NWP Coal Canada Ltd

Chapter 34 – Summary and Conclusions

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

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34. Summary and Conclusions

34.1 Introduction

NWP Coal Canada Ltd (NWP) has prepared an Application for an Environmental Assessment Certificate/Environmental Impact Statement (Application/EIS) to identify and assess potential effects resulting from the proposed Crown Mountain Coking Coal Project (Project). The Application/EIS follows the guidelines and requirements pursuant to the provincial *Environmental Assessment Act, 2018* and the federal *Canadian Environmental Assessment Act, 2012*. The Application/EIS has been prepared to meet the requirements of the provincial Application Information Requirements (AIR; Environmental Assessment Office [EAO], 2018), and the federal Environmental Impact Statement Guidelines (EIS Guidelines; Canadian Environmental Assessment Agency [CEAA], 2015) issued for the Project, as well as applicable government policy, standards, and guidance.

Valued Components (VCs) assessed in the Application/EIS were scoped into the assessment process through the provincial Pre-Application process and associated requirements, including the Valued Components for Environmental Assessment (NWP, 2016) and related guidance document (EAO, 2013) and the Project AIR (EAO, 2018a). As well, consultation with Indigenous groups, governments, and the public and stakeholders (e.g., Interest group, local government, tenure and license holders, members of the public) informed VC selection early in the Project process as through preparation of the Application/EIS. VCs were also scoped into the assessment based on the federal terms of reference for the Project, specifically the EIS Guidelines (CEAA, 2015). In the context of the *Canadian Environmental Assessment Act, 2012* (CEA Act, 2012), VCs are selected to identify and analyze environmental effects under federal jurisdiction as described in Section 5 of the Act.

34.2 Summary of Consultation

NWP is committed to creating and sustaining relationships and ongoing dialogue with regulators, communities, Indigenous communities, and stakeholders to support the environmental, social, and economic sustainability of the Project. Consultation has been and will continue to be a key component of Project development, and to date has focused on three broad groups: Indigenous communities, public stakeholders (e.g., local governments, members of the public, non-governmental organizations), and government agencies. Consultation undertaken for the Project was conducted in accordance with the

provincial Public Consultation Policy Regulation (B.C Reg. 373/2002), the Project Section 11 and Section 13 Orders (issued May 27, 2015 and October 30, 2020, respectively), and the federal *Canadian Environmental Assessment Act, 2012*.

34.2.1 Indigenous Communities Consultation and Engagement

NWP has taken, and continues to take, a proactive and inclusive approach to engagement and partnership with Indigenous communities associated with the Project. NWP has engaged with the Ktunaxa Nation Council[1] (KNC), who represent the Tobacco Plains Band, St. Mary's Band, Lower Kootenay Band, and the ?Akisq'nuk First Nation, through identified consultation and engagement activities since 2012. Engagement has been via site tours, in-person meetings, calls/conference calls, letters, and emails. The KNC has provided input to a wide range of Environmental Assessment (EA) process-related tasks and documents including: Project Description; Indigenous Consultation Plan; Valued Components Document; and Application Information Requirements. In addition, the KNC has been involved with discussions related to overall Project design, and provided input to baseline programs, data analysis and modelling, and Application development.

NWP has also engaged with the Shuswap Indian Band, Stoney Nakoda First Nations, Métis Nation of British Columbia, Kainai First Nation (Blood Tribe), Piikani Nation, Siksika Nation, Tsuut'ina Nation, and Métis Nation of Alberta Region 3, in consideration of the designation of level of consultation identified by IAAC. Engagement has been via site tours, in-person meetings, calls/conference calls, letters, and emails. NWP has provided Project information to each of the Nations including the Project-specific archaeological reports. Each of these communities was provided draft sections of the Application/EIS for review prior to submission by NWP. Several Indigenous communities have also participated in site tours, with additional site tours planned for the summer of 2022.

