loss of access or ability to conduct traditional land and resource use which cannot be mitigated.
- Potential change to physical and cultural heritage, and potential change to a structure, site, or item that is of historical, archaeological, paleontological, or architectural significance - A significant residual effect to physical and cultural heritage is defined as the permanent loss of physical and cultural heritage through the permanent loss of a structure, site, or item that is of historical, archaeological, paleontological, or architectural significance to Shuswap Band, which cannot be mitigated.
- Potential change to social, health, and economic conditions - Specific to changes in health conditions, a significant residual effect to social and health conditions is defined as persistent, frequent, and long-lasting exceedance in ecological and human health risk assessment hazard quotients (HQs) and risk magnitudes for non-carcinogenic and carcinogenic contaminants of potential concern. Additionally, a significant residual effect to socio-economic conditions is

defined as the permanent loss of access to social and economic resources used by Shuswap Band as a result of the Project and that cannot be mitigated for.

24.7.2 Assessment Methods

The methods for assessing potential effects that may result in potential changes to the environment that may affect the Shuswap Band and their rights and interests in relation to the Project followed the approach outlined in Chapter 5 and is described in Section 24.3. Where appropriate, effects on the Indigenous resources, use, or species of interest outlined previously in Table 24.6-2 were evaluated using the results of receptor and intermediate VC effects assessments (e.g., grizzly bear is a receptor VC and alteration of surface water quantity is an intermediate VC). In some cases, no receptor or intermediate VC corresponds to the Indigenous resource, use, or species of interest (e.g., bison is not a VC and not in the Project's area of influence) and as such, representative VCs were selected to serve as surrogates for the effects assessment on Shuswap Band's rights and interests. Where no appropriate representative VC was identified to serve as a surrogate for effects, additional biophysical information from Project-specific baseline studies and publicly available information was used, where applicable, to allow for an understanding of potential effects to Indigenous resources, use, or species of interest (e.g., bison is not a VC being assessed for the Project and yet information on its cultural impact on the Shuswap Band's rights and interests can be utilized to assume that the ungulate VCs being assessed for the Project may have cultural significance).

The assessment of effects on intermediate and receptor VCs of potential interest to the Shuswap Band, such as wildlife, plants, fish, and socio-economic conditions, may not fully capture the conditions that influence Indigenous historic and current use of lands and resources for traditional purposes. As noted in Section 24.3, the term "current use" as defined in Section 24.6.6 is intended to reflect any current use of lands and resources for traditional purposes (which for the ATRI LSA is unknown at this time) as well as potential future use as desired by Shuswap Band. Additional information may be provided by Shuswap Band in the future that would be incorporated into the effects assessment process and mitigation planning in addition to what is presented in this document.

For quantitative human health and ecological risk assessment (HHERA) in Chapter 22, the focus was on various Indigenous land use and tradition lifestyles to conservatively assess maximal potential impacts to the VC of human health. By inference, potential impacts to human health of other peoples (e.g., non-Indigenous, recreational) would have less potential for a health risk. Human health risk assessment (HHRA) and ecological risk assessment (ERA) define and quantify potential health risks, which in the present instance serve as surrogate measures of potential health impacts from the Project and are detailed in Chapter 22. The baseline assessment method is fundamentally as described in Chapter 22, and relies primarily on measured biophysical data, especially baseline studies of concentrations of contaminants of potential concern in environmental media and is conducted to establish current "benchmark risk estimates" in the form of either hazard quotients (HQs) or as incremental lifetime cancer risks (ICLRs). The baseline benchmarks are subsequently used in the Project Case and Cumulative Case in Chapter 22 to examine the "incremental" risk resulting from releases associated with the Project and reasonably foreseeable future projects or activities. Documents from which Base Case information and data were obtained relevant to the development of the quantitative HHERA are as follows:

- Baseline Air Quality: Air Quality Baseline Report – Crown Mountain Coking Coal Project (Dillon, 2020a);

- Baseline Soil Data: Baseline Soil and Vegetation Chemistry Report – Crown Mountain Coking Coal Project (Keefer Ecological Services Ltd., 2021);
- Baseline Water Quality: Surface Water Quality Baseline Report: 2012 to 2019 Surface Water Quality Sampling Results – Crown Mountain Coking Coal Project (Dillon, 2020b);
- Baseline Sediment Quality: Crown Mountain Coking Coal Project – Aquatic Health Baseline Sampling Report (Lotic Environmental, 2020); and
- Baseline Fish Tissue Quality: Crown Mountain Coking Coal Project – Aquatic Health Baseline Sampling Report (Lotic Environmental, 2020).

In addition to use of baseline studies on environmental quality noted above, baseline food chain modelling was conducted to ascertain the baseline dietary exposure and risk to wildlife health and human health. Food chain modelling is described further under Chapter 22, and in detail in the technical support document on human health and ecological risk assessment (Chapter 22, Appendix 22-A). As indicated in Chapter 22, there are no significant residual effects to ecological or human health anticipated as a result of the Project.

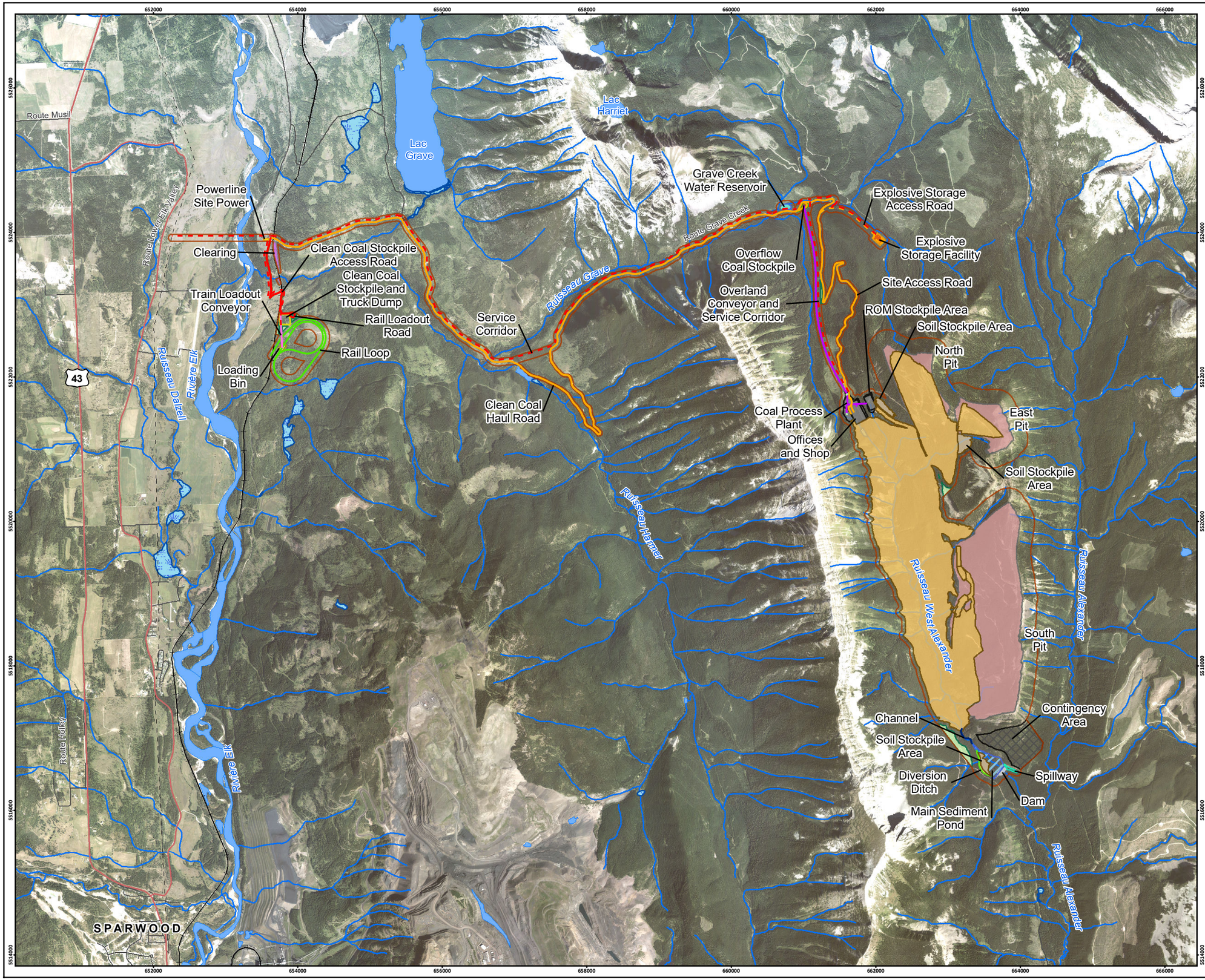
Chapter 24 identifies the potential Project-related impacts to Aboriginal rights and interests to inform the EA regulatory decision-making process and planning of the Project in Section 24.10. Through this effects assessment and continued consultation with the Shuswap Band, Project-related effects to Shuswap Band's Aboriginal Rights and interests may continue to be identified, and where applicable, mitigated or accommodated.

24.7.2.1 Assessment Boundaries for the Effects of Changes to the Environment on Shuswap

Study areas represent the spatial boundaries that encompass the areas, at appropriate scales and spatial extents, in which the Project is anticipated to interact with a VC or VC group (Chapter 5). For the purposes of the assessment of impacts to Indigenous and interests, three spatial boundaries were considered in the assessment: the Project footprint, the ATRI LSA, and the ATRI RSA.

The Project footprint is the area of physical disturbance associated with the Project and encompasses all anticipated Project components, both temporary and permanent, covering approximately 13 square kilometres (km^2) or 1,283 hectares (ha). The Project footprint is the area of physical disturbance associated with the Project (Figure 24.7-1) and consists of the proposed surface extraction areas (three pits - north pit, east pit, and south pit); mine rock management areas; mine infrastructure and support facilities, including the plant area (raw coal stockpile area and processing plant); clean coal transportation route; rail loadout facility and rail siding; and ancillary facilities (i.e., water supply, power supply, natural gas supply, water, sewage treatment, fuel storage and explosives storage).

The ATRI LSA and RSA were developed in consideration of VCs (e.g., air quality) or VC groups (e.g., wildlife) and technical and scientific information (e.g., location and distribution of VCs) that may be potentially relevant to the assessment of Treaty rights and interests (Figure 24.7-2 and Figure 24.7-3). The ATRI LSA encompasses the LSAs of receptor and intermediate VCs and VC groups in which Indigenous peoples may have constitutionally protected rights to practice traditional activities, such as for fishing and hunting and gathering. The VC-specific study areas are outlined in each VC assessment chapter. The ATRI LSA is approximately 88,500 ha while the ATRI RSA is approximately 3,193,000 ha.



Crown Mountain Coking Coal Project

Figure 24.7-1
Project Footprint and Infrastructure

LEGEND

- Project Footprint
- Channel to Ultimate Pond
- Clean Coal Haul Road\Site Access
- Explosive Storage Access\Facility Road
- Rail Loadout Road
- Rail Loop
- Service Corridor
- Coal Process Plant Conveyor
- Coal Process Plant Duct
- Train Loadout Conveyor
- Waste Dump
- Mined Area
- Clean Coal Stockpile and Truck Dump
- Overflow Coal Stockpile
- Soil Stockpile Area
- Explosive Storage Facility\Pad
- Loading Bin
- Plant Site\ROM Stockpile Area
- Powerline-Site Power
- Water Reservoir
- Main Sediment Pond
- Dam
- Spillway
- Diversion Ditch
- Clearing
- Additional Area
- Contingency Area
- Highway
- Arterial/Collector Road
- Local/Resource Road
- Railway
- Transmission Line
- Watercourse
- Waterbody
- Wetland
- British Columbia/Alberta Border

0 1 2
Kilometres

N W E S

Scale 1:50,000

Map Drawing Information:
Data Provided By NWP Coal Canada Ltd, Dillon Consulting Limited, Province of British Columbia GeoBC Open Data, Government of Alberta Open Data, Natural Resource Canada.
Imagery Provided By GeoBC OrthoImagery (Aug 2016).

Map Created By: RB
Map Checked By: HEB
Map Coordinate System: NAD 1983 UTM Zone 11N

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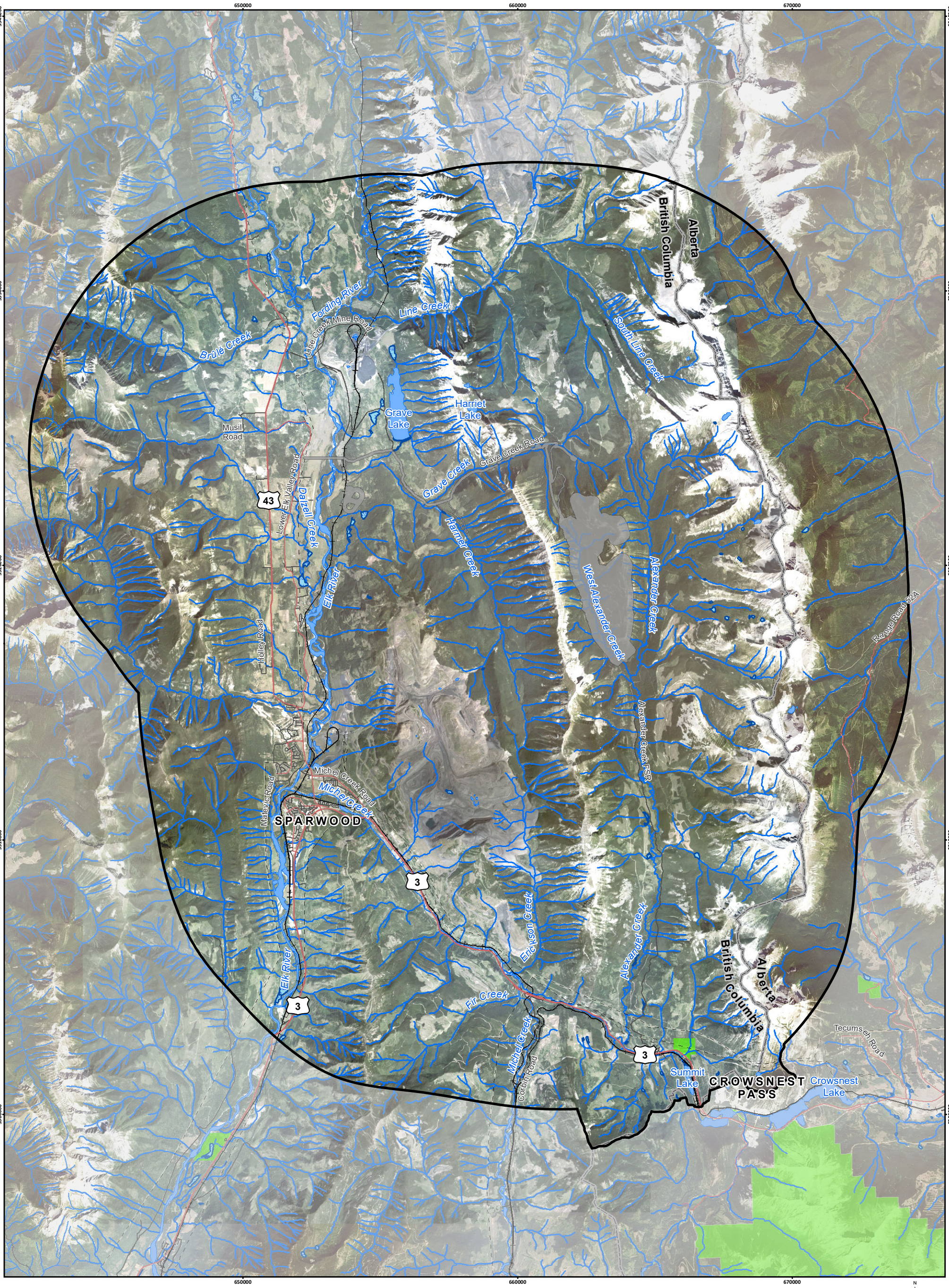
Project: 12-6231
Status: FINAL
Date: 2023-07-19

Document Path: K:\126231_Crown_Mountain\EA_Report\EffectsAssessment\IndigenousInterest\126231_EA_II_ProjectFootprintInfrastructure.mxd



Crown Mountain Coking Coal Project

Figure 24.7-2
Aboriginal Treaty Rights and Interests Local Study Area

- Aboriginal Treaty Rights and Interests Local Study Area
- Project Footprint
- Highway
- Arterial/Collector Road
- Local/Resource Road
- Railway
- Transmission Line
- Watercourse
- Waterbody
- Wetland
- Provincial Park/Protected Area
- British Columbia/Alberta Border

0 2 4
Kilometres

Scale 1:130,000

Map Drawing Information:
Data Provided By NWP Coal Canada Ltd, Dillon Consulting Limited, Province of British Columbia GeoBC Open Data, Government of Alberta Open Data, Natural Resource Canada. Imagery Provided By Landsat 8 (Aug 2018), and GeoBC Ortho Imagery (Aug 2016).

Map Created By: RB
Map Checked By: HS
Map Coordinate System: NAD 1983 UTM Zone 11N

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Project: 12-6231
Status: FINAL
Date: 2023-07-19

Document Path: K:\126231_Crown_Mountain\EA_Report\EffectsAssessment\IndigenousInterest\126231_EA_II_LocalStudyArea.mxd

Crown Mountain Coking Coal Project

Figure 24.7-3
Aboriginal Treaty Rights and Interests Regional Study Area

- Aboriginal Treaty Rights and Interests Regional Study Area
- Project Footprint
- Highway
- Railway
- Transmission Line
- Watercourse
- Waterbody
- Wetland
- Provincial Park/Protected Area
- National Park
- British Columbia/Alberta Border

0 15 30
Kilometres

Scale 1:900,000

Map Drawing Information:
Data Provided By NWP Coal Canada Ltd, Dillon Consulting Limited, Province of British Columbia GeoBC Open Data, Government of Alberta Open Data, Natural Resource Canada.
Imagery Provided By ESRI.

Map Created By: RB
Map Checked By: HS
Map Coordinate System: NAD 1983 UTM Zone 11N

NWP Coal Canada Ltd

Project: 12-6231
Status: FINAL
Date: 2023-07-19

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The VC study areas relevant to the assessment of effects to Indigenous historic and current use of lands resources for traditional purposes include:

- Project footprint;
- Fish and Fish Habitat LSA;
- Aquatic LSA and RSA;
- Terrestrial LSA and RSA;
- Landscapes and Ecosystems LSA and RSA;
- Grizzly Bear RSA;
- Birds, Bats, and Amphibians RSA;
- Socio-Community LSA and RSA;
- Economic Conditions LSA and RSA;
- Land Use and Access LSA and RSA; and
- Archaeological LSA and RSA.

In some instances, in the assessment of effects to Aboriginal rights and interests, the specific VC study areas are referred to as the VC baseline program, and data collection was confined to the boundaries for that specific VC (LSA and/or RSA) for the purposes of the VC baseline assessment.

24.7.3 Potential Effects of the Changes to the Environment on the Shuswap Band

This section outlines the Project activities and components that may result in potential changes to the environment may affect the Shuswap Band in relation to the Project. The assessment of potential Project effects focuses on planned Project activities. Potential effects related to unplanned events (e.g., spills, equipment malfunctions, accidents) are presented in Chapter 21. This section describes the potential changes to the environment related to the applicable VCs in consideration of Shuswap Band's rights and interests.

As noted in Section 24.5.4, IAAC indicated their revised understanding of potential impacts of the Project on Shuswap Band's Aboriginal rights (IAAC, 2015b; 2022a) to include:

- Hunting and Trapping;
- Fishing (and Water);
- Harvesting and Gathering;
- Cultural and Spiritual Heritage (i.e., Culturally Significant) Areas;
- Access and Travel (and Trade) Routes;
- Social, Health, and Economic (i.e., Health and Socio-Economic) Conditions;
- Cumulative effects; and
- Governance and Stewardship.

The discussion of effects has been organized into potential effects on the historic and current use of lands and resources for traditional purposes, social and health conditions, and economic conditions.

24.7.3.1 Project Components and Interactions

Project activities during the Construction and Pre-Production, Operations, Reclamation and Closure, and Post-Closure phases have the potential to change the environment and in turn impact the Shuswap Band's rights and interests based on these interactions. Table 24.7-1 to Table 24.7-4, below provide a summary of the anticipated interactions between the Project and VCs (e.g., wildlife and wildlife habitat) related to the Shuswap Band described throughout Chapter 24, by identifying the Project components/activities, the Indigenous right and/or interest, the associated VC, and the anticipated pathway for potential interactions with the Indigenous right and interest. Refer to Chapter 3 for a description of the Project components/activities that are summarized below.

The interactions outlined in the table below are intended to identify the pathway between the VC and Shuswap Band. All components and Project activities were assessed for potential pathways for interactions between the Project and the Shuswap Band that have the potential to impact their rights and interests as currently understood. This assessment of effects to the Shuswap Band is primarily based on the review of publicly available information and consultation and engagement activities as a Project-specific TK/TLU from the Shuswap Band was not available to NWP at the time of the writing of this chapter. For ease of reading, the components and activities with similar potential pathways of interactions with Shuswap Band were grouped together within Table 24.7-1 to Table 24.7-4. Each separate table below reflects the potential interactions between the Shuswap Band and their rights and interests as currently understood for each separate Project Phase (i.e., Construction and Pre-Production, Operations, Reclamation and Closure, and Post Closure).

With respect to the Shuswap Band's seasonal round, the Project components and activities were assessed based on publicly available information and feedback received from the Shuswap Band (Section 24.5) within the Project footprint and the ATRI LSA that included species of interest and/or locations of cultural significance and traditional use that are utilized seasonally that have the potential to interact. Based on the information sources identified, as noted in Section 24.6.6, none have been currently identified by the Shuswap Band.

The potential residual environmental effects that may exist after the proposed mitigation measures have been implemented are discussed in Section 24.7.3.2 below. Upon receipt of further information from the Shuswap Band including a Project-specific TK/TLU study, this assessment may be further refined. The Shuswap Band's Traditional Knowledge may provide a better understanding of the Project's potential interactions with the Shuswap Band's rights and interests as it relates to the timing of traditional activities and practices that coincide with the specific Project phases (Appendix 24-A, Table 24.A-2).

24.7.3.2 Characterization of Potential Residual Effects of the Changes to the Environment on Shuswap Band

Based on the interactions identified in Table 24.7-1 to Table 24.7-4, potential effects to the Shuswap Band are outline in this section, using effects assessment information from the other VCs. The purpose of this assessment is to identify the potential Project-related residual effects to the Shuswap Band and to inform the impacts to rights assessment (Section 24.10). The residual effects to the Shuswap Band consider the residual effects for the associated VCs (e.g., Wildlife and Wildlife Habitat VCs) and anticipated effects to non-VC groups (i.e., broad ecosystem types).

Table 24.7-1: Summary of Potential Interactions between the Project and Shuswap Band's Aboriginal Rights and/or Interests for Construction and Pre-Production Phase

Project Components and Activities	Shuswap Band Right and/or Interest	Valued Component/Valued Component Group and Effects Pathway for Potential Interaction with Shuswap Band
Transportation Highway transport trucks, light duty vehicles and crew busses will use Highway 43, Line Creek Mine Road, Valley Road, and Grave Creek Road for all phases of the Project which include transportation of personnel, materials, and consumable items.	• Hunting and Trapping	• Wildlife and Wildlife Habitat (Chapter 15) - Potential interaction between vehicles with wildlife through disruption of their movements and potential direct mortality from vehicle strikes. This interaction has the potential to impact hunting and trapping rights.
Logging of Merchantable Timber Merchantable timber will be logged from the infrastructure and pre-production development footprint.	• Fishing • Hunting and Trapping • Harvesting and Gathering • Ceremonial/Sacred Areas • Travel Routes • Physical and Cultural Heritage	• Fish and Fish Habitat (Chapter 12) and Surface Water Quality (Chapter 11) - Potential interaction with fish and fish habitat through non-contact surface runoff/erosion where bare soils are exposed during logging. • Terrestrial Ecosystems (Chapter 13) and Vegetation (Chapter 14) - Potential loss of vegetation communities and change in terrestrial ecosystems through introduction of invasive vegetation species. Potential loss of timber and other plants is an interest to Shuswap Band under the category of vegetation and ecological health. • Wildlife and Wildlife Habitat (Chapter 15) - Potential change of wildlife food sources and movements as a result of changes in vegetation communities and terrestrial ecosystems (i.e., degradation of wildlife habitat). Potential sensory disturbance to wildlife (i.e., noise and vibration). • Pre-contact archaeological resources (Chapter 16) - Potential loss of pre-contact archaeological artifacts (if present) and tree throws. • Potential loss/disconnection of historic and present-day travel routes and trails. • Potential loss of ceremonial or sacred areas within the Project footprint. These interactions have the potential to impact fishing rights, hunting and trapping rights, harvesting and gathering rights, and current use of culturally significant areas. Under Shuswap Band's Aboriginal/Indigenous right to stewardship, the presence and health of timber and other plants is of significant interest (SIB, 2021).

Project Components and Activities	Shuswap Band Right and/or Interest	Valued Component/Valued Component Group and Effects Pathway for Potential Interaction with Shuswap Band
Clearing and Grubbing After the merchantable timber has been removed, the remaining vegetation will be cleared and grubbed from the infrastructure and pre-production development footprint. Wood waste will be stockpiled within the confines of the Project footprint, and stockpiles will not be located adjacent to waterbodies.	• Fishing • Hunting and Trapping • Harvesting and Gathering • Ceremonial/Sacred Areas • Travel Routes • Physical and Cultural Heritage	• Fish and Fish Habitat (Chapter 12) and Surface Water Quality (Chapter 11) - Potential interaction with fish and fish habitat through surface runoff/erosion where bare soils are exposed during grubbing. • Terrestrial Ecosystems (Chapter 13) and Vegetation (Chapter 14) - Potential changes to vegetation that may impact the ability to harvest and gather for traditional purposes. • Terrestrial Ecosystems (Chapter 13) - Potential change in landscape and terrestrial ecosystem types resulting in the change of wildlife food sources and movements. • Wildlife and Wildlife Habitat (Chapter 15) - Potential change of wildlife food sources and movements as a result of changes in vegetation communities and terrestrial ecosystems (i.e., degradation of wildlife habitat). Potential sensory disturbance to wildlife (i.e., noise and vibration). • Pre-contact archaeological resources (Chapter 16) - Potential loss of pre-contact archaeological artifacts (if present) and tree throws. • Potential loss of ceremonial or sacred areas within the Project footprint. • Potential loss/disconnection of historic and present-day travel routes and trails. These interactions have the potential to impact fishing rights, hunting and trapping rights, harvesting and gathering rights, current use of culturally significant areas, and social and health conditions.
Quarry for Construction Materials Excavation of road bed materials from the North Pit footprint for use on Grave Creek Road.	• Physical and Cultural Heritage	• Pre-contact archaeological resources (Chapter 16) - Potential loss of pre-contact archaeological artifacts (if present) during quarrying activities. This interaction has the potential to impact current use of culturally significant areas.

Project Components and Activities	Shuswap Band Right and/or Interest	Valued Component/Valued Component Group and Effects Pathway for Potential Interaction with Shuswap Band
Infrastructure and Road Construction • Water Management or Water Management Structures; • Road Upgrades and Construction; • Overland Conveyor; • Coal Handling Process Plant Construction; • Workshop/Mine Dry Construction; • Rail Loadout Construction; • Explosives Factory; and • Soil Salvage.	• Fishing • Hunting and Trapping • Harvesting and Gathering • Ceremonial/Sacred Areas • Travel Routes • Physical and Cultural Heritage • Social and Health Conditions	• Surface Water Quantity (Chapter 10), Surface Water Quality (Chapter 11), and Fish and Fish Habitat (Chapter 12) - Potential interaction with non-contact surface water and fish and fish habitat through erosion and sedimentation of bare soils. • Surface Water Quantity (Chapter 10) and Surface Water Quality (Chapter 11) - Potential interaction with ceremonial/sacred areas around water with changes in water levels and water quality. • Terrestrial Ecosystems (Chapter 13) and Vegetation (Chapter 14) - Potential interaction with riparian vegetation species of interest due to the loss of riparian habitat. • Fish and Fish Habitat (Chapter 12) and Wildlife and Wildlife Habitat (Chapter 15) - Potential localized changes in accessibility to wildlife associated with riparian areas due to changes to surface water quality, fish and fish habitat, and riparian vegetation/habitat. • Fish and Fish Habitat (Chapter 12) - Potential interaction with fish and fish habitat through the installation of water supply pipelines from Grave Creek and West Alexander Creek through changes in water level and erosion and sedimentation. • Wildlife and Wildlife Habitat (Chapter 15) - Potential loss of wildlife habitat within road and infrastructure footprint and potential change in localized wildlife species of interest movement/accessibility. Potential sensory disturbance to wildlife species of interest (i.e., noise and vibration). Potential interaction with wildlife species of interest through transportation of materials and personnel to site (e.g., vehicle collisions and increased traffic). Potential loss of wildlife habitat within road and infrastructure footprint and potential change in localized wildlife species of interest movement/accessibility. Potential stressor on wildlife population with increased access roads potentially attracting hunters and increased road densities. • Terrestrial Ecosystems (Chapter 13) and Vegetation (Chapter 14) – Potential loss of vegetation species of interest within road and infrastructure footprint. Potential for introduction of invasive species around development areas reducing the quality of vegetation communities/terrestrial ecosystems/

Project Components and Activities	Shuswap Band Right and/or Interest	Valued Component/Valued Component Group and Effects Pathway for Potential Interaction with Shuswap Band
		habitats for vegetation species of interest. Potential loss of grassland habitat, and therefore, potential loss of species of interest within footprint of Rail Loadout. Loss/fragmentation of grassland wildlife habitat, and therefore, potential loss of species of interest as a result of the workshop/mine dry footprint. • Pre-contact archaeological resources (Chapter 16) - Potential loss of archaeological artifacts (if present) within road and infrastructure construction footprint. Potential loss of pre-contact archaeological artifacts (if present) during construction of building foundations. Potential change due to a significant historic area located near the Project's roads: Grave Lake, Grave Creek, and Grave Prairie. • Socio-community (Chapter 18) - Potential Project nuisance effects residents due to noise and vibration. Potential change in availability/reliance on country food. Potential public safety due to physical hazards. • Potential loss/disconnection of portions of historic and present-day travel routes and trails if present within or crossing new roads and infrastructure footprint. • Potential loss of ceremonial/sacred areas within road and infrastructure construction footprint. These interactions have the potential to impact fishing rights, hunting and trapping rights, harvesting and gathering rights, current use of culturally significant areas, and social and health conditions. Shuswap Band ancestors are tied to a significant event in this area, and it is likely there are unidentified physical and cultural remains throughout the area (SIB, 2021).
Construction Waste Materials Collection and transfer to a recycling facility or other approved facility. Waste will be fenced and stored in sea containers or waste oil containers as appropriate.	• None identified	None identified - there are no anticipated interactions between Indigenous interests and storage of construction waste, as the waste will be stockpiled in contained areas or appropriate containers that are not open to the environment. Accidents, malfunctions, and unplanned events are discussed in Chapter 21.

Table 24.7-2: Summary of Potential Interactions between the Project and Shuswap Band's Aboriginal Rights and/or Interests for Operations Phase

Project Components and Activities	Shuswap Band Right and/or Interest	Valued Component / Valued Components Group and Effects Pathway for Potential Interaction with Shuswap Band
Labour Hiring of personnel for the mine, CHPP operations administration, and coal haul; Training of personnel.	• Economic conditions • Social and Health Conditions	• Economic Effects (Chapter 17) - Potential modest economic benefit for Nation members that could be hired for the mine, CHPP operations administration, and coal haul. • Socio-community (Chapter 18) - Potential change in population and demographics. Potential change in community health and well-being. Potential modest positive change in availability of community services. Potential change due to the influx of new employees to the region that could potentially contribute to social impacts, including safety risks. This interaction has the potential to impact economic and social and health conditions.
Explosives Factory Ammonium nitrate/emulsion storage facilities which have the ability to load explosive agents into delivery trucks; Wash facility to decontaminate the bulk explosive delivery trucks; Storage of explosives (detonators and boosters).	• Fishing • Hunting and trapping	• Surface Water Quality (Chapter 11), Fish and Fish Habitat (Chapter 12), Vegetation (Chapter 14), and Wildlife and Wildlife Habitat (Chapter 15) - Potential interaction with fish and fish habitat, terrestrial ecosystems and vegetation, and wildlife species of interest through the release of nitrogen compounds and other contaminants from storage areas and wash facilities. These interactions have the potential to impact fishing rights and hunting and trapping rights.
Fuel Storage Receiving bulk fuel deliveries; Onsite storage of fuel; Dispensing fuel; Transferring fuel to on-site delivery trucks.	• Fishing • Hunting and trapping	• Surface Water Quality (Chapter 11), Fish and Fish Habitat (Chapter 12), Vegetation (Chapter 14), and Wildlife and Wildlife Habitat (Chapter 15) – None identified - there are no anticipated interactions between Indigenous interests and fuel storage. Accidents, malfunctions and unplanned events are discussed in Chapter 21. These interactions have the potential to impact fishing rights and hunting and trapping rights.

Project Components and Activities	Shuswap Band Right and/or Interest	Valued Component / Valued Components Group and Effects Pathway for Potential Interaction with Shuswap Band
Mining Progressive clearing; Removal of unconsolidated material; Loading, hauling and stockpiling of soil; Drilling and loading of blastholes; Detonating the explosives; Loading, hauling and dumping of mine rock; Loading hauling and stockpiling or coal.	• Fishing • Hunting and Trapping • Harvesting and Gathering • Physical and Cultural Heritage • Social and Health Conditions	• Groundwater Assessment (Chapter 9), Surface Water Quantity (Chapter 10), Surface Water Quality (Chapter 11) and Fish and Fish Habitat (Chapter 12) – Potential changes to surface and ground water quality and quantity, loss of or changes to fish habitat and specific access points used for fishing is an interest to Shuswap Band. • Surface Water Quality (Chapter 11) and Fish and Fish Habitat (Chapter 12) - Loss of West Alexander Creek as a result of mine development and the storage of mine rock. • Fish and Fish Habitat (Chapter 12) - Potential interaction with fish and fish habitat as well as surface water quality and quantity through mining activities (sedimentation, erosion, spills, contact runoff, nitrate, selenium, sulphate contamination from broken rock and dust). Potential changes to the actual or perceived accessibility, health, and quality of potential fish species of cultural interest/use for country foods due to mining activities. Potential for increased fishing pressure by either mine employees or the general public is an interest to Shuswap Band. • Terrestrial Ecosystems (Chapter 13) - Potential changes in vegetation communities/terrestrial ecosystems and introduction and colonization of invasive vegetation species that outcompete species of interest. • Vegetation (Chapter 14) - Potential interaction with vegetation health through particulate matter and dust deposition. • Wildlife and Wildlife Habitat (Chapter 15) - Potential change of wildlife species of interest food sources and movements as a result of changes in vegetation communities and terrestrial ecosystems (i.e., degradation of wildlife habitat) or sensory disturbances. Changes in wildlife species of interest movements/accessibility to these wildlife species due to presence of the mine. • Fish and Fish Habitat (Chapter 12) and Wildlife and Wildlife Habitat (Chapter 15) - Sensory disturbances to potential fish and wildlife species of interest due to detonation of explosives and other mine activities.

Project Components and Activities	Shuswap Band Right and/or Interest	Valued Component / Valued Components Group and Effects Pathway for Potential Interaction with Shuswap Band
		• Pre-contact archaeological resources (Chapter 16) – Potential discovery of pre-contact archaeological resources (if present) in unconsolidated material or during progressive clearing activities. • Socio-community (Chapter 18) - Potential Project nuisance effects residents due to noise and vibration. Potential change in availability/reliance on country food. • Potential loss of ceremonial/sacred areas. These interactions have the potential to impact fishing rights, hunting and trapping rights, harvesting and gathering rights, current use of culturally significant areas, and social and health conditions.
Site Water Requirements Using contact water as the primary process make-up water from Interim Sediment Pond (Year 1 to 5); Using contact water as the primary process make-up water from the North Pit (Year 5 to 15); Backup reservoir in Grave Creek as a secondary source of process make-up water.	• Fishing • Hunting and Trapping • Ceremonial/Sacred Areas • Social and Health Conditions	• Surface Water Quality (Chapter 11) and Fish and Fish Habitat (Chapter 12) - Potential reduction of flows in Grave Creek through use as a secondary source of process make-up water, with potential to impact fish species of interest and their habitat, as well as surface water quality and quantity. Potential for loss of downstream aquatic habitat resulting in the change or loss of access to traditionally/culturally important fish species or access to fish as country foods. • Wildlife and Wildlife Habitat (Chapter 15) - Potential for changes to accessibility to aquatic and non-aquatic wildlife species of interest (e.g., waterfowl) with the change or loss of aquatic habitats. • Socio-community (Chapter 18) – Potential change in availability/reliance on country food. • Potential for changes to ceremonial or sacred areas associated with Grave Creek or downstream habitats. These interactions have the potential to impact fishing rights, hunting and trapping rights, current use of culturally significant areas, and social and health conditions. Bioaccumulation of toxins in fish and wildlife harvested by Shuswap community members is also a significant concern (SIB, 2021).

Project Components and Activities	Shuswap Band Right and/or Interest	Valued Component / Valued Components Group and Effects Pathway for Potential Interaction with Shuswap Band
Coal Processing Run of mine coal sizing; Washing coal; Mechanical and thermal drying of coal; Coal reject disposal (part of loading, hauling and dumping of mine rock activities); Conveying clean coal; and mine roads development.	• Fishing • Hunting and Trapping • Ceremonial/Sacred Areas	• Surface Water Quality (Chapter 11) and Fish and Fish Habitat (Chapter 12) - Potential reduction in flow of West Alexander Creek during coal reject disposal, hauling and dumping or mine rock, with potential to impact fish species of interest and their habitat, as well as surface water quality and quantity. Potential for loss of downstream aquatic habitat resulting in the change or loss of access to traditionally/culturally important fish species or access to fish as country foods. • Wildlife and Wildlife Habitat (Chapter 15) - Potential for changes to accessibility to aquatic wildlife species of interest (e.g., waterfowl) with the change or loss of aquatic habitat. Potential sensory disturbance and change in food sources for wildlife species of interest as a result of dust deposition/changes in vegetation communities. • Pre-contact archaeological resources (Chapter 16) - Potential for changes to ceremonial or sacred areas associated with West Alexander Creek or downstream habitats. These interactions have the potential to impact fishing rights, hunting and trapping rights, and current use of culturally significant area.
Sewage Treatment Sewage will be treated by a septic system constructed at the plant site which will support the administration, mine dry, and CHPP facilities.	• None identified	• There are no anticipated interactions between Indigenous interests and treated sewage, as the septic system will comply with the appropriate standards and regulations. Accidents, malfunctions, and unplanned events are discussed in Chapter 21.
Main Sediment Pond Construction of Main Sediment Pond in Year 4; Management of the Main Sediment Pond discharge for remainder of operational mine life.	• Fishing • Hunting and Trapping	• Surface Water Quality (Chapter 11), Surface Water Quantity (Chapter 10), and Fish and Fish Habitat (Chapter 12) - Potential interaction with surface water and fish species of interest and their habitat through sedimentation or changes in water levels through the management (discharge) of the Main Sediment Pond. • Wildlife and Wildlife Habitat (Chapter 15) - Potential for changes to accessibility to aquatic and non-aquatic wildlife species of interest (e.g., waterfowl) with the change or loss of aquatic habitat.

Project Components and Activities	Shuswap Band Right and/or Interest	Valued Component / Valued Components Group and Effects Pathway for Potential Interaction with Shuswap Band
		• Potential for change in access to places that may be important to Shuswap Band for ceremonial or sacred areas. These interactions have the potential to impact fishing rights and hunting and trapping rights. Shuswap Band have noted that significant effects on water quality and fish are currently experienced in the Elk Valley, well beyond an acceptable level from both a scientific and community perspective (SIB, 2021).
Progressive Reclamation Reclaiming available areas as soon as possible to achieve reclamation objectives.	• Fishing • Hunting and Trapping • Harvesting and Gathering • Ceremonial/Sacred Areas	• Surface Water Quality (Chapter 11) and Fish and Fish Habitat (Chapter 12) - Potential interaction with surface water quality and fish and fish habitat through erosion and sedimentation and of bare soils. • Terrestrial Ecosystems (Chapter 13) and Vegetation (Chapter 14) - Potential for changes in vegetation communities through the introduction and colonization of invasive species that outcompete species of interest resulting in a loss of traditionally/culturally important vegetation communities. • Wildlife and Wildlife Habitat (Chapter 15) - Potential for changes in wildlife food sources through changes to ecosystems/vegetation communities resulting in changes to wildlife species of interest movements/migrations. • Potential changes to or loss of places that may be important to Shuswap Band for ceremonial or sacred areas through changes in landscape/ecosystems should reclamation activities not be effective. These interactions have the potential to impact fishing rights, hunting and trapping rights, harvesting and gathering rights, and current use of culturally significant areas.

Table 24.7-3: Summary of Potential Interactions between the Project and Shuswap Band's Aboriginal Rights and/or Interests for Reclamation and Closure Phase

Project Components and Activities	Shuswap Band Right and/or Interest	Valued Component/ Valued Components Group and Effects Pathway for Potential Interaction with Shuswap Band
Dismantling Infrastructure and Buildings Dismantling of the CHPP, maintenance facilities, administration, and other facilities; Dismantling, salvaging, collecting and transferring materials to a recycling facility or other approved facility. Removal of the powerline; Removal of the natural gas line.	• Fishing • Hunting and Trapping • Harvesting and Gathering	• Surface Water Quality (Chapter 11) and Fish and Fish Habitat (Chapter 12) - Potential interaction with surface water quality and fish species of interest and their habitat through erosion and sedimentation of bare soils. Potential change to the interconnection throughout the ecosystem due to interaction of ecological features. • Terrestrial Ecosystems (Chapter 13) and Vegetation (Chapter 14) - Potential for introduction of invasive species around development areas reducing the quality of vegetation communities/terrestrial ecosystems/habitats for species of interest. Potential for reestablishment of plant harvesting activities. • Wildlife and Wildlife Habitat (Chapter 15) - Potential sensory disturbance to wildlife species of interest (i.e., noise and vibration). Potential for reestablishment of wildlife habitat in the development footprint. Potential for reestablishment of wildlife food sources through reestablishment of habitat/vegetation communities. Potential for the reestablishment of hunting activities. These interactions have the potential to impact fishing rights, hunting and trapping rights, and harvesting and gathering rights.
Progressive Reclamation Reclaiming available areas as soon as possible to achieve reclamation objectives.	• Fishing • Hunting and Trapping • Harvesting and Gathering • Ceremonial/Sacred Areas • Social and Health Conditions	• Surface Water Quality (Chapter 11) and Fish and Fish Habitat (Chapter 12) - Potential interaction with surface water quality and fish species of interest and their habitat through erosion and sedimentation of bare soils. • Terrestrial Ecosystems (Chapter 13) and Vegetation (Chapter 14) - Potential for restoration of ecosystems and related species of interest and areas used for harvesting and gathering. • Wildlife and Wildlife Habitat (Chapter 15) - Potential for reestablishment of wildlife food sources through reestablishment of ecosystems/vegetation communities. Potential for reestablishment of wildlife accessibility in the development footprint for species of interest.

Project Components and Activities	Shuswap Band Right and/or Interest	Valued Component/ Valued Components Group and Effects Pathway for Potential Interaction with Shuswap Band
		• Socio-community (Chapter 18) – Potential for Shuswap Band to take part in progressive reclamation opportunities. Potential change in community well-being. Potential change in availability/reliance on country food. These interactions have the potential to impact fishing rights, hunting and trapping rights, harvesting and gathering rights, current use of culturally significant areas, and social and health conditions.
Monitoring Reclamation monitoring; Geotechnical monitoring; Aquatic effects monitoring.	• Fishing • Hunting and Trapping • Harvesting and Gathering • Ceremonial/Sacred Areas • Social and Health Conditions	• Surface Water Quality (Chapter 11), Fish and Fish Habitat (Chapter 12), Terrestrial Ecosystems (Chapter 13), Vegetation (Chapter 14), and Wildlife and Wildlife Habitat (Chapter 15) - Potential for reduction of the quality and accessibility of fish, vegetation species of interest and wildlife species of interest for traditional/cultural purposes or country foods, should insufficient effects monitoring take place. • Socio-community (Chapter 18) – Potential for Shuswap Band to take part in monitoring activities, in particular: aquatic effects monitoring. These interactions have the potential to impact fishing rights, hunting and trapping rights, harvesting and gathering rights, current use of culturally significant areas, and social and health conditions.

Table 24.7-4: Summary of Potential Interactions between the Project and Shuswap Band's Aboriginal Rights and/or Interests for Post-Closure Phase

Project Components and Activities	Shuswap Band Right and/or Interest	Valued Component / Valued Components Group and Effects Pathway for Potential Interaction with Shuswap Band
Water Management Management of the Main Sediment Pond discharge. Decommissioning the Main Sediment Pond once water quality objectives have been met.	• Fishing • Hunting and Trapping • Harvesting and Gathering	• Surface Water Quality (Chapter 11), Surface Water Quantity (Chapter 10), and Fish and Fish Habitat (Chapter 12) - Potential interaction with surface water and fish species of interest and their habitat through erosion and sedimentation or changes in water levels through the decommissioning of the Main Sediment Pond. • Terrestrial Ecosystems (Chapter 13) and Vegetation (Chapter 14) - Potential for changes in water levels resulting in potential impacts to riparian vegetation communities and wildlife habitats of interest. • Wildlife and Wildlife Habitat (Chapter 15) - Potential for changes to accessibility to aquatic wildlife VC species of interest (e.g., waterfowl) with the change or loss of aquatic habitat. These interactions have the potential to impact fishing rights, hunting and trapping rights, and harvesting and gathering rights.
Rail Line and Road Use Branch C Road will remain as a permanent access road for future commercial and recreational use. The rail line will remain as a permanent feature.	• Fishing • Hunting and Trapping • Harvesting and Gathering	• Surface Water Quality (Chapter 11), Fish and Fish Habitat (Chapter 12), Terrestrial Ecosystems (Chapter 13), Vegetation (Chapter 14), Wildlife and Wildlife Habitat (Chapter 15) - Potential for access within the Project footprint through the use of Branch C Road, which will remain as a permanent access road for future traditional activities such as fishing, harvesting and gathering, as well as hunting and trapping. • Surface Water Quality (Chapter 11), Fish and Fish Habitat (Chapter 12) - Potential interaction with surface water and fish species of interest and their habitat through erosion and sedimentation due to permanent rail line. • Terrestrial Ecosystems (Chapter 13) and Vegetation (Chapter 14) - Potential for the introduction of weeds and invasive vegetation species in disturbed areas around the rail line resulting in a change of localized vegetation communities/loss of species of interest. • Wildlife and Wildlife Habitat (Chapter 15) - Potential for collisions with wildlife and disruption to wildlife movements resulting in changes to

Project Components and Activities	Shuswap Band Right and/or Interest	Valued Component / Valued Components Group and Effects Pathway for Potential Interaction with Shuswap Band
		accessibility to wildlife species of interest. Potential stressor on wildlife population with increased access roads potentially attracting hunters and increased road densities. These interactions have the potential to impact fishing rights, hunting and trapping rights, and harvesting and gathering rights.
Monitoring Reclamation monitoring; Geotechnical monitoring; Aquatic effects monitoring.	• Fishing • Hunting and Trapping • Harvesting and Gathering • Social and Health Conditions	• Surface Water Quality (Chapter 11), Fish and Fish Habitat (Chapter 12), Terrestrial Ecosystems (Chapter 13), Vegetation (Chapter 14), and Wildlife and Wildlife Habitat (Chapter 15) - Potential for reduction of the quality and accessibility of fish species of interest, vegetation species of interest, and wildlife species of interest for traditional/cultural purposes or country foods, should insufficient effects monitoring take place. • Socio-community (Chapter 18) - Potential for Shuswap Band to take part in monitoring activities, in particular: aquatic effects monitoring. These interactions have the potential to impact fishing rights, hunting and trapping rights, harvesting and gathering rights, and current use of culturally significant areas.

The potential effects and mitigation for Physical and Cultural Heritage as well as any structure, site, or thing that is of historical, archaeological, paleontological, or architectural significance are combined in Section 24.7.3.2.6, for the purposes of the residual effects assessment.

Criteria used to characterize residual effects are defined in Chapter 5, Section 5.3.4.5 and outlined in Section 24.3, and include duration, magnitude, spatial extent, frequency, reversibility, and context (i.e., the sensitivity and resilience of a VC to changes caused by the Project). As previously noted above in Section 24.7.2, where no appropriate representative VC was identified to serve as a surrogate for effects, additional biophysical information from Project-specific baseline studies and publicly available information was used, where available, to allow for an understanding of potential residual effects to Indigenous resource, use, and/or species of interest. At the time of the submission of this chapter, the Shuswap Band have yet to submit a Project-specific TK/TLU study within the ATRI LSA for the Project. Through this effects assessment and continued consultation with the Shuswap Band, Project-related residual effects to the Shuswap Band may continue to be identified, and where applicable, mitigated or accommodated. Considering the lack of Project specific information available from the Shuswap Band at the time of the writing of this chapter, the confidence of the residual effects to the current use of lands and resources by the Shuswap Band is considered to be low to moderate where applicable.