Throughout the EA process, Indigenous Communities and groups have provided comments and input related to the Project. At the time of the submission of this Application/EIS, with the exception of Tsuut'ina Nation, the identified Indigenous Communities have yet to provide a Traditional Knowledge/Traditional Land and Resource Use study for the Project. General themes of issues and concerns raised to date by Indigenous communities include archaeology/ heritage resources; water quality; fish and fish habitat; wildlife and wildlife habitat; land use; and potential cumulative effects.

Engagement with all Indigenous Communities is ongoing.

34.2.2 Public and Stakeholder Consultation and Engagement

NWP recognizes that the proposed Project has the potential to affect local communities and a variety of public stakeholders. As such, NWP has actively engaged with individuals, groups, and local communities throughout the life of the Project and the pre-Application phases. NWP developed a public and stakeholder consultation and engagement program with the primary objective to effectively and proactively communicate information about the proposed Project and involve those who may be potentially affected by, or have an interest in, the Project. The Public Consultation Program developed for

[1] For simplicity, Ktunaxa Nation or Ktunaxa Nation Council will be used as inclusive terms that incorporate the Yaq̓it ʔa·knuqƛi 'it First Nation (ʔakink'umƛasnuqƛiʔit or Tobacco Plains Band), akisq'nuk First Nation (Columbia Lake Band), ʔaq'am (St. Mary's Band), and Yaqan Nu?kiy (Lower Kootenay Band), unless there is information specific to the perspective of one group.

the Project is designed to meet the requirements outlined in the Province of British Columbia's (B.C.) Public Consultation Policy Regulation (B.C. Reg. 373/2002) and the consultation provisions described in the B.C. EAO environmental assessment review procedures ordered under Section 11 of the B.C. *Environmental Assessment Act* (2002).

Public stakeholders include residents of local communities, recreational users or those with recreational interest (e.g., hikers, hunters), community and public interest groups, and those with commercial interests (e.g., other mineral tenure holders in the area). Engagement has occurred on a number of fronts including during public comment periods, a public Open House, and direct meetings and correspondence, as a variety of other public events (e.g., Coal Miner Days). NWP has also engaged the public via social media, several online surveys, and quarterly Project newsletters.

General themes of issues and concerns raised to date by public stakeholders include: water quality; fish communities; wildlife and connectivity of wildlife; greenhouse gas (GHG) emissions; and access to existing recreational infrastructure.

NWP is committed to working with local communities and stakeholders in a respectful and transparent manner to ensure that relevant information is collected to guide Project development. Engagement with public and stakeholders is ongoing.

34.2.3 Government Agencies Consultation and Engagement

NWP has engaged at the local, provincial, and federal levels with representatives from government agencies regarding the proposed Project, with the aim of providing opportunities to learn about the Project as well as to identify any issues, concerns and interests relating to the Project in the context of relevant provincial and federal policies and legislation.

Engagement with government agencies has taken a number of forms, including: calls/meetings to provide Project-related information; scheduled calls with the EAO and Impact Assessment Agency of Canada (IAAC, formerly the Canadian Environmental Assessment Agency); agency specific calls/discussions related to baseline programs; Working Group and sub-Working Group (e.g., terrestrial, aquatic, geochemistry/water quality) meetings; and open houses (included participation of EAO and IAAC representatives). NWP worked closely with the EAO, IAAC, and other supporting regulatory agencies to develop a range of EA process-related documents including: Project Description; Valued Components Document; First Nations Consultation Plan; Public Consultation Plan; and Application Information Requirements.

General themes of issues and concerns raised include: water quality; aquatic habitat; wildlife and wildlife habitat; vegetation; geochemistry and mine rock management; land use; traditional land use; Indigenous rights; and potential cumulative effects.

NWP will continue to work with regulators at all levels, in particular the Working Group during the upcoming Screening/Conformity Review and the Application/EIS review phase of the provincial and federal EA processes.