24.7.3.2.1 Change to Use of Lands and Resources for Traditional Fishing Purposes

Based on available information, fishing or the harvesting of the fish is understood to be a traditional activity undertaken by the Shuswap Band within their Traditional Territory. While information has not been available from the Shuswap Band that confirms that community members fish in or near the Project area or in the LSA, there is the potential for this activity to occur. The harvesting of fish is a potential valuable source of country food to the Shuswap Band. It is our understanding that Shuswap Band have identified Chinook and Sockeye Salmon as well as Largescale Sucker, Longnose Sucker, Grayling, Northern Pikeminnow, Peamouth, Mountain Whitefish, Spring Trout, Rainbow Trout, Dolly Varden Trout, Westslope Cutthroat Trout, Lake Trout, Kokanee, Lingcod, and Sturgeon, and access to healthy aquatic systems for fishing rights and related interests. The fish and fish habitat VC and related residual effects assessment (Chapter 12) was used to support an understanding of Project-related residual effects that have the potential to change the opportunity to use and access fish species by Shuswap Band. Residual effects to fish and fish habitat VCs, including the Kokanee, Mountain Whitefish, Westslope Cutthroat Trout, and the Longnose Sucker include:

- Instream habitat loss as a result of mine design;
- Habitat loss due to changes in water quantity;
- Riparian disturbance; and
- Changes in water quality.

Changes to abundance, disturbance, spawning areas, seasonal movements, movement courses, and habitat requirements for fish species identified by Shuswap Band and considered in the EIS are included in Chapter 12, Section 12.4.2.2. Chapter 12 also notes that Alexander Creek, West Alexander Creek, Grave Creek, and 12 of 27 wetlands (surveyed for fish presence) which were connected to watercourses were considered fish bearing. 13 of the 27 wetlands surveyed had low probability for fish presence based on the lack of suitable habitat observed and/or disconnectedness with fish bearing watercourses.

As a result of changes to the fish and fish habitat VCs, potential effects on Shuswap Band's opportunity to fish include:

- Potential change in the ability to know and teach the cultural and social aspects of fish VC species and waterbodies within the Project footprint and the ATRI LSA during all Project phases.
- Potential change in the value of place as a result of the change in accessibility of fishing opportunities within the Project footprint and the ATRI LSA, and the loss of waterbodies within the Project footprint during all Project phases.
- Potential change in accessibility to fishing opportunities in Grave Creek and West Alexander Creek as a result of Project water management activities in all Project phases.
- Potential change in fishing opportunities due to increased fishing pressure associated with an increase in access to watercourses as a result of Project development (i.e., upgrading of access roads).

Mitigation measures have been recommended to avoid, minimize, or otherwise address potential adverse effects to the fish and fish habitat VCs that are related to Shuswap Band's rights and interests. Specific mitigation for fish and fish habitat VCs can be referenced in Chapter 12, Section 12.5.3.

Further, mitigation measures related to the effects of the Project on the Shuswap Band are outlined in this chapter in Section 24.9 (Table 24.9-1) which presents the Indigenous Impact Management Plan that was developed in response to the concerns raised by the Shuswap Band and the identified Indigenous Communities. The mitigation measures presented in Section 24.9.1 may be revised or updated as a result of specific input provided by the Shuswap Band where applicable. No other technically and economically feasible mitigation measures were identified to address potential impacts to the Shuswap Band's rights and interests related to the fish and fish habitat VCs. At this time, NWP is not aware of potential future technology innovations that may help to further mitigate effects.

Development of the mine site will result in the removal of approximately 5.5 km of West Alexander Creek, which may be used for traditional activities by the Shuswap. While there is potential for traditional use of West Alexander Creek, it is anticipated to be relatively minimal and to a lesser extent compared to the mainstems of Alexander Creek, Michel Creek, and the Elk River. Change will occur in the suspected resident Westslope Cutthroat Trout population in West Alexander Creek due to the direct removal of fish habitat. Habitat in downstream and adjacent waterbodies are similar and will be able to support the species in the current community. While the upper reaches of West Alexander Creek are not fish bearing, the construction of the Interim Sediment Pond has the potential to reduce downstream transport of benthic invertebrates, an important food source for fish including Westslope Cutthroat Trout and may lead to an imbalance in the food web. Offsetting measures outlined in Chapter 12, Section 12.5.3 will also take place in areas of similar habitat that will support local fish populations.

Though the loss of fish habitat will affect the biomass of invertebrates available, the reduction of short-range drift is anticipated to have a minimal effect on traditional users and will be limited to the upstream sections of Alexander Creek. As drift-feeding fish further downstream of West Alexander will likely continue to rely on more local sources of invertebrates, the potential impact on the aquatic food web and productivity is predicted to be minor. During the Operations phase, the construction of the Main Sediment Pond and expansion of the Mine Rock Storage Facility is expected to result in additional loss of fish habitat in West Alexander Creek and its non-fish bearing tributaries. No potential adverse effects to fish and fish

habitat are anticipated during Reclamation and Closure, as all activities with the potential to result in direct habitat loss as a result of mine design and development will be completed. Fish population composition through species and characteristics are overall unlikely to be changed as a result of the potential impacts to habitat in the Project footprint. Offsetting measures will also take place in areas of similar habitat that will support local fish populations.

During Operations, use of Alexander Creek for fishing will be permitted, unless blasting activities are occurring. It is important to note that blasting restrictions will not affect access to the entire length of Alexander Creek, only those sections in close proximity to the pit undergoing blasting. Grave Creek Road and Branch C Road will remain as permanent access roads Post-Closure for future commercial and recreational use. As the majority of West Alexander Creek will be removed due to the Project and access to angling in Alexander Creek is already provided via the Alexander Creek Forest Service Road from the south, no changes to fishing pressure due to increased site access are anticipated to occur following Reclamation and Closure. Finally, changes to the use of Elk River for fishing activities due to Project activities, including from the development of the powerline, are considered to be negligible for the duration of the Project. Changes to fish populations due to increased fishing activities resulting from increased public access to West Alexander Creek, Alexander Creek, or the Elk River are therefore not anticipated.

It is generally accepted that as selenium concentrations in water increase, so does the risk of increased selenium concentrations in biota, even if the absolute relationship is not well understood. During Operations, all mine site drainage will be collected in the sediment ponds, either the Interim Sediment Pond during the first four years of Operations or the Main Sediment Pond beyond Year 4. Water in the sediment ponds will be monitored (as described in the Site Water Management Plan, Chapter 33, Section 33.4.1.8) to verify it meets approved discharge limits and released into the West Alexander drainage where it will flow to the confluence with Alexander Creek. Alexander Creek joins Michel Creek downstream near Highway 3, which subsequently discharges into the Elk River upstream of Sparwood. Water quality impacts downstream of the Project in the Fish and Fish Habitat LSA have the potential to affect Westslope Cutthroat Trout and benthic invertebrates. Performance monitoring of the sediment pond will provide information necessary to determine if the design is functioning optimally. Two temporary sediment ponds will be constructed to capture construction runoff water during the construction of the ROM pad and facilities pad. Two larger sediment ponds are proposed for managing the combined runoff from the mine footprint and non-contact water from the upper western slopes of West Alexander Creek. These ponds will be placed downstream of the Mine Rock Storage Facility and will be developed through the mine life to accommodate the advancing mine rock placement. Initially, the Interim Sediment Pond will capture seepage and runoff from the mine rock piles up until Year 4. During Year 5, the Main Sediment Pond will be built downstream of the advancing Mine Rock Storage Facility structure. Both the Interim Sediment Pond and the Main Sediment Pond will be lined to prevent infiltration of collected waters into the local groundwater. During Year 5, the Interim Sediment Pond will be decommissioned. The Main Sediment Pond will remain active throughout the life of the mine into the Post-Closure phase, until site reclamation activities are complete, and water quality objectives are met. Specific details on the sediment pond designs are provided in Chapter 3.

The Project has the potential to result in residual adverse effects to fish and fish habitat as a result of Project Construction and Pre-Production, Operations, Reclamation and Closure, and Post-Closure activities. In particular, the Project may result in permanent changes to instream fish habitat, the loss of

habitat due to changes in water quality, riparian disturbance, and changes in water quality that could affect fish health. Project residual effects to the fish and fish habitat VCs, including Kokanee, Mountain Whitefish, Westslope Cutthroat Trout, and Longnose Sucker, indicate the potential for a residual effect on Shuswap Band's opportunity to fish and access healthy aquatic systems for fishing opportunities.

The residual effects to the opportunity to fish and the use of fish species for traditional purposes (based on past and current uses) due to the Project footprint are characterized as follows:

- Duration: *Short-term to Long-term*, as the potential for adverse effects to opportunities for fishing will be short-term as they will generally be limited to the Construction and Pre-Production and Operations phases of the Project.
- Magnitude: *Low to Moderate,* as the opportunities to fish and access to healthy aquatic systems in watercourses currently used or potential used in the future may be altered as a result of Project residual effects on fish and fish habitat VCs, including Kokanee, Mountain Whitefish, and Longnose Sucker (e.g., instream loss associated with West Alexander Creek).
- Geographic Extent: *Local*, as changes in the opportunity to fish and access aquatic systems is restricted to the West Alexander Creek within the Fish and Fish Habitat LSA and the ATRI LSA.
- Frequency: *Continuous*, as the opportunity to fish and access aquatic systems potentially used currently or in the future by Shuswap Band is anticipated to occur during Construction and Pre-Production, Operations, and Reclamation and Closure until Project activities are completed.
- Reversibility: *Reversible Long-term to Irreversible*, changes in opportunities to fish are anticipated to be reversible as the Project footprint is reclaimed and off-site aquatic compensation is achieved. There are no permanent barriers in the West Alexander or Alexander Creeks, and fish have the option to move freely throughout the watershed, including downstream to the Elk River.
- Context: *Neutral*, as opportunities to fish are present within several watercourses within the Fish and Fish Habitat LSA and the ATRI LSA, and these watercourses have been previously disturbed by human activities (e.g., Harmer Creek and mining activities). The context is also deemed neutral due to the lack of information available from the Shuswap Band regarding their opportunity to conduct traditional fishing within the Project footprint at this time, as it is expected that their ability to know and teach the Shuswap way of living can continue outside of the Project footprint during all Project phases.

Determination of Significance

Shuswap Band have not currently made available information regarding their use of the watercourses in the Project footprint for fishing purposes, though it is understood that the Project is located within the Shuswap Band's asserted Traditional Territory. It is acknowledged that Shuswap Band has the potential to use Project-impacted watercourses that support Kokanee, Mountain Whitefish, Westslope Cutthroat Trout, and Longnose Sucker given their current use and interest in these species. The Project is anticipated to result in short-term to long-term changes in opportunities for fishing as access to upstream Grave Creek and West Alexander Creek is restricted over the course of the Project. Impacts to fish habitat, such as the loss of instream habitat, will be compensated for through the Fish and Fish Habitat Management Plan, and other than those identified within the Project footprint, no permanent losses to the ability to fish Kokanee, Mountain Whitefish, Westslope Cutthroat Trout, and Longnose Sucker are anticipated within the ATRI LSA. The Fish and Fish Habitat Management Plan will compensate the loss of available habitat to fish and benthic invertebrate communities in the Fish and Fish Habitat LSA and Aquatic RSA or for

different uses as required for their life histories, thus resulting in no net loss of instream habitat as a result of the Project.

In consideration of the above and the Project's design to reduce impacts to fish and fish habitat VCs including the Fish and Fish Habitat Management Plan, the residual effect of the Project on the current use of lands and resources for fishing is rated as not significant.

Likelihood and Confidence

Effects that are determined to be not significant do not require a characterization of likelihood. Confidence considers the reliability of data and analytical methods used in the assessment of effects. Baseline conditions of relevant fish VCs within the Project footprint and Fish and Fish Habitat LSA are well established, providing sufficient data to assess effects to changes in the opportunity for Shuswap Band to fish and access to healthy aquatic systems. Though baseline data was sufficient to evaluate effects for the fish and fish habitat VCs, areas currently or potentially used by Shuswap Band to fish were not available at the time of the assessment. As such, the confidence of the residual effects to the current use of lands and resources by Shuswap Band for fishing and fish opportunities is considered to be low to moderate.

The residual effects to opportunities for fishing and access to aquatic systems will be further discussed through continued consultation with Shuswap Band, as well as through the development of potential follow-up and monitoring and adaptive management measures to implement corrective actions as necessary based on that follow-up. Thus, the continued consultation and follow-up program to be implemented is expected to improve the low to moderate level of confidence.

As noted earlier, while mitigation measures related to the effect of the Project on the Shuswap Band are presented in the Indigenous Impact Management Plan (Section 24.9), at this time, the Shuswap Band did not provide specific information included in Section 24.9.1 that addressed their concerns regarding fish and fish habitat VC species (including Westslope Cutthroat Trout, Rainbow Trout, Bull Trout, and Rocky Mountain Whitefish) related to the Shuswap Band's traditional fishing activities.

24.7.3.2.2 Change to Current Use of Lands and Resources for Traditional Hunting and Trapping Purposes

Based on available information, hunting and trapping is understood to be a traditional activity undertaken by the Shuswap Band within their Traditional Territory. While information has not been available from the Shuswap Band to NWP that confirms that community members hunt or trap within or near the Project area or in the LSA, there is the potential for this activity to occur. The harvest of wildlife is a potential valuable source of country food and sustenance to the Shuswap Band and may contribute to their cultural activities. Of the wildlife VC species identified as part of the EA regulatory process, moose, elk, mountain (bighorn sheep), mountain goat, lynx, marten, and waterfowl (ducks and geese), as well as grizzly bear have been identified as being of interest to Shuswap Band. Section 24.7.3.2.2 covers all of the wildlife VCs listed here and subsections specific to grizzly bear, elk, and bighorn sheep follow to highlight as species of particular interest to the Shuswap Band. The wildlife and wildlife habitat residual effects assessment (Chapter 15) was used to support an understanding of Project-related effects to these species of interest which have the potential to change hunting and trapping by Shuswap Band. Residual effects to wildlife VCs include:

- Habitat loss and degradation;

- Sensory disturbance;
- Disruption to movement; and
- Increased mortality risk.

The assessment of residual effects to land use and access (Chapter 19) was used to understand potential effects on the availability of lands used for hunting and trapping. In addition, changes to air quality (Chapter 6) and noise (Chapter 7) may result in indirect sensory disturbance to Indigenous land users and alter or deter their use of the lands for hunting and trapping. Changes to abundance, disturbance, occupancy, seasonal movements, movement corridors, and habitat requirements for wildlife species identified by Shuswap Band and considered in the EIS are included in Chapter 15.

Potential effects on the opportunity to hunt and trap that may result from changes associated with the Project include:

- Potential change in accessibility to hunt and trap within the ATRI LSA during the Construction and Pre-Production, Operations, and Reclamation and Closure phases due to changes in land use as a result of Project development.
- Potential change in the value of place as a result of the change in accessibility to hunt and trap, or the actual or perceived change in quality of species hunted or trapped, within the ATRI LSA during the Construction and Pre-Production, Operations, and Reclamation and Closure phases.
- Potential change in the ability to know and teach the cultural and social aspects hunting and trapping within the Project footprint and the ATRI LSA during the Construction and Pre-Production and Operations phases due to changes in access and wildlife quality.
- Potential change in the availability of wildlife species to hunt and trap due to changes in habitat loss and degradation, sensory disturbance, disruption to movement, and increased mortality risk during all phases of the Project.
- Potential increased hunting pressure because of increased access surrounding the Project area through all phases of the Project.

Mitigation measures have been recommended to avoid, minimize, or otherwise address potential adverse effects to the wildlife VCs that are related to Shuswap Band's rights and interests. Specific mitigation for wildlife VCs related to the Shuswap Band can be referenced in Chapter 15.

Further, mitigation measures related to the effects of the Project on the Shuswap Band are outlined in this chapter in Section 24.9 (Table 24.9-1) which presents the Indigenous Impact Management Plan that was developed in response to the concerns raised by the Shuswap Band and the identified Indigenous Communities. The mitigation presented in Section 24.9.2 may be revised or updated as a result of specific input provided by the Shuswap Band where applicable. No other technically and economically feasible mitigation measures were identified to address potential impacts to the Shuswap Band rights and interests related to the wildlife VCs. At this time, NWP is not aware of potential future technology innovations that may help to further mitigate effects.

The Project has the potential to result in residual adverse effects to wildlife species potentially used by Shuswap Band for hunting and trapping. In particular, wildlife habitat will be removed, and wildlife species movement will be disrupted as a result of Project Construction and Pre-Production and Operations. These impacts have the potential to result in residual effects to Shuswap Band due to the anticipated decline in the wildlife species available for use by Shuswap Band in hunting and trapping practices as well as the

temporary impact to the accessibility of areas that may be potentially used to hunt and trap in the Project footprint and the ATRI LSA. Though residual effects to wildlife VCs may occur as result of the Project, no significant adverse effects are anticipated. In the Reclamation and Closure phase approximately 785 ha of self-sustaining ecosystems will be reclaimed within the disturbance footprint to reclaim wildlife habitat impacted as a result of the Project and this is expected to renew the use of the Project footprint for hunting and trapping related activities.

Potential residual effects to the current use of lands and resources by Shuswap Band for hunting and trapping is characterized as follows:

- Duration: *Long-term*, the potential for adverse effects to opportunities for hunting and trapping species of interest will be long-term as the effects related to habitat loss and degradation, sensory disturbance, and disruption to movement are expected to continue to the end of the Reclamation and Closure phase of the Project.
- Magnitude: *Low* to *Moderate*, the potential for negative effects to opportunities for hunting is low to moderate based the limited amount of expected loss of high-quality habitat, or the semi-permanent nature of infrastructure such as that of linear infrastructure that might impact species movements, and limited percentage of high-quality habitat that will be impacted by potential sensory disturbance.
- Geographic Extent: *Local*, potential effects to opportunities for hunting and trapping are restricted to the Project footprint and the ATRI LSA.
- Frequency: *Continuous*, the potential for adverse effects to species of interest are expected to occur continuously as the Project activities are completed, from Construction and Pre-Production to Reclamation and Closure.
- Reversibility: *Reversible Long-term*, changes in current use of lands and resources for traditional purposes resulting from the Project activities related to hunting and trapping are anticipated to be reversible as the site is reclaimed and ecosystems are re-established (Chapter 33).
- Context: *Neutral*, the opportunity to conduct traditional hunting and trapping within the Project footprint and local study areas is important to Shuswap Band members. The Project footprint is within Shuswap Band Traditional Territory, once utilized and depended upon by Shuswap Band ancestors and part of the rights and interests of Shuswap Band members of today. Changes to Shuswap Band's accessibility to opportunities for hunting and trapping is deemed neutral due to the importance of these traditional activities to Shuswap Band cultural and traditional identity and the importance of available lands for traditional practices (as a result of the loss of available lands for resource use in general within British Columbia and Alberta due to multiple industry and development expansions), balanced with the anticipated renewed access and availability of these resources following the completion of the Project. The context is also deemed neutral due to the lack of information available from the Shuswap Band regarding their opportunity to conduct traditional hunting and trapping within the Project footprint at this time, as it is expected that their ability to know and teach the Shuswap way of living can continue outside of the Project footprint during all Project phases.

Determination of Significance

Shuswap Band has not currently made available information regarding their use of the Project footprint for hunting and trapping purposes and it is anticipated that currently Shuswap Band has a low level of use in the Terrestrial LSA used to evaluate effects to VCs due to previously noted disturbances (e.g., existing

mining activity). The anticipated low level of use by Shuswap Band coupled with the lack of significant adverse effects to wildlife VCs that potentially used for hunting and trapping purposes indicates that there is potentially no to low residual effect on the change in lands and resources for traditional hunting and trapping. The Project is not anticipated to result in the permanent loss of access or the ability to conduct traditional land and resource use related to hunting and trapping within the Project footprint or VC study areas. As part of Project Reclamation and Closure wildlife habitat will be reclaimed within the disturbance footprint, and result in a variety of wildlife habitat types for use by ungulate, carnivore, small mammals, and bird species.

Therefore, in consideration of the above and the Project's design to reduce impacts to wildlife VCs, ecosystems, land use, air and noise, the residual effect of the Project on the use of lands and resources for traditional hunting and trapping is rated as not significant.

Likelihood and Confidence

Effects that are determined to be not significant do not require a characterization of likelihood. Confidence considers the reliability of data and analytical methods used in the assessment of effects. Baseline conditions of relevant VCs within the Project footprint and VC study areas are well established, providing sufficient data to assess effects to changes in the opportunity for Shuswap Band to hunt and trap. Though baseline data was sufficient to evaluate effects for Project VCs, not all species of interest to Shuswap Band identified through publicly-available information were evaluated to the depth of the VC baseline studies and effects assessment. As such, the confidence of the residual effects to the current use of lands and resources by Shuswap Band for hunting and trapping is considered to be low to moderate.

The residual effects to opportunities for hunting and trapping will be further discussed through continued consultation with Shuswap Band, as well as through the development of potential follow-up and monitoring and adaptive management measures to implement corrective actions as necessary based on that follow-up. Thus, the continued consultation and follow-up program to be implemented is expected to improve the low to moderate level of confidence.

The subsections included below on grizzly bear, elk, bighorn sheep highlight the Shuswap Band's identification of these species as being culturally significant based on feedback previously received (Appendix 24-A, Table 24.A-2). Additional information on ungulates including bighorn sheep can be found in Chapter 15, Section 15.4.

Shuswap Band's Species of Interest: Grizzly Bear

As noted above and in Section 24.5.4, during consultation and engagement activities, the Shuswap Band provided feedback that detailed the cultural significance of grizzly bear to the Nation (Appendix 24-A, Table 24.A-2). As such, this section focuses on the assessment of the effects of the Project on the changes to the environment in relation to grizzly bear. Grizzly bear was assessed for potential Project-related effects on habitat loss and degradation, sensory disturbance, disruption to movement, and increased mortality risk. Mitigation measures as recommended in Chapter 15, Section 15.5.3.3 will contribute to effect minimization, but residual effects are still anticipated to remain to this species.

The Project footprint overlaps with high-quality grizzly bear habitat The grizzly bear model predicts that high-quality habitat in the Project footprint is present in spring, summer, and fall. The Project will result

in a predicted loss of up to 228 ha (in fall) of high-quality grizzly bear habitat, representing a loss of up to 3.7% of the total amount of high-quality grizzly bear habitat available in the Terrestrial LSA (6,195 ha). High-quality habitat loss will be in various portions of the Project footprint including the rail loadout, the utility corridor, and upgrading of the lower portions of the access road and the mine site. On a proportional basis, the availability of high-quality grizzly bear habitat is lower within the Project footprint compared to the Terrestrial LSA as whole (0 to 18% for the Project footprint and 13 to 27% for the Terrestrial LSA, depending on the season), meaning high-quality habitat is more common outside the footprint than it is within.

Clearing will begin in Construction and Pre-Production with initial portions of the 1,283 ha footprint (including the buffer) prepared for the mine site facilities, a portion of the North Pit, the Interim Sediment Pond, roads, the conveyor, the powerline, and the rail loadout. During Operations, progressive clearing of the pits, Mine Rock Storage Facility, and Main Sediment Pond will continue through to Year 15. Habitat loss will have a continuous adverse effect until progressive reclamation begins in Year 10 of Operations. With progressive reclamation between Years 10 and 15 and continued reclamation in the Reclamation and Closure phase, the effect of habitat loss will begin to decline.

Post mine reclamation will reclaim a mosaic of coniferous forest, open alpine tundra, rock outcrops, shrub and graminoid dominated brushland, talus slopes, wetlands and riparian areas (described in Section 15.5.3.3.1 and in the Ecological Restoration Plan, Chapter 33, Section 33.4.1.3). Most of the reclaimed ecosystems will provide habitat for grizzly bear (i.e., food, security, or thermal protection) over time. Reclamation will begin in Year 10 of Operations for limited areas and then accelerating at the end of Operations. Within five years of closure, graminoids, forbs, and some shrubs will have become established and will begin to provide food for grizzly bear, though the quality will be variable and may be limited in many areas. While grizzly bears have been found to access reclaimed mines to forage on vegetation and prey on ungulates (Cristescu et al., 2011); mine reclamation areas have generally not been found to support high value forage used by grizzly bears (Teck Coal Limited, 2014b; Mowat et al., 2018). Food availability will progressively improve at 25- and 50-years post-closure. Forest will begin to become established at 50 years post-closure onward, especially at low elevations, and begin to provide security. The Project footprint is ultimately expected to be a landscape similar in structure and composition to the pre-Project landscape.

The east side of the Project footprint includes a contingency area that extends over the top of Crown Mountain and downslope for approximately 250 m. This area contains the start zones for avalanche chutes that continue downslope toward Alexander Creek. If the start zones are modified through excavation or stockpiling, the avalanche regime may change and may degrade or eliminate avalanche chute habitat downslope and outside the Project footprint. There are 45 ha of shrub avalanche chute outside the Project footprint that may be affected if their start zones are modified or lost. This therefore represents an additional 45 ha of additional high-quality habitat loss (1.1% of high-quality spring habitat in the Terrestrial LSA) beyond that already occurring within the Project footprint. Habitat degradation of areas outside the Project footprint can also occur from potential introduction and spread of invasive species, changes in vegetation vigour from dust deposition, and surface water runoff from the Project footprint that can contain suspended solids and affect vegetation. Mitigation for each of these effects was described in Chapter 13: Landscapes and Ecosystems Assessment and found to have no residual effects to each of the ecosystem VCs. The Project footprint includes a buffer area intended to account for

uncertainty in precise boundaries of disturbance. Not all of the buffer area will be disturbed, and the calculations of habitat loss are therefore conservative and may be overestimated.

Grizzly bear habitat will be functionally lost or disturbed due to sensory disturbance. This is in addition to direct habitat loss from clearing. Sensory disturbance for grizzly bear includes behavioural responses to Project-related noise, vibration, light, dust, and human presence. Sensory disturbance from noise has the potential to extend furthest and is the focus of the residual effects assessment. Potential effects arising from vibration, light, dust, and human presence would be expected to be less than those arising from noise. Grizzly bears are sensitive to human activities and may be displaced within the noise zones of influence. Habitat is not lost, but grizzly bear may spend less time in areas affected by noise, effectively degrading the quality of habitat or eliminating availability completely. The zone of influence from noise is largest at the pit where the CHPP and most heavy equipment is located.

Grizzly bears make daily movements between habitats that provide food, security, and thermal protection, and seasonal movements that track food availability. The Project has the potential to block both daily and seasonal movements. Disruption to movement may be particularly high when Project activities and components are within restricted terrain features including narrow valleys or canyons. When the Project is at its largest extent and prior to any large areas of reclamation (around Year 10 of Operations), the mine site footprint will occupy a large portion of the West Alexander Creek valley and will be an impermeable barrier in the area that it occupies. The upper slopes of the west side of the valley will remain intact but will be degraded by sensory disturbance and use for connectivity between daily or seasonal habitats may be reduced.

Along the conveyor, underpasses will be created by elevating the conveyor and the use of the conveyor underpasses and habitats adjacent to the conveyor will be dependent on sensitivity to the physical presence of the conveyor and the noise that is generated. The conveyor is expected to represent a semi-permeable barrier to grizzly bear.

Pathways of increased risk of mortality (described in Sections 15.5.3.2.3) that are unlikely to be fully mitigated are collisions with Project-related traffic on access or mine roads, collisions with trains, and increased hunter access after closure. The Project will involve loading of 120 trains per year. Trains will not be travelling at high speeds within the rail loadout and train-wildlife collisions in this area are unlikely. There will be an incremental increase in rail traffic on the main rail lines as a result of the Project (one additional train every three days on average) where the risk of wildlife-train collisions is higher. The extent to which the Project will contribute to an incremental increase in grizzly bear mortalities from train collisions is unknown.

The upgraded Grave Creek Road will remain open post-closure and may provide increased access to hunters. Though there is no open hunting season for grizzly bear, there is the potential for poaching. The current condition of the road is rough, though is currently accessed by 4x4 vehicles, snowmobiles, and all-terrain vehicles. Access up from Grave Creek Road to the mine site will be open to the public. The road to the explosives factory will be decommissioned and reclaimed. The potential for increased poaching of grizzly bear as a result of increased access is difficult to predict but is assumed to be very low. Measures to mitigate the effects of increased traffic volume along Grave Creek Road on the frequency of crossing by wildlife will be implemented; there is uncertainty on their effectiveness. A program will be developed to monitor carnivore and other wildlife movement across Grave Creek Road at Grave Creek Canyon and

in areas immediately adjacent (for comparison) using remote wildlife cameras, similar to the program for the overland conveyor. Other wildlife monitoring are outlined in the Wildlife Management and Monitoring Plan (Chapter 33, Section 33.4.1.13) to support the verification of mitigation measures and effects predictions relating to carnivore VCs.

In the South Rockies Grizzly Bear Population Unit, there are an estimated 239 grizzly bears, and current population density estimates in southeast B.C. are considerably lower than during the 1980s. The grizzly bear population north of Highway 3 within the Elk, Bull, and White River valleys declined by 40% between 2006 and 2013 while a preliminary analysis of very recent data suggests that there has been a very recent population increase in the Elk Valley since 2012 (Mowat et al., 2018). Direct habitat loss as a result of the Project is of low magnitude and is partly reversible, though the quality of reclaimed areas to grizzly bear will be variable. The indirect habitat loss and degradation from potential impact to the avalanche chutes on the east side of Crown Mountain (if it occurs) may be much more important to grizzly bear, as avalanche chutes rank among the most important habitats for grizzly bear. Sensory disturbance will further degrade habitat in the West Alexander Creek valley. The West Alexander Creek valley will be partially blocked to grizzly bear movements (by the pits and Mine Rock Storage Facility before they are reclaimed); other portions of the Project footprint will represent a semi-permeable barrier.

Direct habitat loss as a result of the Project is of low magnitude and is partly reversible, though the quality of reclaimed areas to grizzly bear will be variable. The indirect habitat loss and degradation from potential impact to the avalanche chutes on the east side of Crown Mountain (if it occurs) may be much more important to grizzly bear, as avalanche chutes rank among the most important habitats for grizzly bear. Sensory disturbance will further degrade habitat in the West Alexander Creek valley. The West Alexander Creek valley will be partially blocked to grizzly bear movements (by the pits and Mine Rock Storage Facility before they are reclaimed); other portions of the Project footprint will represent a semi-permeable barrier.

Based on the characterization of the residual effects and recent trends in local grizzly bear population levels, the Project is unlikely to contribute to limiting the ability of grizzly bear to recover from past declines and maintain a stable population in the Terrestrial LSA. The combined residual effects of habitat loss and degradation, sensory disturbance, disruption to movement, and increased mortality risk on grizzly bear are therefore considered not significant.

Considering the above, while the Project has no significant residual effects to grizzly bear, there may be potential residual adverse effects to the Shuswap Band's rights in relation to the species in the Project footprint and the KNRI LSA. As noted earlier, in relation to grizzly bear, the potential to result in residual effects to Shuswap Band may occur due to the potential change in land use, value of place as a result of the change in accessibility to access or the actual or perceived change in the availability of grizzly bear, change in the ability to know and teach the Shuswap Band's cultural and social aspects of the species, and potential increase in accessibility pressure because of increased access surrounding the Project area through all phases of the Project.

The potential residual effects to the Shuswap Band with respect to grizzly bear in relation to the Shuswap Band's traditional activities are characterized as follows:

- Duration: *Long-term*, the potential for adverse effects to grizzly bear will be long-term as the residual effects related to habitat loss and degradation, sensory disturbance, disruption to movement, and increased mortality are expected to continue to the end of the Reclamation and Closure phase of the Project.
- Magnitude: *Low to Moderate*, the potential for negative effects to grizzly bear is low to moderate based the limited amount of expected loss of high-quality habitat (up to 3.7% in the Terrestrial LSA), or the semi-permanent nature of infrastructure such as that of linear infrastructure that might impact species movements, the limited percentage of high-quality habitat that will be impacted by potential sensory disturbance (up to 8.9% will be affected by noise, depending on the season), and the mortalities as a result of the Project that are expected to be uncommon.
- Geographic Extent: *Local*, potential effects to grizzly bear are restricted to the Project footprint and the KNRI LSA.
- Frequency: *Continuous*, the potential for adverse effects to grizzly bear are expected to occur continuously as the Project activities are completed, from Construction and Pre-Production to Reclamation and Closure. The effect of habitat loss and degradation and disruption to movement is expected to be continuous until lost habitat is restored, varying for sensory disturbance until the end of Operations, peaking at Year 10 of Operations with noise from blasting being intermittent and mortalities at sporadic intervals (if any) during any phase of the Project.
- Reversibility: *Reversible Long-term*, changes in current use of lands and resources for traditional purposes resulting from the Project activities related to grizzly bear are anticipated to be reversible as the site is reclaimed and ecosystems are re-established (Chapter 33). The effect of noise will decline substantially at the end of Operations and continue at lower levels during Reclamation and Closure and increased mortality risk will end after Reclamation and Closure.
- Context: *Low*, as grizzly bear has low resilience to disruption in the receiving environment and will not easily adapt to effects and the grizzly bear population is very sensitive to change in mortality. The Project footprint is within Shuswap Band's Traditional Territory, once utilized and depended upon by Shuswap ancestors and part of the rights and interests of Shuswap Band community members of today. Changes to Shuswap Band's accessibility to grizzly bear is deemed low due to the importance of these traditional activities to Shuswap cultural and traditional identity and the importance of available lands for traditional practices (as a result of the loss of available lands for resource use in general within British Columbia and Alberta due to multiple industry and development expansions), balanced with the anticipated renewed access and availability of these resources following the completion of the Project. The context is also deemed neutral due to the lack of specific information available from the Shuswap Band regarding their opportunity to access grizzly bears within the Project footprint at this time, as it is expected that their ability to know and teach the Shuswap way of living can continue outside of the Project footprint during all Project phases.

Determination of Significance

Based on the characterization of the residual effects and recent trends in local grizzly bear population levels, the Project is unlikely to contribute to limiting the ability of grizzly bear to recover from past declines and maintain a stable population in the Terrestrial LSA. At the time of this submission, the Shuswap Band have not made available information regarding their use of the Project footprint for access to grizzly bear and it is anticipated that currently the Shuswap Band have a moderate level of use in the Terrestrial LSA used to evaluate effects to VCs due to previously noted disturbances. The anticipated

moderate level of use by the Shuswap Band coupled with the lack of significant adverse effects to grizzly bear that are potentially hunted indicates that there would be low-level residual effects on the change in lands and resources for traditional activities. The Project is not anticipated to result in the permanent loss of access or the ability to conduct traditional land and resource use related to grizzly bear within the Project footprint or the grizzly bear VC study areas (i.e., the Grizzly Bear RSA). As part of the Project Reclamation and Closure phase, wildlife habitat will be reclaimed within the disturbance footprint, and result in a variety of wildlife habitat types for use by grizzly bear. Therefore, in consideration of the above and the Project's design to reduce impacts to grizzly bear, the residual effect of the Project on the Shuswap Band's use of lands and resources related to grizzly bear is rated as not significant.

Likelihood and Confidence

Effects that are determined to be not significant do not require a characterization of likelihood. There is a good understanding of grizzly bear ecology, their habitat availability and distribution, known occurrences, and abundance in the Terrestrial LSA. There is uncertainty in the grizzly bear population trend in the Elk Valley and the factors that may most contribute to grizzly bear population stability. Furthermore, the loss of additional avalanche chutes on the east site of Crown Mountain is uncertain. The confidence in the significance determination of residual effects to grizzly bear is therefore moderate. Confidence considers the reliability of data and analytical methods used in the assessment of effects. Baseline conditions of grizzly bear within the Project footprint and the grizzly bear VC study areas are well established, providing sufficient data to assess effects to changes in the opportunity for the Shuswap Band to access grizzly bear. Though baseline data was sufficient to evaluate effects for Project VCs, not all species of interest to the Shuswap Band identified through publicly available information were evaluated to the depth of the grizzly bear VC baseline studies and effects assessment. As such, the confidence of the residual effects to the use of lands and resources by the Shuswap Band is considered to be low to moderate.

Shuswap Band's Species of Interest: Elk

As noted above and in Section 24.5.4, during consultation and engagement activities, the Shuswap Band provided feedback that detailed the cultural significance of elk to the Nation (Appendix 24-A, Table 24.A-2). As such, this section focuses on the assessment of the effects of the Project on the changes to the environment in relation to elk. Elk were assessed for potential Project-related effects on habitat loss and degradation, sensory disturbance, disruption to movement, and increased mortality risk. Mitigation measures as recommended in Chapter 15, Section 15.4.3.3 will contribute to effect minimization, but residual adverse effects are still anticipated to remain for the species.

The Project footprint overlaps with high-quality elk habitat and will result in a predicted loss of 191 ha of high-quality fall-winter habitat, representing 7.1% of the total amount of high-quality fall-winter elk habitat available in the Terrestrial LSA (2,671 ha). Loss will be in various portions of the Project footprint, including the rail loadout, the utility corridor, the Mine Rock Storage Facility, and pits. On a proportional basis, the availability of high-quality fall-winter elk habitat is higher within the Project footprint compared to the Terrestrial LSA as whole (15% for Project footprint and 11% for the Terrestrial LSA), meaning high-quality habitat is more common within the footprint than it is outside. The Project will result in a predicted loss of 23 ha of high-quality spring-summer habitat, representing 2.7% of the total amount of high-quality spring-summer elk available in the Terrestrial LSA (863 ha). On a proportional basis, the availability of high-quality elk habitat in spring-summer is lower within the Project footprint compared to the Terrestrial

LSA as whole (2% for Project footprint and 4% for the Terrestrial LSA), meaning high-quality habitat is more common outside the Project footprint than it is within.

Clearing will begin in Construction and Pre-Production with initial portions of the 1,283 ha Project footprint (including the buffer) prepared for the mine site facilities, a portion of the North Pit, the Interim Sediment Pond, roads, the conveyor, the powerline, and the rail loadout. During Operations, progressive clearing of the pits, Mine Rock Storage Facility, and Main Sediment Pond will continue through to Year 15. Elk habitat loss will have a continuous adverse effect until progressive reclamation begins in Year 10 of Operations. With progressive reclamation between Years 10 and 15 and continued reclamation in the Reclamation and Closure phase, the effect of habitat loss will begin to decline. The service corridor with the 138 kV powerline will be cleared during Construction and Pre-Production. The area beneath the powerlines and between power poles will naturally revegetate over time and will be accessible to elk. Areas that were previously forest will no longer provide security and thermal protection but will provide forage. After decommissioning, trees will eventually return, though not established as a forest for several decades following Reclamation and Closure. A 100 m wide corridor has been allocated for construction of the 2.7 km long overland coal conveyor. Not all portions of the corridor will require clearing and temporary construction areas will rapidly revegetate and provide forage for elk in spring-summer.

Post mine reclamation will restore a mosaic of coniferous forest, open alpine tundra, rock outcrops, shrub and graminoid dominated brushland, talus slopes, wetlands and riparian areas (described in Chapter 15, and in the Ecological Restoration Plan, Chapter 33, Section 33.4.1.3). Most of the restored ecosystems (all aside from sparsely vegetated talus) will provide habitat for elk (i.e., food, security or thermal protection) over time. Reclamation will begin in Year 10 of Operations for limited areas and then accelerating at the end of Operations. Within five years of closure, graminoids, forbs, and some shrubs will have become established and will begin to provide food for elk, though the quality will be variable and may be limited in many areas. Food availability will progressively improve at 25- and 50-years post-closure. Forest will begin to become established at 50 years post-closure onward, especially at low elevations, and begin to provide security and thermal protection.

The Project footprint is ultimately expected to be a landscape similar in structure and composition to the pre-Project landscape. Reclaimed mining areas tend to be heavily used by elk in the Terrestrial RSA and habitat availability has likely increased. Elk show strong selection for grassland habitats on reclaimed mine sites in the Elk Valley, and several herds remain on mining habitats year-round (Gibson and Sheets, 1997). It is likely that elk are selecting for reclaimed mining areas partially due to the vegetation conditions, in addition to the inferred protection from predators. The Project footprint includes a buffer area intended to account for uncertainty in precise boundaries of disturbance. Not all of the buffer area will be disturbed, and the calculations of habitat loss are therefore conservative and may be overestimated.

Habitat degradation of ungulate habitat can occur from potential introduction and spread of invasive species, changes in vegetation vigour from dust deposition, and surface water runoff from the Project footprint that can contain suspended solids and affect vegetation. Mitigation for each of these effects was described in Chapter 13 and found to have no residual effects to each of the ecosystem VCs. Effects of habitat degradation on ungulates was therefore considered to be nil or so small in magnitude relative to direct habitat loss that it was not quantified further.

Elk habitat may be functionally lost or disturbed due to sensory disturbance. This is in addition to direct habitat loss from clearing. Sensory disturbance for elk includes behavioural responses to Project-related noise, vibration, light, dust, and human presence. Sensory disturbance from noise and vibration has the potential to extend further than light, dust, and human presence and is thus the focus of the residual effects assessment, for conservatism. Continuous Project-related noise at ≥ 45 dBA (nighttime threshold) will affect up to 1,118 ha outside the Project footprint. This overlaps with up to 66 ha of high-quality fall-winter habitat and 22 ha of high-quality spring-summer habitat when Project-related noise is at its peak in Year 10 of Operations. This represents 2.5% and 2.6% of fall-winter and spring-summer high-quality habitat in the Terrestrial LSA, respectively. A much smaller amount of high-quality habitat may be affected in daytime using the ≥ 55 dBA daytime threshold. Peak noise from blasting could affect 74 ha of high-quality fall-winter habitat and 67 ha of high-quality spring-summer habitat. This represents 2.8% and 7.8% of fall-winter and spring-summer high-quality habitat in the Terrestrial LSA, respectively.

Elk may be displaced within the noise zones of influence. Habitat is not lost, but elk may spend less time in areas affected by noise, effectively degrading the quality of habitat or eliminating availability completely. Elk frequently habituate to human disturbance and are often associated with built-up areas and roadways and in close proximity to active mine sites if winter forage availability is high. The effect of sensory disturbance may therefore be less relative to other ungulates. Once the Operations phase is complete, noise will substantially decrease and noise from blasting will cease. Noise during Reclamation and Closure will be from decommissioning and removal of infrastructure and reclamation activities.

Elk make daily movements between habitats that provide food, security, and thermal protection and seasonal movement between mid and high elevation subalpine area in spring-summer and lower elevation valley areas in fall-winter. The Project has the potential to block both daily and seasonal movements and the disruption cannot be fully mitigated. Known elk movement corridors in the Terrestrial LSA include:

- A north-south corridor that connects the Erickson Ridge to Sheep Mountain (Grave Creek Canyon);
- Corridors of forested habitat along the Elk River's tributaries;
- A north-south corridor along Natal Ridge;
- Corridor from Natal Ridge to Alexander Creek drainage;
- Corridor from Natal Ridge to Harmer Valley via Erickson Valley; and
- A north-south corridor that connects Alexander Creek and Michel Creek.

The north-south corridor that connects Erickson Ridge to Sheep Mountain (through Grave Creek Canyon) intersects with the access road. The access road will be upgraded and will have higher levels of daily traffic relative to existing conditions. Elk can still be attracted to roads for suitable forage and salt from application of de-icing materials. Elk were recorded along Grave Creek Road in both summer and winter. In general, roads represent a semi-permeable barrier to elk, provided that no physical barriers are created during road upgrade or unbroken snowbanks created from snow clearing. The predicted traffic level of 140 vehicles per day is unlikely to affect crossing success, especially with speed reductions in areas known to have frequent wildlife (e.g., Grave Creek Canyon) and provided that wildlife has the right-of-way. No new access roads will be created (aside from those in the pits and dump areas).

When the Project is at its largest extent and prior to any large areas of reclamation (around Year 10 of Operations), the mine site footprint will occupy a large portion of West Alexander Creek valley and will be a nearly impermeable barrier. The upper slopes of the west side of the valley will remain intact but may be degraded by sensory disturbance and use for connectivity between daily or seasonal habitats may be reduced. Along the conveyor, underpasses will be created by elevating the conveyor to at least 2.4 m above ground (or higher where terrain can be used to create more clearance) at intervals of two per 1,000 m. Use of the conveyor underpasses and habitats adjacent to the conveyor will be dependent on their sensitivity to the physical presence of the conveyor and the noise that is generated. The conveyor is expected to represent a semi-permeable barrier to elk. The utility corridor is primarily composed of the powerline and the buried gas line. Suitable habitat will be present beneath the powerline after construction. The powerline may not be a barrier to movement on its own, but since it parallels the road, it may be avoided due to proximity and function as a semi-permeable barrier in combination with the road.

Pathways of increased risk of mortality for elk that are unlikely to be fully mitigated are collisions with Project-related traffic on access or mine roads and increased hunter access after closure. Even with the traffic control mitigation measures described in Chapter 15, vehicle collisions with elk may still occur. The number is expected to be small. Wildlife sightings and wildlife-vehicle collisions will be recorded and monitored. Measures to mitigate the effects of increased traffic volume along Grave Creek Road on the frequency of crossing by wildlife will be implemented; there is uncertainty on their effectiveness. A program will be developed to monitor ungulate and other wildlife movement across Grave Creek Road at Grave Creek Canyon and in areas immediately adjacent (for comparison) using remote wildlife cameras, similar to the program for the overland conveyor. Further mitigation measures will be implemented to further minimize the risk of collision, if required. Other wildlife monitoring activities are outlined in the Wildlife Management and Monitoring Plan (Chapter 33, Section 33.4.1.13) to support the verification of mitigation measures and effects predictions relating to ungulates VCs.

The Project will involve loading of 120 trains per year. Trains will not be travelling at high speeds within the rail loadout and train-wildlife collisions in this area are unlikely. There will be an incremental increase in rail traffic on the main rail lines as a result of the Project (one additional train every three days on average) where the risk of wildlife-train collisions is higher. The extent to which the Project will contribute to an incremental increase in elk mortalities from train collisions is unknown. The upgraded Grave Creek Road will remain open post-closure and may provide increased access to hunters. The current condition of the road is rough, though is currently accessed by 4x4 vehicles, snowmobiles, and all-terrain vehicles. Access up from Grave Creek Road to the mine site will be open to the public. The road to the explosives factory will be decommissioned and reclaimed. A change in access by hunters and leading to increased hunting of elk is difficult to predict, but an incremental increase is assumed.

The elk population trend in the East Kootenay region is stable (<20% change over the last 3 years). While elk population estimates in the Rocky Mountain Trench indicate a 53% decline over the past decade, the population decline is poorly understood, but attributed to legal harvest of cows that was implemented in an effort to reduce conflicts on agricultural lands during 2010 to 2012, followed by poor calf recruitment during 2013 to 2017. The Project will result in loss of only a small amount of high-quality winter habitat when elk habitat availability is most limited. Sensory disturbance has the potential to further displace elk; given that elk frequently habituate to human disturbance and are known to occur in close proximity to

active mine sites, the effect of sensory disturbance is likely to be small. The reclaimed mine landscape will provide high-quality elk habitat.

Based on the characterization of the residual effects and local and regional elk population levels, the Project would not limit the ability of elk to persist and maintain self-sustaining populations in the Terrestrial LSA. The residual effects of habitat loss and degradation, sensory disturbance, disruption to movement, and increased mortality risk on elk arising from the Project during all phases are therefore considered not significant. The Project has the potential to result in residual adverse effects to elk potentially used by Shuswap Band for hunting purposes. In particular, elk movement will be potentially blocked both daily and seasonally as a result of Project Construction and Pre-Production and Operations through to Reclamation and Closure. These impacts have the potential to result in residual effects to Shuswap Band due to the temporary decline in elk available for use by Shuswap Band in hunting practices as well as the temporary impact to the accessibility of areas used to hunt in the Project footprint and the ATRI LSA. Though residual effects to elk may occur as result of the Project, no significant adverse effects are anticipated. In the Reclamation and Closure phase approximately 785 ha of self-sustaining ecosystems will be reclaimed within the disturbance footprint to reclaim wildlife habitat impacted as a result of the Project.

Considering the above, while the Project has no significant residual effects to elk, there may be potential residual adverse effects to the Shuswap Band's use of the species in the Project footprint and the KNRI LSA. As noted earlier, in relation to elk, the potential to result in residual effects to Shuswap Band may occur due to the potential change in land use, value of place as a result of the change in accessibility to hunt or the actual or perceived change in the quality of elk, change in the ability to know and teach the Shuswap Band's cultural and social aspects of hunting and trapping, and potential increase in hunting pressure because of increased access surrounding the Project area through all phases of the Project.

The potential residual effects to the Shuswap Band with respect to elk in relation to the Shuswap Band's traditional hunting activities are characterized as follows:

- Duration: *Long-term*, the potential for adverse effects to opportunities for hunting elk will be long-term as the residual effects related to habitat loss and degradation, sensory disturbance, disruption to movement, and increased mortality risk are expected to continue to the end of the Reclamation and Closure phase of the Project.
- Magnitude: *Moderate*, the potential for negative effects to opportunities for hunting elk is moderate based on the limited amount of expected loss of high-quality habitat (2.7% loss in spring-summer and 7.1% loss in fall-winter in the Terrestrial LSA), or the semi-permanent nature of infrastructure such as that of linear infrastructure that might impact species movements, the limited percentage of high-quality habitat that will be impacted by potential sensory disturbance (up to 2.6% for continuous project-related noise and 7.8% for peak noise from blasting will be affected in the Terrestrial LSA), and the mortalities as a result of the Project that are expected to be uncommon.
- Geographic Extent: *Local*, potential effects to opportunities for hunting elk are restricted to the Project footprint and the ATRI LSA.
- Frequency: *Continuous*, the potential for adverse effects to elk are expected to occur continuously as the Project activities are completed, from Construction and Pre-Production to Reclamation and Closure. The effect of habitat loss and degradation and disruption to movement is expected to be

continuous until lost habitat is restored, varying for sensory disturbance until the end of Operations, peaking at Year 10 of Operations with noise from blasting being intermittent and mortalities at sporadic intervals (if any) during any phase of the Project.

- Reversibility: *Reversible Long-term*, changes in current use of lands and resources for traditional purposes resulting from the Project activities related to hunting bighorn sheep are anticipated to be reversible as the site is reclaimed and ecosystems are re-established (Chapter 33). The effect of noise will decline substantially at the end of Operations and continue at lower levels during Reclamation and Closure and increased mortality risk will end after Reclamation and Closure.
- Context: *Neutral*, as elk have low sensitivity and high resilience to human activities and may be able to adapt to certain levels of noise generated by the Project. The Project footprint is within Shuswap Band's Traditional Territory, once utilized and depended upon by Shuswap ancestors and part of the rights and interests of Shuswap Band community members of today. Changes to Shuswap accessibility to opportunities for hunting elk is deemed neutral due to the high resilience of elk, the anticipated renewed access and availability of the species following the completion of the Project, and the continued availability of elk outside of the Project footprint in the KNRI LSA, balanced with the importance of these traditional activities to importance of these traditional activities to Shuswap cultural and traditional identity and the importance of available lands for traditional practices (as a result of the loss of available lands for resource use in general within British Columbia and Alberta due to multiple industry and development expansions). The context is also deemed neutral due to the lack of specific information available from the Shuswap Band regarding their opportunity to access and use elk within the Project footprint at this time, as it is expected that their ability to know and teach the Shuswap way of living can continue outside of the Project footprint during all Project phases.

Determination of Significance

Based on the characterization of the residual effects and local and regional elk population levels, the Project would not limit the ability of elk to persist and maintain self-sustaining populations in the Terrestrial LSA. At the time of this submission, the Shuswap Band have not currently made available information regarding their use of the Project footprint for hunting of elk. It is assumed that currently the Shuswap Band have a moderate level of use in the Terrestrial LSA. The anticipated moderate level of use by the Shuswap Band coupled with the lack of significant adverse effects to elk that are potentially hunted indicates that there would be low-level residual effects on the change in lands and resources for traditional hunting. The Project is not anticipated to result in the permanent loss of access or the ability to conduct traditional land and resource use related to hunting elk within the Project footprint or the elk VC study areas (i.e., the Terrestrial LSA). As part of Project Reclamation and Closure phase, wildlife habitat will be reclaimed within the disturbance footprint, and result in a variety of wildlife habitat types for use by elk. Therefore, in consideration of the above and the Project's design to reduce impacts to elk, the residual effect of the Project on the Shuswap Band's use of lands and resources for traditional hunting elk is rated as not significant.

Likelihood and Confidence

Effects that are determined to be not significant do not require a characterization of likelihood. There is a good understanding of elk ecology, their habitat availability and distribution, known occurrences, and abundance in the Terrestrial LSA. The confidence in the determination of the significance of residual effects to elk is high. Confidence considers the reliability of data and analytical methods used in the

assessment of effects. Baseline conditions of elk within the Project footprint and the elk VC study areas are well established, providing sufficient data to assess effects to changes in the opportunity for Shuswap Band to hunt elk. Though baseline data was sufficient to evaluate effects for Project VCs, not all species of interest to Shuswap Band identified through publicly available information were evaluated to the depth of the elk VC baseline studies and effects assessment. As such, the confidence of the residual effects to the use of lands and resources by the Shuswap Band for traditional hunting activities is considered to be low to moderate.

Shuswap Band's Species of Interest: Bighorn Sheep

As noted above and in Section 24.5.4, during consultation and engagement activities, the Shuswap Band provided feedback that detailed the cultural significance of bighorn sheep to the Nation (Appendix 24-A, Table 24.A-2). As such, this section focuses on the assessment of the effects of the Project on the changes to the environment in relation to bighorn sheep. Bighorn sheep was assessed for potential Project-related effects on habitat loss and degradation, sensory disturbance, disruption to movement, and increased mortality risk. Mitigation measures as recommended in Chapter 15, Section 15.4.3.3 will contribute to effect minimization, but residual adverse effects are still anticipated to remain to this species.

The Project footprint overlaps with high-quality bighorn sheep habitat and the Project will result in a predicted loss of 202 ha of high-quality habitat, representing 3.3% of the total amount of high-quality bighorn sheep habitat available in the Terrestrial LSA (6,192 ha). Loss will be at the mine site, primarily along the ridge on the east side of the valley, though some in avalanche chutes on the west side of the Mine Rock Storage Facility. There will be no loss of bighorn sheep habitat along Erickson Ridge where winter range is known to occur. On a proportional basis, the availability of high-quality bighorn sheep habitat is lower within the Project footprint compared to the Terrestrial LSA as whole (16% for Project footprint and 26% for the Terrestrial LSA), meaning high-quality habitat is more common outside the Project footprint than it is within.

Clearing will begin in Construction and Pre-Production with initial portions of the 1,283 ha Project footprint (including the buffer) prepared for the mine site facilities, a portion of the North Pit, the Interim Sediment Pond, roads, the conveyor, the powerline and the rail loadout. During Operations, progressive clearing of the pits, Mine Rock Storage Facility, and Main Sediment Pond will continue through to Year 15. Bighorn sheep habitat loss will have a continuous adverse effect until progressive reclamation begins in Year 10 of Operations. With progressive reclamation between Years 10 and 15 and continued reclamation in the Reclamation and Closure phase, the effect of habitat loss will begin to decline.

Post mine reclamation will reclaim a mosaic of coniferous forest, open alpine tundra, rock outcrops, shrub and graminoid dominated brushland, talus slopes, wetlands, and riparian areas (described in Chapter 15, and in the Ecological Restoration Plan, Chapter 33, Section 33.4.1.3). Most of the high elevation ecosystems will provide habitat for bighorn sheep and mountain goat over time. Reclamation will begin in Year 10 of Operations for limited areas and then accelerating at the end of Operations. Within 5 years of closure, graminoids, forbs, and some shrubs will have become established and will begin to provide food, though the quality will be variable and may be limited in many areas. Food availability will progressively improve at 25- and 50-years post-closure. Highwalls are to be left in their post-mine configuration with the intention of creating escape terrain habitat features for bighorn sheep and

mountain goats (if the highwall slopes are steep enough). The Project footprint is ultimately expected to be a landscape similar in structure and composition to the pre-Project landscape.

Habitat degradation of ungulate habitat can occur from potential introduction and spread of invasive species, changes in vegetation vigour from dust deposition, and surface water runoff from the Project footprint that can contain suspended solids and affect vegetation. Mitigation for each of these effects is described in Chapter 13: Landscapes and Ecosystems Assessment and found to have no residual effects to each of the ecosystem VCs. Effects of habitat degradation on ungulates was therefore considered to be nil, or so small in magnitude relative to direct habitat loss that it was not quantified further. The Project footprint includes a buffer area intended to account for uncertainty in precise boundaries of disturbance. Not all of the buffer area will be disturbed, and the calculations of habitat loss are therefore conservative and may be overestimated.

Bighorn sheep habitat may be functionally lost or disturbed due to sensory disturbance. This is in addition to direct habitat loss from clearing. Sensory disturbance includes behavioural responses to Project-related noise, vibration, light, dust, and human presence. Sensory disturbance from noise and vibration has the potential to extend further than light, dust, and human presence and is the focus of the residual effects assessment, for conservatism. Potential effects arising from vibration, light, dust, and human presence would be expected to be less than those arising from noise. Continuous Project-related noise at ≥ 45 dBA (nighttime threshold) will affect up to 1,118 ha outside the Project footprint. This overlaps with up to 338 ha of high-quality bighorn habitat when Project-related noise is at its peak in Year 10 of Operations. This represents 5.5% of high-quality habitat for bighorn sheep, in the Terrestrial LSA. A much smaller amount of high-quality habitat may be affected in daytime using the ≥ 55 dBA daytime threshold. Peak noise from blasting could affect 266 ha of high-quality bighorn sheep habitat. This represents 4.3% of high-quality habitat for bighorn sheep in the Terrestrial LSA.

Bighorn sheep may be displaced within the noise zones of influence. Habitat is not lost, but animals may spend less time in areas affected by noise, effectively degrading the quality of habitat, or eliminating availability completely. Bighorn sheep can habituate to human disturbance and are known to occur in close proximity to active mine sites if forage availability is high. The effect of sensory disturbance on bighorn sheep may therefore be less relative to other ungulates.

Blasting will be intermittent. The 1,500 m zone of influence peak from blasting (peak noise ≥ 108 dB) does not overlap with the Erickson Ridge top where the availability of high-quality habitat for bighorn sheep is greatest. Once the Operations phase is complete, noise will substantially decrease and noise from blasting will cease. Noise during Reclamation and Closure will be from decommissioning and removal of infrastructure and reclamation activities.

Movements of both bighorn sheep in the Elk Valley generally follow north-south high elevation mountain ranges and ridges but also include low elevation crossings. The main movement corridor in the Terrestrial LSA is the corridor that connects Erickson Ridge to Sheep Mountain (through Grave Creek Canyon). This corridor intersects with the access road. The access road will be upgraded and will have higher levels of daily traffic relative to existing conditions. Bighorn sheep were recorded along Grave Creek Road in both summer and winter. In general, roads represent a semi-permeable barrier, provided that no physical barriers are created during road upgrade or unbroken snowbanks created from snow clearing. The predicted traffic level of 140 vehicles per day is unlikely to affect crossing success, especially with speed

reductions in areas known to have frequent wildlife (e.g., Grave Creek Canyon) and that wildlife have the right-of-way.

When the Project is at its largest extent and prior to any large areas of reclamation (around Year 10 of Operations), the mine site footprint will occupy a large portion of West Alexander Creek valley and will be a nearly impermeable barrier. The upper slopes of the west side of the valley will remain intact but may be degraded by sensory disturbance and use for connectivity between daily or seasonal habitats may be reduced. Along the conveyor, underpasses will be created by elevating the conveyor to at least 2.4 m above ground (or higher where terrain can be used to create more clearance) at intervals of two per 1,000 m. Bighorn sheep are unlikely to be present in the conveyor area, given the habitats available. The utility corridor is primarily composed of the powerline and the buried gas line. Suitable habitat will be present beneath the powerline after construction. The powerline may not be a barrier to movement on its own but since it parallels the road, it may be avoided due to proximity and function as a semi-permeable barrier in combination with the road.

Pathways of increased risk of mortality for bighorn sheep that are unlikely to be fully mitigated are collisions with Project-related traffic on access or mine roads and increased hunter access post-closure. Even with the traffic control mitigation measures described in Chapter 15, and the Indigenous Impact Management Plan (Section 24.9), vehicle collisions with bighorn sheep may still occur. The number is expected to be small. Wildlife sightings and wildlife-vehicle collisions will be recorded and monitored. Further mitigation measures will be implemented to further minimize the risk of collision, if required.

The Project will involve loading of 120 trains per year. Trains will not be travelling at high speeds within the rail loadout, and train-wildlife collisions in this area are unlikely. There will be an incremental increase in rail traffic on the main rail lines as a result of the Project (one additional train every three days on average) where the risk of wildlife-train collisions is higher. The extent to which the Project will contribute to an incremental increase in bighorn sheep mortalities from train collisions is unknown.

The upgraded Grave Creek Road will remain open post-closure and may provide increased access to hunters. The current condition of the road is rough, though is currently accessed by 4x4 vehicles, snowmobiles, and all-terrain vehicles. Access up from Grave Creek Road to the mine site will be open to the public. The road to the explosives factory will be decommissioned and reclaimed. A change in access by hunters and leading to increased hunting of bighorn sheep is difficult to predict, but an incremental increase is assumed. Measures to mitigate the effects of increased traffic volume along Grave Creek Road on the frequency of crossing by wildlife will be implemented; there is uncertainty on their effectiveness. A program will be developed to monitor ungulate and other wildlife movement across Grave Creek Road at Grave Creek Canyon and in areas immediately adjacent (for comparison) using remote wildlife cameras, similar to the program for the overland conveyor. Other wildlife monitoring activities are outlined in the Wildlife Management and Monitoring Plan (Chapter 33, Section 33.4.1.13) to support the verification of mitigation measures and effects predictions relating to ungulates VCs.

The latest population estimate for the Elk Valley East Population Management Unit (PMU) is 515 to 770 bighorn sheep and the Sheep Mountain and Erickson Ridge subpopulation (which extends outside the Terrestrial LSA) has a relatively stable population trend. The Project will result in loss of a relatively small amount of year-round high-quality habitat, though none of which has been mapped as bighorn sheep winter range (Poole et al., 2018). Sensory disturbance has the potential to displace bighorn sheep in high-

quality annual habitat, though it does not overlap with mapped winter range. Post-closure, the reclaimed mine landscape will provide abundant forage for bighorn sheep.

Based on the characterization of the residual effects and local and regional bighorn sheep population levels, the Project would not limit the ability of bighorn sheep to persist and maintain self-sustaining populations in the Terrestrial LSA. The residual effects of habitat loss and degradation, sensory disturbance, disruption to movement, and increased mortality on bighorn sheep arising from the Project during all phases are therefore considered not significant. The Project has the potential to result in residual adverse effects to bighorn sheep potentially used by Shuswap Band for hunting purposes. In particular, bighorn sheep movement will be directly lost as a result of Project Construction and Pre-Production and Operations. These impacts have the potential to result in residual effects to Shuswap Band due to the temporary decline in the bighorn sheep available for use by Shuswap Band in hunting practices as well as the temporary impact to the accessibility of areas used to hunt in the Project footprint and the ATRI LSA. Though residual effects to bighorn sheep may occur as result of the Project, no significant adverse effects are anticipated. In the Reclamation and Closure phase approximately 785 ha of self-sustaining ecosystems will be reclaimed within the disturbance footprint to reclaim wildlife habitat impacted as a result of the Project.

Considering the above, while the Project has no significant residual effects to bighorn sheep, there may be potential residual adverse effects to the Shuswap Band's use of the species in the Project footprint and the KNRI LSA. As noted earlier, in relation to bighorn sheep the potential to result in residual effects to Shuswap Band may occur due to the potential change in land use, value of place as a result of the change in accessibility to hunt or the actual or perceived change in quality of bighorn sheep, change in the ability to know and teach Shuswap's cultural and social aspects of hunting and trapping, and potential increase in hunting pressure because of increased access surrounding the Project area through all phases of the Project.

The potential residual effects to the Shuswap Band with respect to bighorn sheep in relation to the Shuswap Band's traditional hunting activities are characterized as follows:

- Duration: *Long-term*, the potential for adverse effects to opportunities for hunting bighorn sheep will be long-term as the residual effects related to habitat loss and degradation, sensory disturbance, disruption to movement, and increased mortality risk are expected to continue to the end of the Reclamation and Closure phase of the Project.
- Magnitude: *Low to Moderate*, the potential for negative effects to opportunities for hunting bighorn sheep is low to moderate based on the limited amount of expected loss of high-quality habitat (3.3% in the Terrestrial LSA), limited percentage of high-quality habitat that will be impacted by potential sensory disturbance (up to 5.5% by continuous Project-related noise and 4.3% for peak noise from blasting in the Terrestrial LSA), the semi-permanent nature of infrastructure such as that of linear infrastructure that might impact species movements, and the mortalities as a result of the Project that are expected to be uncommon.
- Geographic Extent: *Local*, potential effects to opportunities for hunting bighorn sheep are restricted to the Project footprint and the ATRI LSA.
- Frequency: *Continuous*, the potential for adverse effects to bighorn sheep are expected to occur continuously as the Project activities are completed, from Construction and Pre-Production to Reclamation and Closure. The effect of habitat loss and degradation and disruption to movement

is expected to be continuous until lost habitat is restored, varying for sensory disturbance until the end of Operations, peaking at Year 10 of Operations with noise from blasting being intermittent and mortalities at sporadic intervals (if any) during any phase of the Project.

- Reversibility: *Reversible Long-term*, changes in current use of lands and resources for traditional purposes resulting from the Project activities related to hunting bighorn sheep are anticipated to be reversible as the site is reclaimed and ecosystems are re-established (Chapter 33). The effect of noise will decline substantially at the end of Operations and continue at lower levels during Reclamation and Closure and increased mortality risk will end after Reclamation and Closure.
- Context: *Neutral*, as habitat for bighorn sheep is highly specific yet they have relatively low sensitivity to noise and high resilience to human activities and may be able to adapt to certain levels of noise generated by the Project. The Project footprint is within Shuswap Band Traditional Territory, once utilized and depended upon by Shuswap ancestors and part of the rights and interests of Shuswap Band citizens of today. Changes to Shuswap accessibility to opportunities for hunting bighorn sheep is deemed neutral due to the high resilience of bighorn sheep, the anticipated renewed access and availability of the species following the completion of the Project, and the continued availability of bighorn sheep outside of the Project footprint in the KNRI LSA, balanced with the importance of these traditional activities to Shuswap cultural and traditional identity and the importance of available lands for traditional practices (as a result of the loss of available lands for resource use in general within British Columbia and Alberta due to multiple industry and development expansions). The context is also deemed neutral due to the lack of information available from the Shuswap Band regarding their opportunity to access and use bighorn sheep within the Project footprint at this time, as it is expected that their ability to know and teach the Shuswap way of living can continue outside of the Project footprint during all Project phases.

Determination of Significance

Based on the characterization of the residual effects and local and regional bighorn sheep population levels, the Project would not limit the ability of bighorn sheep to persist and maintain self-sustaining populations in the Terrestrial LSA. At the time of this submission, information regarding their use of the Project footprint for hunting of bighorn sheep was not available from the Shuswap Band, it is assumed that currently the Shuswap Band have a moderate level of use in the Terrestrial LSA used to evaluate effects to VCs due to previously noted disturbances. The anticipated moderate level of use by the Shuswap Band coupled with the lack of significant adverse effects to bighorn sheep that are potentially hunted indicates that there would be low-level residual effects on the change in lands and resources for traditional hunting. The Project is not anticipated to result in the permanent loss of access or the ability to conduct traditional land and resource use related to hunting bighorn sheep within the Project footprint or the bighorn sheep VC study areas (i.e., the Terrestrial LSA). As part of Project Reclamation and Closure phase, wildlife habitat will be reclaimed within the disturbance footprint, and result in a variety of wildlife habitat types for use by bighorn sheep. Therefore, in consideration of the above and the Project's design to reduce impacts to bighorn sheep, the residual effect of the Project on the Shuswap Band's use of lands and resources for traditional hunting bighorn sheep is rated as not significant.

Likelihood and Confidence

Effects that are determined to be not significant do not require a characterization of likelihood. There is a good understanding of bighorn sheep ecology, their habitat availability and distribution, known

occurrences, and abundance in the Terrestrial LSA. The confidence in the determination of the significance determination for residual effects to bighorn sheep is high. Confidence considers the reliability of data and analytical methods used in the assessment of effects. Baseline conditions of bighorn sheep within the Project footprint and the bighorn sheep VC study areas are well established, providing sufficient data to assess effects to changes in the opportunity for Shuswap Band to hunt bighorn sheep. As such, the confidence of the residual effects to the use of lands and resources by the Shuswap Band for traditional hunting activities is considered to be low to moderate.

The residual effects to opportunities for hunting and trapping will be further discussed through continued consultation with the Shuswap Band, as well as through the development of potential follow-up and monitoring and adaptive management measures to implement corrective actions as necessary based on that follow-up. Thus, the continued consultation and follow-up program to be implemented is expected to improve the low to moderate level of confidence.

As noted earlier, while mitigation measures related to the effect of the Project on the Shuswap Band are presented in the Indigenous Impact Management Plan (Section 24.9), at this time, specific information from the Shuswap Band was not available to be included in Section 24.9.2 that addressed their concerns regarding wildlife VC species (including grizzly bear, elk, and bighorn sheep) related to the Shuswap Band's traditional hunting and trapping activities.

24.7.3.2.3 Change to Use of Lands and Resources for Traditional Harvesting and Gathering Purposes

Based on available information, plant harvesting is understood to be a traditional activity undertaken by the Shuswap Band within their Traditional Territory. While information has not been available from the Shuswap Band that confirms that community members harvest plants within or near the Project area or in the LSA, there is the potential for this activity to occur. Plants may be harvested as a food source, for their medicinal value and/or for cultural activities. Plant species that may be of interest to Shuswap Indian Band for use in harvesting and gathering, based on desktop review of publicly available information, include cow parsnip, yellow glacier lily, spring beauty, balsamroot, Saskatoon berry, chokecherry, Soopolallie, various blueberries and huckleberry, wild raspberry, hazelnut, Devil's club, Labrador tea, willow, Canby lovage, lodgepole pine, mullein, cranberries, juniper, fireweed, spruce, strawberry, yarrow, thimbleberry, soapberries, Antennaria, and Ponderosa Pine.

The potential species of interest for harvesting and gathering occur across a range of ecosystem types. Plant communities assessed within Chapter 13: Landscapes and Ecosystems Assessment and Chapter 14: Vegetation Assessment may contain plant species that Shuswap Band members use for harvesting of plants and medicines. Given that plant species of interest do not necessarily occur within the receptor ecosystem Project VCs, broad ecosystem types identified through the Terrestrial Ecosystem Mapping (TEM) and their potential impacts were used to evaluate potential changes in harvesting and gathering for traditional purposes (Chapter 13). Table 24.7-5 identifies potential plant species of interest in relation to the broad ecosystem types in which they may predominantly occur in the Project footprint, the ATRI LSA, and the Landscapes and Ecosystems LSA as well as the potential impact to those ecosystem types with the respective study area as a result of the Project.

Table 24.7-5: TEM Broad Ecosystem Types Plant Species of Interest

Plant Species of Interest	Broad Ecosystem Types [1]	Total Change in Broad Ecosystem Type in Landscapes and Ecosystems LSA As a Result of the Project
Saskatoon berry Soopolallie Chokecherry Yellow glacier lily Juniper	Forested Sites Subalpine Shrub Group	Forested Sites (-10.72%) Subalpine Shrub Group (-0.00%)
Cow parsnip Spruce	Wetland Ecosystems Avalanche Ecosystems	Wetlands (-3.40%) Avalanche Ecosystems (-12.34%)
Lodgepole pine Raspberry Blueberry Huckleberry Thimbleberry	Forested Sites	Forested Sites (-10.72%)
Blueberry Willow Cranberry	Wetland Ecosystems Flood Ecosystems	Wetlands (-3.40%) Flood Ecosystems (-0.04%)
Balsamroot Antennaria	Grassland/Brushland Ecosystems Subalpine Shrub Group	Grassland/Brushland Ecosystems (-9.56%) Subalpine Shrub Group (-0.00%)
Strawberry	Grassland/Brushland Ecosystems	Grassland/Brushland Ecosystems (-9.56%)
Yarrow Spruce	Grassland/Brushland Ecosystems Avalanche Ecosystems	Grassland/Brushland Ecosystems (-9.56%) Avalanche Ecosystems (-12.34%)
Mullein Fireweed	Anthropogenic Sites	Anthropogenic Sites (-1.43%)

Note: [1]Ecosystem types based on the Project-specific Terrestrial Ecosystem Mapping (Chapter 13) and were selected to understand changes in the habitat where species potentially used by Indigenous communities may predominately occur.

Several species of interest to Shuswap Indian Band have not been documented within the Project footprint or the Landscapes and Ecosystems LSA based on the Project-specific TEM baseline surveys, and include:

- Ponderosa pine;
- Labrador tea;
- Devil's club;
- Cedar;
- Rosewood;
- Canby lovage;
- Hazelnut; and
- Spring beauty.

The above-listed species are not included in the assessment of effects to harvesting and gathering. Due to the lack of Project-specific TK/TLU provided by the Shuswap Band, the assessment of the effects of the Project on the Shuswap Band is restricted to the plant and vegetation species identified in Section 24.6.6.3 with the understanding that the list of culturally significant species may be expanded based on further

consultation with the Shuswap Band. At the time of this submission, the Shuswap Band have not identified any additional species that are of interest to them and as such the potential plant species of interest are unknown and are not discussed in the assessment of potential effects.

Based on the assessment of effects to landscapes and ecosystem VCs (Chapter 13), anticipated effects to ecosystems include changes in ecosystem abundance and distribution, changes in the composition and structure of ecosystems, and change in forest patch sizes and ecosystem extents.

Potential effects on harvesting and gathering for traditional use that may result from changes in broad ecosystem types, including:

- Potential change in access to harvest plant species or harvesting/gathering sites of interest through ecosystem and vegetation loss within the Project footprint during Construction and Pre-Production and Operations;
- Potential change in distribution of plant species and plant harvesting sites and activities as a result of changes to the abundance and distribution of ecosystems within the Project footprint as a result of Construction and Pre-Production;
- Potential change in the value of place as a result of the change in accessibility of plant species of interest within the Project footprint and the ATRI LSA throughout the Construction and Pre-Production, Operations, and Reclamation and Closure phases; and
- Potential change in the ability to know and teach the cultural and social aspects of plant and medicine gathering within the Project footprint and the ATRI LSA throughout the Construction and Pre-Production and Operations phases due to changes in vegetation quality and access to harvesting and gathering areas.

Mitigation measures have been recommended to avoid, minimize, or otherwise address potential adverse effects to the vegetation VCs that are related to Shuswap Band's rights and interests. Specific mitigation for vegetation VCs related to the Shuswap Band can be referenced in Chapter 14.

Further, mitigation measures related to the effects of the Project on the Shuswap Band's rights and interests are outlined in Section 24.9 (Table 24.9-1) which presents the Indigenous Impact Management Plan that was developed in response to the concerns raised by the Shuswap Band and the identified Indigenous Communities. The mitigation presented in Section 24.9.3 may be revised or updated as a result of specific input provided by the Shuswap Band where applicable. No other technically and economically feasible mitigation measures were identified to address potential impacts to the Shuswap Band rights and interests related to the vegetation VCs. At this time, NWP is not aware of potential future technology innovations that may help to further mitigate effects.

Project Construction and Pre-Production and Operations is anticipated to result in impacts to broad ecosystem types within the Project footprint as a result of site development. Project activities, such as site clearing and grubbing, logging, and soil disturbance will remove vegetation and increase the potential for invasive plant species establishment. Based on the assessment of effects to landscapes and ecosystem VCs (i.e., avalanche chutes, grasslands, riparian habitat, old growth and mature forests, and wetland ecosystems; Chapter 13), anticipated residual effects to ecosystems within the Landscapes and Ecosystems LSA and the Project footprint include changes in ecosystem abundance and distribution, changes in the composition and structure of ecosystems, and change in forest patch sizes and ecosystem

extents. Similar residual effects are anticipated for some of the broad ecosystem types not considered receptor VCs, such as forested sites and grassland/brushland ecosystems.

Changes in broad ecosystem types and receptor ecosystem VCs that may contain plant species of interest that are harvested and gathered, or areas that are accessed by Shuswap Band for harvesting and gathering, may experience residual effects due to the changes in broad ecosystem types and receptor ecosystem VCs. In particular, those residual effects on landscapes and ecosystems may remove areas currently or potentially used by Shuswap Band to harvest and gather plants. As part of the Project Reclamation and Closure activities, the Project footprint will be reclaimed to similar ecosystem types to the local area, and which previously existed before disturbance (Chapter 33). Approximately 785 ha will be reclaimed through site reclamation activities.

Potential residual effects to the current use of lands and resources by Shuswap Band for the harvesting and gathering is characterized as follows:

- Duration: *Long-term to Permanent*, as the loss of vegetation communities and plant species of interest within those communities, as well as access to vegetation communities, will be impacted over the long-term and potentially permanently as ecosystem recovery and restoration may take longer than 34 years to recreate areas used for harvesting and gathering.
- Magnitude: *Low to Moderate,* as while the proportional area of habitat for potential culturally significant plants and ecosystems is exceptionally low relative to extent of lands within which harvesting and gathering may be conducted by the Shuswap Band members, there is an anticipated loss of broad ecosystem types within the Landscapes and Ecosystems LSA and the ATRI LSA that have the potential to include plant species of interest, including a loss of avalanche ecosystems (12.34%), forested sites (10.72%), grassland/brushland ecosystems (9.56%), wetland ecosystems (3.40%), floodplains (0.04%), rock outcrops (4.81%), and alpine ecosystems (11.18%).
- Geographic Extent: *Discrete*, as impacts to vegetation communities potentially used by Shuswap Band for harvesting and gathering is restricted to the Project footprint.
- Frequency: *Once*, as the effects to vegetated areas potentially used by Shuswap Band are likely to be impacted mainly during Construction and Operations.
- Reversibility: *Reversible Long*-Term, as ecological restoration activities will restore impacted vegetation communities; reclaimed areas, such as forested sites, will take many years to support mature forests that may support plant species of interest used for harvesting and gathering.
- Context: *Neutral*, while the opportunity to conduct traditional land and resource use within the Project footprint and the ATRI LSA is deemed important to Shuswap Band members, information on sites and plant species of cultural importance was not available from the Shuswap Band at the time of the writing of this chapter. The Project footprint is within Shuswap Band Traditional Territory, once utilized and depended upon by Shuswap Band ancestors, and part of the rights and interests of Shuswap Band members of today. The opportunity to harvest and gather within the ATRI LSA is dependent on the location of ecosystems and plant species of interest as well as the access to these areas and changes to the Shuswap Band's accessibility for harvesting and gathering is deemed neutral due to the importance of these traditional activities to Shuswap Band's cultural and traditional identity and the importance of available lands for traditional practices (as a result of the loss of available lands for resource use in general within British Columbia and Alberta due to multiple industry and development expansions), balanced with the anticipated impact of these resources as a result of the Project and lack of information on the

Project footprint related to Shuswap Band rights and interests. The context is also deemed neutral due to the lack of information available from the Shuswap Band regarding their opportunity to conduct traditional harvesting and gathering within the Project footprint at this time, as it is expected that their ability to know and teach the Shuswap way of living can continue outside of the Project footprint during all Project phases.

Determination of Significance

Shuswap Band have not currently made available information regarding their use of the Project footprint for harvesting and gathering and it is expected that the ATRI LSA is utilized for traditional purposes. The Project is anticipated to result in impacts to vegetation communities and ecosystems that may include plant species of interest or areas that are accessed to harvest and gather; effects to vegetation communities and ecosystems are spatially limited in nature, occurring within the Project footprint, and will be reclaimed during Reclamation and Closure as per the Ecological Restoration Plan for the Project (Chapter 33). The level of use by Shuswap Band, in particular of the Project footprint and the Landscapes and Ecosystems LSA, for traditional harvesting and gathering is anticipated to be low as the information regarding the Shuswap Band's use of the Project footprint was not made available and there are no public documents that describe their use of the Project's area of influence. As such, the Project is not anticipated to result in the permanent loss of access or the ability to conduct traditional land and resource use related to the harvesting and gathering within the Project footprint or the ATRI LSA.

In consideration of the above regarding available information with respect to use by Shuswap Band, the residual effect of the Project on the current use of lands and resources for harvesting and gathering is rated as not significant.

Likelihood and Confidence

Effects that are determined to be not significant do not require a characterization of likelihood. Confidence considers the reliability of data and analytical methods used in the assessment of effects. Existing information on baseline conditions of landscapes and ecosystems (receptor VCs) and broad ecosystem types within the Project footprint and the ATRI LSA provide sufficient data to evaluate the change in the harvesting and gathering for traditional use by Shuswap Band. Given that plant species of interest identified by Shuswap Band occur across a range of ecosystem types, it is challenging to evaluate the discrete change in the potential for harvesting individual plant species as a result of the Project. In addition, not all plant species of interest were evaluated through baseline studies conducted for VCs (i.e., landscape and ecosystem or vegetation VCs) and direct and indirect effects to individual plant species of interest is not well understood at this time. Though impacts to access for the purposes of harvesting and gathering will not be permanent, the alteration of landscape may potentially coincide with an alteration or loss of the sense of place for the Shuswap Band within the Project footprint. Consequently, the residual effect of the Project on the current use of lands and resources for harvesting and gathering is rated as not significant. As such, the confidence of residual effects to the current use of lands and resources by Shuswap Band for harvesting and gathering is considered to be low to moderate.

The residual effects to opportunities for harvesting and gathering will be further discussed through continued consultation with Shuswap Band, as well as through the development of potential follow-up and monitoring and adaptive management measures to implement corrective actions as necessary based

on that follow-up. Thus, the continued consultation and follow-up program to be implemented is expected to improve the low to moderate level of confidence.

24.7.3.2.4 Change to Use of Lands and Resources for Traditional Ceremonial/Sacred Areas

The entirety of Shuswap Band's Traditional Territory is of immense cultural and traditional importance. The following outlines the potential general Project effects to ceremonial and sacred places that might exist within the Project footprint:

- Potential loss of ceremonial and sacred places that might exist within the Project footprint.
- Potential change in accessibility to ceremonial and sacred places that might exist through changes in access to the Project footprint throughout the Construction and Pre-production and Operations phases.
- Potential change in the value of place as a result of the loss or changes to ceremonial or sacred areas that might exist within the Project footprint throughout all Project phases.
- Potential change in the ability to know and teach the cultural and social aspects of culture and history as a result of the loss or changes to ceremonial or sacred areas that might exist within the Project footprint throughout all Project phases.

As no specific ceremonial/sacred sites were identified by the Shuswap Band within the Project footprint, no potential Project-related effects were identified, and no specific Project-related residual effects were carried forward in this assessment. Throughout background information research, the Crowsnest Pass area was identified as being important areas of Physical and Cultural Heritage for the Shuswap Band and is discussed further in Section 24.7.3.2.6.

24.7.3.2.5 Change to Use of Lands and Resources for Traditional Access and Travel Routes

Ancient travel routes and landforms of cultural significance are summarized in Chapter 16. In general, travel routes have been historically known to be linked to the movement corridors of wildlife species of interest. Known or anticipated transboundary movement corridors for ungulate species of interest along the Continental Divide include the Crowsnest, Deadman, and Racehorse Passes in the eastern portion of the Terrestrial LSA. Movement corridors for grizzly bear include Alexander Creek, West Alexander Creek, and Grave Creek Canyon. Some corridors may be impacted by the Project through footprint loss (e.g., West Alexander Creek; see Section 24.7.3.2.1). Other connectivity habitats included the Michel-Alexander linkage at the southern extent of the ATRI LSA that might be utilized by the Shuswap Band for travel and access. Travel routes were ancestrally present throughout this region, and some remain today. The 1895 Hunting Agreement between Shuswap Band, Columbia Lake Band (Ktunaxa), and Stoney Nakoda connects to the frequent movement east-west through the Elk Valley for Shuswap Band ancestors.

The general trend of north-south oriented mining and related potential disturbance along valley bottoms and some ridges potentially limits the east-west connectivity between alpine ranges. As there are no identified Project-related effects to the current use of travel routes by Shuswap Band, no specific Project-related effects to access or travel routes are carried forward in this assessment.

24.7.3.2.6 Change to Physical and Cultural Heritage and Change to a Structure, Site, or Item that is of Historical, Archaeological, Paleontological, or Architectural Significance

As discussed above in Section 24.6.6.6, pre-contact archaeological artifacts are an immensely important connection between Indigenous peoples, their ancestors, culture, history, and traditional knowledge (i.e.,

Physical and Cultural Heritage). As part of the Project planning process, and following preliminary findings of the Baseline Archaeological Program, the Project footprint was re-designed and consciously placed to minimize direct impacts to as many archaeological sites as possible. NWP has conducted mitigation through the redesign of the Rail Loadout to avoid impacts to suspected ancestral burials that were identified during the Baseline Archaeological Program. Through consultation with the Project Archaeologist and Ktunaxa Nation Council, an area within continuous, rolling slope situated upslope to the east-southeast of Grave Prairie was identified as a suitable revised location for the Rail Loadout. Though several relatively small-sized archaeological sites were discovered within the revised location, none of the sites contained evidence of ancestral burials.

Following the most recent conclusions of the Archaeological Baseline Program, and the current Project footprint configuration, there are 15 pre-contact archaeological sites identified within the Project footprint anticipated to be directly impacted as a result of the Project. None of the sites contain suspected ancestral burial grounds (refer to Chapter 16). Eight of the 15 pre-contact archaeological sites were identified as having the potential for indirect impacts as a result of the Project. The potential residual effects to archaeological resources that might be of interest to Shuswap Band are summarized in Chapter 16. It noted that currently none of these archaeological resources of interest have been identified by the Shuswap Band at this time.

There is also potential for change due to a significant historic area located near the Project's roads: Grave Lake, Grave Creek, and Grave Prairie. Shuswap Band holds oral history tied to the Grave Lake/Grave Prairie area, as an ancestor is known to be buried there. In communication on the review of the draft version of this section of the EIS (SIB, 2021), Shuswap Band has identified that a review of the above noted new location for the Rail Loadout is required. All physical and cultural heritage sites near the Project area need to be recognized as being of interest to Shuswap Band, thereby requiring full consultation and collaborative mitigation. As such, Shuswap Band has noted that it must be consulted on all physical and cultural heritage in its Caretaker Area, which includes this area as all impacts to physical and cultural heritage are considered significant to Shuswap Band. If a physical and cultural site is unexpectedly identified during construction or operation, Shuswap Band must be contacted to provide a monitoring representative as Shuswap Band monitors must be present during disturbance. As noted by Shuswap Band, Shuswap has not had the funding or resource capacity to document its interests in the Elk Valley until now; it is known that the area is within Shuswap Band's Traditional Territory/Caretaker Area and was used ancestrally (SIB, 2021).

Throughout background information research, the Crowsnest Pass, the Findlay Creek, the Kootenay and White Rivers, Toby Creek, Jumbo Creek, Horsethief Creek, the lands adjacent to the Columbia River and Shuswap Creek, and the area now covered by Kootenay National Park were identified as being important areas of Physical and Cultural Heritage for the Shuswap Band. These locations are not carried forward in this assessment as no Project interactions or results of environmental effects on locations, are anticipated at this time due to Crowsnest Pass (14 km) being located outside the Project footprint at the very edge of the ATRI LSA and within the ATRI RSA. The Findlay Creek, the Kootenay and White Rivers, Toby Creek, Jumbo Creek, Horsethief Creek, the lands adjacent to the Columbia River and Shuswap Creek, and the area now covered by Kootenay National Park are located more than 75 km away from the Project footprint and within the ATRI RSA. These important areas are separated from the Project footprint in most cases by a major mountain ridge with relatively few passes and are reasonably located far from the Project.

Based on the above, the Project may result in the following unmitigated effects to physical and cultural heritage:

- Potential change in the value of place as a result of the permanent loss or changes to pre-contact archaeological sites that might be relevant to the Shuswap Band within the Project footprint.
- Potential for change of physical and cultural heritage that might be relevant to the Shuswap Band, and the ability to know and teach the cultural and social aspects as a result of the loss or changes to pre-contact archaeological sites within the Project footprint throughout all Project phases.

Mitigation measures proposed to reduce adverse effects to physical and cultural heritage are generally accepted, understood, and proven to effectively reduce adverse effects on physical and cultural heritage. Mitigation measures for direct impacts and indirect impacts to archaeological resources have been identified to avoid, minimize, or otherwise address potential adverse effects to the archaeological resources that may be related to Shuswap Band's rights and interests. Through the assessment of effects and continued consultation with Shuswap Band, mitigation for physical and cultural heritage and to a structure, site, or thing that is of historical, archaeological, paleontological, or architectural significance to the Shuswap Band may continue to be identified and implemented. Specific mitigation for archaeological resources related to the Shuswap Band can be referenced in Chapter 16.

Further, mitigation measures related to the effects of the Project on the Shuswap Band are outlined in this chapter in Section 24.9 (Table 24.9-1) which presents the Indigenous Impact Management Plan that was developed in response to the concerns raised by the Shuswap Band and the identified Indigenous Communities. The mitigation presented in Section 24.9.4 may be revised or updated as a result of specific input provided by the Shuswap Band where applicable. No other technically and economically feasible mitigation measures were identified to address potential impacts to the Shuswap Band rights and interests related to physical and cultural heritage and to a structure, site, or thing that is of historical, archaeological, paleontological, or architectural significance to the Shuswap Band. At this time, NWP is not aware of potential future technology innovations that may help to further mitigate effects.

Known heritage resources (i.e., identified archaeological sites that might be relevant to the Shuswap Band) that have the potential for environmental effects as a result of the Project are considered to be important due to rarity, undisturbed condition, and spiritual implications. Due to their potential for cultural importance to the Shuswap Band and based on their (currently undefined but) potential link to Shuswap Band ancestry, the Project footprint may potentially impact Shuswap Band's physical and cultural heritage.

There are 15 pre-contact archaeological sites anticipated to be directly impacted by the Project (refer to Chapter 16), though none of these sites include ancestral burials. These resources are located in areas where adjustments to the Project footprint cannot be made. Therefore, additional mitigation in the form of salvaging these resources through a controlled, permitted, professional archaeological excavation will be required in consultation with appropriate Indigenous community representatives.

The residual effects to physical and cultural heritage and a structure, site, or item that is of historical, archaeological, paleontological, or architectural significance due to the Project footprint are characterized as follows:

- Duration: P*ermanent*, as loss of a heritage resource or site that might be relevant to the Shuswap Band related to physical and cultural heritage during Construction and Pre-Production or Operations cannot be reversed once it occurs.
- Magnitude: *High*, the potential for adverse effects to heritage resources or sites related to physical and cultural heritage that might be relevant to the Shuswap Band is high due to the amount of change relative to baseline conditions.
- Spatial Extent: *Discrete*, as only heritage resources that exist within the Project footprint will be directly impacted. These heritage resources may be of interest to the Shuswap Band based on their potential linkage to Shuswap Band ancestry.
- Frequency: *Once*, the direct loss of heritage resources related to physical and cultural heritage that may exist within the Project footprint occurs only within the Construction and Pre-Production or Operations phases of the Project.
- Reversibility: *Irreversible*, heritage resources that might be relevant to the Shuswap Band related to physical and cultural heritage that are retrieved from the Project footprint cannot be returned/reburied within the Project footprint in the same geographical context. Change of an archaeological site is irreversible.
- Context: *Low*, heritage resources of interest related to physical and cultural heritage are considered to be very important cultural resources to the Shuswap Band that link Shuswap Band members to their ancestors and cultural identities and have a low resilience to change as alterations to areas or sites of interest and significance may not adapt to effects that alter their presence or existence. The context is also deemed low as it is expected that the Shuswap Band's ability to know and teach their way of living can continue outside of the Project footprint during all Project phases based on the information available from the Shuswap Band regarding their opportunity to conduct traditional cultural activities within the Project footprint at this time.

Determination of Significance

A significant adverse residual environmental effect on Shuswap Band physical and cultural heritage related to heritage resources is one that results in a permanent Project-related disturbance to, or destruction of, all or part of a pre-contact heritage resource considered to be of importance, to the spiritual or cultural identity of Shuswap Band (e.g., ancestral burial mound) that cannot be mitigated or compensated. Currently, there are no identified linkages to pre-contact archaeological sites within the Project footprint with the Shuswap Band.

The implementation of mitigation is a key element of this significance criterion. Therefore, in consideration of the above discussion, the significance threshold, the mitigation that has been implemented to date (outlined in Chapter 16), and the mitigation that will be implemented as the Project moves forward, both under provincial regulation and authorization and through consultation with the Shuswap Band, the environmental effects of the Project on physical and cultural heritage and structures, sites, or items that are of historical, archaeological, paleontological, or architectural significance for all phases of the Project are rated as not significant.

Likelihood and Confidence

Effects that are determined to be not significant do not require a characterization of likelihood. Confidence considers the reliability of data and analytical methods used in the assessment of effects. The confidence in the characterization of the residual effect to physical and cultural heritage from Project

development is considered to be low. With the exception of Phase IV (Alexander Creek valley - Secondary Transportation Corridor), the Utility Corridor (west of Elk River); Phase I and II clearance limits (recently defined), which are identified as requiring assessment, baseline conditions of pre-contact heritage resources within the Project footprint are relatively well established, providing sufficient data to assess the potential for direct impacts to heritage resources. The baseline information on the connection between these pre-contact heritage resources and the Shuswap Band physical and cultural heritage has not been identified based on the information available on the Shuswap Band and the lack of Project-specific TK/TLU available from the Shuswap Band at the time of the writing of this chapter. Mitigation strategies proposed to avoid or offset impacts to pre-contact heritage resources are expected to be moderate to high in effectiveness. Consultation activities with Shuswap Band could result in changes to the confidence of mitigation success and effectiveness based on connections to Shuswap Band ancestry which has currently not been provided. Adaptive management measures will be developed and implemented to address corrective actions, as necessary, based on the results of consultation, and mitigation through archaeological monitoring.

No residual effects on a change in heritage resources due to other Project activities were predicted in consideration of planned mitigation. Monitoring during Construction and Pre-Production and Operations, and adaptive management, as necessary, will confirm these effects predictions and the effectiveness of mitigation, or provide information to implement adaptive corrective actions and strategies.

24.7.3.2.7 Change to Social and Health Conditions

Based on the background information research and the consultation activities with Shuswap Band to date, there are no anticipated interactions between the Project and Shuswap Band housing, transportation, or social services and education, and therefore, no unmitigated Project effects are anticipated. Shuswap Band have not to date identified that community members live either full or part time in the general vicinity of the Project footprint. It is possible that Shuswap Band members live in local towns including Sparwood and Elkford though this has not been confirmed.

There is potential for Project-related effects to health and well-being through the potential consumption of country foods (e.g., fish). The residual effects assessments resulting from the Project on air quality (Chapter 6), fish and fish habitat (Chapter 12), wildlife (Chapter 15), landscapes and ecosystems (Chapter 13), and information from the human health and ecological risk assessment (Chapter 22) were used to support an understanding of Project-related effects that have the potential to change Shuswap Band's social and health conditions.

Potential effects on Shuswap Band's social and health conditions because of the Project and related changes applicable VCs include:

- Potential change in the actual or perceived quality of fish resources for sustenance fishing/country foods within the ATRI LSA during Operations;
- Potential change in the actual or perceived quality of wildlife resources for hunting/country foods within the Project footprint and the ATRI LSA during Operations;
- Potential change in the actual or perceived quality of terrestrial plants and medicine resources for sustenance/country foods, within the Project footprint and the ATRI LSA during Operations; and
- Potential indirect disturbance, or health effects, to Indigenous land users because of changes in air quality or surface water quality (as collectively represented by the Human and Ecological

Health Assessment, Chapter 22) over the course of Construction and Pre-Production, Operations, and Reclamation and Closure.

It is important to recognize, that while the incidence of crime in the ATRI LSA is not anticipated to change substantially due to the Project, it is well documented that Indigenous women, girls, and Two-Spirited peoples already experience more violence than non-Indigenous women and girls in Canada (NWAC, 2020). As the Project will not have any temporary mining camps and there is not expected to be a large influx of outsiders to the area, sex work and safety and security issues are less likely to substantially increase. Overall, potential unmitigated effects related to a change in community health and well-being are expected to be minimal. Nevertheless, some mitigation measures are recommended to minimize adverse Project effects, including disproportionate effects to or barriers that vulnerable sub-populations such as Indigenous Peoples and females could face in relation to mining are addressed in the Indigenous Impact Management Plan (Section 24.9). Through the assessment of effects and continued consultation with Shuswap Band, mitigation for Shuswap Band community health and well-being may continue to be identified and implemented. Specific mitigation for change in community health and well-being can be referenced in Chapter 18, Section 18.5.4.

Further, mitigation measures related to the effects of the Project on the Shuswap Band are outlined in Section 24.9 (Table 24.9-1) which presents the Indigenous Impact Management Plan that was developed in response to the concerns raised by the Shuswap Band and the identified Indigenous Communities. The mitigation presented in Section 24.9.5 may be revised or updated as a result of specific input provided by the Shuswap Band where applicable. No other technically and economically feasible mitigation measures were identified to address potential impacts to the Shuswap Band rights and interests related to the change in community health and well-being. At this time, NWP is not aware of potential future technology innovations that may help to further mitigate effects.

Based on the Human Health and Ecological Risk Assessment (HHERA; Chapter 22), which encompasses changes in air quality, the overall Project-related risk to terrestrial and aquatic wildlife health is considered to be low, except for a few localized receptors within the Project footprint. As well, the overall Project-related risk to human health is also considered to be low, for both Indigenous and non-Indigenous persons. The HHERA (Chapter 22) identifies potential residual effects for identified contaminants of potential concern for wildlife and human health (e.g., arsenic, cadmium, cobalt, selenium, chromium), noting that majority of the identified contaminants of potential concern have been determined to pose a low risk to wildlife and human health. Though the risk is identified as low, there is potential for residual effects to wildlife and human health based on the actual or perceived quality of fish and wildlife resources consumed as country foods. The HHERA (Chapter 22) was conducted specifically using the air quality and surface water quality modelling predictions, as well as data on soils and vegetation quality, to simulate the potential exposure of human and wildlife to contaminants of potential concern over the life of the mine and beyond, and in the case of cancer risks, over the lifetime of an individual.

The residual effects to social and health conditions due to the Project are characterized as follows:

- Duration: *Long-Term*, the predicted residual effects to wildlife and human health and the potential change in country foods is only associated with the Project footprint or close to the haul road, areas which will be reclaimed during Reclamation and Closure.

- Magnitude: *Low*, as the proposed Project and associated activities are considered to present a low risk to wildlife and human health and therefore a low magnitude to quality of country foods.
- Geographic Extent: *Discrete to Local*, as the low estimated risk to wildlife and human health, and low risk to country foods, is limited to the Project footprint (e.g., on or adjacent to the haul road) and the ATRI LSA.
- Frequency: *Continuous*, as the potential risk to country foods is most plausible during the operational lifetime of the mine as represented by the Operations phase; similar but less exposure/risk is plausible during other phases of the Project.
- Reversibility: *Reversible Long-Term*, as the low risk to wildlife and human health and associated country foods and consumption of country foods is diminished (mitigated) as the Project disturbance footprint is reclaimed in Reclamation and Closure as per the Ecological Restoration Plan (Chapter 33).
- Context: Neutral, as aquatic and terrestrial wildlife species and humans have a neutral sensitivity and resilience to the low potential exposure/risk; the low exposure risk is unlikely to adversely affect individuals or local populations and therefore an unlikely disruption to country food quality. The context is also deemed neutral due to the lack of information available from the Shuswap Band regarding their opportunity to consume country foods within the Project footprint at this time, as it is expected that their ability to know and teach the Shuswap way of living can continue outside of the Project footprint during all Project phases.