34.3 Summary of Project, Residual, and Cumulative Effects

The Application/EIS provides detailed assessments of potential effects on VCs that may occur as a result of the Project as well as the mitigation measures to avoid, minimize, reclaim, and compensate and offset Project-related effects. Project effects that were predicted to remain despite the implementation of mitigation measures were considered residual effects. Criteria were used to characterize residual effects identified in the Application/EIS and included: duration; magnitude; geographic extent; frequency; reversibility; and context. The Application/EIS evaluated the significance of residual effects for VCs, based on predetermined significance thresholds identified for each VC or VC group. Residual effects on VCs were ranked as 'not significant' or 'significant'. The primary criteria considered in determining significance of a residual effect was similar to the residual effects assessment criteria and was supported by a variety of guidance documents, including *Determining Whether a Project is Likely to Cause Significant Adverse Environmental Effects* (CEAA, 2018) 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* (KNC, 2020). The confidence of the prediction of the significance of residual effects is presented as well as likelihood which was only presented for those effects in which a significant residual effect was predicted. Potential cumulative effects were assessed for VCs that had an identified residual effect resulting from the Project and in those instances, the significance of residual cumulative effects was determined.

The Application/EIS identifies the following potential significant residual Project-related effects:

- Westslope Cutthroat Trout instream habitat loss due to mine design and development and Westslope Cutthroat Trout habitat loss due to changes in water quality; and
- Old growth and mature forest abundance and distribution.

No significant adverse residual cumulative effects resulting from the Project were identified. Table 34.3-1 summarizes key information related to Project effects, mitigation measures to address effects, potential residual effects and the significance of the residual effects, and cumulative effects and the significance of residual cumulative effects.