Determination of Significance

The residual effects of the Project on aquatic and terrestrial wildlife health and human health during all Project phases are considered not significant (Chapter 22, Section 22.5.4.3). As such, residual effects to social and health conditions due to the Project, in particular changes to the actual or perceived quality of country foods and indirect disturbance to Indigenous land users is not considered significant. The wildlife and human health risk estimates and their magnitude inherently consider operational activities, emissions, and other contaminant releases intrinsic to the predictive modelling of water quality, air quality, and secondarily food via transport, fate and food chain modelling. Given the conservative nature of the exposure/risks and proposed mitigation in Reclamation and Closure, the Project is not anticipated to result in significance adverse effects to aquatic and terrestrial wildlife or Indigenous persons.

Likelihood and Confidence

Effects from Project activities that are determined to be not significant, as in the present case, do not warrant a characterization of likelihood. The confidence in the characterization of the residual effects to social and health conditions is considered to be moderate to high. The confidence derives from consideration of confidence in:

- Contaminant fate and transport modelling for releases to air and water which dictate exposure point concentration for exposure assessment;
- Substantive knowledge of ecological dietary/food chain relationships for exposure modelling; and
- Conservatism of assumptions that err towards overestimating rather than underestimating exposure and risk (e.g., assumptions of statistical upper-bound exposure concentrations in water, assumption of lifetime exposure scenarios).

Collectively, the above-listed practices provide moderate to high confidence that the risk estimates are not underestimated, and in the present case, an overall moderate level of confidence that the estimated

health risk to aquatic and terrestrial wildlife and human health as a result of the Project is low and not significant.

24.7.3.2.8 Change to Economic Conditions

Based on the publicly available information, and the consultation activities conducted with the Shuswap Band to date (Appendix 24-A, Table 24.A-2), there are no anticipated unmitigated Project effects related to the Shuswap Band's economic ventures such as commercial operations, forestry or logging, commercial fishing, hunting, trapping, or gathering. Some impacts to hunting and trapping may occur and are discussed in Section 24.10.2.1.2.

There may be a modest positive effect to economic conditions through training and as part of the Construction and Pre-production and Operations phases. There is also the opportunity for Shuswap Band members to take part in the Reclamation and Closure and Post-Closure phases with respect to follow-up and monitoring programs. The Project can be expected to result in positive economic outcomes for employment, income, the regional and local economies, and government finances within the RSA (Chapter 17). These positive outcomes will be enhanced through training programs to maximize the hiring of local workers and from Indigenous Communities. Positive economic effects are expected to occur during all Project phases, with the primary economic benefits occurring during Construction and Pre-production and Operations which together are expected to occur over an 18-year period.

Using a GBA+ lens, Indigenous Peoples[12] who may want and also be targeted for Project employment by NWP could face barriers related to housing availability, the cost of living, lack of childcare, and access to adequate community services. Indigenous Potential employees from communities like Shuswap Band that are not within daily commuting distance of the Project (more than 100 km away), may require housing close to the Project location. Further, given that many potential Indigenous employees may be more eligible for entry level positions in mining with resulting lower wages, in addition to transportation limitations related to commuting time, barriers such as the high cost of living and lack of local affordable housing could be even more of an issue or challenge to their participation in the Project.

NWP has committed to defining targets for a high level of Indigenous employment and prioritizing Indigenous women where applicable, reducing barriers to housing and childcare are likely critical in being able to achieve certain Indigenous employment targets. Some mitigation measures are recommended to help enhance Project benefits with Indigenous Communities as well as minimize adverse Project effects, including disproportionate effects to or barriers that vulnerable sub-populations such as Indigenous peoples and females could face in relation to Project development. These include recommendations related to hiring and training to increase the proportion of Indigenous workers and addressing affordable housing, childcare needs, shiftwork, and safety issues as outlined in this chapter and described in Chapter 18.

[12] It is recognized that the housing barrier also applies to non-Indigenous peoples but given that Indigenous peoples are a vulnerable sub-population who experience severe socio-economic inequities as a collective due to historical and ongoing colonialism, as well as NWP's objective to target Indigenous peoples for employment in mining, their situation with respect to housing access and affordability warrants special consideration from a GBA+ lens.

Further, mitigation measures related to the effects of the Project on the Shuswap Band are outlined in Section 24.9 (Table 24.9-1) which presents the Indigenous Impact Management Plan that was developed in response to the concerns raised by the Shuswap Band and the identified Indigenous Communities. The mitigation presented in Section 24.9.5 may be revised or updated as a result of specific input provided by the Shuswap Band where applicable. No other technically and economically feasible mitigation measures were identified to address potential impacts to the Shuswap Band rights and interests related to the change in economic conditions. At this time, NWP is not aware of potential future technology innovations that may help to further mitigate effects.

24.7.3.2.9 Limitations of the Assessment of Socio-Economic Conditions

No information was available from the Shuswap Band or is publicly available on the description of on the description of the following related socio-economic conditions in the ATRI LSA or the ATRI RSA:

- The use of navigable waters;
- Shuswap forestry and logging operations;
- Shuswap commercial fishing, hunting, trapping, and gathering activities;
- Shuswap commercial outfitters; and
- Shuswap recreational use including wildlife viewing.

Therefore, the changes to the environment caused by the Project that may potentially affect the above listed socio-economic conditions and their potential unmitigated effects were not carried forward into the effects assessment process and no impacts of related Shuswap Band's rights and interests are expected. Where related information may be available regarding the socio-economic conditions identified in this section, the assessment of potential impacts on the Shuswap Band's rights and interests related to these socio-economic conditions will be address where applicable in Section 24.10.

24.7.3.3 Summary of Potential Residual Effects of Changes to the Environment on the Shuswap Band

The residual effects to Shuswap Band are summarized in Table 24.7-6 and are reflective of the current use of lands and resources for traditional purposes by Shuswap Band as well as potential future use.

24.7.4 Cumulative Effects Assessment of the Changes to the Environment on Shuswap Band

Cumulative effects are the result of the residual environmental effects of the Project interacting with the effects of other past, present, and reasonably foreseeable future projects or activities to produce a combined/overlapping effect. Cumulative effects as a result of this Project in combination with the existence of other past, present, and reasonably foreseeable physical activities include changes to the environment. These cumulative effects include the changes to the environment due to the Project combined with the existence of other past, present, and reasonably foreseeable physical activities The objective of the cumulative effects assessment is to consider overlapping effects for all residual adverse effects, not only those predicted to be significant (EAO, 2013). Additional guidance used for cumulative effects assessment in general is provided in Chapter 5, Section 5.3.5. As previously noted, all information compiled and presented in Section 24.7.4 has been authored by NWP and the information presented in relation to potential Project effects is not intended to supersede traditional knowledge or specific information of the community members and Elders of the Shuswap Band.

Table 24.7-6: Summary of Potential Residual Effects Assessment on Shuswap Band

Residual Effect	Project Phases	Mitigation Measures	Summary of Residual Effects Characterization	Significance (Significant, Not Significant)	Confidence (High, Moderate, Low)
Change to Current Use of Lands and Resources for Traditional Fishing Purposes	• Construction and Pre-Production and • Reclamation and Closure	See Section 24.9 and specific mitigation tables for receptor or intermediate VCs.	Duration: Short-term to Long-term Magnitude: Low to Moderate Geographic Extent: Local Frequency: Continuous Reversibility: Reversible Long-term to Irreversible Context: Neutral	Not Significant	Low to Moderate
Change to Current Use of Lands and Resources for Traditional Hunting and Trapping Purposes	• Construction and Pre-Production, • Operations, and • Reclamation and Closure	See Section 24.9 and specific mitigation tables for receptor or intermediate VCs.	Duration: Long-Term Magnitude: Low to Moderate Geographic Extent: Local Frequency: Continuous Reversibility: Reversible Long-Term Context: Neutral	Not Significant	Low to Moderate
Change to Current Use of Lands and Resources for Traditional Harvesting and Gathering Purposes	• Construction and Pre-Production, • Operations, and • Reclamation and Closure	See Section 24.9 and specific mitigation tables for receptor or intermediate VCs.	Duration: Long-term to Permanent Magnitude: Low to Moderate Geographic Extent: Discrete Frequency: Once Reversibility: Reversible Long-Term Context: Neutral	Not Significant	Low
Change to Physical and Cultural Heritage and Change to a Structure, Site, or Item that is of Historical, Archaeological, Paleontological, or Architectural Significance	• Construction and Pre-Production and • Operations	See Section 24.9 and specific mitigation tables for receptor or intermediate VCs.	Duration: Permanent Magnitude: High Geographic Extent: Discrete Frequency: Once Reversibility: Irreversible Context: Low	Not Significant	Low

Residual Effect	Project Phases	Mitigation Measures	Summary of Residual Effects Characterization	Significance (Significant, Not Significant)	Confidence (High, Moderate, Low)
Change to Social and Health Conditions	• Operations	See Section 24.9 and specific mitigation tables for receptor or intermediate VCs.	Duration: Long-Term Magnitude: Low Geographic Extent: Discrete to Local Frequency: Continuous Reversibility: Reversible Long-Term Context: Neutral	Not Significant	Moderate to High

The approach for determining cumulative effects requires the following for a potential cumulative effect to occur:

- The Project results in a residual adverse effect on a component of the environment that is understood to be of interest to the Indigenous Community;
- The residual Project effect interacts cumulatively with effects from other projects or activities (i.e., the effects of the Project overlap spatially and temporally with those of other projects or activities) that have been or will be carried out;
- The other projects or activities that have been or will be carried out (i.e., this does not include hypothetical information, but known future projects); and
- The cumulative effect is likely to occur.

The Impact Assessment Agency of Canada (IAAC, 2015b; 2022a) has on a preliminary basis determined the depth of the duty to consult in relation to the Project to include cumulative effects assessment at the regional scale for the Shuswap Band.

Due to the extent of the ATRI RSA and the potential for overlap of land and resources for traditional purposes undertaken by Shuswap Band, Stoney Nakoda First Nation, Métis Nation British Columbia, Kainai First Nation, Piikani Nation, Siksika Nation, Tsuut'ina Nation, and Métis Nation of Alberta, Region 3; the cumulative effects assessments for the above-listed Indigenous Communities was undertaken using the cumulative effects assessments completed for receptor and intermediate VCs that relate to rights and interests for the Project and, where available, for other projects or activities in the Aboriginal and Treaty Rights and Interests Regional Study Area (ATRI RSA).

24.7.4.1 Cumulative Effects Assessment Methods

The methods for assessing potential cumulative effects on the Shuswap Band in relation to the Project followed the approach outlined in Chapter 5 and is included in Section 24.3. As noted in the assessment methods outlined in Section 24.7.2, to understand potential cumulative effects on a community's opportunity to fish in the regional area, the findings of the fish and fish habitat Valued Component cumulative effects assessment were used. Where applicable, publicly-available information specific to a community has been presented and incorporated into the assessment of potential cumulative effects including the *Elk Valley Cumulative Effects Assessment and Management Report* (EV-CEMF, 2018) that integrates the assessment results for five Valued Components (VCs) to serve as indicators of environmental condition and trends, and the *Cumulative Effects Assessment for Kainai First Nation* (IEG and ALCES Group, 2018) report which undertakes an assessment that includes culturally important species of interest to Shuswap Band (i.e., ungulates).

It is important to note that the assessment of effects presented in this section is preliminary. No traditional ecological knowledge or traditional land and resource use studies had been completed specifically for the Project, nor for the region as a whole (to NWP's knowledge), though consultation with Shuswap Band has informed the assessment (Appendix 24-A, Table 24.A-2). As such, the information provided below is based on the generally available knowledge of Indigenous use of land and resources and culture, and professional judgment. This information has been supplemented by literature sources and secondary information from past reports and EAs in the region as noted in Section 24.4.1. In this light, this chapter does not presume or replace information that may become available through further engagement of Shuswap Band or in any traditional knowledge/traditional land use study that might be conducted and/or

provided. Future information that is received will be used to continue to refine the Project design and proposed mitigation, as appropriate.

As detailed in the Project residual effects assessments (Section 24.7.3), the Project is not anticipated to result in significant localized residual effects on the current use of lands and resources for traditional purposes (i.e., fishing, hunting and trapping, and harvesting and gathering), physical and cultural heritage, structures or sites of historical, archaeological, paleontological, or architectural significance, or social, health, and economic conditions. While not considered to be significant, given that there is potential for residual effects of the Project on Shuswap Band, an assessment of the cumulative effects is required because the residual effects of the Project may act cumulatively with the residual effects of other past, present, and reasonably foreseeable (i.e., announced) future projects and/or activities. Generally, the effects of past and present projects or activities are encompassed in the existing (baseline) conditions relating to Indigenous rights and interests. Information regarding the overall cumulative effects assessment methodology for all Valued Components assessed in this Application/EIS is provided in Chapter 5, Section 5.3.4.6.

For the purposes of the cumulative effects assessment on Shuswap Band, residual Project effects considered in the assessment include the following, which are based largely on those enumerated in Section 5(1)(c) of CEA Act, 2012:

- Change to use of lands and resources for traditional purposes: Fishing;
- Change to use of lands and resources for traditional purposes: Hunting and trapping;
- Change to use of lands and resources for traditional purposes: Harvesting and gathering;
- Change to physical and cultural heritage and change to a structure, site, or item that is of historical, archaeological, paleontological, or architectural significance; and
- Change to social, health, and economic conditions.

The assessment of potential cumulative effects is a qualitative assessment of potential cumulative interactions between the Project's residual effects and the residual effects that may arise from other projects or activities within the ATRI RSA. A conservative approach has been used in the assessment of cumulative effects that assumes that the current and potential use of the lands and resources occurs throughout the ATRI RSA. The conservative approach was used due to NWP's continued consultation with the Shuswap Band, and additional information related to the past and current use of lands for various traditional activities continues to be discussed and confirmed.

Though no spatial or temporal overlap is anticipated to occur in conjunction with the Project's effects to archaeological resources and other reasonably foreseeable future projects and activities (because effects on archaeological resources are limited to the area of physical disturbance of a particular project, and there is no such spatial overlap between project footprints in the present case), a potential cumulative effect on physical and cultural heritage and potential changes to a structure, site, or item that is of historical, archaeological, paleontological, or architectural significance is nonetheless carried forward in the cumulative effects assessment. While Archaeological Impact Assessments were conducted for the Archaeological LSA, additional sites of significance within the ATRI RSA could be identified in the future that are currently unknown or undocumented and could have the potential to be impacted as a result of projects and activities, and therefore may impact the identified Indigenous Communities.

The assessment of potential residual Project effects to the socio-community VC, based on publicly available information, indicated that no residual effects are anticipated, and as such, no cumulative effects to the socio-community as it relates to the potential residual cumulative effects on the Shuswap Band is presented. Similarly, the assessment of potential residual Project effects to the economic conditions VC indicated that no residual effects are anticipated, and as such, no cumulative effects to the socio-economic conditions as it relates to potential residual cumulative effects on Shuswap Band's Aboriginal rights and interests is presented. It is noted that there is potential for some positive economic conditions effects through: increase in employment opportunities and income, contribution to regional and local economies, and increased payment to government through taxes and royalty payments.

Valued Components (VCs) that have linkages to the Shuswap Band and were used in the assessment of potential cumulative effects include:

- Fish and fish habitat;
- Ungulates;
- Carnivores;
- Bird community;
- Terrestrial ecosystems;
- Vegetation;
- Land use and access;
- Heritage resources; and
- Human and wildlife health.

24.7.4.1.1 Cumulative Effects Assessment Boundaries

The assessment of cumulative effects of the changes to the environment on the Shuswap Band was conducted at a regional scale using receptor and intermediate VC information, as available, within ATRI RSA. The ATRI RSA is approximately 3,193,000 ha and encompasses the VCs and VC groups in which Shuswap Band may have constitutionally protected rights to practice traditional activities, such as for fishing and hunting and gathering.

The VC study areas relevant to the assessment of cumulative effects include the following, which are encompassed within the ATRI RSA:

- Aquatic RSA;
- Terrestrial RSA;
- Landscapes and Ecosystems RSA;
- Grizzly Bear RSA;
- Terrestrial RSA;
- Birds, Bats, and Amphibians RSA;
- Socio-Community RSA;
- Economic Conditions RSA;
- Land Use and Access RSA;
- Archaeological RSA; and
- Human Health and Ecological Risk Assessment (HHERA) RSA.

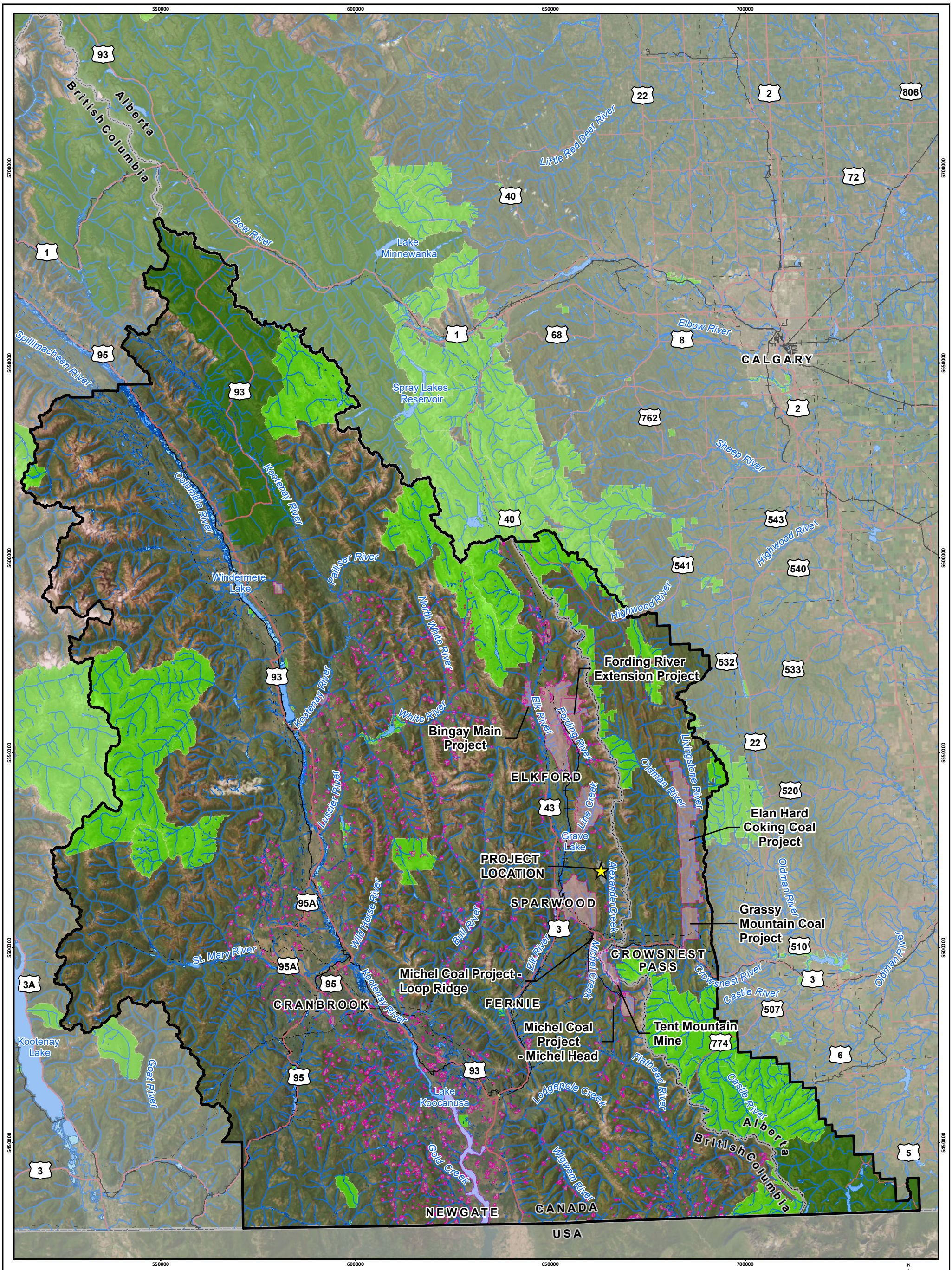
Temporal, administrative, and technical boundaries used in the assessment of receptor and intermediate VCs were considered in the assessment of cumulative effects and are summarized in the relevant VC assessment chapters. These were further supported by available historical baseline conditions for cumulative effects assessment based on pre-industrial or range of natural variation conditions (IEG and ALCES Group, 2018) and reasonably foreseeable projects and/or activities in combination with the Project.

24.7.4.2 Identifying Past, Present, and Reasonably Foreseeable Projects and/or Activities

Prior to European settlement, the natural region that makes up a majority of the study area would have supported grassland-associated species such as elk and mule deer, and forest-dwelling species such as moose in the forested landscapes including the mountain valleys in the ATRI RSA (IEG and ALCES Group, 2018). Natural wildlife and fish populations would have supported traditional land use throughout the region. Since European settlement, a substantial transformation has occurred, with the regional landscape slowly converting to anthropogenic cover types and the built environment. Current changes, including effects from environmental change and industrial projects, are experienced on top of ongoing legacies from past impacts on the ATRI RSA (IEG and ALCES Group, 2018). From the perspective of the Shuswap Band, consideration of cumulative effects in relation to the Project requires consideration of a pre-industrial baseline, and of the significance of already existing effects on Aboriginal rights in the regional study area, as well as the additional potential effects of the Project in combination with reasonably foreseeable future projects and activities, and effects from changes in the environment (IEG and ALCES Group, 2018).

Past, present, and reasonably foreseeable future projects and activities have the potential to act cumulatively with the Project residual effects within the ATRI RSA and result in a potential cumulative effect on the identified Indigenous Communities. Descriptions of the past, present, and reasonably foreseeable projects and/or activities for consideration in the cumulative effects assessment are provided in Chapter 5, Section 5.3.4.6. A map showing the location of reasonably foreseeable future projects and activities relative to the ATRI RSA is presented in Figure 24.7-4. The following projects were considered as past, present projects and/or activities in the cumulative effects assessment and were included in the determination of baseline conditions:

- Natural Resource Extraction (Mining) – Past mining operations that are no longer operational include Hosmer Wheeler, Natal Ridge, Michel Creek, Sparwood Ridge, Balmer, and J-Area (Sparwood Operations), McGillivray, and Tent Mountain.
- Coal Mountain Operations – Present.
- Elkview Operations – Present.
- Line Creek Operations – Present.
- Fording River Operations – Present.
- Greenhills Operations – Present.
- Kootenay West Mine – Present.
- Elkhorn Quarry West (Windermere Mining Operations) – Present.
- Energy (Elko Dam) – Present.
- Koocanusa Reservoir – Present.
- Marten Phosphate Project – Present.



Crown Mountain Coking Coal Project

Figure 24.7-4
Reasonably Foreseeable Future Projects and Activities in the ATRI RSA

- Reasonably Foreseeable Projects and Activities
- Aboriginal Treaty Rights and Interests Regional Study Area
- Crown Mountain Coking Coal Project
- Highway
- Railway
- Transmission Line
- Watercourse
- Waterbody
- Wetland
- Provincial Park/Protected Area
- National Park
- British Columbia/Alberta Border

0 15 30
Kilometres

Scale 1:900,000

Map Drawing Information:
Data Provided By NWP Coal Canada Ltd, Dillon Consulting Limited, Province of British Columbia GeoBC Open Data, Government of Alberta Open Data, Natural Resource Canada. Imagery Provided By ESRI.

Map Created By: RB
Map Checked By: HS
Map Coordinate System: NAD 1983 UTM Zone 11N

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Project: 12-6231
Status: FINAL
Date: 2023-07-19

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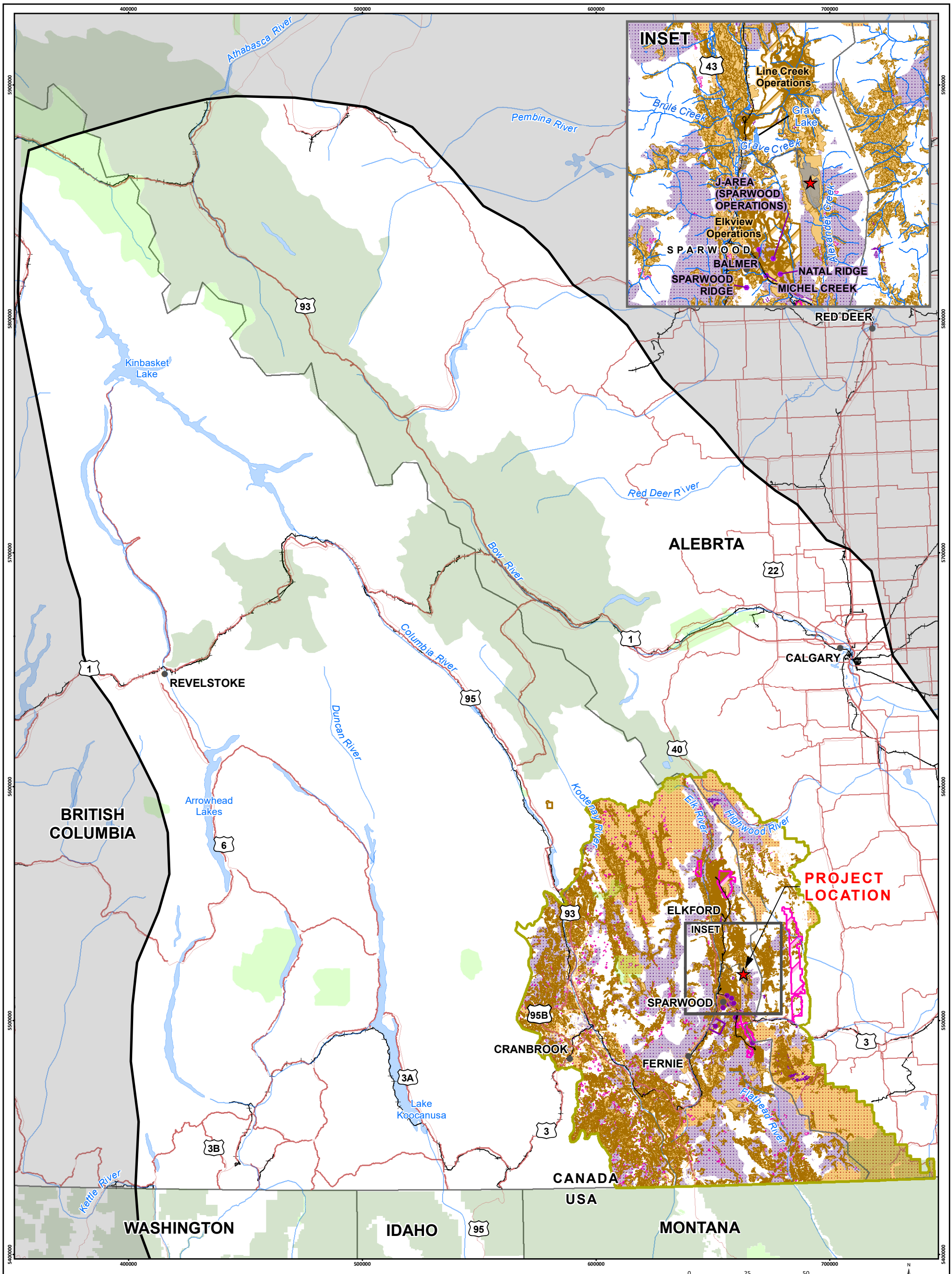
- Forestry – Forestry occurs on both private and Crown land in the Elk Valley. Timber has been harvested on private lands by several proponents, including but not limited to Tembec, Jemi Fibre Corp, and Canwel Building Materials Group (Canwel). Currently, Canwel harvests timber on privately held lands across the Elk Valley. B.C. Crown Land timber harvests occur throughout the Elk Valley and have been active since the late 1800s. The total allowable cut in the Cranbrook Timber Supply Area is approximately 900,000 cubic meters per year, before taking into account harvesting on private lands (EVCEMWG, 2018).
- Natural processes or events include geophysical events (i.e., avalanches, seismic events, and landslides) and forest fires that have occurred in the past and are occurring in the present.
- Energy (Pipelines) – FortisBC and TransCanada Energy (TC Energy) operate natural gas pipelines in the region.
- Energy (Electrical Transmission) – Several overhead transmission lines occur in the Elk Valley generally running along highways, the transmission lines intersect towns and other linear features in the area (e.g., rail, local roads, and gas pipelines).
- Transportation – Linear transportation features across the Elk Valley includes rail, roads (e.g., forestry, exploration, private, and local roads), and highways. Rail runs along major highways in the Elk Valley, servicing existing coal mines.
- Recreation and Tourism – Recreation and tourism take place in front-country and backcountry areas across the Elk Valley.
- Commercial, Residential, and Industrial Use – Lands of nearby communities used for commercial, residential, and industrial use. Includes commercial and industrial development that facilitates commerce and employment as well as areas of residential use.
- Parks and Protected Areas – Parks and protected areas occur throughout the Elk Valley and include Provincial Parks, recreation areas, and community and local parks.
- Agriculture – Agricultural lands in the Elk Valley are mainly used for farming and grazing purposes, with equine and beef livestock the most common livestock activities.

The future projects and activities identified as having a potential to interact cumulatively with the anticipated residual Project effects on Shuswap Band primarily include the currently ongoing future projects and activities that have the potential to occur in the ATRI RSA. For the purposes of the cumulative effects assessment, only reasonably foreseeable future projects and activities are considered. It is assumed that past and present projects and activities are included in the baseline information that includes historic and current use of lands and resources for traditional purposes.

Figure 24.7-5 presents a map depicting certain past, present, and reasonably foreseeable future projects and/or activities within the ATRI RSA together to showcase the extent of the cumulative effects within the ATRI RSA with the applicable information. Reasonably foreseeable projects and activities that have the potential to act cumulatively with the Project residual effects within the ATRI RSA, and with potential Shuswap Band's rights and related interests include:

- Tent Mountain Mine;
- Fording River Extension Project;
- Bingay Main Project;
- Grassy Mountain Project;
- Michel Coal Project;
- Elan Hard Coking Coal Project;



Crown Mountain Coking Coal Project

Figure 24.7-5
Certain Past, Present, and Reasonably Foreseeable Future Projects and Activities in the ATRI RSA

- Past Project
- Past Projects and Activities
- Present Projects and Activities
- Reasonably Foreseeable Future Projects and Activities
- Retired Cutblocks
- Present Forest Activities
- Reasonably Foreseeable Future Forestry Activities
- Present Activities
- Past Wildfire Extents (1919-2021)
- Extent of Cumulative Effects Data
- Ktunaxa Nation Traditional Territory
- Project Footprint
- City/Town
- Highway
- Railway
- Watercourse
- Waterbody
- Provincial/State/Local Park
- National Park
- Province/State Boundary

0 25 50
Kilometres

Scale 1:1,500,000

Map Drawing Information:
Data Provided By NWP Coal Canada Ltd, Dillon Consulting Limited, Province of British Columbia GeoBC Open Data, Government of Alberta Open Data, Natural Resource Canada, ESRI Basedata, Ktunaxa Nation.

Map Created By: RB/LMM
Map Checked By: MN
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- Future forestry, including use of future cutblocks;
- Climate change, including changes in extreme weather events related to precipitation, temperature, wind events, and hydrological events; and
- Natural processes or events, including geophysical events (i.e., avalanches, seismic events, and landslides) and forest fires that have occurred in the past, are occurring, or that have the potential to occur in the future.

The following projects were considered as past, present, or reasonably foreseeable future projects and/or activities but were not included in the cumulative effects assessment:

- Coal Mountain Phase 2 as the environmental assessment was placed on hold by Teck in 2016;
- Mount Brussilof (Baymag Mine) by Baymag due to no temporal overlap (TBD);
- Barns Lake Phosphate Exploration Project by Fertoz International Inc. given that the project is in exploration phase and no project has been proposed; and
- Cabin Ridge Coal by Warburton Group is in exploration and no project has been proposed.

A cumulative effects assessment was completed for each VC that corresponds to Shuswap Band's rights and interests as outlined in Section 24.5.4, including fish and fish habitat (Chapter 12), wildlife and wildlife habitat (Chapter 15; i.e., ungulates, carnivores, and birds), terrestrial ecosystems (Chapter 13), vegetation (Chapter 14), land use and access (Chapter 19), heritage resources (Chapter 16), and human and wildlife health (Chapter 22). Section 24.4.3 identifies the effects of past and present projects or activities that have been carried out and generally reflects those in the existing baseline environment; in other words, the contributions of past and present projects and activities are normally encompassed in the baseline conditions established for the Project. Therefore, in most cases, it was more appropriate and logical to consider the overlap of the effects of the Project and those of past and present projects and/or activities in the Project-related effects assessment for each VC (with the Project effects contributing to a change in those baseline conditions), and to focus the cumulative effects assessment on the effects of reasonably foreseeable projects or activities.

The assessment and evaluation of the cumulative effects of the Project in combination with past, present, and reasonably foreseeable future projects and/or activities considered the nature and degree of change from baseline conditions due to both the Project and the other projects and/or activities.

24.7.4.3 Identification of Potential Cumulative Effects of Changes to the Environment on the Shuswap Band

The potential effects of the Project have the potential to act cumulatively with reasonably foreseeable future projects and/or activities and as such, may result in cumulative effects on VCs that relate to changes to the environment on Shuswap Band as outlined above. Based on the significance determination undertaken for each VC related to Shuswap Band and identified in their relevant chapters in the Application/EIS, no significant adverse cumulative effects were anticipated for VCs or VC groups.

It is noted that the Impact Assessment Agency of Canada (IAAC) has indicated that the duty to consult with Shuswap Band is based on IAAC's understanding of Shuswap Band's rights and interests as outlined in Section 24.5.4 (IAAC, 2015b; 2022a). In addition, while specific information on the Shuswap Band's use of land and waterways in the Project footprint and the ATRI LSA was not available at the time of the writing of this chapter, given the information that is available at this time, it is anticipated that the ATRI RSA does

have potential for use by the Shuswap Band for various traditional activities. Further, their possible use of the area may be impacted by past and present activities and other projects. In the absence of specific information on use of land being provided by the Shuswap Band, much of the description of possible cumulative residual effects on the change to use of lands and resources for traditional purposes in Section 24.7.4.4 is speculative. As noted earlier, a conservative approach has been taken to account for the lack of information available from the Shuswap Band with respect to the cumulative impact on their rights and interests.

As noted by IAAC (IAAC, 2022a), for Shuswap Band in particular, cumulative effects of land use and development impact the quality and quantity of resources, and also dissuade the community from using and accessing these areas due to concerns around contamination and toxicity. Within the last 20 years, community members have observed significant declines in the elk populations in their caretaker area (IAAC, 2022a). Cumulative loss of habitat for species including bighorn sheep, grizzly bear, and old growth and mature forests, grasslands, and whitebark pine has been noted by Shuswap Band. Cumulative impacts of development throughout the region impact the movements of herds based on access to habitat and food resource and the decline of wildlife such as the Kootenay Mountain Caribou herd, historically the loss of Salmon, and a decline in Westslope Cutthroat Trout. Impacts extend to a loss of tradition and stewardship rights and role (IAAC, 2022a).

Other cumulative impacts in the region include degradation of wildlife habitat and impacts on wildlife migration, contamination of water sources throughout the Columbia River basin, and railway and highway clearing of vegetation. Impacts to vegetation have destroyed crops of plants of interest and suitable food sources and habitat for various animals. These linear disturbances have further impacted the important elk and caribou herds which were once common in the region. Cumulative effects on sustenance resources creates potential for impact on overall cultural well-being. Shuswap Band has previously experienced significant loss of traditionally significant resources when salmon were extirpated from the Columbia Basin with the construction of the Grand Coulee Dam in 1938. In addition, anthropogenic climate change caused by GHG emissions impact Shuswap Band's area of caretaker responsibility, and its ability to exercise its Aboriginal rights and interests (IAAC, 2015b; 2022a).

The assessment of potential residual cumulative effects for VCs or VC groups related to Shuswap Band are summarized as follows:

- Fish and Fish Habitat: The Project has the potential to result in impact to fish and fish habitat from instream habitat loss as a result of mine development, habitat loss due to changes in water quantity, changes in water quality, changes in streambed structure, and riparian disturbance. The Project will not contribute to significant residual effects due to incremental loss of fish habitat through mine development, changes in water quantity, changes in streambed structure, or riparian disturbance in the ATRI RSA, since all habitat losses anticipated to occur as a result of the Project will be compensated for through measures to enhance, restore, and create fish habitat in the Elk Valley, resulting in no residual effect. Changes in water quality as a result of the Project will be mitigated through Project design and Project- effects and are not anticipated to extend beyond the Fish and Fish Habitat LSA. Changes in water quality as a result of the Project were found to be a localized effect; therefore, no potential ATRI RSA-scale interaction with fish and fish habitat is anticipated to occur. The Project in combination with other reasonably foreseeable future projects and activities is not anticipated to cause the “death of fish by means other than

fishing" or the "harmful alteration, disruption, or destruction" (HADD) of fish habitat, as direct habitat losses will be compensated for through offsetting in the Aquatic RSA. The residual cumulative effects to fish and fish habitat were considered to be not significant. The potential residual cumulative effects to the change to current use of lands and resources for traditional fishing purposes resulting from the Project in combination with other reasonably foreseeable future projects and activities are described in Section 24.7.4.4.1.

- Wildlife and Wildlife Habitat: The Project has the potential to result in impacts to wildlife and wildlife habitats. The wildlife cumulative effects assessment for ungulates, carnivores, aquatic mammals, waterfowl, and birds identified the potential cumulative effects from habitat loss and alteration, sensory disturbance, disruption to movements (for ungulates and carnivores) and increased mortality risk (for ungulates and carnivores). The Project is likely to contribute to incremental loss of habitat for some species in the ATRI RSA, though the amount contributed by the Project is small and the total amount in combination with other reasonably foreseeable future projects and activities is considered to be low (Chapter 15). Similarly, the Project may contribute to further loss of habitat due to avoidance for species that are sensitive to noise, though the amount contributed by the Project is not significant and the total amount in combination with other reasonably foreseeable future projects and activities is anticipated to be low. The Project and other reasonably foreseeable future projects and activities may block ungulate and carnivore movements to varying degrees. Ungulate and carnivore movements are geographically separated from the Project such that additive barriers with the Project are unlikely. Increased density of roads can result in increased risk of mortality due to hunter access and collisions with vehicles. Road density is predicted to decline in the regional area and increased mortality risk is not expected. The Project, in combination with other reasonably foreseeable future projects and activities, would not limit the ability of ungulates, carnivores, and birds to persist and maintain self-sustaining populations in the VC-specific regional study areas (i.e., Terrestrial RSA, Grizzly Bear RSA) (Chapter 15). The residual cumulative effects to these species were therefore considered to be not significant. The potential residual cumulative effects to the change to current use of lands and resources for traditional hunting and trapping purposes resulting from the Project in combination with other reasonably foreseeable future projects and activities are described in Section 24.7.4.4.2.
- Landscapes and Ecosystems/Vegetation: The Project as the potential to result in impacts to landscapes, ecosystems, and vegetation. The landscapes and ecosystems cumulative effects assessment considered potential residual effects of the Project interacting with reasonably foreseeable future projects and activities to affect the abundance and distribution as well as composition and structure for avalanche chutes, riparian habitat, grasslands, old and mature forest, and wetland ecosystems as well as vegetation. Generally, the potential effects of dust, spills/releases, weeds, and other related sources of impact affecting the composition and structure of ecosystems were all found to be mitigated through the implementation of standard industry practices such that associated residual effects were not anticipated to occur. The potential Project residual effects, combined with reasonably foreseeable future projects and activities, anticipated change in abundance and distribution of each landscapes and ecosystems VCs. The potential residual cumulative changes in abundance and distribution of the landscapes and ecosystem VCs were characterized to be of moderate magnitude for some VCs in the Landscapes and Ecosystems RSA; none were assessed to be significant. The Project was not found to have a disproportionately high contribution to the anticipated cumulative effects on VCs of

landscapes and ecosystems. Similar to that identified for landscapes and ecosystems, potential residual cumulative effects to whitebark pine were anticipated to occur through mortality and loss of habitat, and were assessed to be significant overall, particularly in consideration of the contribution of white pine blister rust to regional rates of mortality. The Project and other reasonably foreseeable future projects or activities directly overlap with approximately 14% of potential whitebark pine critical habitat in the Landscapes and Ecosystems RSA, but the Project contribution to that loss is approximately 2%, proportional to its contribution to the overall footprint of other reasonably foreseeable future projects or activities (i.e., less than 3%), and therefore was considered to be not significant. The potential residual cumulative effects to the change to current use of lands and resources for traditional harvesting and gathering purposes resulting from the Project in combination with other reasonably foreseeable future projects and activities are described in Section 24.7.4.4.3.

- Heritage Resources: At this time, no spatial or temporal overlap of the Project's effects in combination with the effects of other past, present, or reasonably foreseeable future projects or activities is known to occur within the ATRI RSA. There is potential for physical and cultural heritage resources and structures, sites, or things of historical, archaeological, paleontological, or architectural significance to be located with the ATRI RSA and overlap with the other future projects and activities. The locations of these resources and sites are unknown at this time at a regional scale. It is anticipated that planned mitigation for current and future projects and activities includes identification of heritage resources prior to the development of projects and activities, as well as the commitment to implement mitigation in consultation with Shuswap Band. Archaeological resources and sites are protected by the *Heritage Conservation Act* through designation as "provincial heritage sites", or through automatic protection by virtue of being of particular historic or archaeological value (FLNRORD, 2021). Protected archaeological sites may not be altered (i.e., changed in any manner) without a permit issued by the Minister or designate. The residual cumulative effects on heritage resources were therefore considered to be not significant. The potential residual cumulative effects to the change to physical and cultural heritage resources and structures, sites, or things of historical, archaeological, paleontological, or architectural significance resulting from the Project in combination with other reasonably foreseeable future projects and activities are described in Section 24.7.4.4.4.
- Human and Ecological Health: The assessment of potential cumulative effects to terrestrial and aquatic wildlife health concluded that there are no significant residual cumulative effects and that the cumulative exposure is largely reflective of the exposures documented for the Project scenarios. The wildlife and human health risk estimates and their magnitude inherently consider operational activities, emissions, and other contaminant releases intrinsic to the predictive modelling of water quality, air quality, and secondarily food via transport, fate and food chain modelling. Terrestrial wildlife health risk is negligible, low (and likely to be negligible due to conservatism of the assessment), or in isolated instances (e.g., masked shrew), moderate to high but not ecologically significant due to geographic locations of the exposure scenario within the mine footprint or adjacent to the mine haul road. With regard to aquatic health, the health risk was considered in most cases either negligible, low (and likely to be negligible due to conservatism of the assessment), or in isolated instances, moderate and geographically isolated to short reaches of immediate receiving waters at the mine footprint. The overall cumulative effects related to human health risk, including conservative risk estimates conducted specifically for a

hypothetical First Nations receptor[13], were considered to be low to negligible. The results of the cumulative effects assessment indicated that there were no significant residual cumulative effects to ecological or human health anticipated because of the Project in combination with other past, present, and reasonably foreseeable future projects or activities. The potential residual cumulative effects to the change to social, health, and economic conditions resulting from the Project in combination with other reasonably foreseeable future projects and activities are described in Section 24.7.4.4.5.

24.7.4.4 Potential Residual Cumulative Effects of the Changes to the Environment on the Shuswap Band

Within the ATRI RSA, lands have experienced and are experiencing past disturbances as a result of mining, forestry, agricultural/commercial/residential development, and natural disturbances (e.g., avalanches, forest fires). Based on the results of the relevant VC potential residual cumulative effects assessments and in consideration of potential regional mitigation measures as well as the requirements of Section 5(1)(c) of CEA Act, 2012, potential residual cumulative effects are anticipated to occur as they relate to:

- The use of lands and resources for traditional purposes (i.e., fishing, hunting and trapping, harvesting and gathering);
- Physical and cultural heritage, and structures, sites, or things of historical, archaeological, paleontological, or architectural significance; and
- Social, health, and economic conditions.

Though potential residual cumulative effects to VC or VC groups that may be of interest to Indigenous Communities are not assessed as significant, a conservative approach to the assessment of residual cumulative effects on Aboriginal rights and interests indicates residual cumulative effects may occur. Residual cumulative effects assessments for potential cumulative effects are presented in Section 24.7.4.4.1 to 24.7.4.4.5.

24.7.4.4.1 Change to Use of Lands and Resources for Traditional Fishing Purposes

Within the ATRI RSA, potential residual cumulative effects to fish and fish habitat, in particular species such as Westslope Cutthroat Trout and Bull Trout that may be of interest to Shuswap Band for fishing, may occur as a result of the construction and operations of present and reasonably foreseeable future projects and activities. Potential residual cumulative effects on fish and their habitat within the ATRI RSA could include instream habitat loss as a result of future developments and changes in water quantity, changes in water quality, changes in streambed structure, and riparian disturbance. Specific to the Project, direct habitat losses will be compensated for through offsetting in the Aquatic RSA and no significant residual cumulative effects to fish VCs are anticipated. Climatic changes in the regional area could change the habitat available to species fished within the ATRI RSA, for example through increased water temperatures limiting geographic distribution. As well, climatic changes may result in hydrologic changes, changes in channel morphology, and increased spread of invasive species. Given the potential for cumulative effects on fish habitat and disturbance to fish species potentially used by Shuswap Band for

[13] The First Nations receptor was modelled as being present at each of the receptor locations for 100% of their lifetime and exposed to Project effects throughout all Project phases using conservative high percentage of country foods and water sourced directly from the LSA throughout that lifetime.

fishing as a result of past, present, and reasonably foreseeable future projects and activities, the potential residual cumulative effects to fishing within the ATRI RSA were evaluated.

The potential residual cumulative effects to the current use of lands and resources for fishing arising from the effects of the Project in combination with the effects of other past, present, and reasonably foreseeable future projects or activities are characterized as follows:

- Duration: *Long-Term*, as the opportunity to fish within the ATRI RSA may be affected by fish habitat loss, which will be reclaimed within the ATRI RSA through offsetting and reclamation and post-closure activities of reasonably foreseeable future projects and activities.
- Magnitude: *Moderate*, as the changes in fish and fish habitat are not expected to result in changes in the opportunity by Indigenous Communities to fish within the ATRI RSA.
- Geographic Extent: *Regional*, as potential effects to the opportunity to fish will be limited to the respective footprints of the Project and those of other reasonably foreseeable future projects and activities within the ATRI RSA.
- Frequency: *Continuous,* as the effects to fish and fish habitat have the potential to occur until habitat is reclaimed or offset, resulting in changes to the opportunity to fish over the course of reasonably foreseeable future projects and activities until reclamation occurs.
- Reversibility: *Reversible Long-Term*, changes in the opportunity to fish are anticipated to be reversible as the respective footprints of the Project and those of other reasonably foreseeable future projects and activities are reclaimed and off-site aquatic compensation is achieved.
- Context: *Neutral*, as opportunities to fish are present within several watercourses in the ATRI RSA, and many of these watercourses have been previously disturbed by human activities (e.g., Elk River and mining activities). The ATRI RSA overlaps with several Indigenous Communities' traditional territories and as such, changes in the accessibility to fish may impact the ability to undertake cultural and traditional practices for community members and the importance of available lands for traditional practices. The context is also deemed neutral due to the lack of information available from the Shuswap Band regarding their opportunity to conduct traditional fishing within the Project footprint at this time, as it is expected that their ability to know and teach the Shuswap way of living can continue outside of the Project footprint during all Project phases.

Determination of Significance of Residual Cumulative Effects

As previously noted in Chapter 12, Section 12.6.1, instream habitat loss due to mine design and development and changes in streambed structure have the potential to interact with other reasonably foreseeable future projects and activities in the Aquatic RSA. Habitat losses in tributaries of the Elk River are expected to occur as other coal mining projects are developed. These losses could include both direct habitat loss due to mine design and development, and indirect losses due to changes in flows. Habitat losses from other reasonably foreseeable future projects are anticipated to be compensated following DFO's strategy for offsetting instream habitat losses that result from HADD. As such, while there may be a measurable change in fish habitat availability locally in some tributaries that will be in addition to the habitat losses expected from the Project in West Alexander Creek, a net loss of fish habitat in the Aquatic RSA is not expected, provided that compensation habitat is developed as required by regulatory habitat loss restrictions under the *Fisheries Act*. Due to the lack of information available on the Shuswap Band's use of the Project footprint and the ATRI LSA for fishing, the Project's contribution to residual cumulative

effects on changes to fish and fish habitat is not anticipated to reduce the ability and opportunity of the Shuswap Band to practice their Aboriginal rights and interests related to fishing within the ATRI RSA.

A net loss of habitat is not expected in the Aquatic RSA due to reasonably foreseeable future projects and activities. The Project, in combination with other reasonably foreseeable future projects and activities, is not anticipated to result in the harmful alteration, disruption, or destruction of fish habitat or the death of fish, since direct habitat losses and direct mortality will be compensated by habitat offsetting measures in the Aquatic RSA in accordance with the requirements of the federal *Fisheries Act* such that no residual effect remains. In consideration of this and the mitigation and offsetting activities that may occur as part of the development of reasonably foreseeable future projects and activities, and information currently available on the use of lands and resources within the ATRI RSA for fishing, the potential residual cumulative effects to fishing arising from the Project in combination with other past, present, and reasonably foreseeable future projects and activities during all phases are anticipated to be not significant. The Project's contribution to residual cumulative effects on changes to fish and fish habitat is not anticipated to reduce the ability and opportunity of Shuswap Band to practice their Aboriginal rights and interests related to fishing within the ATRI RSA. The potential cumulative impacts to the Shuswap Band's rights and interests of the residual cumulative effect on traditional fishing are discussed further in Section 24.10.2.1.1.

Likelihood and Confidence

Effects that are determined to be not significant do not require a characterization of likelihood. Fish and fish habitat conditions of relevant fish species of interests (e.g., Kokanee, Mountain Whitefish, Westslope Cutthroat Trout, and the Longnose Sucker), including their ecology, habitat availability and distribution, and occurrence and abundance, are well understood at the scale of the Aquatic RSA. Some uncertainty does exist for fish population trends. In addition, not all aquatic systems and fish species that may be of interest to Shuswap Band were evaluated at the scale of the ATRI RSA. At this time, the full extent of aquatic systems that are used by fish species of interest and accessed by Shuswap Band for fishing historically and currently or that could be used in the future are not well understood within the ATRI RSA and will continue to be refined as NWP continues engagement with Shuswap Band on this Project. Uncertainty also exists regarding the implications of regional climatic changes that may impact fish habitat availability. As such, the confidence of residual cumulative effects to the current use of lands and resources for fishing is considered to be low.

NWP is committed to further discussions with Shuswap Band to understand current and potential use of lands within the ATRI RSA for fishing, in order to improve the level of confidence in this prediction.

24.7.4.4.2 Change to Use of Lands and Resources for Traditional Hunting and Trapping Purposes

Within the ATRI RSA, potential residual cumulative effects to wildlife and wildlife habitat, in particular ungulates, carnivores, and birds that may be of interest to Shuswap Band for hunting and trapping, may occur as a result of the construction and operations of present and reasonably foreseeable future projects and activities. Potential residual cumulative effects on wildlife and their habitat within the ATRI RSA could include habitat loss and alteration, sensory disturbance, disruption to movements (for ungulates and carnivores), and increased mortality risk (for ungulates and carnivores). The Project in combination with other reasonably foreseeable future projects and activities would not limit the ability of ungulates,

carnivores, and birds to persist and maintain self-sustaining populations, and no significant residual cumulative effects to these VC groups are anticipated. Climatic changes in the regional area could change the habitat available to species hunted and trapped within the ATRI RSA. Given the potential for cumulative effects on wildlife habitat and disturbance to species used by Shuswap Band for hunting and trapping as a result of past, present, and reasonably foreseeable future projects and activities, potential residual cumulative effects to hunting and trapping within the ATRI RSA were evaluated.

Potential residual cumulative effects to the current use of lands and resources for hunting and trapping arising from the effects of the Project in combination with the effects of other past, present, and reasonably foreseeable future projects or activities are characterized as follows:

- Duration: *Long-term to Permanent*, as the opportunity to hunt and trap within the ATRI RSA may be affected by wildlife habitat loss which will be reclaimed within the ATRI RSA through reclamation and post-closure activities on future projects and activities. Reclaimed areas like forests may not be fully reclaimed until after post-closure periods for the reasonably foreseeable future projects and activities. Sensory disturbance to wildlife species of interest and Shuswap Band who may hunt and trap in a specific area of the ATRI RSA near future projects and activities may experience changes in sensory conditions as a result of future projects and activities over the course of operational activities. Increased mortality is anticipated to occur to the end of reclamation and closure phases for reasonably foreseeable future projects and activities.
- Magnitude: *Low*, as the changes in wildlife habitat and the movement of species is not expected to result in changes in the opportunity to hunt and trap within the ATRI RSA, and the sustainability of wildlife populations is not expected to be affected.
- Geographic Extent: *Regional*, as potential effects to the opportunity to hunt and trap will be limited to the respective footprints of the Project and those of other reasonably foreseeable future developments within the ATRI RSA.
- Frequency: *Continuous,* as the effects to wildlife and wildlife habitat have the potential to occur until habitat is reclaimed as part of reclamation activities, resulting in changes to the opportunity to hunt and trap over the course of future projects and activities until reclamation of the landscape occurs.
- Reversibility: *Reversible Long-term to Irreversible*, as ecological restoration activities anticipated to occur through reclamation strategies associated with the Project and past, present, and reasonably foreseeable future projects and activities will result in reclaimed wildlife habitat and areas potentially accessed for hunting and trapping. If areas used for hunting and trapping can no longer be accessed due to developments, there is a potential for the change in access to be irreversible.
- Context: *Neutral*, as the opportunity to hunt and trap within the ATRI RSA is dependent on access to self-sustaining wildlife populations and appropriate wildlife habitat. The ATRI RSA overlaps with several Indigenous Communities' traditional territories, and as such, changes in the accessibility to hunt and trap may impact the ability to undertake cultural and traditional practices for community members and the importance of available lands for traditional practices. The context is also deemed neutral due to the lack of information available from the Shuswap Band regarding their opportunity to conduct traditional hunting and trapping within the Project footprint at this time, as it is expected that their ability to know and teach the Shuswap way of living can continue outside of the Project footprint during all Project phases.

Determination of Significance of Residual Cumulative Effects

The Project, in combination with other reasonably foreseeable future projects and activities, is not anticipated to limit the ability of ungulates, carnivores, and birds to persist and maintain self-sustaining populations in the VC-specific regional study areas (i.e., Terrestrial RSA, Grizzly Bear RSA). In consideration of this and mitigation and reclamation activities that may occur as part of the development of reasonably foreseeable future projects and activities, and the information currently available on the current and potential use of lands and resources within the ATRI RSA for hunting and trapping, the potential residual cumulative effects to the current use of land and resources for the traditional purpose of hunting and trapping arising from the Project in combination with other past, present, and reasonably foreseeable future projects and activities during all phases are anticipated to be not significant. Due to the lack of information available on the Shuswap Band's use of the Project footprint and the ATRI LSA for hunting and trapping, the Project's contribution to residual cumulative effects on changes to wildlife and wildlife habitat is not anticipated to reduce the ability and opportunity of Shuswap Band to practice Aboriginal rights and interests related to hunting and trapping within the ATRI RSA. The potential cumulative impacts to the Shuswap Band's rights and interests of the residual cumulative effect on traditional hunting and trapping activities are discussed further in Section 24.10.2.1.2.

Likelihood and Confidence

Effects that are determined to be not significant do not require a characterization of likelihood. Wildlife and wildlife habitat conditions within the regional study areas of relevant wildlife species of interests (e.g., grizzly bear, elk, and bighorn sheep), including their ecology, habitat availability and distribution, and occurrence and abundance, are well understood at the scale of the VC regional study areas (e.g., Grizzly Bear RSA), some uncertainty does exist for wildlife species population trends. In addition, not all wildlife species that may be of interest were evaluated at the scale of the ATRI RSA. At this time, the full extent of lands that are used by wildlife species of interest and lands accessed by Shuswap Band for hunting and trapping historically and currently or that could be used in the future is not well understood within the ATRI RSA and will continue to be refined as NWP continues engagement with Shuswap Band on this Project. Uncertainty also exists regarding the implications of regional climatic changes that may impact wildlife habitat availability. As such, the confidence of residual cumulative effects to the current use of lands and resources for hunting and trapping is considered to be low.

NWP is committed to further discussions with Shuswap Band to understand current and potential use of lands within the ATRI RSA for hunting and trapping, in order to improve the level of confidence in this prediction.

24.7.4.4.3 Change to Use of Lands and Resources for Traditional Harvesting and Gathering Purposes

Potential Project residual effects on terrestrial ecosystems and vegetation VCs that may be of relevant to Indigenous harvesting and gathering have the potential to interact cumulatively with past, present, and reasonably foreseeable future projects and activities within the ATRI RSA. The assessment of potential residual cumulative effects for landscapes and ecosystems VCs and vegetation VCs concluded no significant residual cumulative effects. At this time, specific areas of harvesting and gathering are unknown within the ATRI RSA. The residual cumulative effects assessment considers the potential for current and future use within the ATRI RSA and the various landscapes and ecosystems that cover this area. Changes in climatic conditions, including higher annual precipitation and increases in average annual

air temperatures (EV-CEMF, 2018), may alter the abundance and distribution of plant communities in the Elk Valley, resulting in impacts to the Shuswap Band's harvesting and gathering activities.

The residual cumulative effects to the current use of lands and resources for harvesting and gathering arising from the effects of the Project in combination with the effects of other past, present, and reasonably foreseeable future projects or activities, are characterized as follows:

- Duration: *Long-term to Permanent*, as the loss of vegetation communities and plant species of interest used in harvesting and gathering, as well as the opportunity to access harvesting and gathering areas, may be impacted as a result of the construction of reasonably foreseeable future projects and activities. Reclamation activities may reclaim impacted communities over the long-term and re-establish areas potentially used for harvesting and gathering.
- Magnitude: *Moderate*, the Project acting cumulatively with past, present, and reasonably foreseeable projects and activities will result in the loss of terrestrial ecosystems and plant species that may be of interest to Shuswap Band's harvesting and gathering practices, but the sustainability of populations and ecosystems is not expected to be affected.
- Geographic Extent: *Regional*, as the loss of terrestrial ecosystems that may be accessed and used for harvesting and gathering will be limited to the respective footprints of the Project and those of other reasonably foreseeable future developments within the ATRI RSA.
- Frequency: *Once to Intermittent,* as the removal of vegetation potentially used for harvesting and gathering will occur during the construction of reasonably foreseeable future projects and activities (e.g., site clearing activities). Climatic changes may result in alteration of vegetation communities sporadically over the long-term.
- Reversibility: *Reversible Long-term to Irreversible*, as ecological restoration activities anticipated to occur through reclamation strategies associated with the Project and past, present, and reasonably foreseeable future projects and activities will result in reclaimed terrestrial ecosystems and vegetation communities potentially accessed and used for harvesting and gathering. If areas used for harvesting and gathering can no longer be accessed due to developments, there is a potential for the change in access to be irreversible.
- Context: *Neutral*, as the opportunity to harvest and gather within the ATRI RSA is dependent on the location of ecosystems and plant species of interest as well as the access to these areas. The ATRI RSA overlaps with several Indigenous Communities' traditional territories, and as such, changes in the accessibility to harvest and gather may impact the ability to undertake cultural and traditional practices for community members and the importance of available lands for traditional practices. The context is also deemed neutral due to the lack of information available from the Shuswap Band regarding their opportunity to conduct traditional harvesting and gathering within the Project footprint at this time, as it is expected that their ability to know and teach the Shuswap way of living can continue outside of the Project footprint during all Project phases.

Determination of Significance of Residual Cumulative Effects

In consideration of mitigation measures and reclamation activities that may occur as part of development of reasonably foreseeable future projects and activities and information currently available on the current and potential use of lands and resources within the ATRI RSA for harvesting and gathering, the potential residual cumulative effects on the current use of land and resources for the traditional purpose of harvesting and gathering arising from the Project in combination with other past, present, and reasonably foreseeable future projects and activities during all phases are anticipated to be not significant. Due to

the lack of information available on the Shuswap Band's use of the Project footprint and the ATRI LSA for harvesting and gathering, the Project's contribution to residual cumulative effects on changes in landscapes and ecosystems and relevant vegetation VCs is not anticipated to reduce the ability and opportunity for Shuswap Band to practice their rights and interests related to harvesting and gathering within the ATRI RSA. The potential cumulative impacts to the Shuswap Band's rights and interests of the residual cumulative effect on traditional harvesting and gathering activities are discussed further in Section 24.10.2.1.3.

Likelihood and Confidence

Effects that are determined to be not significant do not require a characterization of likelihood. The full extent of loss of lands that are used by Shuswap Band for harvesting and gathering historically and currently or that could be used in the future is not well understood within the ATRI RSA. In conjunction with this, the full extent of loss to landscapes and ecosystems and vegetation species of interests associated with past, present, and reasonably foreseeable future projects and activities cannot be accurately predicted based on the scale and availability of the information publicly available at this time and will continue to be refined as engagement with Shuswap Band on this Project is continued. As such, the confidence of the residual cumulative effects to the current use of lands and resources for harvesting and gathering is considered to be low.

NWP is committed to further discussions with Shuswap Band to understand current and potential use of lands within the ATRI RSA for harvesting and gathering activities, in order to improve the level of confidence in this prediction.

24.7.4.4.4 Change to Physical and Cultural Heritage, and Change to any Structure, Site, or Thing that is of Historical, Archaeological, Paleontological, or Architectural Significance

There is potential for physical and cultural heritage resources and structures, sites, or things of historical, archaeological, paleontological, or architectural significance to be located with the ATRI RSA and as such, a potential for development of reasonably foreseeable future projects and activities to overlap with these resources and sites. At this time, the locations of these resources and sites require further consultation with the Shuswap Band within the ATRI RSA, other than those documented as part of the Project Archaeological Baseline Assessment within the Project footprint and the Archaeological LSA (Chapter 16).

The residual cumulative effects to physical and cultural heritage and to any structure, site, or thing that is of historical, archaeological, paleontological, or architectural significance arising from the effects of the Project in combination with the effects of other past, present, and reasonably foreseeable future projects or activities are characterized as follows:

- Duration: *Permanent*, as the potential loss of physical and cultural heritage and of any structure, site, or things that is of historical, archaeological, paleontological, or architectural significance cannot be reversed once it occurs within the ATRI RSA.
- Magnitude: *High*, the potential alteration of physical and cultural heritage and of any structure, site, or thing that is of historical, archaeological, paleontological, or architectural significance may result in a measurable change from existing conditions.

- Geographic Extent: *Regional*, as the potential loss of physical and cultural heritage and of any structure, site, or thing that is of historical, archaeological, paleontological, or architectural significance is limited to the ATRI RSA.
- Frequency: *Once*, as the direct loss of physical and cultural heritage and of a structure, site, or thing that is of historical, archaeological, paleontological, or architectural significance that may exist within the ATRI RSA will occur as reasonably foreseeable future projects and activities are constructed or carried out across the ATRI RSA.
- Reversibility: *Irreversible*, as impacts to or alteration of physical and cultural heritage and of any structure, site, or thing that is of historical, archaeological, paleontological, or architectural significance cannot be returned/reburied and are permanent.
- Context: *Low*, as physical and cultural heritage and any structure, site, or thing that is of historical, archaeological, paleontological, or architectural significance have a low resilience to change as alterations to areas or sites of interest and significance may not adapt to effects that alter their presence or existence. The context is also deemed low as it is expected that the Shuswap Band's ability to know and teach their way of living can continue outside of the Project footprint during all Project phases based on the information available from the Shuswap Band regarding their opportunity to conduct traditional cultural activities within the Project footprint at this time.

Determination of Significance of Residual Cumulative Effect

It is anticipated that mitigation measures to identify heritage resources will be implemented as part of current and reasonably foreseeable future projects and activities prior to development. Within the ATRI RSA, the location of physical and cultural heritage and of structures, sites, or things that are of historical, archaeological, paleontological, or architectural significance are currently unknown outside of the Project footprint and Archaeological LSA. A significant adverse residual cumulative effect on Shuswap Band's physical and cultural heritage related to heritage resources is one that results in a permanent Project-related disturbance to, or destruction of, all or part of a pre-contact heritage resource considered to be of importance, to the spiritual or cultural identity of Shuswap Band that cannot be mitigated or compensated.

Based on information provided by Shuswap Band (IAAC, 2015b; 2020a), Grave Prairie is a landscape containing important Shuswap cultural values and is located within the Project footprint requiring specific mitigation measures to be utilized where proposed and applicable. Should reasonable foreseeable future projects and activities be carried out within the ATRI RSA and mitigation measures be implemented to protect and avoid physical and cultural heritage and any structure, site, or thing that is of historical, archaeological, paleontological, or architectural significance (i.e., no permanent loss), the residual cumulative effects to physical and cultural heritage and to any structure, site, or thing that is of historical, archaeological, paleontological, or architectural significance arising from the Project in combination with other past, present, and reasonably foreseeable future projects and activities during all phases are anticipated to be not significant.

Due to the lack of information available on the Shuswap Band's physical and cultural heritage within the Project footprint and the ATRI LSA, the Project's contribution to the residual cumulative effects to physical and cultural heritage and to any structure, site, or thing that is of historical, archaeological, paleontological, or architectural significance is not anticipated to reduce the ability and opportunity of the Shuswap Band to practice their Aboriginal rights and interests within the ATRI RSA. The potential

cumulative impacts to the Shuswap Band's rights and interests of the residual cumulative effect on their physical and cultural heritage are discussed further in Section 24.10.2.1.4.

Likelihood and Confidence

Effects that are determined to be not significant do not require a characterization of likelihood. Confidence considers the reliability of data and analytical methods used in the assessment of effects. The confidence in the characterization of the potential residual cumulative effect to physical and cultural heritage and to any structure, site, or thing that is of historical, archaeological, paleontological, or architectural significance is considered to be low. Mitigation measures that may be used by present and future reasonably foreseeable projects and activities to avoid impacts to physical and cultural heritage and to any structure, site, or thing that is of historical, archaeological, paleontological, or architectural significance (e.g., archaeological impact assessment, cultural monitoring) are generally considered moderate to high. The lack of regional information on Shuswap Band's physical and cultural heritage and structures, sites, or things that are of historical, archaeological, paleontological, or architectural significance reduces the level of confidence of the significance of effects. Adaptive management measures will be implemented as part of future projects and activities, in combination with Indigenous consultation, to understand potential regional impacts to physical and cultural heritage and to any structure, site, or thing that is of historical, archaeological, paleontological, or architectural significance. It is anticipated that Section 12.2 Heritage Inspection Permits will be required to determine if and where archaeological resources are present prior to developments of reasonably foreseeable future projects and activities within the ATRI RSA.

24.7.4.4.5 Change to Socio-Community, Health, and Economic Conditions

The assessment of potential residual cumulative effects to terrestrial and aquatic wildlife health as well as human health concluded the health risks are considered to be low. The Project is not anticipated to act cumulatively with other future projects or activities to contribute substantially to a change in the health of terrestrial and aquatic country foods and Indigenous health. As there may be potential for impacts to species of interest (for fishing, hunting, trapping, harvesting, and gathering) to Shuswap Band due to subsistence harvesting activities and potential of change to opportunity for access to country foods, the human and wildlife health conditions VCs are assessed cumulatively. As a result, the following assessment focuses on the human and wildlife health conditions of the residual cumulative effects.

As noted in Chapter 18: Socio-Community Assessment (Section 18.5.5), all anticipated residual socio-community effects are considered to be negligible and no significant adverse residual effects are expected. As such, there is no spatial or temporal overlap of Project effects in combination with those of past, present, or reasonably foreseeable future projects or activities. Therefore, residual adverse cumulative effects on the socio-community are not expected. Similarly, as previously mentioned and noted in Chapter 17: Economic Conditions Assessment (Section 17.6), residual adverse cumulative effects on economic conditions are not expected. It must be noted that due to the potential for change to opportunity for access to country foods within the ATRI LSA and the lack of information on subsistence harvesting, a potential for development of reasonably foreseeable future projects and activities to overlap with these resources and sites have the potential to impact socio-community and economic conditions (i.e., diet, financial impact); these potential cumulative effects will be updated through further consultation with Shuswap Band.

The residual cumulative effects to social, health, and economic conditions arising from the effects of the Project in combination with the effects of other past, present, and reasonably foreseeable future projects or activities are characterized as follows:

- Duration: *Long-Term*, as the predicted residual cumulative effects to the health of wildlife and potential country foods, as well as human health, are only associated with the Project footprint or close to Project infrastructure in areas that will be reclaimed during Reclamation and Closure; there were no residual adverse effects on socio-economic conditions.
- Magnitude: *Low*, as the potential residual cumulative effects of the Project are considered to present a low risk to wildlife and human health and therefore a low magnitude to quality of country foods; there were no residual adverse effects on socio-economic conditions.
- Geographic Extent: *Local to Discrete*, as the potential effects on wildlife and human health and country foods are restricted to the HHERA RSA, receiving watersheds, and the Project footprint in which effects are inferred to be largely undetectable outside of the HHERA RSA; there were no residual adverse effects on socio-economic conditions.
- Frequency: *Continuous*, as the potential risk to country foods is most plausible during the Operations phase of the Project.
- Reversibility: *Reversible Long-Term*, as the low risk to wildlife and human health and associated country foods and consumption of country foods is diminished (mitigated) as the Project disturbance footprint is reclaimed in Reclamation and Closure; there were no residual adverse effects on socio-economic conditions.
- Context: *Neutral*, as aquatic and terrestrial wildlife species and humans have a neutral sensitivity and resilience to the low potential exposure/risk; the low exposure risk is unlikely to adversely affect individuals or local populations and therefore an unlikely disruption to country food quality or accessibility; there were no residual adverse effects on socio-economic conditions. The context is also deemed neutral due to the lack of information available from the Shuswap Band regarding their opportunity to consume country foods within the Project footprint at this time, as it is expected that their ability to know and teach the Shuswap way of living can continue outside of the Project footprint during all Project phases.

Determination of Significance of Residual Cumulative Effects

The assessment of residual cumulative effects of the Project in combination with those of past, present, and reasonably foreseeable future projects and activities on wildlife and human health concluded no significant adverse cumulative effects on terrestrial, aquatic, and human health. Additionally, no adverse residual effects on socio-economic conditions were predicted, therefore no cumulative effect to socio-economic conditions are expected to occur. As such, the residual cumulative effects on social, health, and economic conditions arising from the Project in combination with other past, present, and reasonably foreseeable future projects and activities during all phases are considered not significant. The wildlife and human health risk estimates inherently consider operational activities, emissions, and other contaminant releases intrinsic to the predictive modelling of water quality, air quality, and secondarily food via transport, fate and food chain modelling. Due to the lack of information available on the Shuswap Band's use of the Project footprint and the ATRI LSA to consume country foods, the Project's contribution to the residual cumulative effects on social, health, and economic conditions are not anticipated to reduce the ability and opportunity of the Shuswap Band to practice their Aboriginal rights and interests within the ATRI RSA. The potential cumulative impacts to the Shuswap Band's interests of the residual cumulative effect on their social, health, and economic conditions are discussed further in Section 24.10.2.1.5

Likelihood and Confidence

Cumulative effects that are determined to be not significant, as anticipated for social, health, and economic conditions, do not warrant a characterization of likelihood. The confidence in the characterization of residual cumulative effects to social, health, and economic conditions, and in particular country foods and Indigenous health, is considered to be moderate. The confidence derives from consideration of confidence in:

- Contaminant fate and transport modelling for releases to air and water which dictate exposure point concentration for exposure assessment;
- Substantive knowledge of ecological dietary/food chain relationships for exposure modelling; and
- Conservatism of assumptions that err towards overestimating rather than underestimating exposure and risk (e.g., assumptions of statistical upper-bound exposure concentrations in water, assumption of lifetime exposure scenarios).

Collectively, the above-listed practices provide moderate to high confidence that the risk estimates are not underestimated, and in the present case, an overall moderate level of confidence that the estimated health risk to aquatic and terrestrial wildlife and human health as a result of the Project is low and not significant.

24.7.4.5 Summary of Cumulative Effects Assessment of the Changes to the Environment on the Shuswap Band

Residual cumulative effects and the selected mitigation measures, characterization criteria, likelihood, significance determination, and confidence are summarized in Table 24.7-7.

Table 24.7-7: Summary of Cumulative Effects of the Changes to the Environment on the Shuswap Band

Residual Cumulative Effect	Project Phase(s)	Mitigation Measures	Summary of Cumulative Residual Effects Characterization	Significance (Significant, Not Significant)	Confidence (High, Moderate, Low)
Change to Use of Lands and Resources for Traditional Fishing Purposes	• Construction and Pre-Production • Operations • Reclamation and Closure • Post-Closure	• Implementation of mitigation measures proposed for relevant VCs and VC groups will be implemented over the life of the Project. • Implementation of management programs and plans specific to VCs or VC groups (e.g., Ecological Restoration Plan, Traffic Control Plan) • Implementation of the Indigenous Impact Management Plan will be undertaken in consultation with Shuswap Band • Regional collaboration between Indigenous Communities, proponents, and governments and implementation of initiatives to minimize collective impacts of past, present, and future projects and activities. • Continued consultation and engagement with Shuswap Band	Duration: Long-term Magnitude: Moderate Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible Long-term Context: Neutral	Not Significant	Low
Change to Use of Lands and Resources for Traditional Hunting and Trapping Purposes	• Construction and Pre-Production • Operations • Reclamation and Closure		Duration: Long-term to Permanent Magnitude: Low Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible Long-term to Irreversible Context: Neutral	Not Significant	Low
Change to Use of Lands and Resources for Traditional Harvesting and Gathering Purposes	• Construction and Pre-Production • Operations, • Reclamation and Closure		Duration: Long-term to Permanent Magnitude: Moderate Geographic Extent: Regional Frequency: Once to Intermittent Reversibility: Reversible Long-term to Irreversible Context: Neutral	Not Significant	Low

Residual Cumulative Effect	Project Phase(s)	Mitigation Measures	Summary of Cumulative Residual Effects Characterization	Significance (Significant, Not Significant)	Confidence (High, Moderate, Low)
Change to Physical and Cultural Heritage and Change to any Structure, Site, or Thing that is of Historical, Archaeological, Paleontological, or Architectural Significance	• Construction and Pre-Production • Operations	over the course of the Project to identify and understand current use of lands and resources for traditional purposes within the ATRI LSA and ATRI RSA • Opportunity for ceremonies on the land prior to construction of Project infrastructure as well as opportunities for harvesting and gathering within the Project footprint prior to construction for Indigenous community members	Duration: Permanent Magnitude: High Geographic Extent: Regional Frequency: Once Reversibility: Irreversible Context: Low	Not Significant	Low
Change to Social, Health, and Economic Conditions	• Operations		Duration: Long-term Magnitude: Low Geographic Extent: Local to Discrete Frequency: Continuous Reversibility: Reversible Long-term Context: Neutral	Not Significant	Moderate to High

24.8 Overview of the Changes to the Environment on Shuswap Band and their Perspectives

The following is a summary of Section 24.7 which provides an assessment of changes to the environment and the potential resulting impact on the Shuswap Band. Effects of the changes to the environment could result in impacts to the Shuswap Band and their rights (see Section 24.10) that may occur where the Project has a residual effect and residual cumulative effect on traditional activities such as fishing, hunting and trapping, harvesting and gathering. As well, the Project could result in changes to physical activities associated with traditional use such as travel and navigation, ceremonial and sacred sites, and physical and cultural heritage areas and any structure, site, or thing that is of historical, archaeological, paleontological, or architectural significance and social, health, economic conditions. Sections 24.7.3 and 24.7.4 taken together have provided an assessment of the Project effects on with Shuswap Band's traditional land and resource use that correspond with Shuswap Band's traditional activities as noted above.

The Project related residual effects are concluded to be rated as not significant, with a generally low to moderate level of confidence in relation to the lack of Shuswap Band's specific information available within the Project footprint and based on publicly available information and consultation activities (Appendix 24-A, Table 24.A-2). Further to the potential direct effects of the Project, an assessment of potential cumulative effects was undertaken and as a result of the assessment it was determined that the potential cumulative effects for each Shuswap Band right and/or interest would also be minor in nature and are not considered to be significant. These potential residual and cumulative effects are not anticipated to alter the long-term persistence and viability of fish, wildlife, and plant species of interest within the ATRI RSA which may be relied upon by Shuswap Band to exercise their rights and interests. Additionally, the potential for residual cumulative effects of the Project in combination with reasonably foreseeable future projects and activities on physical and cultural heritage and to any structure, site, or thing that is of historical, archaeological, paleontological, or architectural significance are restricted to those located within the footprint of the Project and of other potential projects developed within the ATRI RSA.

Mitigation measures discussed in the assessment and related VC assessment chapters and listed in Section 24.9 will reduce or eliminate effects on the Shuswap Band in order to exercise their rights and interests and reduce or eliminate effects on conditions that may prohibit or deter the exercise of the Shuswap Band's rights and interests in the Project footprint, the ATRI LSA, and the ATRI RSA. While the Shuswap Band have not confirmed their use of land and waterways in the ATRI LSA and the ATRI RSA, it is anticipated that traditional land and resource use activities and the exercise of related rights could generally occur undeterred in the ATRI LSA and the ATRI RSA. With the previously identified displacement of existing features and where restricted for safety purposes (e.g., the temporary blast restriction area in the vicinity of the mine site) within the Project footprint, traditional land and resource use activities will be restricted during certain Project phases. As identified throughout the Application/EIS, it is again noted that engagement is ongoing, and the Shuswap Band may provide additional information about the potential effects of the Project on their rights and interests during the assessment processes.

As identified in Section 24.5.2 and noted in Section 24.7.4.3 and based on the comments received from the Shuswap Band on the draft effects assessment in Appendix 24-A, Table 24.A-2, the Shuswap Band has indicated that cumulative effects of land use and development have impacted the quality and quantity of resources available (IAAC, 2022a). These cumulative effects dissuade the community from using and accessing their traditional areas due to concerns around contamination and toxicity. Within the last 20 years, community members have observed significant declines in the elk populations in their caretaker area (IAAC, 2015b; 2022a). Cumulative loss of habitat including bighorn sheep, grizzly bear, and old growth and mature forests, grasslands, and whitebark pine has been noted by Shuswap Band. Cumulative impacts of development throughout the region have an impact on the movements of herds based on access to habitat and food resource and include the decline of wildlife such as the Kootenay Mountain Caribou herd, historically, the loss of salmon, and a decline in Westslope Cutthroat Trout. Impacts also extend to a loss of tradition and stewardship rights and role (IAAC, 2015b; 2022a).

Based on the Shuswap Band's perspective, the other cumulative impacts in the region include degradation of wildlife habitat and impacts on wildlife migration, contamination of water sources throughout the Columbia River basin, and railway and highway clearing of vegetation (IAAC, 2022a). Impacts to vegetation have destroyed crops of plants of interest and suitable food sources and habitat for various animals. These linear disturbances have further impacted the important elk and caribou herds which were once common in the region. Cumulative effects on sustenance resources creates potential for impact on overall cultural well-being (IAAC, 2015b; 2022a).

Shuswap Band has previously experienced significant loss of traditionally significant resources when salmon were extirpated from the Columbia Basin with the construction of the Grand Coulee Dam in 1938. In addition, anthropogenic climate change caused by GHG emissions have an impact on Shuswap Band's area of caretaker responsibility, and its ability to exercise its Aboriginal rights (IAAC, 2015b; 2022a).

As identified throughout the Application/EIS, it is again noted that engagement is ongoing, and the Shuswap Band may provide additional information about the potential effects of the Project on Shuswap Band's rights and interests which could update the assessment on potential Project effects. The additional cumulative effects of the Project, while determined to be minor in nature, may exacerbate current and ongoing effects in the ATRI RSA from other past and current projects, and on Shuswap Band's exercise of their rights and interests, for the foreseeable future. As details on cumulative effects to the Shuswap Band in the ATRI RSA are restricted to secondary sources of information, further information from the Shuswap Band, including Project-specific TK/TLU when provided might lead to a better understanding of these potential Project-related effects to the Shuswap Band.

24.9 Indigenous Impact Management Plan

Following the assessment of the Project effects on Shuswap Band, the cumulative effects assessment and the assessment of impact on Shuswap Band's rights and interests, this section describes the Indigenous Impact Management Plan that will be implemented as a result of the outcomes of the assessment processes outlined in Section 24.3.

Mitigation measures identified for the potential impacts on the Shuswap Band's rights and interests is based on both the publicly available information and preliminary consultation activities summarized in Section 24.5 (IAAC, 2015b, 2022a; Appendix 24-A, Table 24.A-1 and Table 24.A-2). As previously

identified, Shuswap Band's rights and interests are defined as those outlined in the correspondence from the Impact Assessment Agency of Canada (IAAC, 2015b, 2022a), indicating the Agency's preliminary understanding of the nature and extent of the Shuswap Band's rights and interests as described in Section 24.5.4. Continued consultation and engagement with the Shuswap Band to further identify and adapt mitigation measures to address impacts on their rights and related interests within the Project footprint and the ATRI LSA are expected to refine this process throughout the Project life cycle.

Specific and detailed mitigation for VCs related to the Shuswap Band's rights and interests can be referenced in the respective effects assessment VC chapters. The nature and extent of the recommended VC mitigation measures are influenced by several factors including the anticipated magnitude or extent of the environmental effects, the expected effectiveness of mitigation, the level of certainty in the environmental effects predictions, and the resulting potential for impact on the Shuswap Band's rights and interests. As the potential for, and consequences of, adverse environmental effects increases; so, does the comprehensiveness of the recommended measures.

Based on the assessment of the potential environmental effects of the Project, that consider Project-related residual effects and residual cumulative effects for the applicable VCs of interest (e.g., Wildlife and Wildlife Habitat VCs) and anticipated effects to non-VC groups (i.e., broad ecosystem types), and after implementation of the mitigation measures outlined in this section, as well as additional information (certain intermediate and receptor VCs) included in the assessment, the potential impacts of the Project on the Shuswap Band's rights and interests are addressed in Section 24.10. It is to be noted that the impact measures identified nor the effectiveness of these measures has been confirmed by the Shuswap Band to date.

NWP is committed to an ongoing dialogue with the Shuswap Band, including commitments to the following:

- Best management practices and procedures related to each VC of interest including the design of mitigation measures as outlined in the Application/EIS.
- Follow-up, monitoring and offsetting and compensation programs related to anticipated residual effects of select VCs.
- Implementation of the engagement agreement between NWP and the Shuswap Band.
- Confirmation and implementation of the Indigenous Impact Management Plan that outlines mitigation measures to avoid, minimize, reduce, and/or offset potential direct and indirect impacts of the Project and utilizes adaptive management approaches for follow-up strategies and monitoring programs.
- Consideration of collaborative strategies for addressing the cumulative effects where applicable, with the Shuswap Band, the identified Indigenous Communities, other proponents, and regulatory agencies.
- Follow the spirit and intent of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and its guiding principles.
- Support the recognition of Indigenous stewardship and governance in the Elk Valley.
- Recognize and respect the deep personal, community, and cultural attachment of the Shuswap Band to the land and resources where NWP does business.
- Incorporate NWP's understanding of Indigenous interests, values, knowledge, and ways of knowing into NWP decision making where practicable where practicable. To this end, NWP is

committed to the Canadian Council for Aboriginal Business' Progressive Aboriginal Relations program[14].

In addition to the mitigations outlined in the specific VC chapters, the following mitigation measures are proposed to reduce the potential impact on the Shuswap Band's rights and interests based on the response to the concerns raised by the Shuswap Band and the identified Indigenous Communities:

- Engaging with the Shuswap Band to refine the Indigenous Impact Management Plan specific to the rights-based activities and other interests (e.g., cultural activities, hunting, trapping, fishing, gathering, and cultural heritage) exercised by the Shuswap Band within the Project footprint.
- The Indigenous Impact Management Plan will further describe cross-cultural awareness training, which will be developed in collaboration where practicable, with the Shuswap Band. This training is expected to build awareness and reduce potential adverse interactions with the identified Indigenous Communities and will include cultural awareness education and training for staff and on-the-ground personnel during the applicable phases of the Project.
- Supporting possible opportunities to augment VC-specific monitoring programs to include responses to concerns raised by the Shuswap Band utilizing adaptive management approaches for follow-up strategies.
- Participation in the Elk Valley Cumulative Effects Management Framework as co-led by the KNC.
- Encouraging the participation of the Shuswap Band to the applicable Project Advisory, Environmental Stewardship, and in the Environmental Monitoring Committee to review, shape, and steer monitoring activities and to guide future priorities.
- Encouraging the participation of the Shuswap Band in the Reclamation Planning Committee to review how traditional knowledge has been incorporated, including Indigenous traditional use and cultural expression as part of the Project closure goals.
- Supporting access to the Project site and provide applicable available resources for the Indigenous-Guardians Program to develop and lead monitoring programs related to the Project.
- Incorporating feedback from the Shuswap Band in the development of an Access Management and Monitoring Program which would address any concerns raised regarding access to areas that might be temporarily restricted due to safety concerns (e.g., in the Project footprint during construction and operations) by creating alternatives to guarantee access to key land use areas. NWP will establish No Unauthorized Entry (NUE) areas in order to ensure worker and public safety within and near the Project.
- Supporting the establishment of conservation lands that may be privately held by NWP, an Indigenous Community, or a recognized conservation organization.
- Supporting Indigenous work related to land and resource use planning objectives in proximity to the Project and following the EAC, NWP will support Indigenous work related to land and resource use planning objectives for consideration during the relevant Project phases.
- Providing access to requested reports and identify feedback opportunities where applicable including the various mitigation and monitoring plans as well as those related to the Indigenous Impact Management Plan.

[14] Based on the CCAB's PAR program, NWP continues to improve their Indigenous relationships and to working across cultures and are committed to prosperity in Indigenous Communities.

For each potential impact as previously described and assessed in Section 24.7, the specific mitigation measures identified that relate to the Shuswap Band's rights and interests are described in the following sections and are also summarized in Table 24.9-1.

24.9.1 Use of Lands and Resources for Traditional Fishing Purposes

The mitigation measures identified for the change to use of lands and resources for traditional fishing purposes are as identified in Chapter 12, Section 12.5.3 including the Fish and Fish Habitat Management Plan and the Ecological Restoration Plan. The operational practices and procedures that are prescribed in the Site Water Management Plan in Chapter 33 (Section 33.4.1.8) including selenium, nitrate, and calcite management, and the Noise and Vibration Management Plan (Section 33.4.1.7), the Vegetation and Ecosystems Management and Monitoring Plan (Section 33.4.1.11) and the Aquatic Effects Management Program described in Section 33.4.1.5 will be the primary means by which the Project will address adverse effects to fish and fish habitat. These are identified in combination with the key mitigations for traditional fishing activities to reduce the impacts on the Shuswap Band's fishing rights including those related to their ability to know and teach the Shuswap way of living during all Project phases.

Key mitigation measures for fishing also include, where practicable:

- Limiting erosion and contain sediment through the application of standard industry practices (Erosion and Sediment Control Plan, Chapter 33, Section 33.4.1.8).
- Conducting regular inspections to ensure control measures are effective and functioning properly.
- Diverting clean runoff around mine disturbed areas.
- Capturing clean surface water that cannot be diverted in sediment ponds prior to release.
- Limiting the mine disturbance footprint through Project design and progressive reclamation.
- Prohibiting or limiting non-Indigenous access to fishing areas to assure compliance with fishing restrictions.
- Respecting traditional fisheries timing windows and seasonal rounds where practicable.
- As there is potential for access within the Project footprint, NWP is committed to creating permanent access during the Post-Closure phase for future traditional activities including fishing where practicable.
- Developing NUE areas in collaboration with Indigenous Communities, regulators, and key stakeholders based on safety, logistical, and administrative considerations to restrict public access to fishing areas within the Project footprint.
- Educating the Project workforce about fish and fish habitats and implementing an angling policy for NWP non-Indigenous employees and contractors where practicable.
- NWP will coordinate with local conservation enforcement for Alexander and West Alexander Creeks should increases in non-Indigenous recreational fishing be observed by NWP employees.
- Progressive reclamation to occur such that riparian habitats are reclaimed as quickly as possible to minimize the magnitude of Project impacts at the temporal scale with collaboration where practicable with Indigenous Communities.

Table 24.9-1: Summary of Indigenous Impact Management Plan in relation to the Shuswap Band

Impact on Rights and Interests	Applicable Project Phase(s)	Key Commitments/Mitigation Measures
Potential Change to all Rights/Interests	• Construction and Pre-Production • Operations • Reclamation and Closure • Post-Closure	NWP is committed to an ongoing dialogue with the Shuswap Band, including commitments to the following: • Best management practices and procedures related to each VC of interest including the design of mitigation measures as outlined in the Application/EIS. • Follow-up, monitoring and offsetting and compensation programs related to anticipated residual effects of select VCs. • Implementation of the engagement agreement between NWP and the Shuswap Band. • Confirmation and implementation of the Indigenous Impact Management Plan that outlines mitigation measures to avoid, minimize, reduce, and/or offset potential direct and indirect impacts of the Project and utilizes adaptive management approaches for follow-up strategies and monitoring programs. • Consideration of collaborative strategies for addressing the cumulative effects where applicable, with the Shuswap Band, the identified Indigenous Communities, other proponents, and regulatory agencies. • Follow the spirit and intent of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and its guiding principles. • Support the recognition of Indigenous stewardship and governance in the Elk Valley and recognize and respect the deep personal, community, and cultural attachment of the Shuswap Band to the land and resources where NWP does business. • Incorporate NWP's understanding of Indigenous interests, values, knowledge, and ways of knowing into NWP decision making where practicable. In addition to the mitigations outlined in the specific VC chapters, the following mitigation measures are proposed to reduce the potential impact on the Shuswap Band's rights and interests based on the response to the concerns raised by the Shuswap Band and the identified Indigenous Communities: • Engaging with the Shuswap Band to refine the Indigenous Impact Management Plan specific to the rights-based activities and other interests (e.g., cultural activities, hunting, trapping, fishing, gathering, and cultural heritage) exercised by the Shuswap Band within the Project footprint. • The Indigenous Impact Management Plan will further describe cross-cultural awareness training, which will be developed in collaboration where practicable, with

Impact on Rights and Interests	Applicable Project Phase(s)	Key Commitments/Mitigation Measures
		the Shuswap Band. This training is expected to build awareness and reduce potential adverse interactions with the identified Indigenous Communities and will include cultural awareness education and training for staff and on-the-ground personnel during the applicable phases of the Project. • Supporting possible opportunities to augment VC-specific monitoring programs to include responses to concerns raised by the Shuswap Band utilizing adaptive management approaches for follow-up strategies. • Participation in the Elk Valley Cumulative Effects Management Framework as co-led by the KNC. • Encouraging the participation of the Shuswap Band to the applicable Project Advisory, Environmental Stewardship, and in the Environmental Monitoring Committee to review, shape, and steer monitoring activities and to guide future priorities. • Encouraging the participation of the Shuswap Band in the Reclamation Planning Committee to review how traditional knowledge has been incorporated, including Indigenous traditional use and cultural expression as part of the Project closure goals. • Supporting access to the Project site and provide applicable available resources for the Indigenous-Guardians Program to develop and lead monitoring programs related to the Project. • Incorporating feedback from the Shuswap Band in the development of an Access Management and Monitoring Program which would address any concerns raised regarding access to areas that might be temporarily restricted due to safety concerns (e.g., in the Project footprint during construction and operations) by creating alternatives to guarantee access to key land use areas. NWP will establish No Unauthorized Entry (NUE) areas in order to ensure worker and public safety within and near the Project. • Supporting the establishment of conservation lands that may be privately held by NWP, an Indigenous Community, or a recognized conservation organization. • Supporting Indigenous work related to land and resource use planning objectives in proximity to the Project and following the EAC, NWP will support Indigenous work related to land and resource use planning objectives for consideration during the relevant Project phases. • Providing access to requested reports and identify feedback opportunities where applicable including the various mitigation and monitoring plans as well as those related to the Indigenous Impact Management Plan.

Impact on Rights and Interests	Applicable Project Phase(s)	Key Commitments/Mitigation Measures
Potential Change to Use of Lands and Resources for Traditional Fishing Purposes	• Construction and Pre-Production • Operations • Reclamation and Closure • Post-Closure	The mitigation measures identified for the change to use of lands and resources for traditional fishing purposes are as identified in Chapter 12, Section 12.5.3. Key mitigation measures for fishing also include, where practicable: • Limiting erosion and contain sediment through the application of standard industry practices (Erosion and Sediment Control Plan, Chapter 33, Section 33.4.1.8). • Conducting regular inspections to ensure control measures are effective and functioning properly. • Diverting clean runoff around mine disturbed areas. • Capturing clean surface water that cannot be diverted in sediment ponds prior to release. • Limiting the mine disturbance footprint through Project design and progressive reclamation. • Prohibiting or limiting non-Indigenous access to fishing areas to assure compliance with fishing restrictions. • Respecting traditional fisheries timing windows and seasonal rounds where practicable. • As there is potential for access within the Project footprint, NWP is committed to creating permanent access during the Post-Closure phase for future traditional activities including fishing where practicable. • Developing NUE areas in collaboration with Indigenous Communities, regulators, and key stakeholders based on safety, logistical, and administrative considerations to restrict public access to fishing areas within the Project footprint. • Educating the Project workforce about fish and fish habitats and implementing a no angling policy for NWP non-Indigenous employees and contractors where practicable. • NWP will coordinate with local conservation enforcement for Alexander and West Alexander Creeks should increases in non-Indigenous recreational fishing be observed by NWP employees. • Progressive reclamation to occur such that riparian habitats are reclaimed as quickly as possible to minimize the magnitude of Project impacts at the temporal scale with collaboration where practicable with Indigenous Communities. • Continued consultation and engagement with the Shuswap Band to identify and adapt mitigation measures to address impacts on use of lands (and waters) and resources for traditional fishing purposes within the Project footprint and the ATRI LSA.

Impact on Rights and Interests	Applicable Project Phase(s)	Key Commitments/Mitigation Measures
Potential Change to Use of Lands and Resources for Traditional Hunting and Trapping Purposes	o Construction and Pre-Production o Operations o Reclamation and Closure o Post-Closure	The mitigation measures identified for the change to use of lands and resources for traditional hunting and trapping purposes are as identified in Chapter 15 (e.g., ungulates, Chapter 15, Section 15.4.3.3). Key mitigation measures for hunting and trapping also include, where practicable: • Minimizing disturbance and encroachment into natural vegetation, to the extent feasible, by clearing and grubbing only what is required for Construction and Pre-Production activities and progressive development of pits and Mine Rock Storage Facility. • Clearing vegetation only in the year in which the area will be required for Construction or Operation activities to minimize the extent of cleared vegetation, to the extent possible. • Sequencing the development of pits and Mine Rock Storage Facility areas to limit total disturbance during any one period and maximizing progressive reclamation opportunities during Operations where practicable. • Implementation of the Erosion and Sediment Control Plan (Chapter 33, Section 33.4.1.4) to reduce the potential for sedimentation of riparian, wetland, and aquatic habitat used by wildlife VCs. • Minimizing sensory disturbances and disruption by limiting construction activities, especially those with high noise impact, to daytime hours and appropriately timing construction activities to minimize cumulative noise levels. • Installing and maintaining noise and light mitigation measures, where practicable, on and around Project infrastructure to minimize sensory disturbances. • A wildlife education program will be developed to raise awareness of requirements and commitments to avoid wildlife and protect wildlife and wildlife habitat including educating employees on noise impacts and potential mitigation/control measures through appropriate training. • Management of vehicle traffic (including limiting road traffic and access and the Traffic Control Plan) contributes to minimization of sensory disturbance and direct mortality along roads and reducing the barrier effect of roads or filters to movement. • Wildlife will be given the right-of-way on all Project roads and gaps will be created in snowbanks to allow for unimpeded wildlife passage across roads at regular intervals. • Preventing wildlife entrapment through implementation of wildlife protection protocols including during avalanche control activities.

Impact on Rights and Interests	Applicable Project Phase(s)	Key Commitments/Mitigation Measures
		• Minimizing the potential for exposure to chemical hazards and attractants through the use of holding tanks or closed facilities that exclude wildlife. • As there is potential for access within the Project footprint, NWP is committed to creating permanent access during the Post-Closure phase for future traditional activities including hunting and trapping where practicable. • Developing NUE areas in collaboration with Indigenous Communities, regulators, and key stakeholders based on safety, logistical, and administrative considerations to restrict public access to traditional hunting and trapping use areas within the Project footprint. • Respecting traditional hunting and trapping timing windows and seasonal rounds where practicable. • Progressive reclamation and revegetation throughout the mine life to reduce the Project footprint as quickly as possible to minimize the magnitude of Project impacts at the temporal scale with collaboration where practicable with Indigenous Communities. • Continued consultation and engagement with the Shuswap Band to identify and adapt mitigation measures to address impacts on use of lands and resources for traditional purposes within the Project footprint and the ATRI LSA.
Potential Change to Use of Lands and Resources for Traditional Harvesting and Gathering Purposes	• Construction and Pre-Production • Operations • Reclamation and Closure • Post-Closure	The mitigation measures identified for the change to use of lands and resources for traditional harvesting and gathering purposes are as identified in Chapter 13 (e.g., riparian habitat, Section 13.6.5.2) and Chapter 14 (e.g., whitebark pine, Section 14.5.5.2.1). Key mitigation measures for harvesting and gathering also include, where practicable: • Minimizing disturbance and encroachment into natural vegetation, to the extent feasible, by clearing and grubbing only what is required for Construction and Pre-Production activities and progressive development of pits and Mine Rock Storage Facility. • Clearing vegetation only in the year in which the area will be required for Construction or Operation activities to minimize the extent of cleared vegetation, to the extent possible. • Sequencing the development of pits and Mine Rock Storage Facility areas to limit total disturbance during any one period and maximizing progressive reclamation opportunities during Operations where practicable.

Impact on Rights and Interests	Applicable Project Phase(s)	Key Commitments/Mitigation Measures
		• Implementation of the Erosion and Sediment Control Plan (Chapter 33, Section 33.4.1.4) to reduce the potential for sedimentation of riparian, wetland, and aquatic habitats and ecosystems. • Implement the Vegetation and Ecosystems Management and Monitoring Plan (Chapter 33, Section 33.4.1.11), to limit the effects that invasive plants may have on natural vegetation. • Develop and implement whitebark pine salvage, propagation, and restoration as outlined briefly in Chapter 14, Section 14.5.5.2.1. • Revegetation with Indigenous species to limit the effects that invasive plants may have on natural vegetation. • As there is potential for access within the Project footprint, NWP is committed to creating permanent access during the Post-Closure phase for future traditional activities including harvesting and gathering where practicable. • Developing NUE areas in collaboration with Indigenous Communities, regulators, and key stakeholders based on safety, logistical, and administrative considerations to restrict public access to traditional harvesting and gathering use areas within the Project footprint. • Respecting traditional harvesting and gathering timing windows and seasonal rounds where practicable. • Identifying opportunities for harvesting and gathering prior to construction for the Shuswap Band community members within the Project footprint and the reestablishment of plant harvesting activities in the reclamation phase. • Consideration of support for possible mapping of all high priority cultural use areas in the proximity to the Project including potential for field sampling in these sites by Indigenous Communities including support for research and development of approaches for restoring Landscape and Ecosystem VCs. • Progressive reclamation and revegetation throughout the mine life to reduce the Project footprint as quickly as possible to minimize the magnitude of Project impacts at the temporal scale with collaboration where practicable with Indigenous Communities. As part of Project Reclamation and Closure activities, the Project footprint will be reclaimed to similar ecosystem types to the local area and which previously existed before disturbance.