Table 34.3-1: Conclusions – Project, Residual, and Cumulative Effects

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
Air Quality	Change in Ambient Criteria Air Contaminant Concentrations	Project activities such as the construction of facilities and infrastructure, construction and upgrading of access and haul roads, blasting, transportation of soil, raw coal, mine rock, and coal rejects, use of heavy equipment, and operation of vehicles have the potential to affect air quality due to the generation of fugitive dust and other criteria air contaminants (CACs) such as oxides of nitrogen (NOx), carbon monoxide (CO), sulphur dioxide (SO_2) during the Project.	• CPP • O • RC	• Implementation of the Air Quality and Greenhouse Gas Management Plan and Soil Management Plan • The layout of the site has been designed to minimize travel distances in order to reduce vehicle travel distances and speeds that would result in additional generation of CAC emissions • Limit CAC emissions through the application of standard industry practices and emissions control measures • Conduct regular inspections to ensure control measures are effective and functioning properly • Limit the mine disturbance footprint through Project design and progressive reclamation	Yes	Duration: Long-term Magnitude: Moderate to High Geographic Extent: Local Frequency: Regular to continuous Reversibility: Reversible long-term Context: Neutral	Not Significant (Low)	Duration: Long-term Magnitude: Moderate to high Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible long-term Context: Neutral	Not Significant (Moderate)
Greenhouse Gases	Change in Greenhouse Gas Emissions	Project activities such as vehicle, mobile, and stationary equipment use, land clearing activities, construction of facilities and infrastructure, and blasting, have the potential to affect greenhouse gas emissions due to the generation of GHGs such as carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) during all phases of the Project.	• CPP • O • RC	• Implementation of the Air Quality and Greenhouse Gas Management Plan • Use of hyperbaric drying rather than thermal drying. • Enforcement of low speed limits for vehicular traffic throughout the site • Inspect and maintain all vehicles and combustion equipment per manufacturer recommendations and operate within regulatory requirements • Limit long-term idling; where possible • Limit the mine disturbance footprint through Project design and progressive reclamation	Yes	Duration: Long-term Magnitude: Moderate Geographic Extent: Beyond regional Frequency: Continuous Reversibility: Reversible long-term to irreversible Context: Neutral	Not Significant (High)	Duration: Long-term Magnitude: Low to moderate Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible long-term Context: Neutral	Not Significant (Low)
Acoustic Environment	Change to Acoustic Environment, including Noise and Vibration Levels, due to Construction and Pre-Production Activities	Site preparation and construction activities will affect the acoustic environment, including noise and vibration levels, in addition to the heavy equipment involved (i.e., backhoe, cement trucks, transport trucks, etc.) which emit additional noise and vibration based on their various predicted sound powers and mechanics.	• CPP	• Implementation of the Noise and Vibration Management Plan • Limit construction activities, especially those with high noise impact, to daytime hours • Select equipment for construction activities that is appropriate for the task • Regularly inspect and repair equipment as needed • Utilize standard noise-dampening devices on construction equipment • Discourage unnecessary idling of construction equipment • Perform regular vehicle maintenance and inspections on all Project equipment, including, replacement of old and worn parts	Yes	Duration: Short-term Magnitude: Low Geographic Extent: Local Frequency: Intermittent Reversibility: Reversible short-term Context: High	Not Significant (Moderate)	Duration: Long-term Magnitude: Moderate to high Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible long-term Context: Neutral	Not Significant (Moderate)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				• Inform employees of noise impacts and potential mitigation/control measures through appropriate training • Install and maintain noise mitigation measures, where possible, on and around Project infrastructure • Notify near-by residents prior to construction activities that may generate significant noise for which mitigation may not be feasible					
	Change to Acoustic Environment, including Noise and Vibration Levels, due to Operations Activities	Mining operations including the detonation of explosives, and the loading, hauling, stockpiling, and dumping of coal and mine rock affect the acoustic environment, including noise and vibration levels due to the nature of the activities as well as the transportation of personnel, materials, and consumable items on various roads in and around the Project (i.e., Highway 43, Line Creek Mine Road, Valley Road, and Grave Creek Road).	• O	• Implementation of the Noise and Vibration Management Plan • Regularly inspect and repair equipment as needed including the replacement of old and worn parts • Utilize standard noise-dampening devices on construction and operations equipment • Install and maintain noise mitigation measures, such as silencers, acoustic louvers, and barriers where possible, on and around Project infrastructure • Conduct blasting in batches to reduce frequency rather than in smaller, more frequent blasts • The quantity of charge used per delay will not exceed 2,300 kilograms (kg) throughout the Project and the time delay will not be less than 25 milliseconds (ms)	Yes	Duration: Long-term Magnitude: Moderate Geographic Extent: Local Frequency: Continuous Reversibility: Reversible long-term Context: High	Not Significant (Moderate)	Duration: Long-term Magnitude: Low to moderate Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible long-term Context: Neutral	Not Significant (Low)
Soil Quantity	Loss of Soil Quantity during Clearing and Grubbing, and Soil Salvage Activities	Removal and/or relocation of soil from the Project footprint will alter the thickness and distribution of soils. Soil clearing, grubbing, salvage, and stockpiling activities increase the potential for loss of soil through erosion and sedimentation.	• CPP • O • RC • PC	• Implementation of the Soil Management Plan and Erosion and Sediment Control Plan (ESCP) • Biomass salvage and soil salvage practices • Implement a response plan in the event of a sediment release • Progressive reclamation, soil replacement and revegetation • Erosion control measures such as rough and loose surface preparation and incorporation of woody debris	Yes	Duration: Permanent Magnitude: Low Geographic Extent: Discrete Frequency: Continuous Reversibility: Reversible, long-term Context: Neutral	Not Significant (Moderate)	N/A	N/A
	Loss of Soil during Construction of Development Infrastructure within the Project Footprint	Excavation and compaction during construction of development infrastructure may result in a loss of soil quantity, depth and distribution of soil. Increase in potential for loss of soil through erosion and sedimentation associated with soil disturbance stockpile activities.	• CPP • O • RC • PC	• Engineered controls such as benching, ditching, damming, retention and settling ponds, revegetation and recontouring, slope stabilization, mulching, silt-fencing, designated vehicular and heavy equipment travel areas, and placement of other erosion control	No	N/A	N/A	N/A	N/A