Impact on Rights and Interests	Applicable Project Phase(s)	Key Commitments/Mitigation Measures
		• Continued consultation and engagement with the Shuswap Band to identify and adapt mitigation measures to address impacts on use of lands and resources for traditional purposes within the Project footprint and the ATRI LSA.
Potential Change to Physical and Cultural Heritage and Change to any Structure, Site, or Thing that is of Historical, Archaeological, Paleontological, or Architectural Significance.	• Construction and Pre-Production • Operations	An Archaeology Management Plan (Chapter 33, Section 33.4.1.2) was developed for the Project and describes protocols that will be followed where the Project footprint encroaches upon the recorded boundaries of pre-contact archaeological sites (pre-dating A.D. 1846) that are protected under the *Heritage Conservation Act*, in addition to best management practices for archaeological potential zones and Chance Finds. Key mitigation measures for physical and cultural heritage also include, where practicable: • Continued support of site visits from representatives of the Shuswap Band. • Providing opportunities for ceremonies on the land prior to construction of Project infrastructure. • Seeking Shuswap Band consent where applicable on any cultural heritage site or resource that may be impacted by a proposed development/land alteration. • Protection of all cultural heritage sites and resources and managed in a way that is respectful of Indigenous stewardship, cultural values, and traditional teachings. • NWP will support the development of a Traditional and Cultural Protection Plan to include cultural programs on site where applicable; and events and activities in communities where resource capacity may be supported by NWP. • NWP with guidance from the identified Indigenous Communities will support the following: o Recording the nature and extent of any identified trail corridors and associated passes in proximity of the Project footprint including areas potentially disturbed by Project-related infrastructure, and o The rehabilitation of trails, marking of trail sections interrupted by disturbance within the Project footprint, and any additional archival information available regarding them. • Continued consultation and engagement with the Shuswap Band to identify and adapt mitigation measures to address impacts on physical and cultural heritage, and structures, sites, or things of historical, archaeological, paleontological, or architectural significance within the Project footprint and the ATRI LSA. Impacts on physical and cultural heritage related to the Grave Prairie Cultural Landscape may be potentially mitigated through:

Impact on Rights and Interests	Applicable Project Phase(s)	Key Commitments/Mitigation Measures
		• Continued collaboration with the Shuswap Band and other identified Indigenous Communities to consult on alternative means of access to the Rail Loadout including utilization of the proposed road access that may be situated in the previously disturbed footprint of a current road which may require further assessment. • Providing opportunities for ceremonies on the land prior to construction of Project infrastructure. • Evaluating all options to reduce impacts of the rail loadout on the Grave Prairie Cultural Landscape including the adequate consideration to avoidance impact through alternative means that may include: o Longer truck haul to a less sensitive load out location, o The extension of rail to the Alexander Valley section of the facility, and o Agreements with existing operators to share already existing rail load out infrastructure if possible. • As the Grave Prairie Cultural Landscape includes a "Culturally Sensitive Area" which requires rigorous in-depth assessments prior to contemplating additional development, NWP will continue to work with the Shuswap Band to address related concerns.
Potential Change to Social, Health, and Economic Conditions	• Construction and Pre-Production • Operations • Reclamation and Closure	The mitigation measures identified for the change to social, health, and economic conditions are as identified in Chapters 17 (Section 17.5.5) and 18 (Section 18.5.4). Key mitigation measures for change to social, health, and economic conditions also include, where practicable: • With respect to the use of lands and resources for traditional purposes (including fishing, hunting and trapping, harvesting and gathering, physical and cultural heritage, and social, health and economic conditions) NWP with guidance from the Shuswap Band, will include a process to monitor during the relevant phases of the Project: o Potential Project contaminants to water, country foods, and medicines, including identifying areas or species of particular risk where practicable. o The development and implementation of mitigation and compensation strategies and measures to address contaminants related to water, country foods, and medicines and their impact on Indigenous community members and Indigenous culture. o A culturally appropriate communication strategy to inform Indigenous community members regarding the relative safety or risks of water, country foods, and

Impact on Rights and Interests	Applicable Project Phase(s)	Key Commitments/Mitigation Measures
		medicine consumption in proximity of the Project based on scientific and Traditional Knowledge. o A joint process for the incorporation of Traditional Knowledge and the participation of Indigenous community representatives in monitoring activities relate to water, country foods, and medicines within and downstream (Alexander Creek) of the Project. • Avoidance strategies to reduce exposure by Indigenous harvesters active near the Project footprint during Operations, such as site fencing to preclude access and signage. • Implementation of the Health and Safety Management Plan (Chapter 33, Section 33.4.2.3) to mitigate possible social issues that could emerge as a result of the changes to the environment due to the Project. • Incorporating diversity and inclusivity and GBA+ in all areas of the company such that acceptable and expected behaviours are integrated in the company and are reflected at the community level. • Implementation of social safety measures and preventative plans to reduce incidents and developing incident support programs. • Collaborating with local Indigenous organizations on diversity and inclusivity initiatives and events. • Providing preferential employment provisions including where applicable training programs that encourage the Shuswap Band members to have the training, skills, and qualifications to apply for jobs that become available. • Developing a well-being management plan with Indigenous partners to address ways to reduce the potential effects of shift work for new Indigenous employees and to promote the safety and security of Indigenous women, girls, and 2SLGBTQIAA+ people in the workplace. • Defining goals for a certain percentage of the workforce to be comprised of Indigenous employees while prioritizing Indigenous women where applicable and requirements that all contractors and subcontractors agree to the preferential hiring process. • Providing flexible and individually tailored shift work hours for Indigenous employees new to shift work and possibly wage based employment, as well as those Indigenous employees needing time off for traditional hunting, fishing, trapping, and/or gathering activities.

Impact on Rights and Interests	Applicable Project Phase(s)	Key Commitments/Mitigation Measures
		• Designation of an Indigenous Project Liaison to assist Indigenous employees and to address workplace concerns, the availability of different types of cultural leaves for Indigenous employees where applicable. • Distribution of relevant materials where applicable in local languages and on-site interpretation where needed for Indigenous employees, and employment assistance programs that offer culturally relevant support for Indigenous employees where applicable. • Where practicable, contracting and sub-contracting related to the Project will be given to qualified businesses that are owned at least in part by Indigenous community members and requirements that all businesses contract employ Indigenous employees. • NWP will work with the Shuswap Band to create economic benefits for the community that might include initiatives related to: o Capacity building; o Direct and indirect employment; o Education and training; and o Procurement and business relationships. • NWP will support activities related to monitoring and address potential beneficial and adverse economic and social effects related to increased participation of Indigenous community members in the NWP work force including providing support to related Indigenous Communities to conduct community-based surveys to monitor baseline trends and track positive and negative changes in socio-economic conditions. • Continued consultation and engagement with the Shuswap Band to identify and adapt mitigation measures to address impacts on social, health, and economic conditions within the Project footprint and the ATRI LSA.

NWP is committed to continued consultation and engagement with the Shuswap Band to identify and adapt mitigation measures to address impacts on use of lands (and waters) and resources for traditional fishing purposes within the Project footprint and the ATRI LSA. The mitigation measures relevant to the fish and fish habitat VCs are connected to the Shuswap Band's rights and interests related to their ability to fish for species of interest, their perspectives on fish quality and abundance, the values associated with sustenance based on fish resources available to the Shuswap Band, and their ability to know and teach the Shuswap way of living during all Project phases.

24.9.2 Use of Lands and Resources for Traditional Hunting and Trapping Purposes

The mitigation measures identified for the change to use of lands and resources for traditional hunting and trapping purposes are as identified in Chapter 15 (e.g., ungulates, Chapter 15, Section 15.4.3.3) including the Wildlife Management and Monitoring Plan and the Ecological Restoration Plan. Many of the measures to mitigate impacts to wildlife VCs are part of protocols described in Chapter 33 including the Air Quality and Greenhouse Gas Management Plan (Section 33.4.1.1), the Noise and Vibration Management Plan (Section 33.4.1.7), the Vegetation and Ecosystems Management and Monitoring Plan (Section 33.4.1.11), the Spill Prevention, Control, and Countermeasures Plan (Section 33.4.1.10), the Waste Management Plan (Section 33.4.1.12), and the Traffic Control Plan (Section 33.4.2.4) which includes access management. These are identified in combination with the key mitigations for traditional hunting and trapping activities to reduce the impacts on the Shuswap Band's hunting and trapping rights including those related to their ability to know and teach the Shuswap way of living during all Project phases.

Key mitigation measures for hunting and trapping also include, where practicable:

- Minimizing disturbance and encroachment into natural vegetation, to the extent feasible, by clearing and grubbing only what is required for Construction and Pre-Production activities and progressive development of pits and Mine Rock Storage Facility.
- Clearing vegetation only in the year in which the area will be required for Construction or Operation activities to minimize the extent of cleared vegetation, to the extent possible.
- Sequencing the development of pits and Mine Rock Storage Facility areas to limit total disturbance during any one period and maximizing progressive reclamation opportunities during Operations where practicable.
- Implementation of the Erosion and Sediment Control Plan (Chapter 33, Section 33.4.1.4) to reduce the potential for sedimentation of riparian, wetland, and aquatic habitat used by wildlife VCs.
- Minimizing sensory disturbances and disruption by limiting construction activities, especially those with high noise impact, to daytime hours and appropriately timing construction activities to minimize cumulative noise levels.
- Installing and maintaining noise and light mitigation measures, where practicable, on and around Project infrastructure to minimize sensory disturbances.
- A wildlife education program will be developed to raise awareness of requirements and commitments to avoid wildlife and protect wildlife and wildlife habitat including educating employees on noise impacts and potential mitigation/control measures through appropriate training.

- Management of vehicle traffic (including limiting road traffic and access and the Traffic Control Plan) contributes to minimization of sensory disturbance and direct mortality along roads and reducing the barrier effect of roads or filters to movement.
- Wildlife will be given the right-of-way on all Project roads and gaps will be created in snowbanks to allow for unimpeded wildlife passage across roads at regular intervals.
- Preventing wildlife entrapment through implementation of wildlife protection protocols including during avalanche control activities.
- Minimizing the potential for exposure to chemical hazards and attractants through the use of holding tanks or closed facilities that exclude wildlife.
- As there is potential for access within the Project footprint, NWP is committed to creating permanent access during the Post-Closure phase for future traditional activities including hunting and trapping where practicable. Developing NUE areas in collaboration with Indigenous Communities, regulators, and key stakeholders based on safety, logistical, and administrative considerations to restrict public access to traditional hunting and trapping use areas within the Project footprint.
- Respecting traditional hunting and trapping timing windows and seasonal rounds where practicable.
- Progressive reclamation and revegetation throughout the mine life to reduce the Project footprint as quickly as possible to minimize the magnitude of Project impacts at the temporal scale with collaboration where practicable with Indigenous Communities.

NWP is committed to continued consultation and engagement with the Shuswap Band to identify and adapt mitigation measures to address impacts on use of lands and resources for traditional purposes within the Project footprint and the ATRI LSA. The mitigation measures relevant to the wildlife VCs are connected to the Shuswap Band's rights and interests related to their ability to hunt and trap species of interest, their perspectives on the quality and abundance of these species, the values associated with sustenance based on traditional resources available to the Shuswap Band, and their ability to know and teach the Shuswap way of living during all Project phases.

24.9.3 Use of Lands and Resources for Traditional Harvesting and Gathering Purposes

The mitigation measures identified for the change to use of lands and resources for traditional harvesting and gathering purposes are as identified in Chapter 13 (e.g., riparian habitat, Section 13.6.5.2) and Chapter 14 (e.g., whitebark pine, Section 14.5.5.2.1) including the Vegetation and Ecosystems Management and Monitoring Plan and the Ecological Restoration Plan. Many of the measures to mitigate impacts to plants and vegetation VCs are part of protocols described in Chapter 33 including the Wildlife Management and Monitoring Plan (Section 33.4.1.13), Air Quality and Greenhouse Gas Management Plan (Section 33.4.1.1), the Soil Management Plan (Section 33.4.1.9), Spill Prevention, Control, and Countermeasures Plan (Section 33.4.1.10), and the Waste Management Plan (Section 33.4.1.12). These are identified in combination with the key mitigations for traditional harvesting and gathering activities to reduce the impacts on the Shuswap Band's harvesting and gathering rights including those related to their ability to know and teach the Shuswap way of living during all Project phases.

Key mitigation measures for harvesting and gathering also include, where practicable:

- Minimizing disturbance and encroachment into natural vegetation, to the extent feasible, by clearing and grubbing only what is required for Construction and Pre-Production activities and progressive development of pits and Mine Rock Storage Facility.
- Clearing vegetation only in the year in which the area will be required for Construction or Operation activities to minimize the extent of cleared vegetation, to the extent possible.
- Sequencing the development of pits and Mine Rock Storage Facility areas to limit total disturbance during any one period and maximizing progressive reclamation opportunities during Operations where practicable.
- Implementation of the Erosion and Sediment Control Plan (Chapter 33, Section 33.4.1.4) to reduce the potential for sedimentation of riparian, wetland, and aquatic habitats and ecosystems.
- Implement the Vegetation and Ecosystems Management and Monitoring Plan (Chapter 33, Section 33.4.1.11), to limit the effects that invasive plants may have on natural vegetation.
- Develop and implement whitebark pine salvage, propagation, and restoration as outlined briefly in Chapter 14, Section 14.5.5.2.1.
- Revegetation with Indigenous species to limit the effects that invasive plants may have on natural vegetation.
- As there is potential for access within the Project footprint, NWP is committed to creating permanent access during the Post-Closure phase for future traditional activities including harvesting and gathering where practicable.
- Developing NUE areas in collaboration with Indigenous Communities, regulators, and key stakeholders based on safety, logistical, and administrative considerations to restrict public access to traditional harvesting and gathering use areas within the Project footprint.
- Respecting traditional harvesting and gathering timing windows and seasonal rounds where practicable.
- Identifying opportunities for harvesting and gathering prior to construction for the Shuswap Band community members within the Project footprint and the reestablishment of plant harvesting activities in the reclamation phase.
- Consideration of support for possible mapping of all high priority cultural use areas in the proximity to the Project by Indigenous Communities including support for research and development of approaches for restoring Landscape and Ecosystem VCs.
- Progressive reclamation and revegetation throughout the mine life to reduce the Project footprint as quickly as possible to minimize the magnitude of Project impacts at the temporal scale with collaboration where practicable with Indigenous Communities. As part of Project Reclamation and Closure activities, the Project footprint will be reclaimed to similar ecosystem types to the local area, and which previously existed before disturbance.

NWP is committed to continued consultation and engagement with the Shuswap Band to identify and adapt mitigation measures to address impacts on use of lands and resources for traditional purposes within the Project footprint and the ATRI LSA. The mitigation measures relevant to the plant and vegetation VCs are connected to the Shuswap Band's rights and interests related to their ability to harvest and gather plant species of interest, their perspectives on the quality and abundance of these species, the values associated with sustenance based on traditional resources available to the Shuswap Band, and their ability to know and teach the Shuswap way of living during all Project phases.

24.9.4 Physical and Cultural Heritage, and Change to any Structure, Site, or Thing that is of Historical, Archaeological, Paleontological, or Architectural Significance

The mitigation measures identified for the change to physical and cultural heritage, and structures, sites, or things of historical, archaeological, paleontological, or architectural significance are related to reporting on the implementation of management and monitoring plans associated with the identification of appropriate mitigation for pre-contact archaeological sites based on collaboration with the Shuswap Band. An Archaeology Management Plan (Chapter 33, Section 33.4.1.2) was developed for the Project and describes protocols that will be followed where the Project footprint encroaches upon the recorded boundaries of pre-contact archaeological sites (pre-dating A.D. 1846) that are protected under the *Heritage Conservation Act*, in addition to best management practices for archaeological potential zones and Chance Finds. Mitigation measures for direct impacts to archaeological resources will include, but not be limited to, the application for a provincial Section 12.4 Alteration Permit, to be held concurrently with a Section 12.2 Heritage Inspection Permit. A Heritage Resources response procedure will be put in place as per the Section 12.4 Alteration Permit and will be followed in the event that a Heritage Resource is discovered during Project-related activities. This will include:

- Monitoring by a qualified archaeologist throughout the duration of mechanical activity within defined site boundaries;
- Salvage inspection (≤20% sample screening) of mechanically excavated sediment extracted from and immediately adjacent to recorded archaeological sites;
- Short-term or long-term halt(s) of mechanical activity should significance archaeological resources be exposed;
- Salvage inspection (100% screening) should any of topsoil/sediment that originates from within an archaeological site be required to be removed from the locality of the site area.

These are identified in combination with the key mitigations for physical and cultural heritage to reduce the impacts on the Shuswap Band's rights including those related to their ability to know and teach the Shuswap way of living during all Project phases. Key mitigation measures for physical and cultural heritage also include, where practicable:

- Continued support of site visits from representatives of the Shuswap Band.
- Providing opportunities for ceremonies on the land prior to construction of Project infrastructure.
- Seeking Shuswap Band consent where applicable on any cultural heritage site or resource that may be impacted by a proposed development/land alteration.
- Protection of all cultural heritage sites and resources and managed in a way that is respectful of Indigenous stewardship, cultural values, and traditional teachings.
- NWP will support the development of a Traditional and Cultural Protection Plan to include cultural programs on site where applicable; and events and activities in communities where resource capacity may be supported by NWP.
- NWP with guidance from the identified Indigenous Communities will support the following:
    - Recording the nature and extent of any identified trail corridors and associated passes in proximity of the Project footprint including areas potentially disturbed by Project-related infrastructure, and
    - The rehabilitation of trails, marking of trail sections interrupted by disturbance within the Project footprint, and any additional archival information available regarding them.

NWP is committed to continued consultation and engagement with the Shuswap Band to identify and adapt mitigation measures to address impacts on physical and cultural heritage, and structures, sites, or things of historical, archaeological, paleontological, or architectural significance within the Project footprint and the ATRI LSA. The mitigation measures relevant to the Shuswap Band's physical and cultural heritage are connected to the Shuswap Band's rights and interests related to their perspectives on access to these sites, the values associated with the traditional resources available to the Shuswap Band, and their ability to know and teach the Shuswap way of living during all Project phases.

Impacts on physical and cultural heritage related to the Grave Prairie Cultural Landscape may be addressed through:

- Continued collaboration with the Shuswap Band and other identified Indigenous Communities to consult on alternative means of access to the Rail Loadout including utilization of the proposed road access that may be situated in the previously disturbed footprint of a current road which may require further assessment.
- Providing opportunities for ceremonies on the land prior to construction of Project infrastructure.
- Evaluating all options to reduce impacts of the rail loadout on the Grave Prairie Cultural Landscape including the adequate consideration to avoidance impact through alternative means that may include:
  - Longer truck haul to a less sensitive load out location,
  - The extension of rail to the Alexander Valley section of the facility, and
  - Agreements with existing operators to share already existing rail load out infrastructure if possible.
- As the Grave Prairie Cultural Landscape includes a "Culturally Sensitive Area" which requires rigorous in-depth assessments prior to contemplating additional development, NWP will continue to work with the Shuswap Band to address related concerns.

Impacts on physical and cultural heritage related to the Grave Prairie Cultural Landscape may be potentially mitigated through continued work with the Shuswap Band as NWP previously provided the KNC with the results of all Archaeological Impact Assessments conducted for the Project. Measures identified by KNC to address the potential effects of changes to Grave Prairie have been included above.

24.9.5 Social, Health, and Economic Conditions

The mitigation measures identified for the change to social, health, and economic conditions are as identified in Chapters 17 (Section 17.5.5) and 18 (Section 18.5.4), including the Health and Safety Management Plan. As noted in Chapter 22, Section 22.5.3, a wide array of design mitigation measures are having been recommended in relation to surface water and air, and considered in the assessment of impact on soil, plant/animal tissue (i.e., food) and sediment quality. As such, mitigation measures applicable to the surface water and air quality VCs are applicable, as well as the following in relation to social and health conditions as described in Chapter 33 including the Air Quality and Greenhouse Gas Management Plan (Section 33.4.1.1), the Noise and Vibration Management Plan (Section 33.4.1.7), the Vegetation and Ecosystems Management and Monitoring Plan (Section 33.4.1.11), the Spill Prevention, Control, and Countermeasures Plan (Section 33.4.1.10), the Waste Management Plan (Section 33.4.1.12), and the Traffic Control Plan (Section 33.4.2.4) which includes access management. These are identified in combination with the key mitigations for the Shuswap Band's traditional activities to reduce the impacts

on the Shuswap Band's interests including those related to their ability to know and teach the Shuswap way of living during all Project phases.

Key mitigation measures for change to social, health, and economic conditions also include, where practicable:

- With respect to the use of lands and resources for traditional purposes (including fishing, hunting and trapping, harvesting and gathering, physical and cultural heritage, and social, health and economic conditions) NWP with guidance from the Shuswap Band, will include a process to monitor during the relevant phases of the Project:
  - Potential Project contaminants to water, country foods, and medicines, including identifying areas or species of particular risk where practicable.
  - The development and implementation of mitigation strategies and measures to address contaminants related to water, country foods, and medicines and their impact on Indigenous community members and Indigenous culture.
  - A culturally appropriate communication strategy to inform Indigenous community members regarding the relative safety or risks of water, country foods, and medicine consumption in proximity of the Project based on scientific and Traditional Knowledge.
  - A joint process for the incorporation of Traditional Knowledge and the participation of Indigenous community representatives in monitoring activities relate to water, country foods, and medicines within and downstream (Alexander Creek) of the Project.
- Avoidance strategies to reduce exposure by Indigenous harvesters active near the Project footprint during Operations, such as site fencing to preclude access and signage.
- Implementation of the Health and Safety Management Plan (Chapter 33, Section 33.4.2.3) to mitigate possible social issues that could emerge as a result of the changes to the environment due to the Project.
- Incorporating diversity and inclusivity and GBA+ in all areas of the company such that acceptable and expected behaviours are integrated in the company and are reflected at the community level;
- Implementation of social safety measures and preventative plans to reduce incidents and developing incident support programs.
- Collaborating with local Indigenous organizations on diversity and inclusivity initiatives and events.
- Providing preferential employment provisions including where applicable training programs that encourage the Shuswap Band members to have the training, skills, and qualifications to apply for jobs that become available.
- Developing a well-being management plan with Indigenous partners to address ways to reduce the potential effects of shift work for new Indigenous employees and to promote the safety and security of Indigenous women, girls, and 2SLGBTQIAA+ people in the workplace.
- Defining goals for a certain percentage of the workforce to be comprised of Indigenous employees while prioritizing Indigenous women where applicable and requirements that all contractors and subcontractors agree to the preferential hiring process.
- Providing flexible and individually tailored shift work hours for Indigenous employees new to shift work and possibly wage based employment, as well as those Indigenous employees needing time off for traditional hunting, fishing, trapping, and/or gathering activities.

- Designation of an Indigenous Project Liaison to assist Indigenous employees and to address workplace concerns, the availability of different types of cultural leaves for Indigenous employees where applicable.
- Distribution of relevant materials where applicable in local languages and on-site interpretation where needed for Indigenous employees, and employment assistance programs that offer culturally relevant support for Indigenous employees where applicable.
- Where practicable, contracting and sub-contracting related to the Project will be given to qualified businesses that are owned at least in part by Indigenous community members and requirements that all businesses contracts employ Indigenous employees.
- NWP will work with the Shuswap Band to create economic benefits for the community that might include initiatives related to:
  - Capacity building;
  - Direct and indirect employment;
  - Education and training; and
  - Procurement and business relationships.
- NWP will support activities related to monitoring and address potential beneficial and adverse economic and social effects related to increased participation of Indigenous community members in the NWP work force including providing support to related Indigenous Communities to conduct community-based surveys to monitor baseline trends and track positive and negative changes in socio-economic conditions.

NWP is committed to continued consultation and engagement with the Shuswap Band to identify and adapt mitigation measures to address impacts on social, health, and economic conditions within the Project footprint and the ATRI LSA. The mitigation measures relevant to the Shuswap Band's social, health, and economic conditions are connected to the Shuswap Band's interests related to their perspectives on country food consumption, the values associated with the traditional resources available to the Shuswap Band, and their ability to know and teach the Shuswap way of living during all Project phases.

24.9.6 Summary of the Indigenous Impact Management Plan

The Indigenous Impact Management Plan commitments and mitigation measures related to the Shuswap Band's rights and related interests are presented above in Table 24.9-1.

24.10 Assessment of Potential Impacts on Shuswap Band's Rights and Interests

Considering the assessment of effects of the changes to the environment on Shuswap Band and the cumulative effects assessment, detailed in Sections 24.7.3 and 24.7.4 and the outline of the Indigenous Impact Management Plan in Section 24.9, this section describes the results of the assessment of the impacts on the Shuswap Band's rights and interests as a result of the Project. It includes a description and an assessment of the potential impact of the Project on Shuswap Band's rights and interests and an assessment of the impact on Shuswap Band's rights and considering the potential future use of the Project footprint with and without the Project.

The potential for impacts on Aboriginal rights and interests may occur when there is potential for residual (after mitigation) Project effects (direct, indirect and/or cumulative) on traditional activities such as fishing, hunting and trapping, harvesting and gathering, or on activities associated with traditional use such as travel and navigation, ceremonial and sacred sites, and physical and cultural heritage areas. This section provides an assessment of the possible impacts on the Shuswap Band's rights and interests through the determination of potential Project effects on traditional land and resource use, including: potential change to use of lands and resources for traditional purposes; potential change to physical and cultural heritage and to any structure, site, or thing that is of historical, archaeological, paleontological, or architectural significance; and potential change to social, health, and economic conditions based on both the publicly available information and feedback received on this section and related consultation activities summarized in Section 24.5.4 (IAAC, 2015b, 2022a; Appendix 24-A, Table 24.A-22). It should be noted that as previously identified, Shuswap Band's rights and interests are defined as those outlined in the correspondence from the Impact Assessment Agency of Canada (IAAC, 2015b, 2022a), indicating the Agency's preliminary understanding of the nature and extent of the Shuswap Band's rights and interests as described in Section 24.5.4.

24.10.1 Assessment Methods

The objective of assessing the level of the severity of the impact on Shuswap Band's rights and interests as required by IAAC (EIS Guidelines; CEAA, 2015; IAAC, 2015b; 2022a) is to assess the level of severity of the impacts that the Project may have on the exercise of these rights and related interests. An iterative approach has been taken to evaluating the severity of impacts; it may be deemed necessary to update the evaluation as new information becomes available and/or as new mitigation measures are proposed. At the time of the submission of this chapter, the Shuswap Band have yet to submit a Traditional Knowledge/Traditional Land and Resource Use study within the ATRI LSA for the Project. Therefore, the information utilized reflects NWP's current determination of level of severity of adverse impacts, the understanding of which may be further refined through continued consultation with the Shuswap Band. Additionally, the overall confidence of the severity of impact on Shuswap Band's rights and interests is considered to be low to moderate due to the TLU for the ATRI LSA having not been submitted by the Shuswap Band.

Generally, the methods for assessing potential impact on Aboriginal and Treaty rights and interests in relation to the Project are as listed in Section 24.3, further details are provided on the following:

- Consider the seven guiding principles as outlined in the CEAA-Mikisew Cree First Nation Methodology for Assessing Potential Impacts on the Exercise of Aboriginal and Treaty Rights of the Proposed Frontier Oil Sands Mine Project (CEAA-MCFN, 2018), to understand whether the Project will have a residual impact on the exercise of rights. A lens based on the seven guiding principles was applied for the assessment of impacts to rights and interests related to the Project; and
- Identify and describe potential adverse impacts that may result from the residual effects including cumulative environmental effects in terms of IAAC Guidance: Assessment of Potential Impacts on the Rights of Indigenous Peoples, updated 2022 (IAAC, 2022b). The criteria include likelihood,

geographic extent, frequency, duration, and reversibility, cultural well-being, health, cumulative impacts, governance, impact inequity, and the severity of these adverse impacts[15].

The identification and assessment of potential Project-related impacts to Aboriginal Rights and Interests is to inform the EA/IA regulatory decision-making processes and planning of the Project. Through this impact on rights assessment and continued consultation with the Shuswap Band, Project-related impacts to Shuswap Band's Aboriginal rights and interests can be used to inform Agency decision making.

Current use as defined in Section 24.6.6 is reflective of current use of lands and resources for traditional purposes as well as the potential desired future use by Shuswap Band. The potential future use of the Project footprint, the ATRI LSA, and the ATRI RSA without the Project in place for the exercise of Shuswap Band's rights and interests is in consideration of the certain past, present, and reasonably foreseeable future projects and activities within the ATRI RSA that could potentially impact the potential future use of lands and resources for traditional purposes, potential change to physical and cultural heritage activities and areas, potential change to any structure, site, or thing that is of historical, archaeological, paleontological, or architectural significance, and the anticipated future social, health, and economic conditions.

The assessment of the potential impacts on Shuswap Band's rights and interests described in Section 24.10.2 are in consideration of the existing and potential future use of the Project footprint, the ATRI LSA, and the ATRI RSA by the Shuswap Band to exercise their rights and interests with and without the Project. This section also notes where applicable that the potential future use of the Shuswap Band to exercise its rights in the ATRI LSA and RSA has likely been influenced by past and ongoing development activities that have been included in the description of the baseline conditions in Section 24.6 utilizing the assessment methodology identified in Chapter 5 and referenced in Sections 24.3 and 24.7.4.2.

24.10.1.1 Limitations of the Impact on Rights and Interests Assessment

As noted in Section 24.6.6, not all heritage is "tangible" and can be quantified as physical sites and objects. Intangible cultural heritage for the Shuswap Band includes traditional knowledge, practices, and skills which can define culture such as language, oral history, art techniques, rituals, stories, intergenerational transfer of knowledge, representations, values, landscapes, and place names. The Shuswap language and culture, which are intangible cultural resources are understood to include non-site-specific values that are based in Shuswap Traditional Knowledge, but which may be spatially indistinct or difficult to record using maps. The connection that the Shuswap Band have with the land is an example of intangible cultural heritage. As a result of environmental change, including from urbanization and industrial development, the connection to the land can be "broken" and result in impacts to intangible cultural heritage.

There is limited information available publicly, and none available from Shuswap Band directly regarding the importance of the land proposed for the Project and how it ties to their cultural heritage. As such, while the potential that physical changes to the land and resources may also result in impacts to intangible cultural heritage have been identified, without direct input from the Shuswap Band that provides their perspective on what these cultural impacts may mean to them, confidence in the characterization of the determination of severity of adverse cultural impact is rated as low. At this time, due to the lack of

[15] Based on the criteria identified by IAAC in the Guidance: Assessment of Potential Impacts on the Rights of Indigenous Peoples, updated 2022.

information available on intangible cultural values, Section 24.10.2.1 does not fully assess the degree of severity of adverse cultural impacts.

Through ongoing engagement and consultation with the Shuswap Band, NWP hopes to gain more insight into the potential for these impacts and to better understand their severity to allow for the development of appropriate impact management measures. It is to be noted that the assessment on impact to the Shuswap Band's rights and interests is based on publicly available information and preliminary consultation and engagement with the Shuswap Band and is not meant to supersede the Crown's formal consultation process to determine adverse impacts to rights addressed in Section 24.10.

24.10.1.2 Assessment Boundaries

Study areas represent the spatial boundaries that encompass the areas, at appropriate scales and spatial extents, in which the Project is anticipated to interact with a VC or VC group (Chapter 5). For the purposes of the assessment of impacts to Aboriginal rights and interests, the three spatial boundaries defined in Section 24.7.2.1 were considered in the assessment: the Project footprint, the ATRI LSA, and the ATRI RSA.

24.10.2 Potential Impact on Shuswap Band's Rights and Interests

As noted in Section 24.5.4, IAAC indicated their revised understanding of potential impacts of the Project on Shuswap Band's Aboriginal rights (IAAC, 2015b; 2022a) to include:

- Hunting and Trapping;
- Fishing (and Water);
- Harvesting and Gathering;
- Cultural and Spiritual Heritage (i.e., Culturally Significant) Areas;
- Access and Travel (and Trade) Routes;
- Social, Health, and Economic (i.e., Health and Socio-Economic) Conditions;
- Cumulative effects; and
- Governance and Stewardship.

Based on the assessment of the potential environmental effects of the Project, that consider Project-related residual effects and residual cumulative effects anticipated for the associated VCs (e.g., Wildlife and Wildlife Habitat VCs) and anticipated effects to non-VC groups (i.e., broad ecosystem types), and after implementation of proposed mitigation measures as well as additional information (certain intermediate and receptor VCs) included in the assessment, the potential severity of adverse impacts on Shuswap Band rights and interests that may remain include:

- Change to use of lands and resources for traditional purposes: Fishing;
- Change to use of lands and resources for traditional purposes: Hunting and trapping;
- Change to use of lands and resources for traditional purposes: Harvesting and gathering;
- Change to physical and cultural heritage and change to a structure, site, or item that is of historical, archaeological, paleontological, or architectural significance; and
- Change to social, health, and economic conditions.

As outlined in Section 24.7.3.2.6, the potential impact on Shuswap Band's rights related to Physical and Cultural Heritage as well as any structure, site, or thing that is of historical, archaeological, paleontological,

or architectural significance are combined for the purposes of the impact assessment. For the use of water for traditional purposes, as noted in Section 24.6.6, it is included in the impact assessment with fishing.

Based on the EIS guidelines, the assessment of the impacts of the Project components and activities, in all phases, includes a comparison of the impact on Shuswap Band's rights and interests related to the biophysical and human environments between the potential future conditions with the Project and the potential future use of the Project footprint without the Project. Potential future use of lands and resources for traditional purposes as they correspond to Shuswap Band's rights and interests without the Project are addressed in Section 24.10.2.1 under their respective potential impact on Shuswap Band's rights and interest for each identified use of lands and resources for traditional purposes.

24.10.2.1 Characterization of Severity of Adverse Impacts on Shuswap Band's Rights and Interests

The assessment of severity of adverse impacts on Aboriginal rights and interests involves the consideration and evaluation of specific impact assessment criteria based on the degree (i.e., 'level') of severity for adverse impacts on the rights of Shuswap Band. Criteria used to characterize the degree of severity for adverse impacts on rights are defined in Table 24.10-1. The Agency's (IAAC) proposed suite of criteria (IAAC, 2022b) has been utilized to evaluate the severity of a wide range of adverse impacts on the rights of Indigenous Communities. This suite of criteria has been used as an inventory from which the set of criteria considered for the assessment of impacts on the Shuswap Band's rights and interests has been determined, based on feedback from Shuswap Band (Appendix 24-A, Table 24.A-2) and the methods and VCs that have been identified.

The set of severity assessment criteria included in Table 24.10-1 is adapted from the *Guidance: Assessment of Potential Impacts on the Rights of Indigenous Peoples*, updated 2022 (IAAC, 2022b) for the Project. The characterization for the severity of impacts (low, moderate, and high) have been customized for this assessment. The criteria included for this assessment are likelihood, geographic extent, frequency, duration, and reversibility, cultural well-being, health, and cumulative impacts. As a result of publicly available information and feedback received from Shuswap Band (Appendix 24-A, Table 24.A-2), the two criteria proposed in the suite that have not been carried forward are governance and impact inequity.

As previously noted, the Shuswap Band have yet to submit a Traditional Knowledge/Traditional Land and Resource Use study within the ATRI LSA for the Project, as such this severity assessment is based on the set of criteria noted in Table 24.10-1 and NWP's current understanding of the Shuswap Band's rights and interests according to publicly available information. Confidence in the assessment results considers the reliability of data and analytical methods used in the assessment of impact on rights.

Table 24.10-1: Criteria for Assessing the Level of Severity of the Impacts of the Project on the Exercise of Rights (IAAC, 2022b)[16]

Impact Criteria	Characteristics	Severity of Impact Levels
Likelihood	The full lifecycle of the Project, including its various stages and lifespan, is considered in determining the likelihood of an effect occurring. The likelihood of an impact on rights occurring considers the certainty of the potential change to environmental conditions as a result of the Project and available information on the extent to which the rights holder uses the Project area to exercise their rights.	Low – A potential impact is unlikely but could occur. The land/water resource is not known to be used by the rights holder to exercise their rights. Moderate – A potential impact is likely to occur. The land/water resource is known to be used but infrequently by the rights holder to exercise their rights. High – An impact is highly likely to occur. The land/water resource is known to be used frequently by the rights holder to exercise their rights.
Geographic extent	Geographic extent refers to the spatial area over which the impact is predicted to occur. The qualitative scales for characterizing geographic extent include the Project footprint, the ATRI LSA, and the ATRI RSA. The extent of an impact is described in terms of how much of the traditional territory would be impacted. Key information required for this criterion includes the location of each Indigenous community's traditional or treaty territory and interactions with the Project's effects.	Low – The impact could occur over a small spatial extent (e.g., Project footprint) relating to the exercise of rights. Impacts are not expected within areas of preferred or exclusive use. Moderate – The impact could occur over a moderate spatial extent (e.g., the LSA) relating to the exercise of rights. Impacts may occur within areas of preferred use. High – The impact could occur over a large spatial extent (e.g., the RSA) relating to the exercise of rights. Impacts expected within areas of preferred use or high value.
Frequency, duration, and reversibility	Frequency describes how often an impact could occur within a given time period. Duration refers to the length of time that an impact on a right is discernible. A reversible impact is one where the exercise of rights is expected to recover from the impact caused by the Project.	Low – The impact lasts less than 5 years. The impact would be confined to one discrete period during the life of the Project. The impact may be reversed in the short term.

[16] Based on the criteria identified by IAAC in the Guidance: Assessment of Potential Impacts on the Rights of Indigenous Peoples, updated 2022.

Impact Criteria	Characteristics	Severity of Impact Levels
		Moderate – The impact may last up to one generation. The impact would occur at sporadic, intermittent intervals, and throughout the operation and decommissioning of the Project. The impact may be reversed within one generation. High – The impact is likely to persist over multiple generations. The impact would occur constantly during, and potentially beyond, the life of the Project. The impact cannot be reversed either in whole or in part.
Cultural well-being	Cultural well-being can be considered as the ability of an Indigenous community to continue customs, traditions, and practices integral to the community's distinct culture. Many rights are based on a unique relationship to the landscape that cannot be replicated elsewhere. The assessment considers impacts on the following types of areas that could hold cultural importance within an Indigenous community's territory. It is noted that the values associated with the different areas may overlap with one another. Physical heritage areas and structure, site, or item that is of historical, archaeological, paleontological, or architectural significance with certain tangible resources, such as notable densities of archaeological sites or burial grounds. Areas where traditional lifestyles are practiced through activities such as fishing, hunting and trapping, and harvesting and gathering. Ceremonial/sacred sites of particular spiritual importance. Cultural landscapes with interconnected access, including the travel routes and spaces between them.	Low – No or little indication that there would be any impact on areas of cultural importance. The impact is not likely to impeded peaceful access to practice cultural activities. The Indigenous community has only minor concerns about impacts from the Project or activity on health or integrity of resources and/or places used to practice rights. Moderate – There may be an impact on areas and/or practices of cultural importance. The impact may impede or alter access to practice cultural activities. There may be loss of habitat or availability of culturally important species. The disturbance may be of a physical or sensory nature. High – There would likely be an impact on areas and/or practices of cultural importance. Multiple impacts could occur to one area of high importance. There would likely be loss of habitat or availability and quality of culturally important species. Access to areas required to practice cultural activities would Kiley be disrupted or limited. The disturbance may be of a physical or sensory nature or may affect laws, knowledge, customs, and/or spiritual practices.

Impact Criteria	Characteristics	Severity of Impact Levels
Health	Utilizing health as dimension for analysis of severity for all impacts on rights is to capture the inter-relatedness of impacts on rights and impacts on the health conditions of the Indigenous community. For the purposes of this assessment, "health" includes considerations of physical, mental, emotional, and spiritual health, including Indigenous views of health.	Low – The Indigenous community has minor to no concerns about impacts from the Project or activity on health, the Project is not likely to pose environmental effects to health, including effects to country foods. Moderate – There may be an impact on the physical, mental, emotional, and/or spiritual aspects of health on an individual and/or broader community basis. The Project has the potential to result in effects on food sources or cultural species of importance to traditional diets, and to food security. The exercise of rights is altered due to quantifiable and/or perceived effects from the Project. High – There are significant effects from the Project on food sources or cultural species and to food security. The community has serious concerns about impacts to holistic and/or traditional models of health. Perception of effects to health interferes with, alters, and/or stops the exercise of Indigenous rights, the Project is likely to impact health on a community-wide level.
Cumulative impacts	Cumulative impacts on a right may result from the Project in combination with impacts of past, existing, and future Projects or activities. Cumulative impacts may have a regional or historic context and may extend to aspects of rights related to socio- economic conditions, health, culture, heritage, and other matters tied to an Indigenous community's history and connection to the landscape. While the outcomes of the cumulative effects assessment, are included under this criterion, cumulative impacts consider a broader range of impacts and are not limited to a consideration of impacts from Projects and activities.	Low – The Project or activity has no to limited impacts on environmental components relevant to rights and/or is in an area with few past/ongoing developments that cause environmental effects. Cumulative effects are not expected to result from the development of the Project. Moderate –. There are other land use activities, including existing or proposed Projects in the community's territory that impact the practice of rights. The development of the Project may cause environmental effects that could combine with the ongoing or future environmental effects of other Projects that may contribute to addition impacts on rights.

Impact Criteria	Characteristics	Severity of Impact Levels
		High –There are many historic, current, or proposed Projects in the area and there is a high level of disturbance on the environment that is impacting the excise of rights. The development of the Project is likely to result in additional environmental effects that are likely to combine with the ongoing or future environmental effects that may contribute to addition impacts on rights.

Source: Guidance: Assessment of Potential Impacts on the Rights of Indigenous Peoples, updated 2022 (IAAC, 2022b).

The confidence in the characterization of the severity of adverse impacts to the Shuswap Band's rights and interests is considered to be low due to the lack of information available from the Shuswap Band to date. Due to the preliminary nature of the understanding of the Shuswap Band's rights and interests (Section 24.5.4) and based on feedback from the Shuswap Band (Appendix 24-A, Table 24.A-2), it is expected that the Crown consultation process will confirm the contents of the assessment on impact on Shuswap Band's rights and interests described in this section.

24.10.2.1.1 Impact on Use of Lands and Resources for Traditional Fishing Purposes

The Project has the potential to impact Shuswap Band's fishing rights and interests through the following:

- The potential for reduction in populations of fish species of interest (e.g., Kokanee, Mountain Whitefish, Westslope Cutthroat Trout, and the Longnose Sucker) due to impacts on fish habitat (though recognizing that habitat loss will be replaced with new habitat through the Fisheries Act required fish habitat compensation measures).
- The potential for temporary restrictions on access to the remaining sections of Alexander Creek due to Project activities (e.g., during blasting activities).
- The potential for change in water quality in Alexander Creek that could result in impacts to abundance and quality of fish species of interest and potential resulting in impact on traditional fishing activities.
- The potential changes to the actual or perceived health and quality of potential fish species of cultural interest/use for country foods.
- The potential for the permanent alienation of the Shuswap Band from fishing locations within the Project footprint resulting in impacts to their ability to know and teach the Shuswap way of living.

The impact on the opportunity to fish and the use of fish species for traditional purposes due to the Project are characterized as follows:

- Likelihood: *Low to Moderate*, as while there is the potential for this impact to occur, specific information to date regarding the Shuswap Band's current use of Alexandra Creek for fish and fishing opportunities was not available nor whether they have an interest in using the creek in the future. It is acknowledged that Shuswap Band has the potential to use Alexander Creek where it supports fish and fish habitat VCs, including Kokanee, Mountain Whitefish, Westslope Cutthroat Trout, and Longnose Sucker given their interest in these species within the ATRI LSA.
- Geographic Extent: *Low*, as the impact on the exercise on rights will occur over a small spatial extent (West Alexander Creek). Further, specific information to date regarding the Shuswap Band's current use of Alexandra Creek for fish or fishing opportunities was not available nor whether they have an interest in using the creek in the future. Impacts on rights and interests within areas of Shuswap Band's preferred or exclusive use are based on consultation with Shuswap Band (Appendix 24-A, Table 24.A-2) and as identified by IAAC (IAAC, 2015b, 2022a).
- Frequency, Duration, and Reversibility: *Low to Moderate,* as while the impact (removal) to West Alexander Creek will be permanent, impacts to the remaining sections of Alexander Creek during the life of the Project are expected to be infrequent, and low in magnitude and largely reversible. Specific information to date regarding the Shuswap Band's current use of Alexandra Creek for fish was not available nor fishing opportunities or whether they have an interest in using the creek in the future. While the removal of sections of West Alexander Creek may adversely affect fishing activity, the opportunity to fish by Shuswap Band is not expected to be affected in the long term. The main branch of Alexander Creek which has the potential for fish and fishing opportunity, will

not be physically altered by the Project. Impacts to fish habitat, such as the loss of instream habitat, will be compensated for through the Fish and Fish Habitat Management Plan resulting in no net loss of instream habitat as a result of the Project.

- Cultural Well-being: *Moderate*, as while there is potential for the Alexander Creek to be culturally important to the Shuswap Band, no information to date regarding the importance of the creek to the Shuswap Band was made available. It is acknowledged that Shuswap Band has the potential to use watercourses that support Westslope Cutthroat Trout, Kokanee, Mountain Whitefish, and Longnose Sucker given their interest in these species within the ATRI LSA.
- Health: *Low*, as the Project is not likely to pose environmental effects to health of Shuswap Band related to fishing as surface water quality is not expected to be altered significantly due to mitigation measures identified (Site Water Management Plan) and continued monitoring will help improve adaptive management measures. The low rating also reflects that no specific information to date regarding their current use of Alexandra Creek for fish and fishing opportunity was made available nor whether they have an interest in using the Creek in the future.
- Cumulative Impacts: *Moderate*, as the Project in combination with other reasonably foreseeable future projects and activities is not anticipated to result in measurable cumulative residual Project effects that will reduce the ability and opportunity of Shuswap Band to practice their rights and interests related to fishing within the ATRI RSA over the already existing reduced ability that has been previously identified (Section 24.7.4.2). The cumulative impacts have been assessed as moderate due to the on-going impacts of past and present projects and activities in combination with other reasonably foreseeable future projects and activities, on watercourses in the Elk Valley, the limited information currently available on the current and potential use of lands and resources within the ATRI RSA, and the uncertainty regarding the implications of regional climatic changes that may impact fish habitat availability. Shuswap Band perspectives on cumulative effects note that the cumulative impacts of development throughout the region have an impact on historically the loss of Salmon, and a decline in Westslope Cutthroat Trout (IAAC, 2022a). The cumulative impact is determined as moderate based on the information available from the Shuswap Band regarding their opportunity to conduct traditional fishing within the Project footprint at this time. It is expected that their ability to know and teach the Shuswap way of living can continue outside of the Project footprint during all Project phases.

Degree of Severity for Adverse Impacts

The degree in severity of impact on Shuswap Band's rights for the use of lands and resources for fishing and fish opportunities is rated as low to moderate based on the criteria noted above. The potential impacts to fish and fish habitat are predicted to be small in spatial extent. The recommended impact management measures and the Project's design to reduce impacts to fish and fish habitat VCs and the provision of fish habitat compensation, should allow for fishing opportunities to continue in the Elk Valley (other than the upper sections of West Alexander Creek) including those for traditional purposes. There is potential for the Project to result in the permanent alienation of Shuswap Band from fishing locations within the Project footprint, for which there is no current mitigation identified (Appendix 24-A, Table 24.A-2). It is further noted that that this physical alteration and potential change in the opportunity of the Shuswap Band to practice related traditional activities (e.g., fishing) may also have impacts on intangible cultural heritage. Due to the lack of current information available on their use of the Project footprint for traditional purposes, understanding and characterizing these potential related impacts to their intangible cultural heritage requires further input from the Shuswap Band.

Though baseline data was sufficient to evaluate effects for the fish and fish habitat VCs, there is no current information available indicating that the Shuswap Band use the watercourses within the Project footprint. The Shuswap Band has also not expressed to date an interest in possibly using the Project-impacted watercourse (Alexander Creek) in the future (Appendix 24-A, Table 24.A-1 and Table 24.A-2). It should be noted that there is existing potential for fish and fishing opportunity available in the ATRI LSA and RSA with respect to watercourses outside of the Project footprint. Continued consultation with Shuswap Band, as well as through the development of potential follow-up and monitoring and adaptive management measures regarding fish and fish habitat are expected to improve the confidence rating and the severity assessment of impact on Shuswap Band's rights and interests.

Potential Future Use without the Project of Lands and Resources for Traditional Fishing Purposes

This section describes the potential future use of lands and resources related to fishing for traditional purposes in the Project footprint, the ATRI LSA, and the ATRI RSA without the Project in place. This is in consideration of the certain past, present, and reasonably foreseeable future projects and activities within the ATRI RSA that could impact the potential future use of lands and resources related to fishing as it relates to the potential impact on the Shuswap Band's ability to exercise this right. As previously noted, no information to date regarding the Shuswap Band's current use of lands and resources related to fishing in the Project footprint was made available nor whether they have an interest in using the waterways in the Project footprint for fish and fish opportunity in the future. It is acknowledged that Shuswap Band has the potential to use watercourses in the ATRI LSA such as Alexander Creek that support fish and fish opportunity given the importance of healthy waterways within the ATRI LSA and RSA.

Past and ongoing projects and activities located in the ATRI LSA and RSA may likely be impacting the real or perceived quality and quantity of fish and fishing opportunities available for Shuswap Band in preferred locations to exercise Shuswap Band's rights and interests. As noted in Section 24.7.4.2 and in Chapter 12, with respect to the reasonably foreseeable future projects and activities in the ATRI RSA and based on the historical baseline of cumulative effects, past and current development activity in the ATRI LSA and RSA includes for example other mines, forestry activity (including logging in the Elk Valley), housing development, transportation facilities (roads), and recreation activities. It is anticipated that these activities will continue in the future without the Project and will continue to have influence on watercourses (water quality and quantity) and possibly fishing activity.

There is a potential for cumulative effects without the Project as the rivers and streams of the ATRI RSA including multiple reaches have experienced industrial effects and contaminant loading due to the impact on related ecosystems by forestry, mining, recreational development, and associated road networks. The Elk River system has been noted to be affected by sport fishing, transportation infrastructure, mining related impacts, and forestry activities which are anticipated to continue without the Project. The Elk River valley has also seen substantial residential development and associated municipal water use and waste effluent deposition which are anticipated to continue without the Project.

While past, present, and the reasonably foreseeable future projects and activities in the ATRI RSA have the potential for impact on Shuswap Band's rights for fishing for traditional purposes, the total footprint of the potential future use related to fishing without the Project in the Elk Valley represents a relatively small proportion of the overall Elk River watershed area. Potential effects on fish or fish habitat due to

past and ongoing projects and activities in the ATRI RSA will interact with foreseeable development, and with changes in the environment, and are expected to continue to have an adverse effect on Shuswap Band's rights and interests without the Project. Table 24.10-2 presents a summary of the potential impacts of the Project on the Shuswap Band's rights and interests related to fishing opportunities in comparison to a future scenario without the Project.

24.10.2.1.2 Impact on Use of Lands and Resources for Traditional Hunting and Trapping Purposes

The Project has the potential to impact on Shuswap Band's hunting and trapping rights and interests through the following:

- The potential localized changes in accessibility to wildlife associated with riparian vegetation/habitat.
- The potential for changes to accessibility to aquatic wildlife species of interest (e.g., waterfowl) with the change or loss of aquatic habitats.
- The potential for changes in wildlife food sources through changes to ecosystems/vegetation communities resulting in changes to wildlife species of interest movements/migrations.
- The potential stressor on wildlife population (including grizzly bear, elk, and bighorn sheep) with increased access roads potentially attracting hunters, vehicle collisions, and increased road densities.
- The potential for reduction of the quality and accessibility of wildlife species of interest for traditional/cultural purposes or country foods.
- The potential for the permanent alienation of the Shuswap Band from hunting and trapping locations within the Project footprint resulting in impacts to their ability to know and teach the Shuswap way of living.

Though residual effects to wildlife VCs may occur as result of the Project, no significant adverse effects are anticipated, and the potential impacts included will result in a temporary decline in the wildlife species available for use by Shuswap Band in hunting and trapping practices as well as the temporary impact to the accessibility of areas used to hunt and trap in the Project footprint and the ATRI LSA.

In terms of specific wildlife VCs, grizzly bear, elk, and bighorn sheep have important significance within Shuswap Band's spiritual and ceremonial teachings, songs, ceremonies, medicines, and stories as currently identified in Sections 24.5.4 and 24.6.6 based on preliminary feedback from Shuswap Band (Appendix 24-A, Table 24.A-2) and as identified by IAAC (IAAC, 2015b; 2022a). Follow-up on impact management measures related to grizzly bear, elk, and bighorn sheep are identified in Chapter 15, and included in the Indigenous Impact Management Plan (Section 24.9.2).

Table 24.10-2: Summary of Impact on Shuswap Band's Fishing Rights and related Interests based on Potential future use with and without the Project

Impact on Rights and Interests	Project Phase(s)	Potential Future Use with Project	Potential Future Use without Project
Potential Impacts on Fishing Rights	Construction and Pre-Production	Potential loss of fishing opportunities and the potential to impact on fishing rights due to potential interactions with: • The loss of West Alexander Creek as a result of mine development and the storage of mine rock with the potential to impact traditional fishing due to the potential reduction of populations of fish species of interest. • Non-contact surface runoff/erosion where bare soils are exposed during logging, grubbing, and sedimentation of bare soils with the potential to impact traditional fishing due to potential for changes to the actual or perceived accessibility, health, and quality of potential fish species of cultural interest/use for country foods. • Potential localized changes in accessibility to fishing areas and the riparian habitat including temporary restrictions on access to Alexander Creek (e.g., during blasting activities). • The installation of water supply pipelines from Grave Creek and West Alexander Creek to result in potential changes in water level and erosion and sedimentation with the potential to impact on traditional fishing due to potential for changes to the actual or perceived accessibility, health, and quality of potential fish species of cultural interest/use for country foods. • The potential for the permanent alienation of the Shuswap Band from fishing locations within the Project footprint resulting in impacts to their ability to know and teach the Shuswap way of living.	Potential impact on rights without the Project: • No specific information regarding the Shuswap Band's possible fishing activity within the Project footprint was made available at the time of the writing of this chapter. Nevertheless, there is potential for the use of watercourses for fishing by the Shuswap Band members in the ATRI LSA (e.g., Alexander Creek) and in the RSA (e.g., Elk River). • Past and current development activity in the ATRI LSA and RSA has resulted in changes to watercourses and fish populations. This includes for example other mines, forestry activity (including logging), housing development, transportation facilities (roads), and recreation activities. It is anticipated that these activities will continue in the future without the Project and continue to have influence on watercourses (water quality and quantity) and possibly fishing activity. • These past and ongoing projects and activities located in the ATRI LSA and RSA may likely be impacting real or perceived quality and quantity of fish and fishing opportunities available for Shuswap Band in preferred locations. These past and ongoing activities may be impacting the ability of the Shuswap Band to
	Operations	Potential loss of fishing opportunities and the potential to impact on fishing rights due to potential interactions with: • The release of nitrogen compounds and other contaminants from storage areas and wash facilities with	

Impact on Rights and Interests	Project Phase(s)	Potential Future Use with Project	Potential Future Use without Project
		the potential to impact traditional fishing due to the potential for change in water quality in Alexander Creek that could result in impacts to abundance and quality of fish species of interest. • Mining activities (sedimentation, erosion, spills, contact runoff, nitrate, selenium, sulphate contamination from broken rock and dust) with the potential to impact traditional fishing due to potential for changes to the actual or perceived accessibility, health, and quality of potential fish species of cultural interest/use for country foods. • Potential changes to the actual or perceived accessibility, health, and quality of potential fish species of cultural interest/use for country foods due to mining activities. • Sensory disturbances to potential fish species of interest due to detonation of explosives and other mine activities. • Potential reduction of flows in Grave Creek through use as a secondary source of process make-up water, with potential to impact on surface water quality and quantity resulting in the potential for the permanent alienation of the Shuswap Band from fishing locations within the Project footprint and their ability to know and teach the Shuswap way of living. • Potential reduction in flow of West Alexander Creek during coal reject disposal, hauling and dumping or mine rock, with the potential to impact fish species of interest and their habitat may potentially impact traditional fishing due to the potential reduction of populations of fish species of interest. • Potential for loss of downstream aquatic habitat resulting in the change or loss of access to traditionally/culturally important fish species or access to fish as country foods. • Potential interaction with fish species of interest and their habitat through sedimentation or changes in water levels	exercise their rights related to fishing in the ATRI LSA and RSA. • Related to local area changes described above, the Elk River valley has also seen substantial residential development and associated municipal water use and waste effluent deposition which may potentially impact fish and fishing opportunities that are anticipated to continue without the Project.

Impact on Rights and Interests	Project Phase(s)	Potential Future Use with Project	Potential Future Use without Project
		through the management (discharge) of the Main Sediment Pond may potentially impact traditional fishing due to the potential reduction of populations of fish species of interest. • The potential for the permanent alienation of the Shuswap Band from fishing locations within the Project footprint resulting in impacts to their ability to know and teach the Shuswap way of living.	
	Reclamation and Closure	Potential loss of fishing opportunities and the potential to impact on fishing rights due to potential interactions with: • Fish species of interest and their habitat through erosion and sedimentation of bare soils may potentially impact traditional fishing due to the potential reduction of populations of fish species of interest. • Potential change to the interconnection throughout the ecosystem due to interaction of ecological features may potentially impact traditional fishing resulting in the potential for the permanent alienation of the Shuswap Band from fishing locations within the Project footprint and their ability to know and teach the Shuswap way of living. • Potential for reduction of the quality and accessibility of fish species of interest for traditional/cultural purposes or country foods should insufficient effects monitoring take place that affects the mitigation measures utilized. • The potential for the permanent alienation of the Shuswap Band from fishing locations within the Project footprint resulting in impacts to their ability to know and teach the Shuswap way of living.	
	Post-Closure	Potential loss of fishing opportunities and the potential to impact on fishing rights due to potential interactions with: • Fish species of interest and their habitat through erosion and sedimentation or changes in water levels through the decommissioning of the Main Sediment Pond and due to	

Impact on Rights and Interests	Project Phase(s)	Potential Future Use with Project	Potential Future Use without Project
		permanent rail line may potentially impact traditional fishing due to the potential reduction of populations of fish species of interest. • Potential for access within the Project footprint through the use of Branch C Road, which will remain as a permanent access road for future traditional activities such as traditional fishing in the Post-Closure phase. • Potential for reduction of the quality and accessibility of fish species of interest for traditional/cultural purposes or country foods should insufficient effects monitoring take place that affects the mitigation measures utilized. • The potential for the permanent alienation of the Shuswap Band from fishing locations within the Project footprint resulting in impacts to their ability to know and teach the Shuswap way of living.	

The impact on the opportunity to hunt and trap for traditional purposes due to the Project are characterized as follows:

- Likelihood: *Low to Moderate*, as while there is potential for this impact to occur, no specific information to date regarding the Shuswap Band's current use of the Project footprint for hunting and trapping was made available. While it is acknowledged that Shuswap Band has the potential to hunt and trap within the ATRI RSA which may potentially be affected by wildlife habitat loss, this will be reclaimed within the ATRI RSA through reclamation and post-closure activities. Pathways of increased risk of mortality that are unlikely to be fully mitigated are collisions with Project-related traffic on access or mine roads, collisions with trains, and increased hunter access after closure.
- Geographic Extent: *Moderate*, as the potential impact to opportunities for hunting and trapping are restricted to the Project footprint and the ATRI LSA. No specific information to date regarding the Shuswap Band's current use of the Project footprint was made available nor whether they have an interest in using the area in the future, impacts on rights within areas of Shuswap Band's preferred or exclusive use are based on preliminary consultation with Shuswap Band (Appendix 24-A, Table 24.A-1) and as identified by IAAC (IAAC, 2015b, 2022a).
- Frequency, Duration, and Reversibility: *Low to Moderate,* as while the potential for impacts to changes to Shuswap Band's accessibility to opportunities for hunting and trapping are expected during the Project phases due to the wildlife VCs identified for traditional purposes based on preliminary consultation with Shuswap Band (Appendix 24-A, Table 24.A-1) and as identified by IAAC (IAAC, 2015b, 2022a); these are balanced with the anticipated renewed access and availability of these resources following the completion of the Project, site restoration, ecosystems re-establishment, and the lack of information available from Shuswap Band regarding the use of the Project footprint.
- Cultural Well-being: *Moderate*, as while there is potential for the Project footprint to be culturally important to the Shuswap Band, no specific information to date regarding the importance of the area to the Shuswap Band with respect to hunting and trapping for traditional purposes was made available. The Project is not anticipated to result in the permanent loss of access or the ability to conduct traditional land and resource use related to hunting and trapping within the Project footprint or VC study areas due to the importance of these traditional activities to Shuswap Band cultural and traditional identity, and the potential importance of the available lands for traditional practices.
- Health: *Low*, as the Project is not likely to pose environmental effects to health, based on the Human Health and Ecological Risk Assessment (HHERA; Chapter 22), which encompasses changes in air quality, the overall Project-related risk to terrestrial and aquatic wildlife health, except for a few localized receptors within the Project footprint. This assessment includes effects to country foods related to ungulate, carnivore, and bird species harvested by Shuswap Band and is assessed as low due to the sensitivity and resilience of the terrestrial wildlife health due to the low exposures/risk that are unlikely to adversely perturb local populations. The low rating also reflects that no specific information to date regarding the Shuswap Band's current use of the Project footprint was made available nor whether they have an interest in using the area for hunting and trapping for traditional purposes.
- Cumulative Impacts: *Moderate*, as the Project, in combination with other reasonably foreseeable future projects and activities is not anticipated to reduce the ability and opportunity of Shuswap Band to practice rights and related interests related to hunting and trapping within the ATRI RSA.

The wildlife and wildlife habitat conditions within the regional study areas of relevant wildlife species of interests (e.g., grizzly bear, elk, and bighorn sheep), including their ecology, habitat availability, and distribution, and occurrence and abundance, are well understood at the scale of the VC regional study areas (e.g., Terrestrial RSA and Grizzly Bear RSA). The moderate rating also reflects that no specific information to date regarding the Shuswap Band's current use of the Project footprint for hunting and trapping for traditional purposes was made available nor whether they have an interest in using the area in the future. It is expected that their ability to know and teach the Shuswap way of living can continue outside of the Project footprint during all Project phases. Uncertainty also exists regarding the implications of regional climatic changes that may impact wildlife habitat availability.

Degree of Severity for Adverse Impacts

The degree in severity of impact on Shuswap Band's rights and interests for the use of lands and resources for hunting and trapping is rated as low to moderate. The potential impacts are likely to be small in spatial extent, reversible in the long term, and with few effects to health and/or country foods. Mitigation and the Project's design to reduce impacts to wildlife VCs (including grizzly bear, elk, and bighorn sheep) and the implementation of management, monitoring, and reclamation plans, should allow for hunting and trapping activities to continue within the ATRI LSA including those for traditional purposes.

With specific regard to grizzly bear, as identified in Section 24.7.3.2.2, based on the recent trends in local grizzly bear population levels, the Project is unlikely to contribute to limiting the ability of grizzly bear to recover from past declines and maintain a stable population in the Terrestrial LSA. Direct habitat loss as a result of the Project is of low magnitude and is partly reversible, though the quality of reclaimed areas to grizzly bear will be variable. The indirect habitat loss and degradation from potential impact to the avalanche chutes on the east side of Crown Mountain (if it occurs) may be much more important to grizzly bear. Sensory disturbance has the potential to further degrade habitat in the West Alexander Creek valley. The West Alexander Creek valley will be partially blocked to grizzly bear movements (by the pits and Mine Rock Storage Facility before they are reclaimed); other portions of the Project footprint will represent a semi-permeable barrier. As part of the Project Reclamation and Closure phase, wildlife habitat will be reclaimed within the disturbance footprint, and result in a variety of wildlife habitat types for use by grizzly bear. The combined residual effects of habitat loss and degradation, sensory disturbance, disruption to movement, and increased mortality risk on grizzly bear are therefore considered not significant.

With specific regard to elk, as identified in Section 24.7.3.2.2, the Project will result in loss of only a small amount of high-quality winter habitat when elk habitat availability is most limited. Sensory disturbance has the potential to displace elk; given that elk frequently habituate to human disturbance and are known to occur in close proximity to active mine sites, the effect of sensory disturbance is likely to be small. The reclaimed mine landscape will provide high-quality elk habitat. Based on the characterization of the residual effects and local and regional elk population levels, the Project would not limit the ability of elk to persist and maintain self-sustaining populations in the Terrestrial LSA. The residual effects of habitat loss and degradation, sensory disturbance, disruption to movement, and increased mortality risk on elk arising from the Project during all phases are therefore considered not significant.

With specific regard to bighorn sheep, as identified in Section 24.7.3.2.2, the population has a relatively stable trend and while the Project will result in loss of a relatively small amount of year-round high-quality

habitat, none of which has been mapped as bighorn sheep winter range. Sensory disturbance has the potential to displace bighorn sheep in high-quality annual habitat, though it does not overlap with mapped winter range. Post-closure, the reclaimed mine landscape will provide abundant forage for bighorn sheep. Based on the characterization of the residual effects as identified above and the local and regional bighorn sheep population levels, the Project would not limit the ability of bighorn sheep to persist and maintain self-sustaining populations in the ATRI LSA. The residual effects of habitat loss and degradation, sensory disturbance, disruption to movement, and increased mortality on bighorn sheep arising from the Project during all phases are therefore considered not significant.

Though baseline data was sufficient to evaluate effects for identified wildlife VCs, areas currently or potentially used by Shuswap Band for hunting and trapping have not been identified within the Project footprint through publicly available information. Information related to Shuswap Band's use of the ATRI LSA to hunt and trap was not made available prior to the assessment and the currently identified low level of use by Shuswap Band in the Project footprint, coupled with the lack of significant adverse effects to wildlife VCs that are potentially used for hunting and trapping purposes, indicates the moderate level of impact on Shuswap Band's rights and interests related to the use of lands and resources for traditional hunting and trapping. There is potential for the Project to result in the permanent alienation of Shuswap Band from hunting and trapping locations within the Project footprint, for which there is no current mitigation identified (Appendix 24-A, Table 24.A-1). It is further noted that that this physical alteration and potential change in the opportunity of the Shuswap Band to practice related traditional activities (e.g., hunting and trapping) may also have impacts on intangible cultural heritage. Due to the lack of current information available on their use of the Project footprint for traditional purposes, understanding and characterizing these potential related impacts to their intangible cultural heritage requires further input from the Shuswap Band.

Continued consultation with Shuswap Band, as well as through the development of potential follow-up and monitoring and adaptive management measures regarding wildlife VCs are expected to improve the confidence rating and the severity of impact on Shuswap Band's rights and interests.

Potential Future Use without the Project of Lands and Resources for Traditional Hunting and Trapping Purposes

This section describes the potential future use of lands and resources for traditional hunting and trapping in the Project footprint, the ATRI LSA, and the ATRI RSA without the Project in place. This is in consideration of the certain past, present, and reasonably foreseeable future projects and activities within the ATRI RSA that could impact the potential future use of lands and resources for traditional hunting and trapping related to the potential impact on the Shuswap Band's ability to exercise these rights. As previously noted, no specific information to date regarding the Shuswap Band's current use of lands and resources for traditional hunting and trapping in the Project footprint was made available nor whether they have an interest in using the Project footprint in the future. It is acknowledged that Shuswap Band has the potential to use lands and resources for traditional hunting and trapping in the ATRI LSA given the importance of wildlife VCs such as grizzly bear, elk, and bighorn sheep within the local study area and the ATRI RSA.

Past and ongoing projects and activities located in the ATRI LSA and RSA may likely be impacting the real or perceived quality and quantity of country foods available in relation to hunting and trapping for

Shuswap Band in preferred locations to exercise Shuswap Band's rights and interests. As noted in Section 24.7.4.2 and in Chapter 15, with respect to the reasonably foreseeable future projects and activities in the ATRI RSA and based on the historical baseline of cumulative effects, past and current development activity in the ATRI LSA and RSA includes for example other mines, forestry activity (including logging in the Elk Valley), housing development, transportation facilities (roads), and recreation activities. It is anticipated that these activities will continue in the future without the Project and will continue to have influence on lands and resources for traditional hunting and trapping in the ATRI LSA.

There is a potential for cumulative impacts due to the spatial distribution of historical disturbance as a result of mining in the Elk Valley which has followed economic coal resources to form a long north-south band of potential mining-related disturbance. In the ATRI LSA, this north-south running band is interrupted by a few relatively undisturbed east-west corridors that provide "gaps" in the mining region for the movement of animals. This general trend of north-south oriented mining and potentially related disturbance along valley bottoms and some ridges potentially limits the east-west connectivity between alpine ranges.

Without the Project footprint, other impairments to wildlife movement from highway and transportation corridors, as well as other disturbance is likely to create and maintain important barriers to animal movement, and potentially influence use of ancestral east-west trails. Past disturbance has also potentially affected the quantity and quality of certain ecosystems available for the practice of Shuswap Band's rights and interests in the Elk Valley. Within the ATRI RSA, these ecosystems are also important for maintaining biodiversity across the landscape, a critically important cultural value. This also emphasizes the cumulative effect of past developments on the practice of rights and interests. Table 24.10-3 presents a summary of the potential impacts of the Project on the Shuswap Band's rights and interests related to hunting and trapping in comparison to a future scenario without the Project.

24.10.2.1.3 Impact on Use of Lands and Resources for Traditional Harvesting and Gathering Purposes

The Project has the potential to impact Shuswap Band's harvesting and gathering rights and interests through the following:

- The potential for reduction in the quality and accessibility of vegetation species of interest for traditional/cultural purposes or country foods.
- The potential for the permanent alienation of the Shuswap Band from harvesting and gathering locations within the Project footprint.
- The residual effects on landscapes and ecosystems within the Project footprint due to the Rail Loadout, the road, and the Project infrastructure footprint may remove areas currently or potentially used by the Shuswap Band to harvest and gather plants.
- The potential changes in vegetation communities/terrestrial ecosystems and introduction and colonization of invasive vegetation species that outcompete species of interest resulting in a loss of potentially traditionally/culturally important vegetation communities has the potential to impact on the Shuswap Band's rights and interests.
- The potential for the permanent alienation of the Shuswap Band from harvesting and gathering locations within the Project footprint resulting in impacts to their ability to know and teach the Shuswap way of living.

Table 24.10-3: Summary of Impact on Shuswap Band's Hunting and Trapping Rights and related Interests based on Potential Future Use with and without the Project

Impact on Rights and Interests	Project Phase(s)	Potential Future Use with Project	Potential Future Use without Project
Potential Impacts on Hunting and Trapping Rights	Construction and Pre-Production	Potential for decreased hunting and trapping opportunities and impact on rights due to potential interactions with: • Wildlife species of interest through transportation of materials and personnel to site (e.g., vehicle collisions and increased traffic) and potential direct mortality from vehicle strikes may potentially impact traditional hunting and trapping due to potential localized changes in accessibility to wildlife. • Potential change of wildlife food sources and movements as a result of changes in vegetation communities and terrestrial ecosystems (i.e., degradation of wildlife habitat). • Potential sensory disturbance to wildlife (i.e., noise and vibration) may potentially impact on traditional hunting and trapping. • Potential change in landscape and terrestrial ecosystem types resulting in the change of wildlife food sources and movements may potentially impact on traditional hunting and trapping. • Potential localized changes in accessibility to wildlife associated with riparian areas due to changes to surface water quality, fish and fish habitat, and riparian vegetation/habitat may potentially impact on traditional hunting and trapping. • Potential loss of wildlife habitat within road and infrastructure footprint and potential change in localized wildlife species of interest movement/accessibility may potentially impact on traditional hunting and trapping. • Potential stressor on wildlife population with increased access roads potentially attracting hunters and increased road densities may potentially impact on traditional hunting and trapping. • The potential for the permanent alienation of the Shuswap Band from hunting and trapping locations within the Project footprint resulting in impacts to their ability to know and teach the Shuswap way of living.	Potential impact on rights Potential impact on rights without the Project: • No specific information regarding the Shuswap Band's possible hunting and trapping activities within the Project footprint was made available at the time of the writing of this chapter. Nevertheless, there is potential for the use of lands and resources for traditional hunting and trapping in the ATRI LSA given the importance of wildlife VCs such as elk within the ATRI LSA and RSA. • Past and current development activity in the ATRI LSA and RSA has resulted in forming a long north-south band of potential mining-related disturbance which is interrupted by a few relatively undisturbed east-west corridors that provide

Impact on Rights and Interests	Project Phase(s)	Potential Future Use with Project	Potential Future Use without Project
	Operations	Potential for decreased hunting and trapping opportunities and impact on rights due to potential interactions with: • The release of nitrogen compounds and other contaminants from storage areas and wash facilities that may potentially affect wildlife species of interest may potentially impact on traditional hunting and trapping. • Potential change of wildlife species of interest food sources and movements as a result of changes in vegetation communities and terrestrial ecosystems (i.e., degradation of wildlife habitat, dust deposition) or sensory disturbances may potentially impact on traditional hunting and trapping. • Changes in wildlife species of interest movements/accessibility to these wildlife species due to the presence of the mine may potentially impact on traditional hunting and trapping. • Potential for changes to accessibility to aquatic wildlife species of interest (e.g., waterfowl) with the change or loss of aquatic habitats may potentially impact on traditional hunting and trapping. • Sensory disturbances to wildlife species of interest due to detonation of explosives and other mine activities may potentially impact on traditional hunting and trapping. • Potential for changes in wildlife food sources through changes to ecosystems/vegetation communities resulting in changes to wildlife species of interest movements/migrations may potentially impact on traditional hunting and trapping. • The potential for the permanent alienation of the Shuswap Band from hunting and trapping locations within the Project footprint resulting in impacts to their ability to know and teach the Shuswap way of living.	"gaps" in the mining region for the movement of animals. This includes for example other mines, forestry activity, housing development, transportation facilities (roads), and recreation activities. It is anticipated that these activities will continue in the future without the Project and continue to have influence on traditional hunting and trapping activities. • These past and ongoing projects and activities located in the ATRI LSA and RSA may likely be impacting real or perceived quality and quantity of country foods available in relation to hunting and trapping for Shuswap Band in preferred locations. These past and ongoing activities may be impacting the ability of the Shuswap Band to exercise their rights related to hunting and trapping in the ATRI LSA and RSA.
	Reclamation and Closure	Potential for decreased hunting and trapping opportunities and impact on rights due to potential interactions with: • Potential sensory disturbance to wildlife species of interest (i.e., noise and vibration) may potentially impact on traditional hunting and trapping. • Potential for reestablishment of wildlife habitat and food sources in the development footprint for species of interest through reestablishment of habitat/vegetation communities.	

Impact on Rights and Interests	Project Phase(s)	Potential Future Use with Project	Potential Future Use without Project
		• Potential for the reestablishment of traditional hunting activities. • Potential for reduction of the quality and accessibility of wildlife species of interest for traditional/cultural purposes or country foods should insufficient effects monitoring take place that affects the mitigation measures utilized. • The potential for the permanent alienation of the Shuswap Band from hunting and trapping locations within the Project footprint resulting in impacts to their ability to know and teach the Shuswap way of living.	• Related to the local study area changes described above, the Elk River valley has also seen substantial residential development that has potentially affected the quantity and quality of certain ecosystems available for the practice of Shuswap Band rights and interests in the region that are anticipated to continue without the Project.
	Post-Closure	Potential for decreased hunting and trapping opportunities and impact on rights due to potential interactions with: • Potential for changes in water levels resulting in potential impacts to riparian vegetation communities and wildlife habitats of interest may potentially impact on traditional hunting and trapping. • Potential for changes to accessibility to aquatic wildlife VC species of interest (e.g., waterfowl) with the change or loss of aquatic habitat may potentially impact on traditional hunting and trapping. • Potential for access within the Project footprint through the use of Branch C Road, which will remain as a permanent access road for future traditional activities such as traditional hunting and trapping in the Post-Closure phase. • Potential for collisions with wildlife and disruption to wildlife movements resulting in changes to accessibility to wildlife species of interest may potentially impact on traditional hunting and trapping. • Potential stressor on wildlife population with increased access roads potentially attracting hunters and increased road densities may potentially impact on traditional hunting and trapping. • Potential for reduction of the quality and accessibility of wildlife species of interest for traditional/cultural purposes or country foods should insufficient effects monitoring take place that affects the mitigation measures utilized. • The potential for the permanent alienation of the Shuswap Band from hunting and trapping locations within the Project footprint resulting in impacts to their ability to know and teach the Shuswap way of living.	

The impact on the opportunity to harvest and gather for traditional purposes due to the Project are characterized as follows:

- Likelihood: *Low to Moderate*, as while there is potential for this impact to occur, no specific information to date regarding the Shuswap Band's current use of the Project footprint was made available nor whether they have an interest in using the area in the future. It is acknowledged that Shuswap Band has the potential to use the Project footprint that support harvesting and gathering activities that relate to the exercise of their rights and interests. While the loss of vegetation communities and plant species of interest within those communities, as well as access to vegetation communities, will be impacted over the long-term; site reclamation activities will likely restore impacted vegetation communities.
- Geographic Extent: *Moderate*, as the potential impact to opportunities for harvesting and gathering are restricted to the Project footprint and will be reclaimed during Reclamation and Closure phases of the Project. No specific information to date regarding the Shuswap Band's current use of the Project footprint was made available nor whether they have an interest in using the area in the future, the impact on rights and interests related to traditional harvesting and gathering is anticipated to be low based on preliminary consultation with Shuswap Band (Appendix 24-A, Table 24.A-2) and as identified by IAAC (IAAC, 2015b, 2022a).
- Frequency, Duration, and Reversibility: *Moderate to High,* while the impact to the Project footprint will be long-term to permanent, Shuswap Band's accessibility to opportunities for harvesting and gathering in vegetated areas of importance within the Project footprint are likely to be impacted mainly during the Construction and Operations phases, and ecological restoration activities will reclaim impacted vegetation communities. It is noted that reclaimed areas, such as forested sites, will take many years to support mature forests that may support plant species of interest used for harvesting and gathering, and as no specific information to date regarding the Shuswap Band's current use of the Project footprint was made available nor whether they have an interest in using the area in the future, the level of potential for impact has determined the rating.
- Cultural Well-being: *Moderate*, as while there is potential for the Project footprint to be culturally important to the Shuswap Band, information to date regarding the importance of the Project footprint as it relates to harvesting and gathering for traditional purposes is based on preliminary consultation with Shuswap Band (Appendix 24-A, Table 24.A-1) and no traditional land use information specific to culturally important plants and species in the Project footprint has been available from Shuswap Band. The level of impact on cultural well-being is rated as moderate as the Project is not anticipated to result in the permanent loss of access or the ability to conduct traditional land and resource use related to the harvesting and gathering within the Project footprint balanced with the anticipated potential impact on culturally important plants and species as a result of the Project.
- Health: *Low*, as the Project is not likely to pose environmental effects to health, including potential effects to country foods used for harvesting and gathering by Shuswap Band in the Project footprint due to the mitigation measures identified (Ecological Restoration Plan) and the continued monitoring to help improve adaptive management measures. The low rating also reflects that no specific information to date regarding the Shuswap Band's current use of the Project footprint was made available nor whether they have an interest in using the area in the future.

- Cumulative Impacts: *Moderate*, as the Project, in combination with other reasonably foreseeable future projects and activities, is not anticipated to result in measurable residual Project effects to reduce the ability and opportunity for Shuswap Band to practice their rights and interests related to harvesting and gathering within the ATRI RSA. The opportunity to harvest and gather within the ATRI RSA is dependent on the location of ecosystems and plant species of interest as well as the access to these areas. Due to on-going impacts of past and present projects and activities in combination with other reasonably foreseeable future projects and activities, on the Elk Valley, the limited information currently available on the current and potential use of lands and resources within the ATRI RSA, the uncertainty regarding the implications of regional climatic changes that may impact terrestrial ecosystems and vegetation communities, the changes in the accessibility to harvest and gather in the ATRI RSA that may potentially impact the ability to undertake cultural and traditional practices for community members, and the importance of available lands for traditional practices, the cumulative impacts have been assessed as moderate. The cumulative impact is also determined as moderate due to the lack of information available from the Shuswap Band regarding their opportunity to conduct traditional harvesting and gathering activities within the Project footprint at this time. It is expected that their ability to know and teach the Shuswap way of living can continue outside of the Project footprint during all Project phases.

Degree of Severity for Adverse Impacts

The degree in severity of impact on Shuswap Band's rights and interests for the use of lands and resources for harvesting and gathering is rated as moderate as potential impacts are likely to be small in spatial extent, reversible long-term, with few effects to health and/or country foods while there is potential for the Project to result in the permanent alienation of Shuswap Band from harvesting and gathering locations within the Project footprint for which there is no current mitigation identified (Appendix 24-A, Table 24.A-1). It is further noted that that this physical alteration and potential change in the opportunity of the Shuswap Band to practice related traditional activities (e.g., harvesting and gathering) may also have impacts on intangible cultural heritage. Due to the lack of current information available on their use of the Project footprint for traditional purposes, understanding and characterizing these potential related impacts to their intangible cultural heritage requires further input from the Shuswap Band.

Though baseline data was sufficient to evaluate effects for the related Project VCs, there is no current information available indicating that the Shuswap Band use the Project footprint for harvesting and gathering. As previously identified, a conservative approach has been used in the assessment of impact on rights that assumes that the current and potential use of the lands and resources occurs throughout the ATRI RSA. It should be noted that there is existing potential for harvesting and gathering for traditional purposes available in the ATRI LSA and RSA outside of the Project footprint. Continued consultation with Shuswap Band, as well as through the development of potential follow-up and monitoring and adaptive management measures as necessary is expected to improve the confidence rating and the severity of impact on the Shuswap Band's rights and interests.

Potential Future Use without the Project of Lands and Resources for Traditional Harvesting and Gathering Purposes

This section describes the potential future use of lands and resources for harvesting and gathering for traditional purposes in the Project footprint, the ATRI LSA, and the ATRI RSA without the Project in place. This is in consideration of the certain past, present, and reasonably foreseeable future projects and

activities within the ATRI RSA that could impact the potential future use of sites for harvesting and gathering for traditional purposes as it relates to the potential impact on the Shuswap Band's ability to exercise these rights. As previously noted, no specific information to date regarding the Shuswap Band's current use of lands and resources for harvesting and gathering for traditional purposes in the Project footprint was made available nor whether they have an interest in using sites within the Project footprint in the future. It is acknowledged that Shuswap Band has the potential to use the ATRI LSA given the importance of culturally important plants and species that the community rely on for foods, medicines, and spiritual uses within the ATRI LSA and RSA.

Past and ongoing projects and activities located in the ATRI LSA and RSA may likely be impacting the real or perceived quality and quantity of country foods available for harvesting and gathering in preferred locations to exercise Shuswap Band's rights and interests. As noted in Section 24.3.6.3 and in Chapters 13 and 14, with respect to the reasonably foreseeable future projects and activities in the ATRI RSA and based on the historical baseline of cumulative effects, past and current development activity in the ATRI LSA and RSA includes for example other mines, forestry activity (including logging in the Elk Valley), housing development, transportation facilities (roads), and recreation activities. It is anticipated that these activities will continue in the future without the Project and will continue to have influence on lands and resources for traditional harvesting and gathering in the ATRI LSA.

There is a potential for cumulative impacts due to the spatial distribution of historical disturbance as a result of mining in the Elk Valley which has followed economic coal resources to form a long north-south band of potential mining-related disturbance. In places, including the ATRI LSA, this north-south running band is interrupted by a few relatively undisturbed east-west corridors that provide "gaps" in the mining region for the movement of land users. This general trend of north-south oriented mining and potentially related disturbance along valley bottoms and some ridges potentially limits the east-west connectivity between alpine ranges.

Without the Project footprint, past disturbance has affected the quantity and quality of certain ecosystems available for the practice of Shuswap Band's rights and interests in the Elk Valley. Within the ATRI RSA, these ecosystems are also important for maintaining biodiversity across the landscape, a critically important cultural value. Mature and old growth forests potentially being impacted within the Elk Valley have the potential to affect rights and interests. This also emphasizes the cumulative effect of past developments on the practice of rights and interests. Table 24.10-4 presents a summary of the potential impacts of the Project on the Shuswap Band's rights and interests related to harvesting and gathering in comparison to a future scenario without the Project.

Table 24.10-4: Summary of Impact on Shuswap Band's Harvesting and Gathering Rights and related Interests based on Potential Future Use with and without the Project

Impact on Rights and Interests	Project Phase(s)	Potential Future Use with Project	Potential Future Use without Project
Potential Impacts on Harvesting and Gathering Rights	Construction and Pre-Production	Potential impact on the opportunity for harvesting and gathering activities and impact on rights due to potential interactions with: • Potential for introduction of invasive species around development areas reducing the quality of vegetation communities/terrestrial ecosystems/ habitats for vegetation species of interest and resulting in change in terrestrial ecosystems. • Potential changes to vegetation that may potentially impact the ability to harvest and gather for traditional purposes. • Potential change in landscape and terrestrial ecosystem types resulting in the change of wildlife food sources and movements. • Potential loss of riparian habitat may potentially impact the ability to harvest and gather for traditional purposes. • Potential loss of vegetation species of interest within road and infrastructure footprint may potentially impact the ability to harvest and gather for traditional purposes. • Potential loss of grassland habitat, and therefore, potential loss of species of interest within footprint of Rail Loadout and as a result of the workshop/mine dry footprint may potentially impact the ability to harvest and gather for traditional purposes. • The potential for the permanent alienation of the Shuswap Band from harvesting and gathering locations within the Project footprint resulting in impacts to their ability to know and teach the Shuswap way of living.	Potential impact on rights without the Project: • No specific information regarding the Shuswap Band's possible sites related to their potential harvesting and gathering activities within the Project footprint was made available at the time of the writing of this chapter. Nevertheless, there is potential for Shuswap Band to use the ATRI LSA given the importance of culturally important plants and species that the community rely on for foods, medicines, and spiritual uses within the ATRI LSA and RSA. • Past and current development activity in the ATRI LSA and RSA has resulted in forming a long north-south band of potential mining-related disturbance which is interrupted by a few relatively undisturbed east-
	Operations	Potential impact on the opportunity for harvesting and gathering activities and impact on rights due to potential interactions with: • Terrestrial ecosystems and vegetation through the release of nitrogen compounds and other contaminants from storage areas and wash facilities may potentially impact the ability to harvest and gather for traditional purposes. • Potential changes in vegetation communities/terrestrial ecosystems and introduction and colonization of invasive vegetation species that	

Impact on Rights and Interests	Project Phase(s)	Potential Future Use with Project	Potential Future Use without Project
		outcompete species of interest resulting in a loss of traditionally/culturally important vegetation communities may potentially impact the ability to harvest and gather for traditional purposes. • Potential interaction with vegetation health through particulate matter and dust deposition may potentially impact the ability to harvest and gather for traditional purposes. • The potential for the permanent alienation of the Shuswap Band from harvesting and gathering locations within the Project footprint resulting in impacts to their ability to know and teach the Shuswap way of living.	west corridors that provide "gaps" in the mining region for the movement of land users. This includes for example other mines, forestry activity, housing development, transportation facilities (roads), and recreation activities. Mature and old growth forests potentially being impacted within the Elk Valley have the potential to affect rights and interests. It is anticipated that these activities will continue in the future without the Project and continue to have influence on site for traditional harvesting and gathering. • These past and ongoing projects and activities located in the ATRI LSA and RSA may likely be impacting real or perceived quality and quantity of country foods available for harvesting and gathering in preferred locations. These past and ongoing activities may be impacting the
	Reclamation and Closure	Potential impact on the opportunity for harvesting and gathering activities and impact on rights due to potential interactions with: • Potential for introduction of invasive species around development areas reducing the quality of vegetation communities/terrestrial ecosystems/habitats for species of interest may potentially impact the ability to harvest and gather for traditional purposes. • Potential for reclamation of ecosystems and related species of interest and areas used for harvesting and gathering may potentially impact the ability to harvest and gather for traditional purposes. • Potential for reestablishment of plant harvesting activities. • Potential for reduction of the quality and accessibility of vegetation species of interest for traditional/cultural purposes or country foods should insufficient effects monitoring take place that affects the mitigation measures utilized. • The potential for the permanent alienation of the Shuswap Band from harvesting and gathering locations within the Project footprint resulting in impacts to their ability to know and teach the Shuswap way of living.	
	Post-Closure	Potential impact on the opportunity for harvesting and gathering activities and impact on rights due to potential interactions with: • Potential for changes in water levels resulting in potential impacts to riparian vegetation communities and wildlife habitats of interest may	

Impact on Rights and Interests	Project Phase(s)	Potential Future Use with Project	Potential Future Use without Project
		potentially impact the ability to harvest and gather for traditional purposes. • Potential for access within the Project footprint through the use of Branch C Road, which will remain as a permanent access road for future traditional activities such as harvesting and gathering in the Post-Closure phase. • Potential for the introduction of weeds and invasive vegetation species in disturbed areas around the rail line resulting in a change of localized vegetation communities/loss of species of interest may potentially impact the ability to harvest and gather for traditional purposes. • Potential for reduction of the quality and accessibility of vegetation species of interest for traditional/cultural purposes or country foods should insufficient effects monitoring take place that affects the mitigation measures utilized. • The potential for the permanent alienation of the Shuswap Band from harvesting and gathering locations within the Project footprint resulting in impacts to their ability to know and teach the Shuswap way of living.	ability of the Shuswap Band to exercise their rights related to harvesting and gathering in the LSA and RSA. • Related to the local study area changes described above, the Elk River valley has also seen substantial residential development that has potentially affected the quantity and quality of certain ecosystems available for the practice of Shuswap Band rights and interests in the region that are anticipated to continue without the Project.

24.10.2.1.4 Impact on Physical and Cultural Heritage and Change to a Structure, Site, or Item that is of Historical, Archaeological, Paleontological, or Architectural Significance

The Project has the potential to impact on Shuswap Band's physical and cultural heritage through the following:

- The potential loss of pre-contact archaeological artifacts (if present) and tree throws related to physical and cultural heritage.
- The potential loss/disconnection of historic and present-day travel routes and trail if present within or crossing new roads and infrastructure footprint.
- The potential changes to or loss of places that may be important for ceremonial or sacred areas through changes in landscape/ecosystems within the Project footprint.
- The potential for change in access to places that may be important for ceremonial or sacred areas, and the potential loss of pre-contact archaeological artifacts (if present) during Project phases.
- The Project has the potential to impact on Shuswap Band's rights and interests as a result of the potential change due to a significant historic area located near the Project's roads: Grave Lake, Grave Creek, and Grave Prairie.
- The potential for changes to ceremonial or sacred areas associated with Grave Creek and West Alexander Creek.
- There is also the potential discovery of pre-contact archaeological resources (if present) in unconsolidated material or during progressive clearing activities.
- The potential for the permanent alienation of the Shuswap from their cultural heritage due to the intangible value associated with a sense of place within the Project footprint.

The potential impact on physical and cultural heritage and a structure, site, or item that is of historical, archaeological, paleontological, or architectural significance due to the Project footprint are characterized as follows:

- Likelihood: *High*, as there are 15 pre-contact archaeological sites anticipated to be directly impacted by the Project and while none are known to contain ancestral or historical burial sites, due to the cultural significance of the Grave Prairie Cultural Landscape, the likelihood of impact is considered high. These heritage resources may be of interest to the Shuswap Band based on their potential linkage to Shuswap Band ancestry though none have been identified based on preliminary consultation with Shuswap Band (Appendix 24-A, Table 24.A-2) and as identified by IAAC (IAAC, 2015b, 2022a).
- Geographic Extent: *Low*, as only heritage resources that exist within the Project footprint will be directly impacted. No specific information regarding the Shuswap Band's current use of the Project footprint other than the Grave Prairie Cultural Landscape was made available, impacts on rights within areas of Shuswap Band's preferred or exclusive use are based on preliminary consultation with Shuswap Band (Appendix 24-A, Table 24.A-2) and as identified by IAAC (IAAC, 2015b, 2022a).
- Frequency, Duration, and Reversibility: *High,* as the direct loss of heritage resources related to physical and cultural heritage that exist within the Project footprint at the Grave Prairie Cultural Landscape and relevant to the Shuswap Band once retrieved from the Project footprint cannot be returned/reburied within the Project footprint in the same geographical context. While potential linkage to Shuswap Band ancestry other than the Grave Prairie Cultural Landscape have not been

identified based on preliminary consultation with Shuswap Band (Appendix 24-A, Table 24.A-2) and as identified by IAAC (IAAC, 2015b, 2022a), change of an archaeological site is irreversible.

- Cultural Well-being: *High*, heritage resources of interest related to physical and cultural heritage are considered to be very important cultural resources to the Shuswap Band that link Shuswap Band members to their ancestors and cultural identities. These heritage resources have a low resilience to change as alterations to areas or sites of interest and significance may not adapt to effects that alter their presence or existence. While potential linkage to Shuswap Band ancestry other than the Grave Prairie Cultural Landscape have not been identified based on preliminary consultation with Shuswap Band, change of an archaeological site is has the potential for a high level of impact on cultural well-being due to irreversibility.
- Health: *Low*, as the Project is not likely to pose environmental effects to health as a result of the physical and cultural heritage and a structure, site, or item that is of historical, archaeological, paleontological, or architectural significance. The low rating also reflects that no specific information to date regarding the Shuswap Band's current use of the Project footprint other than the Grave Prairie Cultural Landscape was made available nor whether they have an interest in using the area in the future.
- Cumulative Impacts: *Moderate to High*, as there is potential for physical and cultural heritage resources and structures, sites, or things of historical, archaeological, paleontological, or architectural significance to be located with the ATRI RSA and as such, a potential for development of reasonably foreseeable future projects and activities to overlap with these resources and sites. At this time, the locations of these resources and sites require further consultation with the Indigenous Communities within the ATRI RSA, other than those documented as part of the Project Archaeological Baseline Assessment within the Project footprint and the Archaeological LSA (Chapter 16). It is anticipated that mitigation measures to identify heritage resources will be implemented as part of current and reasonably foreseeable future projects and activities prior to development. Within the ATRI RSA, the location of physical and cultural heritage and of structures, sites, or things that are of historical, archaeological, paleontological, or architectural significance currently outside of the Project footprint and the Archaeological LSA include Crowsnest Mountain and Crowsnest Lake. Should reasonable foreseeable future projects and activities be carried out within the ATRI RSA and mitigation measures be implemented to protect and avoid physical and cultural heritage and any structure, site, or thing that is of historical, archaeological, paleontological, or architectural significance (i.e., no permanent loss), the residual cumulative effects to physical and cultural heritage and to any structure, site, or thing that is of historical, archaeological, paleontological, or architectural significance arising from the Project in combination with other past, present, and reasonably foreseeable future projects and activities during all phases are anticipated to be moderate to high. The cumulative impact is determined as moderate to high due to the information available from the Shuswap Band regarding their opportunity to conduct traditional activities within the Project footprint at this time. It is expected that their ability to know and teach the Shuswap way of living can continue outside of the Project footprint during all Project phases.

Degree of Severity for Adverse Impacts

The degree in severity of impact on Shuswap Band's rights and interests related to physical and cultural heritage resources and structures, sites, or things of historical, archaeological, paleontological, or architectural significance is rated as moderate to high as potential impacts are likely to be small in spatial

extent, and with no effects to health. These heritage resources may be of interest to the Shuswap Band based on their potential linkage to Shuswap Band ancestry though none other than the Grave Prairie Cultural Landscape, have been identified based on preliminary consultation with Shuswap Band (Appendix 24-A, Table 24.A-2) and as identified by IAAC (IAAC, 2015b, 2022a).

Though baseline data was sufficient to evaluate effects for known heritage resources, the lack of regional information on Shuswap Band's physical and cultural heritage and structures, sites, or things that are of historical, archaeological, paleontological, or architectural significance increases the degree of severity of adverse impacts. There is potential for the permanent alienation of the Shuswap from their cultural heritage for which there is no current mitigation identified. It is further noted that that this physical alteration and potential change in the opportunity of the Shuswap Band to practice related traditional activities (e.g., ceremonies in areas of physical and cultural heritage) may also have impacts on intangible cultural heritage. The understanding and characterizing of these potential related impacts to the Shuswap Band's intangible cultural heritage requires further input from the Shuswap Band.
Continued consultation with Shuswap Band, as well as through the development of potential follow-up and monitoring and adaptive management measures as necessary is expected to improve the confidence rating and the severity of impact on Shuswap Band's rights and interests.

Potential Future Use without the Project of Physical and Cultural Heritage and Impact to a Structure, Site, or Item that is of Historical, Archaeological, Paleontological, or Architectural Significance

This section describes the potential future use of physical and cultural heritage and structures, sites, or things that are of historical, archaeological, paleontological, or architectural significance in the Project footprint, the ATRI LSA, and the ATRI RSA without the Project in place. This is in consideration of the certain past, present, and reasonably foreseeable future projects and activities within the ATRI RSA that could impact the potential future use of physical and cultural heritage and structures, sites, or things that are of historical, archaeological, paleontological, or architectural significance as it relates to the potential impact on the Shuswap Band's ability to exercise their rights and interests. As previously noted, no specific information regarding the Shuswap Band's physical and cultural heritage and structures, sites, or things that are of historical, archaeological, paleontological, or architectural significance other than on the Grave Prairie Cultural Landscape in the ATRI LSA was made available nor whether they have an interest in using ATRI LSA for physical and cultural heritage and structures, sites, or things that are of historical, archaeological, paleontological, or architectural significance in the future (IAAC, 2015b, 2022a; Appendix 24-A, Table 24.A-1). It is noted that there is potential for impact on physical and cultural heritage due to past disturbance which has potentially removed areas of particular cultural value, including trails, habitation areas, and harvesting areas within the ATRI RSA, and culturally and spiritually important sites elsewhere in the Elk Valley.

As noted in Section 24.7.4.2 and in Chapter 16, with respect to the reasonably foreseeable future projects and activities in the ATRI RSA and based on the historical baseline of cumulative effects, past and current development activity in the ATRI LSA and RSA includes for example other mines, forestry activity (including logging in the Elk Valley), housing development, transportation facilities (roads), and recreation activities. It is anticipated that these activities will continue in the future without the Project and will continue to potentially impact physical and cultural heritage and structures, sites, or things that are of historical, archaeological, paleontological, or architectural significance in the ATRI LSA.

There is a potential for cumulative impacts due to the spatial distribution of historical disturbance as a result of mining in the Elk Valley which has followed economic coal resources to form a long north-south band of potential mining-related disturbance. In the ATRI LSA, this north-south running band is interrupted by a few relatively undisturbed east-west corridors that provide "gaps" in the mining region for the movement of land users. This general trend of north-south oriented mining and potentially related disturbance along valley bottoms and some ridges potentially limits the east-west connectivity between alpine ranges.

Without the Project footprint, the cumulative effect of past developments on the practice of rights and interests has influenced Shuswap Band's use of ancestral east-west trails. The Elk River valley has seen substantial residential development which may potentially impact physical and cultural heritage and structures, sites, or things that are of historical, archaeological, paleontological, or architectural significance that are anticipated to continue without the Project. Past disturbance has also potentially affected the real or perceived change in accessibility to physical and cultural heritage and structures, sites, or things that are of historical, archaeological, paleontological, or architectural significance for Shuswap Band and will likely continue to impact Shuswap Band's rights and interests without the Project in place.