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				features during development of the site, in accordance with the ESCP • Implement a response plan in the event of a sediment release • Conduct regular inspections to ensure control measures are effective and functioning properly • Limit the mine disturbance footprint through Project design and progressive reclamation and revegetation as available					
Soil Quality	Loss of Soil through Erosion associated with Site Drainage and Discharge of Mine Site Water from Sedimentation Ponds	Precipitation events and site drainage may result in loss of soil through erosion and sedimentation to downgradient watercourses. Discharge of mine site water at sedimentation pond discharge locations have the potential to contribute to soil loss through erosion, in the absence of mitigation measures.	• O • RC • PC	• Engineered site drainage directing storm and contact water flow to sediment ponds • Discharge of water from designated discharge points to West Alexander Creek, including implementation of erosion control measures in accordance with the ESCP	No	N/A	N/A	N/A	N/A
	Changes to Soil Quality associated with Dust Deposition	Dust generation is associated with mining operations including development of the pits through detonating explosives, loading, hauling, and dumping of mine rock and coal, processing of coal, and coal reject disposal. Dust generated through these activities has the potential to increase concentrations of metals and other contaminants in soil following deposition, potentially resulting in soil contamination.	• O	• Implementation of the Air Quality and Greenhouse Gas Management Plan and Site Water Management Plan • Efforts to reduce dust generation such as avoiding windy periods, containment and interception, and regular inspections • Minimization strategies include mine site layout design to minimize travel distances and dust generation, low vehicle speed limits, maintenance of the site to reduce dust, and dust suppression from May to November • Generally, processing and handling of coal product is on controlled surfaces or indoors	No	N/A	N/A	N/A	N/A
	Changes to Soil Quality due to Interactions with Seepage and ML/ARD	Mine site drainage water in contact with development infrastructure such as pits and the Mine Rock Storage Facility (MRSF) result in acid generation and metal leaching (i.e., sulphate, calcite, nitrate, and selenium).	• O • RC • PC	• Engineered layering of coal rejects and mine rock at the MRSF, engineered site drainage, and progressive reclamation by re-vegetation and re-sloping • Implementation of the Site Water Management Plan (including Metal Leaching and Acid Rock Drainage Management) for the site, including diversion of storm runoff around mine disturbed areas, where practicable • Conduct regular inspections to ensure control measures are effective and functioning properly	Yes	Duration: Permanent Magnitude: Moderate Geographic Extent: Discrete Frequency: Continuous Reversibility: Irreversible Context: Neutral	Not Significant (Moderate)	N/A	N/A
	Changes to Soil Quality due to Infiltration of Effluent Discharge to Soil from Sedimentation Pond Discharge	Management of sedimentation ponds will include the discharge of water to West Alexander Creek once water quality objectives have been met. Potential adverse effects to soil	• O • RC • PC	• Implementation of the Site Water Management Plan • Engineered site drainage directing storm and contact water flow to sediment ponds	No	N/A	N/A	N/A	N/A

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
	Points and during Pond Decommissioning	quality are related to potential increased concentrations of metals and other contaminants associated with interactions between surface water and soil during discharge of mine effluent.		• Discharge of water from designated discharge points to West Alexander Creek once water quality objectives have been met • Installation of impermeable liners in the Interim and Main Sediment Ponds and appropriate sizing of sediment ponds to minimize seepage losses and convey runoff during storm events					
	Routine use of Hydrocarbon Fuels on Site, Fuel Handling, Dispensing and Transferring	The storage and transport of petroleum hydrocarbon products (e.g., gasoline, diesel, lubricants, hydraulic fluids, and solvents), as well as fueling and maintenance of machinery, heavy equipment, and vehicles, have the potential to affect soil quality in the local vicinity of those activities.	• CPP • O • RC • PC	• Implementation of the Spill Prevention, Control, and Countermeasures Plan • The storage and transfer of fuel will be restricted to designated areas • Implementing procedures for handling and storing fueling and fuel transfer such as appropriate secondary containment infrastructure and training of staff • Conducting regular site and vehicle inspections • Preventative maintenance for all vehicles and equipment on site	No	N/A	N/A	N/A	N/A
Terrain	Changes to Terrain Type, Slope, and Aspect	Logging, clearing, grubbing, soil salvage and stockpiling, and construction of development infrastructure require soil disturbance, and are likely to result in changes to terrain type throughout the Project footprint. Slope hydrology and the distribution of existing slope classes and erosion potential may be affected, which may affect terrain stability,	• CPP • O • RC • PC	• Implementation of the Soil Management Plan and Erosion and Sediment Control Plan • Biomass and soil salvage will be conducted within the Project footprint disturbance areas according to best management practices (BMPs), including segregation of the upper productive soil unit from lower soils • Progressive reclamation including recontouring towards stable post-mine landforms using salvaged soil and biomass, with an emphasis on the creation of both micro- and meso-topography to facilitate diverse ecosystems	No	N/A	N/A	N/A	N/A
	Changes to Terrain Stability resulting in Increased Frequency and Intensity of Geohazards (i.e., rapid and Slow Mass Movement/landslides) through each Project Phase	Changes to terrain type and areas of increased slope from the Project may affect terrain stability, as a result of activities that destabilize surficial materials on slopes.	• CPP • O • RC • PC	• Implementation of the ESCP through avoidance, minimization controls, and on-site restoration • Detailed geotechnical plans required to avoid adverse effects, and design adaptation to address stability issues • Implementation of a response plan in the event of a sediment release • Identification of high risk areas for terrain stability and geohazards, and avoidance of soil disturbance within and downslope • The post-mine terrestrial ecosystem mapping (TEM) ecological treatment has been designed to improve terrain within the Project footprint	No	N/A	N/A	N/A	N/A