Table 24.10-5 presents a summary of the potential impacts of the Project on the Shuswap Band's rights and interests related to physical and cultural heritage in comparison to a future scenario without the Project.

24.10.2.1.5 Impact on Social, Health, and Economic Conditions

The Project has the potential to impact on Shuswap Band's social, health, and economic conditions related to:

- The potential Project nuisance effects to residents due to noise and vibration.
- The potential change in availability/reliance on country food.
- The loss of potential access to species for traditional purposes due to loss of sections of West Alexander Creek.
- The potential for the permanent alienation of the Shuswap Band from traditional use locations within the Project footprint.
- The potential for public safety risks due to physical hazards.
- The Project has the potential to impact on Shuswap Band's rights and interests due to the potential change in population and demographics.
- The potential change in community health and well-being.
- The potential change due to the influx of new employees to the region that could potentially contribute to social impacts, including safety risks.

Table 24.10-5: Summary of Impact on Shuswap Band's Physical and Cultural Heritage Rights and related Interests based on Potential Future Use with and without the Project

Impact on Rights and Interests	Project Phase(s)	Potential Future Use with Project	Potential Future Use without Project
Potential Impacts on Rights related to Physical and Cultural Heritage and Change to any Structure, Site, or Thing that is of Historical, Archaeological, Paleontological, or Architectural Significance.	Construction and Pre-Production	Potential impact on physical and cultural rights due to potential interactions with: • Potential loss of pre-contact archaeological artifacts (if present) and tree throws during Project activities including quarrying. • Potential loss/disconnection of historic and present-day travel routes and trails including those potentially present within or crossing new roads and infrastructure footprint. • Potential loss of ceremonial or sacred areas within the Project footprint (including road and infrastructure construction footprint. • Potential loss of archaeological artifacts (if present) within road and infrastructure construction footprint, during construction of building foundations. • Potential change due to a significant historic area located near the Project's roads: Grave Prairie Cultural Landscape, Grave Lake, and Grave Creek. • The potential for the permanent alienation of the Shuswap Band from their cultural heritage due to the intangible value associated with a sense of place within the Project footprint.	Potential impact on rights without the Project: • No specific information regarding the Shuswap Band's physical and cultural heritage and structures, sites, or things that are of historical, archaeological, paleontological, or architectural significance other than the Grave Prairie Cultural Landscape in the Project footprint was made available at the time of the writing of this chapter. Nevertheless, there is potential for physical and cultural heritage and structures, sites, or things that are of historical, archaeological, paleontological, or architectural significance in the ATRI LSA and RSA. • Past and current development activity has resulted in the removal areas of particular cultural value, including trails, habitation areas, and harvesting areas within the ATRI RSA, and culturally and spiritually important sites elsewhere in the Elk Valley. This includes for example other mines, forestry activity, housing development, transportation facilities (roads), and recreation activities. It is anticipated that these activities will continue in the future without the Project and will continue to potentially impact physical and cultural heritage and structures, sites, or things that are of historical, archaeological, paleontological, or architectural significance in the ATRI LSA. • These past and ongoing projects and activities located in the ATRI LSA and RSA may likely be impacting the real or perceived change in
	Operations	Potential impact on physical and cultural rights due to potential interactions with: • Potential discovery of pre-contact archaeological resources (if present) in	

Impact on Rights and Interests	Project Phase(s)	Potential Future Use with Project	Potential Future Use without Project
		unconsolidated material or during progressive clearing activities. • Potential loss or change of ceremonial/sacred areas associated with West Alexander Creek, Grave Creek or downstream habitats. • Potential for change in access to places that may be important for ceremonial or sacred areas. • Potential changes to or loss of places that may be important for ceremonial or sacred areas through changes in landscape/ecosystems should reclamation activities not be effective. • The potential for the permanent alienation of the Shuswap Band from their cultural heritage due to the intangible value associated with a sense of place within the Project footprint.	accessibility to physical and cultural heritage and structures, sites, or things that are of historical, archaeological, paleontological, or architectural significance for Shuswap Band and will likely continue to impact Shuswap Band's rights and interests without the Project in place. These past and ongoing activities may be impacting the ability of the Shuswap Band to exercise their rights related to physical and cultural heritage and structures, sites, or things that are of historical, archaeological, paleontological, or architectural significance in the ATRI LSA and RSA. • Related to the local study area changes described above, the Elk River valley has also seen substantial residential development which may potentially impact physical and cultural heritage and structures, sites, or things that are of historical, archaeological, paleontological, or architectural significance that are anticipated to continue without the Project.

Based on the Human Health and Ecological Risk Assessment (HHERA; Chapter 22), which encompasses changes in surface water and air quality, and was estimated in consideration of use and rights-based Indigenous traditional use lifestyle scenarios[17], the overall Project-related risk to human health is considered to be low. Though the risk is identified as low, there is potential for residual effects to wildlife and human health, and as such, to the actual or perceived quality of fish and wildlife resources consumed as country foods. As such there is potential for less reliance on country foods because of this perceived impact to their quality.

Based on the background information research and the consultation activities with Shuswap Band to date, there are no anticipated interactions between the Project and Shuswap Band housing, transportation, or social services and education, and therefore, no unmitigated Project effects on these aspects of health and social, health, and economic conditions are anticipated.

There is also potential for potential modest positive change in the availability of community services, the potential for Indigenous Communities to take part in monitoring activities as outlined in the Indigenous Impact Management Plan (Section 24.9), and the potential economic benefit for Indigenous community members related to employment and economic investment during the Project phases. The Project is anticipated to result in positive economic outcomes for employment, income, and local and regional economies.

The impact on the social, health, and economic conditions due to the Project are characterized as follows:

- Likelihood: *Low*, as the predicted residual effects to wildlife and human health and the potential change in country foods is only associated with the Project footprint or close to the haul road, areas which will be reclaimed during Reclamation and Closure and as no specific information regarding the Shuswap Band's current use of the Project footprint for country food or activities affected by Project nuisance effects other than those related to the Grave Prairie Cultural Landscape was made available (Appendix 24-A, Table 24.A-2; IAAC, 2015b, 2022a).
- Geographic Extent: *Low*, as the potential impact on social, health, and economic conditions are limited to the Project footprint (e.g., on or adjacent to the haul road) and the ATRI LSA. The level of use by Shuswap Band, in particular of the Project footprint for traditional purposes is anticipated to be low based on preliminary feedback from Shuswap Band Nation other than the Grave Prairie Cultural Landscape (Appendix 24-A, Table 24.A-2) and as identified by IAAC (IAAC, 2015b, 2022a).
- Frequency, Duration, and Reversibility: *Low,* as the potential for impacts to social and health for Shuswap Band includes the potential risk to country foods which is plausible during the all the phases of Project. The proposed Project and associated activities are considered to present a low risk to wildlife and human health.
- Cultural Well-being: *Low*, as the potential for impacts to social and health for Shuswap Band includes the potential risk to country foods which while possible during all the phases of Project; the proposed Project and associated activities are considered to present a low risk to wildlife and

[17] Indigenous communities represent the maximally exposed receptor, largely because of their increased presence on and use of traditional land, as well as increased consumption of country foods, as compared to non-Indigenous persons; as such, risk estimates calculated for Indigenous receptors are sufficiently conservative to infer maximal potential risk to non-Indigenous peoples also frequenting the HHERA LSA. Moreover, the rights-based use receptor lifestyle is inherently more engaged with land use and therefore offers the more conservative Indigenous risk scenario.

human health. The low rating also reflects that no specific information regarding the Shuswap Band's current use of the Project footprint for country food or activities affected by Project nuisance effects other than those related to the Grave Prairie Cultural Landscape based on preliminary feedback from Shuswap Band was made available (Appendix 24-A, Table 24.A-2).

- Health: *Low*, as the Project is not likely to pose environmental effects to health, including effects to country foods related to aquatic and terrestrial ecosystems and vegetation communities potentially accessed and used for traditional purposes by Shuswap Band. The HHERA undertaken (Chapter 22) for the Project determined that no significant residual effect is associated with the Project using various exposure and food-chain models that utilized Indigenous receptors. The low rating also reflects that no specific information regarding the Shuswap Band's current use of the Project footprint for country food or activities affected by Project nuisance effects other than those related to the Grave Prairie Cultural Landscape based on preliminary feedback from Shuswap Band was made available (Appendix 24-A, Table 24.A-2).
- Cumulative Impacts: *Low*, as the assessment of residual cumulative effects of the Project in combination with those of past, present, and reasonably foreseeable future projects and activities on wildlife and human health concluded no significant adverse cumulative effects on terrestrial, aquatic, and human health. Additionally, no adverse residual effects on social, health, and economic conditions were predicted, therefore no cumulative effect to social, health, and economic conditions are expected to occur. The residual cumulative effects on social, health, and economic conditions arising from the Project in combination with other past, present, and reasonably foreseeable future projects and activities during all phases are also considered not significant. The cumulative impact is determined as low due to the lack of information available from the Shuswap Band regarding their opportunity to conduct traditional activities related to country food consumption within the Project footprint at this time. It is expected that their ability to know and teach the Shuswap way of living can continue outside of the Project footprint during all Project phases.

Degree of Severity for Adverse Impacts

The degree in severity of impact on Shuswap Band's social, health, and economic conditions is rated as low as potential impacts are likely to be small in spatial extent, reversible long-term, and with few effects to health and/or country foods. It should be noted that through this assessment it has been determined that there is potential for the Project to result in the permanent alienation of Shuswap Band from locations within the Project footprint (Appendix 24-A, Table 24.A-2). It is further noted that that this physical alteration and potential change in the opportunity of the Shuswap Band to practice related traditional activities (e.g., consumption of country food) may also have impacts on intangible cultural heritage. The understanding and characterizing of these potential related impacts to Shuswap's intangible cultural heritage requires further input from the Shuswap Band.

Though baseline data was sufficient to evaluate effects for socio-community, economic, and human health VCs, areas currently or potentially used by Shuswap Band for traditional purposes have not been identified within the Project footprint other than the Grave Prairie Cultural Landscape (Appendix 24-A, Table 24.A-1) by Shuswap Band and the impact on rights assessment is based on the publicly available information. As such, there is no information indicating that the Shuswap Band currently uses the Project footprint other than the Grave Prairie Cultural Landscape for social, health, and economic conditions. Continued consultation with Shuswap Band, as well as through the development of potential follow-up

and monitoring and adaptive management measures as necessary is expected to improve the confidence rating and the severity of impact on Shuswap Band's rights and interests.

Potential Future Use without the Project of Social, Health, and Economic Conditions

This section describes the anticipated future social, health, and economic conditions in the Project footprint, the ATRI LSA, and the ATRI RSA without the Project in place. This is in consideration of the certain past, present, and reasonably foreseeable future projects and activities within the ATRI RSA that could impact the anticipated future social, health, and economic conditions as they relate to the potential impact on the Shuswap Band's ability to exercise their rights. As previously noted, no specific information regarding the Shuswap Band's current social, health, and economic conditions in the Project footprint was made available. It is acknowledged that Shuswap Band has the potential to use the ATRI LSA with respect to social, health, and economic conditions that support their rights and interests. It is noted that there are considered to be ongoing impacts to the real or perceived quality and quantity of country foods available for harvesting in preferred locations and the potential human health risks associated with consumption.

As outlined in Section 24.6.6, food insecurity has been increasing in recent years and in the coming years, the reasonably foreseeable future projects and activities in the Elk Valley and climate change, as well as other factors will likely influence food security in terms of potentially affecting traditional food systems, risking further serious consequences for livelihoods and health. The impact of food insecurity on health extends beyond diet and nutrition. In addition to income growth, housing tenure is an economic risk factor for food insecurity and is linked with other factors such as population growth, urbanization, industrialization, land use shifts, water scarcity, and trends in global energy supply and food trade. As noted in Section 24.7.4.2 and in Chapter 22, with respect to the reasonably foreseeable future projects and activities in the ATRI RSA and based on the historical baseline of cumulative effects, past and current development activity in the ATRI LSA and RSA includes for example other mines, forestry activity (including logging in the Elk Valley), housing development, transportation facilities (roads), and recreation activities. It is anticipated that these activities will continue in the future without the Project and will continue to potentially impact social, health, and economic conditions in the ATRI LSA.

There is a potential for cumulative impacts due to the spatial distribution of historical disturbance as a result of mining in the Elk Valley which has followed economic coal resources to form a long north-south band of mining-related disturbance. In the ATRI LSA, this north-south running band is interrupted by a few relatively undisturbed east-west corridors that provide "gaps" in the mining region for the movement of land users. This general trend of north-south oriented mining and potential related disturbance along valley bottoms and some ridges potentially limits the east-west connectivity between alpine ranges.

The Project can be generally expected to result in positive economic outcomes as included in Section 24.7.3.2.8 for employment, income, the regional and local economies, and government finances within the ATRI RSA (Chapter 17). The economic conditions without the Project are expected to be impacted as anticipated positive economic outcomes will diminish due to the lack of availability of economic opportunities related to the Project.

Without the Project, future anticipated use may likely be negatively impacted due to the lack of the residual positive economic effects of the Project. Without the Project, impacts on Shuswap Band's rights and interests related to social and health conditions will continue as a result of activities within the Elk

Valley and those outside of the Elk Valley that have the potential to impact food systems. These past and ongoing activities may be impacting the ability of the Shuswap Band to exercise their rights related to the social, health, and economic conditions of their Traditional Territory and will likely continue to impact Shuswap Band's rights and interests without the Project. This also emphasizes the potential cumulative effect of past developments on the practice of rights and interests related to social, health, and economic conditions. Table 24.10-6 presents a summary of the potential impacts of the Project on the Shuswap Band's rights and interests related to social, health, and economic conditions in comparison to a future scenario without the Project.

24.10.2.2 Summary of Impact on Shuswap Band's Rights and Interests Assessment

Impact on Shuswap Band's rights and related interests may occur where potential changes to the environment as a result of the potential residual effects and residual cumulative effects have the potential to impact the exercise of rights and interests related to traditional activities such as fishing, hunting and trapping, harvesting and gathering, or on physical activities associated with traditional use such as travel and navigation, ceremonial and sacred sites, and physical and cultural heritage areas and any structure, site, or thing that is of historical, archaeological, paleontological, or architectural significance, and social, health, and economic conditions. It is expected that the Shuswap's ability to know and teach their way of living can continue outside of the Project footprint during all Project phases.

As summarized in Section 24.7, an assessment of the Project effects that correspond with Shuswap Band's traditional land and resource use was undertaken. Considering the results of this assessment, as described in Section 24.10, an assessment was undertaken of the potential for Project related impacts on Shuswap Band's rights and interests including their ability to exercise their rights. This assessment of potential impacts on rights and interests also considered that Shuswap Band have not to date identified that the Project footprint is actively used for the exercise of their rights and/or of specific cultural interest. As such, the severity of impacts to Shuswap Band's rights and interest has been identified to be generally in the range of moderate. The impact on Shuswap Band's Aboriginal rights and interests are summarized in Table 24.10-7. It should be noted that through this assessment it has been determined that there is potential for the Project to result in the permanent alienation of Shuswap Band from locations within the Project footprint (Appendix 24-A, Table 24.A-2). It is further noted that that this physical alteration and potential change in the opportunity of the Shuswap Band to practice related traditional activities may also have impacts on intangible cultural heritage. These impacts to intangible cultural heritage may include those related to traditional activities such as fishing for Westslope Cutthroat Trout and other keystone fish species, the hunting of elk and bighorn sheep and the trapping of species of interest to the Shuswap Band, the harvesting and the gathering of culturally significant plant and vegetation species, access to areas of traditional activities such as the Grave Prairie Cultural Landscape, and the ceremonies and rituals tied to a sense of place within the Project footprint. The understanding and characterizing of these potential related impacts to Shuswap's intangible cultural heritage requires further input from the Shuswap Band.

Table 24.10-6: Summary of Impact on Shuswap Band's Rights and related Interests based on Potential Future Use with and without the Project on Social, Health, and Economic Conditions

Impact on Rights and Interests	Project Phase(s)	Potential Future Use with Project	Potential Future Use without Project
Potential Impact on Interests related to Social, Health, and Economic Conditions	Construction and Pre-Production	Potential impact on social, health, and economic conditions and related interests due to potential interactions with: • Potential Project nuisance effects residents due to noise and vibration. • Potential change in availability/reliance on country food. • Potential public safety due to physical hazards. • The potential for the permanent alienation of the Shuswap Band from traditional use locations within the Project footprint resulting in impacts to their ability to know and teach the Shuswap way of living.	Potential impact on rights due to potential interactions with: • No specific information regarding the Shuswap Band's social, health, and economic conditions within the Project footprint was made available at the time of the writing of this chapter. Nevertheless, there is potential for the use of the ATRI LSA and RSA the Shuswap Band members with respect to social, health, and economic conditions that support their rights and interests. • Past and current development activity in the ATRI LSA and RSA has resulted in potential impacts to food security and the social determinants of health related to country food consumption. This includes for example other mines, forestry activity, housing development, transportation facilities (roads), and recreation activities. It is anticipated that these activities will continue in the future without the Project and continue to have influence on food security concerns as well as human health risk factors related to income growth, housing tenure, population growth, urbanization, industrialization, land use shifts, water scarcity, and trends in global energy supply and food trade. • These past and ongoing projects and activities located in the ATRI LSA and RSA may likely be impacting real or perceived quality and quantity of country foods available for harvesting in preferred locations and the potential human health risks associated with consumption.
	Operations	Potential impact on social, health, and economic conditions and related interests due to potential interactions with: • Potential modest economic benefit for Shuswap Band members that could be hired for the mine, CHPP operations administration, and coal haul. • Potential change in population and demographic. • Potential change in community health and well-being. • Potential modest positive change in availability of community services. • Potential change due to the influx of new employees to the region that could potentially contribute to social impacts, including safety risks.	

Impact on Rights and Interests	Project Phase(s)	Potential Future Use with Project	Potential Future Use without Project
		• Potential Project nuisance effects residents due to noise and vibration. • Potential change in availability/reliance on country food. • Loss of potential access to fish and resources in West Alexander Creek. • The potential for the permanent alienation of the Shuswap Band from traditional use locations within the Project footprint resulting in impacts to their ability to know and teach the Shuswap way of living.	• The economic conditions without the Project are expected to be impacted as anticipated positive economic outcomes for employment, income, and local and regional economies will diminish due to the lack of availability of economic opportunities related to the Project. • Without the Project, future anticipated use may potentially be negatively impacted due to the lack of the residual positive economic effects of the Project. • Without the Project, impacts on Shuswap Band's rights and interests related to social and health conditions will continue as a result of activities within the Elk Valley and those outside of the Elk Valley that have the potential to impact food systems. • These past and ongoing activities may be impacting the ability of the Shuswap Band to exercise their rights related to the social, health, and economic conditions of their Traditional Territory and will likely continue to impact Shuswap Band's rights and interests without the Project.
	Reclamation and Closure	Potential impact on social, health, and economic conditions and related interests due to potential interactions with: • Potential for Shuswap Band to take part in progressive reclamation opportunities and in monitoring activities, in particular: aquatic effects monitoring. • Potential change in community well-being. • Potential change in availability/reliance on country food. • The potential for the permanent alienation of the Shuswap Band from traditional use locations within the Project footprint resulting in impacts to their ability to know and teach the Shuswap way of living.	

Mitigation measures outlined further in the Indigenous Impact Management Plan (Section 24.9) have been proposed to reduce or eliminate impacts on the Shuswap Band's rights and interests which were developed in response to the concerns raised by the Shuswap Band and the identified Indigenous Communities. The effectiveness of these measures has not been confirmed by the Shuswap Band to date. While it is not known whether lands in the vicinity of the Project are actively used for traditional purposes by Shuswap Band, it is anticipated that traditional land and resource use activities will be able to continue undeterred, except where restricted for safety purposes (e.g., in the Project footprint during Construction and Operation phases). It is also anticipated that activities related to the exercise of Shuswap Band's rights and interests will be able to continue by members of Shuswap Band in the ATRI LSA and RSA. As identified throughout the Application/EIS, engagement is ongoing, and Shuswap Band may provide additional information about the potential effects of the Project on Shuswap Band and their impact on Shuswap Band i's rights and interests which could influence the results of the assessment presented here.

As no specific information to date regarding the Shuswap Band's use of the Project footprint, the ATRI LSA, and the ATRI RSA for traditional purposes was made available, additional residual Project effects, and effects from other reasonably foreseeable developments and changes in the environment, are not identified. Based on existing information, and uncertainties related to mitigation, while no significant adverse cumulative effects were determined, impacts on Shuswap Band's rights and interests have the potential to occur for the foreseeable future due to ongoing activities in the Elk Valley. It is noted that there is potential for impacts to Shuswap Band rights and interests to be further articulated through continued engagement with Shuswap Band and its member Bands. On-going programs of environmental and socio-economic monitoring undertaken in collaboration with the Shuswap Band and the co-development of offsets and/or mitigation measures to address where applicable the concerns noted above, will be identified further through the Indigenous Impact Management Plan (Section 24.9) and Chapter 33.

Table 24.10-7: Summary of the Impacts on Shuswap Band's Aboriginal Rights and Interests

Impact on Right and Interests	Project Phase(s)	Summary of Impact on Rights and Interests Characterization	Degree of Severity for Adverse Impacts (High, Moderate, Low)
Potential Impact on Fishing Rights	• Construction and Pre-Production • Operations • Reclamation and Closure • Post-Closure	Likelihood: Low to Moderate Geographic Extent: Low Frequency, Duration, and Reversibility: Low to Moderate Cultural Well-being: Moderate Health: Low Cumulative Impacts: Moderate	Low to Moderate
Potential Impact on Hunting and Trapping Rights	• Construction and Pre-Production • Operations • Reclamation and Closure • Post-Closure	Likelihood: Low to Moderate Geographic Extent: Low Frequency, Duration, and Reversibility: Low to Moderate Cultural Well-being: Moderate Health: Low Cumulative Impacts: Moderate	Low to Moderate
Potential Impact on Harvesting and Gathering Rights	• Construction and Pre-Production • Operations • Reclamation and Closure • Post-Closure	Likelihood: Low to Moderate Geographic Extent: Moderate Frequency, Duration, and Reversibility: Moderate to High Cultural Well-being: Moderate Health: Low Cumulative Impacts: Moderate	Moderate
Potential Impact on Rights related to Physical and Cultural Heritage and Change to any Structure, Site, or Thing that is of Historical, Archaeological, Paleontological, or Architectural Significance.	• Construction and Pre-Production • Operations	Likelihood: High Geographic Extent: Low Frequency, Duration, and Reversibility: High Cultural Well-being: High Health: Low Cumulative Impacts: Moderate to High	Moderate to High

Impact on Right and Interests	Project Phase(s)	Summary of Impact on Rights and Interests Characterization	Degree of Severity for Adverse Impacts (High, Moderate, Low)
Potential Impact on Interests related to Social, Health, and Economic Conditions	• Construction and Pre-Production • Operations • Reclamation and Closure	Likelihood: Low Geographic Extent: Low Frequency, Duration, and Reversibility: Low Cultural Well-being: Low Health: Low Cumulative Impacts: Low	Low

24.11 Follow-up Strategy

The purpose of the follow-up strategy is to verify the accuracy of the effects assessment and to determine the effectiveness of mitigation measures including those identified in the Indigenous Impact Management Plan. Follow-up strategies related to the Shuswap Band's rights and interests are proposed where the effects assessment determines that uncertainty exists in the predictions of effects or in the effectiveness of mitigation proposed. Follow-up programs are relevant due to the uncertainty in the prediction of effects on changes to current use of lands and resources for traditional purposes by Shuswap Band. In terms of the interaction of Shuswap Band's rights and interests to the selected receptor and intermediate VCs, follow-up programs will also serve to improve the level of confidence in the predictions of Project-related effects on various VCs (i.e., monitoring plans for wildlife VCs such as ungulates and carnivores) in this assessment process.

As noted in Section 24.9 and based on the assessment of potential impacts on the rights and interests of the Shuswap Band, the change in use of lands and resources for traditional activities such as fishing, hunting and trapping, harvesting and gathering, or on activities associated with traditional use such as travel and navigation, ceremonial and sacred sites, and on physical and cultural heritage areas will require follow-up monitoring. Follow-up monitoring will also enable response to new and developing issues of concern during the Project implementation hence ensuring that Project-related activities comply with and adhere to EAC conditions and include provisions for community-based monitoring where applicable. The proposed approach for managing the corrective actions that may potentially be required will involve monitoring compliance with regulations, managing worksites, executing specific environmental and social works and seeking solutions to emerging environmental problems.

Communication of the results of the follow-up strategies and/or monitoring programs to the Shuswap Band is an essential component that will be undertaken through the Indigenous Engagement and Reporting Plan (Chapter 33, Section 33.4.3). Not only does this maintain communication with all parties and keep them informed of the Project activities and their associated environmental effects, but it also offers the opportunity to incorporate input from Shuswap Band into the design of the Indigenous Impact Management Plan and related monitoring programs and any consequential adaptive management, where applicable. NWP is available to explore the possibilities of having monitoring programs incorporate traditional knowledge or similar study methodologies as they can contribute to achieving defined monitoring program objectives.

Using an adaptive management plan, the follow-up strategies and the monitoring programs will be periodically evaluated for effectiveness and the appropriateness of their elements, and the parameters being measured and reported. This evaluation will be done in consultation with the appropriate regulatory agencies and the results of these strategies and programs will be analyzed. If any elements of the follow-up strategies and the monitoring programs warrant adjustment to meet the aim and intent, then in consultation with regulatory agencies, the strategies and the programs may be adjusted.

It is anticipated that as a condition of the approval of the Project, the results of the follow-up strategies, and the monitoring programs or measures being conducted must be reported to the appropriate regulatory agencies, both federal and provincial. All data and information gathered as part of each management plan, follow-up strategy and/or monitoring program will be documented using the protocols

established for each parameter. These protocols were established during the collection of the baseline information and the manner in which they were recorded at that time will be used during the adaptive management plans, follow-up strategies and/or monitoring programs to allow for a proper comparison of the results. Reporting will continue so long as there are follow-up and monitoring activities in place. Once these activities have verified the environmental effects predictions and/or the effectiveness of the mitigation measures, and compliance with required mitigation, the follow-up strategies and the monitoring programs will cease, and reporting will no longer be required. Monitoring for compliance with regulatory permits will continue for as long as is required by the responsible permitting authority.

24.12 References

Aboriginal and Treaty Rights Information System. (2020). *ATRIS Search.* https://sidait-atris.aadnc-aandc.gc.ca/atris_online/Content/Search.aspx

B.C. Conservation Data Centre (B.C. CDC). (n.d.). *BC Species and Ecosystems Explorer.* B.C. Ministry of Environment, Victoria B.C. http://a100.gov.bc.ca/pub/eswp/

B.C. Environmental Assessment Office. (2020). *Summary of Engagement: Castle Project*, July 31, 2020.

Benga Mining Limited. (2019a). *Joint Review Panel Request for Additional Information Response Package Addendum 10. Package 4: Treaty rights, Land Use and Culture and Human Health.* https://open.alberta.ca/dataset/731ed235-94a9-4092-9e21-8266c19a7c1b/resource/1e83ad3e-03f3-47a1-9b71-d230b64414ff/download/addendum10-pkg4-indigenousrightslandusecculturehumanhealth.pdf

Benga (Benga Mining Limited) Riversdale Resources. (2019b). *Benga Mining Limited Grassy Mountain Coal Project: Joint Review Panel Request for Additional Information – Traditional Land Use – Addendum 9*

British Columbia Assembly of First Nations. (2021). *First Nations in BC: Shuswap*. British Columbia Assembly of First Nations https://www.bcafn.ca/first-nations-bc/kootenay/shuswap

British Columbia Government (B.C.). (2021). *Kootenay-Boundary Land Use Plans*. Ministry of Forests, Lands and Natural Resource Operations. Website. https://www2.gov.bc.ca/gov/content/industry/crown-land-water/land-use-planning/regions/kootenay-boundary/kootenay-boundary-rlup

British Columbia Environmental Assessment Office. (2018*). Application Information Requirements.* Crown Mountain Coking Coal Project proposed by NWP Coal Canada Ltd. Updated April 26, 2018.

British Columbia Indigenous Business and Investment Council. (2002). *Sharing Success: Shuswap Band*. British Columbia Indigenous Business and Investment Council. https://www.bcibic.ca/success-stories/shuswap-indian-band/

British Columbia Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNRORD). (2021). *Archaeology & heritage conservation: Potential approval, permit or code of practice requirements.* https://www2.gov.bc.ca/gov/content/transportation/transportation-infrastructure/engineering-standards-guidelines/environmental-management/reference-documents/environmental-regulatory-compliance/archeology-heritage-conservation

British Columbia Ministry of Sustainable Resource Management. (2005). *Cranbrook West Recreation Management Strategy.* Government of British Columbia. https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/natural-resource-use/land-water-use/crown-land/land-use-plans-and-objectives/kootenayboundary-region/cranbrookwest-rms/cranbrookwest_rms_plan.pdf

Canadian Environmental Assessment Agency. (2015). *Guidelines for the preparation of an environmental impact statement pursuant to the Canadian environmental assessment act, 2012, Crown Mountain Coking Coal Project, NWP Coal Canada Ltd*. https://iaac-aeic.gc.ca/050/evaluations/document/132452

CEAA-MCFN (Canadian Environmental Assessment Agency – Mikisew Cree First Nation). (2018). *Methodology for Assessing Potential Impacts on the Exercise of Aboriginal and Treaty Rights of the Proposed Frontier Oil Sands Mine Project*.

Candler, C. (2020). *Ktunaxa Nation Council Recommended Minimum Standards for Proponents in Determining Significance of Effects in Environmental Assessments (EAs) in the Elk Valley.* Draft Technical Memorandum. Version 1.1. Reciprocity Research Inc. Ktunaxa Nation Council: Cranbrook, British Columbia.

Choquette, W.T. (2012). *Archaeological overview assessment of the Crown Mountain Coal Project.* Jameson Resources.

Choquette, W.T. (2014). *Archaeological overview assessment of the Crown Mountain Coal Project local study area.* Jameson Resources, Tipi Mountain Eco-Cultural Services Ltd.

Cristescu, B., Senhouse, G. B., Symbaluk, M., and Boyce, M. S. (2011). Land-use planning following resource extraction- Lessons from grizzly bears at reclaimed and active open-pit mines [Paper presentation]. British Columbia Mine Reclamation Symposium, University of British Columbia. https://dx.doi.org/10.14288/1.0042615

Demarchi, R. A., Hartwig, C. L., and Demarchi, D. A. (2000). *Status of the Rocky Mountain bighorn sheep in British Columbia.* British Columbia Ministry of Environment, Lands and Parks. https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.500.5643&rep=rep1&type=pdf

Elk Valley Cumulative Effects Management Framework Working Group (EV-CEMF). (2018). *Comprehensive Report: Elk Valley Cumulative Effects Assessment and Management Report.* British Columbia Ministry of Forests, Lands, Natural Resource Operations and Rural Development - Kootenay Boundary Region. Released December 2018. https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/cumulative-effects/final_elk_valley_ceam_12122018.pdf

First Nations Health Authority. (2020). *About the FNHA*. First Nations Health Authority. https://www.fnha.ca/about

First Nations Health Council. (2011). *Implementing the Vision: BC First Nations Health Governance, Reimagining First Nations Health in BC*. First Nations Health Council. https://www.fnha.ca/Documents/FNHC_Health_Governance_Book.pdf

First Nations Health Directors Association. (2020). *FNHDA Annual Report 2019-2020.* First Nations Health Directors Association. http://fnhda.ca/wp-content/uploads/FNHDA-Annual-Report-2019-20.pdf

First Nations Leadership Council. (2007). *Tripartite First Nations Health Plan*. First Nations Leadership Council. https://www.fnha.ca/Documents/TripartiteFNHealthPlan.pdf

FirstVoices. (2020). *Secwépemctsín – The Language of the Secwépemc from British Columbia*. Secwépemctsín: About our Language. Secwépemc Home Page. An Initiative of First Peoples' Cultural Council. Website. https://www.firstvoices.com/explore/FV/sections/Data/Secwepemc/Secwepemctsin/Secwepemc/learn

Food and Agriculture Organization of the United Nations (FAO). (2016). *Policy Brief: Food Security*. June 20016, Issue 2. Available at: https://www.fao.org/fileadmin/templates/faoitaly/documents/pdf/pdf_Food_Security_Cocept_Note.pdf

George, H., Gorman, W. A., and VanDine, D. F. (1987). *Late Quaternary geology and geomorphology of the Elk Valley, southeastern British Columbia*. Canadian Journal of Earth Sciences, 24(4), 741-751. https://doi.org/10.1139/e87-072

Gibson, C. and Sheets, D. (1997). *Natal Ridge elk study*. Elkview Coal Corporation.

Government of British Columbia (BC). (2019). *Secwépemc – B.C. Government to Government (Qwelminte) Letter of Commitment.* Secwépemc – B.C. Government. https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/consulting-with-first-nations/agreements/secwepemc_g2g_loc_with_iea__signed.pdf

Government of British Columbia (BC). (2021). *Declaration on the Rights of Indigenous Peoples Act*. BC News. Website. https://www2.gov.bc.ca/gov/content/governments/indigenous-people/new-relationship/united-nations-declaration-on-the-rights-of-indigenous-peoples

Government of Canada. (2021a). *National Inventory Report: Greenhouse Gas Sources and Sinks in Canada*. Government of Canada Publications. https://publications.gc.ca/site/eng/9.506002/publication.html

Government of Canada. (2021b). *Short-term drinking water advisories*. Water in First Nations communities. https://www.sac-isc.gc.ca/eng/1562856509704/1562856530304

Ignace, M. B., Turner, N. J., & Peacock S. L. (Eds.). (2016). *Secwepemc People and Plants: Research Papers in Shuswap Ethnobotany.* Society of Ethnobiology and Shuswap Nation Tribal Council.

Ignace, M. & Ignace R. E. (2017). *Secwépemc People, Land, and Laws: Yeri7 Re Stsq'ey's-Kucw*. McGill-Queen's University Press, Montreal and Kingston, Canada. Pp 588. ISBN 978-0-7735-5130-5

Impact Assessment Agency of Canada formerly Canadian Environmental Assessment Agency (IAAC). (2015a). *Letter to Chief Kathryn Teneese and Council: Re: Consultation Work Plan for the Federal Environmental Assessment of Proposed Crown Mountain Coking Coal Project.* February 20, 2015.

Impact Assessment Agency of Canada. (2015b). *Letter to Chief Barbara Cote Re: Consultation Work Plan and Funding for the Federal Environmental Assessment of Proposed Crown Mountain Coking Coal Project.* February 20, 2015.

Impact Assessment Agency of Canada. (2015c). *Letter to Mr. William Snow Re: Consultation Work Plan and Funding for the Federal Environmental Assessment of Proposed Crown Mountain Coking Coal Project*. February 20, 2015.

Impact Assessment Agency of Canada. (2015d). *Letter Christopher Gall: Re: Consultation Work Plan and Funding for the Federal Environmental Assessment of Proposed Crown Mountain Coking Coal Project*. February 20, 2015.

Impact Assessment Agency of Canada. (2020a). *Letter to Mae Price JFK Law Practice: Re: The Federal Environmental Assessment of the Crown Mountain Coking Coal Project (Kainai).* June 29, 2020, by email only.

Impact Assessment Agency of Canada. (2020b). *Letter to Mae Price JFK Law Practice: Re: The Federal Environmental Assessment of the Crown Mountain Coking Coal Project (Siksika).* June 29, 2020, by email only.

Impact Assessment Agency of Canada. (2020c). *Letter to Mike Allen NWP Coal Canada Ltd.: Re: Addition of Indigenous Groups to Engage on the Crown Mountain Coking Coal Project.* March 16, 2020, by email only.

Impact Assessment Agency of Canada. (2020d). *Castle Project Summary of Issues.* June 29, 2020.

Impact Assessment Agency of Canada. (2020e). *Castle Project Summary of Issues.* November 13, 2020.

Impact Assessment Agency of Canada. (2021a). *Letter to Chief Stanley Grier and Council: Re: The Federal Environmental Assessment of the Crown Mountain Coking Coal Project*. May 10, 2021, by email only.

Impact Assessment Agency of Canada. (2021b). *Letter to Chief Roy Whitney Onespot and Council Re: The Federal Environmental Assessment of the Crown Mountain Coking Coal Project.* May 10, 2021.

Impact Assessment Agency of Canada. (2021c). *Letter to Lawrence Gervais: Re: The Federal Environmental Assessment of the Crown Mountain Coking Coal Project.* May 10, 2021.

Impact Assessment Agency of Canada. (2021d). *Report of the Joint Review Panel.* Benga Mining Limited. Grassy Mountain Coal Project. Crowsnest Pass. June17, 2021 https://www.acee.gc.ca/050/documents/p80101/139408E.pdf

Impact Assessment Agency of Canada (IAAC). (2022a). *Letter to Chief Barbara Cote and Council: Re: The Federal Environmental Assessment of the Crown Mountain Coking Coal Project*. January 26, 2022, by email only.

Impact Assessment Agency of Canada (IAAC). (2022b). *IAAC Guidance: Assessment of Potential Impacts on the Rights of Indigenous Peoples*, updated 2022 (IAAC, 2022).

Integrated Ecology Group (IEG) and ALCES Group, LTD. (2018). *Cumulative Effects Assessment for Kainai First Nation.* Prepared for Kainai First Nation and JFK Law. Project No. JFLBBS-18. November 9, 2018. https://registrydocumentsprd.blob.core.windows.net/commentsblob/project-81540/comment-55767/IEG%20-%20Cumulative%20effects%20assessment%20for%20Kainai%20First%20Nation%20-%20November%2015%202018.pdf

Irwin, R. (2018). *Aboriginal Title*. The Canadian Encyclopedia, Website. https://www.thecanadianencyclopedia.ca/en/article/aboriginal-title

Katay, F. (2017). *Exploration and mining in the Southeast Region, British Columbia in: Provincial overview of exploration and mining in British Columbia, 2016.* British Columbia Ministry of Energy and Mines. http://cmscontent.nrs.gov.bc.ca/geoscience/PublicationCatalogue/InformationCircular/BCGS_IC2017-01-03.pdf

Kootenay Inter-Agency Management Committee. (1997). *Kootenay/Boundary Land Use Plan Implementation Strategy.* Published June 1997. https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/natural-resource-use/land-water-use/crown-land/land-use-plans-and-objectives/kootenayboundary-region/kootenayboundary-rlup/kootenayboundary_rlup_implementation_strategy.pdf

Kuhnlein, H. V., et al. (2016). *Nutrients in Selected Secwépemc Traditional Food Species*. In Ignace M.B., et al. (Eds.), Secwepemc People and Plants: Research Papers in Shuswap Ethnobotany (Chapter 6). Shuswap Nation Tribal Council and Society of Ethnobiology.

Ktunaxa Kinbasket Child & Family Services (KKCFSS). (2021). *What We Do*. Ktunaxa Kinbasket Child & Family Services (KKCFSS): About. Website. https://kkcfss.org/about/

Lotic Environmental. (2020). *Crown Mountain Coking Coal Project – Fish and fish habitat baseline assessment report.*

Massey, N.W.D, MacIntyre, D.G., Desjardins, P.J., and Cooney, R.T. (2005). *Digital geology map of British Columbia: Whole province [GeoFile 2005-1].* British Columbia Ministry of Energy and Mines.

McKay, Hon. J. (2021). *Systemic Racism in Policing in Canada: Report of the Standing Committee on Public Safety and National Security*. House of Commons, Canada, 43rd Parliament, 2nd Session.

Meidinger, D. V., & Pojar, K. (1991). *Ecosystems of British Columbia*. Government of British Columbia.

Ministry of Attorney General. (2007). *New Afton Copper Gold Project: Review of Historical and Ethnographic Sources Relating to Aboriginal Use and Occupation of the Site Area by Kamloops and Skeetchestn Indian Bands*. October 1, 2007. BC, Canada: Ministry of Attorney General: Aboriginal Research Division. https://docs2.cer-rec.gc.ca/ll-eng/llisapi.dll/fetch/2000/90464/90552/548311/956726/2392873/3614457/3615225/3635590/3718816/A96434-9_Exhibit_E_-_A6L5U0.pdf?nodeid=3718818&vernum=-2

Ministry of Sustainable Development. (2002). *Kootenay-Boundary Higher Order Plan*. Government of British Columbia. https://kootenayspatial.ca/pg_hlpo/pdf/KBHLPOrder0925.pdf

Morrison D. (2008). B*C Food Systems Network – Working Group on Indigenous Food Sovereignty: Final Activity Report*. March 2008. Available at: http://www.indigenousfoodsystems.org/sites/default/files/resources/WGIFS_Final_Report_March_08.pdf

Mowat, G., Conroy, C., Podrasky, K., Morgan, D., Davies, R., MacDonald, R., Chow, E., van Rensen, C., and Ayele, T. (2018). Grizzly bear cumulative effects assessment report: Elk Valley, Kootenay-Boundary Region. Elk Valley Cumulative Effects Management Framework. https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/cumulative-effects/final_ev-cemf_grizzly_bear_cea_report_edited_20180524.pdf

National Energy Board (NEB): Oral Presentation from Chief Ignace. (2014). *Trans Mountain Pipeline ULC: Trans Mountain Expansion Project*. Hearing Order OH-001-2014. November 19, 2014. Kamloops, BC, Canada. https://docs2.cer-rec.gc.ca/ll-eng/llisapi.dll/fetch/2000/90464/90552/548311/956726/2392873/3614457/3615225/3635590/3718816/A96434-26_Exhibit_U_-_A6L5V7.pdf?nodeid=3718920&vernum=-2

Native Women's Association of Canada. (2020). *Indigenous Women and Impact Assessment Final Report.* https://nwac.ca/assets-knowledge-centre/NWAC-Impact-Assessment-Final-Report-ENG-2020.pdf

Northern Shuswap Tribal Council. (2018). *Northern Secwépemc Nation te Qelmucw Treaty Negotiations Agreement in Principle*. https://nstq.ca/wp-content/uploads/2019/07/NStQ_AIP_July2018.pdf

Parish, R.; Coupé, R.; & Lloyd, D. (1996). *Plants of southern interior British Columbia*. Vancouver, BC: Lone Pine.

Peacock, S. L., et al. (2016). *Stewardship of Land and Resources*. In Ignace M.B., et al. (Eds.), Secwepemc People and Plants: Research Papers in Shuswap Ethnobotany (Chapter 5). Shuswap Nation Tribal Council and Society of Ethnobiology.

Poole, K., Teske, I., Podrasky, K., Berdusco, J., Conroy, C., MacDonald, R., Davies, R., Schwantje, H., Chow, E., VanRensen, C., and Ayele, T. (2018). *Bighorn sheep cumulative effects assessment report: Elk Valley, Kootenay-Boundary Region*. https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/cumulative-effects/ev-cemf_bighorn_sheep_cea_report_20190325_draft.pdf

Poole, K. G., and Ayotte, J. (2019). *Kootenay Region bighorn sheep management plan: Draft for discussion.* Aurora Wildlife Research. https://ferniergc.com/documents/Kootenay%20BHS%20Draft%20mgmt%20plan%20%2023Apr19.pdf

Province of British Columbia. (2009). *British Columbia Air Quality and Health Benefits Report.* Prepared by Environ. https://www2.gov.bc.ca/assets/gov/environment/air-land-water/air/reports-pub/air-quality-health-benefits-report.pdf

Province of British Columbia. (2021). *Provincial greenhouse gas emissions inventory, 1990-2019 [Data set].* https://www2.gov.bc.ca/gov/content/environment/climate-change/data/provincial-inventory

Qwelminte Secwépemc (QS). (2021). Qwelminte Secwépemc Governance. Website. https://www.qwelminte.ca/governance

Rocky Mountain School District #6. (2020). *Aboriginal Education Program.* Rocky Mountain School District #6=. https://www.sd6.bc.ca/Departments/Aboriginal%20Education/Pages/default.aspx#/=

Rocky Mountain School District #6. (2019). *Aboriginal Education Enhancement Agreement Fall 2019 Update.* Rocky Mountain School District #6. https://www.sd6.bc.ca/Departments/Aboriginal%20Education/Documents/SD6%20Enhancement%20Agreement%20Nov%202019%20Update.pdf

Secwépemc Cultural Education Society. (2020). *About Us*. SECWEP. https://secwep.org/about-us

Shuswap Band. (2008). *Re Tsqwatstens-kucw ne Csaliken': Our People between the Two Mountain Ranges – Shuswap Band Traditional Land Use Study.* Shuswap Band. https://sidait-atris.aadnc-aandc.gc.ca/atris_online/Content/DocumentContentViewer.aspx?id=9EEEB550A5C54E28BD43D2301516C747

Shuswap Band. (2014a). *Shuswap Band Land Code.* http://www.shuswapband.net/wp-content/uploads/2019/09/LandCode.pdf

Shuswap Band. (2014b). *Shuswap Band Forest and Range Consultation and Revenue Sharing Agreement*. Government of British Columbia. https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/consulting-with-first-nations/agreements/shuswap_fcrsa_executed_oct_1_2014.pdf

Shuswap Band. (2017). *Policy #B.03: Shuswap Band Financial Assistance Pol*icy. Shuswap Band. http://www.shuswapband.net/wp-content/uploads/2019/09/SIB-Fin_Assistance_Policy-2017-11-21.pdf

Shuswap Band. (2018a). *2018 Election Information.* Shuswap Band. http://www.shuswapband.net/wp-content/uploads/2019/09/Election_Info.pdf

Shuswap Band. (2018b). *Shuswap Land Use Plan.* Shuswap Band.

Shuswap Band. (2018c). *Social Housing Policy*. Shuswap Band. http://www.shuswapband.net/wp-content/uploads/2019/09/Shuswap-Band-Social-Housing-Policy-FINAL-2018-03-28.pdf

Shuswap Band. (2020a). *Shuswap Band Policies and Procedures.* Shuswap Band. http://www.shuswapband.net/laws-policies-procedures/

Shuswap Band. (2020b). *Shuswap Band Request for Participation in the Grassy Mountain Coal Project's Impact Assessment Process*.

Shuswap Band. (2020c). *Shuswap Band Chief and Council.* Shuswap Band. http://www.shuswapband.net/huswap-band-chief-and-council/

Shuswap Band (SIB). (2021). *Shuswap Band Initial Review of Crown Mountain Coking Coal Project's Draft EIS Chapter*. Chief Barbara Cote. Dated November 5, 2021.

Shuswap Band. (n.d.). *Health Programs*. Shuswap Band. Website. http://www.shuswapband.net/health-programs/

Shuswap Nation Tribal Council. (2017). *Secwépemc Governance: Community Engagement Sessions Findings* (March 2017), P 5.

Shuswap Nation Tribal Council (SNTC). (2018a). *Secwépemc Lands and Resources Analysis.* Indigenous Law Research Unit. University of Victoria. https://www.uvic.ca/law/assets/docs/ilru/SNTC%20Law%20Book%20July%202018.pdf

Shuswap Nation Tribal Council (SNTC). (2018b). *Telling the RELAW Story.* The Relaw Project: Revitalizing Indigenes Law for Land, Air & Water. West Coast Environmental Law. https://www.wcel.org/sites/default/files/publications/2018-sntc-relawstory-final.pdf

Shuswap Nation Tribal Council. (2020a). *About the Shuswap Nation Tribal Council.* Shuswap Nation. https://shuswapnation.org/

Shuswap Nation Tribal Council. (2020b). *Secwepemc Fisheries Commission*. Shuswap Nation. https://shuswapnation.org/fisheries/

Shuswap Nation Tribal Council and Society of Ethnobiology. (2016). *Secwepemc People and Plants: Research Papers in Shuswap Ethnobotany.* Contributions in Ethnobiology.

Statistics Canada. (2016). *Canada Census Profile 2016: Shuswap, Indian Reserve*. https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/details/page.cfm?Lang=E&Geo1=CSD&Code1=5901806&Geo2=PR&Code2=35&Data=Count&SearchText=Shuswap&SearchType=Begins&SearchPR=01&B1=All

Statistics Canada. (2022). *Census Profile*. 2021 Census of Population. Statistics Canada Catalogue no. 98-316-X2021001. Ottawa. Released July 13, 2022. https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/index.cfm?Lang=E

Teck Resources Limited (Teck). (2014a). Elk Valley Water Quality Plan. Ensuring the health of the watershed and supporting continued, sustainable mining in the Elk Valley. Submitted July 22, 2014.

Teck Coal Limited. (2014b). Annex J: *Fording River operations- Swift project: Wildlife and wildlife habitat baseline report*. Matrix Solutions Inc.

Teit, J. (1909). *The Shuswap*. Memoirs of the American Museum of Natural History, II:VII. New York, NY: American Museum of Natural History. Leiden: Brill. 443-789pp.

Tk'emlúps te Secwépemc (Tk'emlúps). (2021). *Tk'emlúps te Secwépemc: Our Land*. Website. https://tkemlups.ca/profile/history/our-land/

United Nations (UN). (2007). *United Nations Declaration on the Rights of Indigenous Peoples: Resolution / Adopted by the General Assembly*, 2 October 2007, A/RES/61/295. Retrieved January 26, 2021 from https://www.refworld.org/docid/471355a82.html

Williams Lake First Nation (WLFN). (2021). *History: We Are T'exelcemc* (Williams Lake Nation People), Members of the Secwépemc Nation – Seswepence Land Use Patterns. Website. https://www.wlfn.ca/chief-council/history/

Wollstonecroft, M. M., & Baptiste G. (2016). *Linking the Archaeology and Ethnobotany: An interpretation of ancient Plant Remains from Stk'emlupsemc Traditional Territory*. In Ignace M.B., et al., (Eds.), Secwepemc People and Plants: Research Papers in Shuswap Ethnobotany (Chapter 4). Society of Ethnobiology and Shuswap Nation Tribal Council.