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				by reshaping during Reclamation to further prevent geohazards over the long term					
	Changes in Groundwater Quantity from Construction of the Interim Sediment Pond, Main Sediment Pond, and Grave Creek Reservoir	The Project has the potential to affect groundwater quantity through the construction of water management infrastructure (e.g., Interim Sediment Pond, Main Sediment Pond, and Grave Creek Reservoir), detonating explosives, development of pits, dewatering of pits, loading, hauling, and dumping of mine rock at the MRSF, and physical changes to site drainage.	• CPP • O • RC	• Installation of impermeable liners in the Interim and Main Sediment Ponds • Implementation of the Site Water Management Plan	No	N/A	N/A	N/A	N/A
	Changes in Groundwater Quantity from Detonating Explosives, Mining Process and Dewatering of Pits	Alteration to local groundwater conditions due to modification of surface topography by removal of rock mass. As the open pits are mined, drawdown will extend outwards, redirecting groundwater flows towards pits altering runoff patterns / groundwater recharge and reducing groundwater discharge to creek valley bottoms.	• O	• During active mining, dewatering will be carried out using drainage ditches, berms, sumps and pumps to sedimentation ponds. Pit dewatering will be coordinated to meet overall water quality objectives • Groundwater and surface water monitoring • Implementation of the Site Water Management Plan	Yes	Duration: Long-term Magnitude: High Geographic Extent: Local Frequency: Continuous Reversibility: Irreversible Context: Neutral	Not significant (Moderate)	N/A	N/A
Groundwater Quantity	Changes to Groundwater Quantity through Altered Drainage Patterns and Groundwater-Surface Water Interaction associated with Loading, Hauling and Dumping of Mine Rock at the MRSF	The MRSF will affect recharge rates but are not expected to significantly change groundwater flow paths as mine rock piles typically have higher conductivities than natural ground. During operations, infiltration through the dumps is assumed to be double natural recharge (from slow release of storage) and will carry load that can enter the groundwater system. Runoff directed around the MRSF will ultimately still report to the same catchment drainages, as will water infiltrating through these dumps. Groundwater flow quantities may change, but overall flow directions will likely remain similar to baseline conditions.	• CPP • O • RC	• Engineered layering of coal rejects and mine rock at the MRSF, and progressive reclamation by re-vegetation and re-sloping • Groundwater monitoring • Implementation of the Site Water Management Plan	Yes	Duration: Permanent Magnitude: Moderate Geographic Extent: Discrete Frequency: Continuous Reversibility: Reversible Long-term Context: High	Not significant (Moderate)	N/A	N/A
	Changes to Groundwater Quantity due to Use of Water for Use as Primary Process Make-Up Water from the Interim Sediment Pond (Year 1 To 5) and from the North Pit (Year 5 To 15. Grave Creek Reservoir may be Used as	Water table drawdown and other local changes to groundwater flow patterns (flow direction, hydraulic gradient) are anticipated in the immediate vicinity of the ponds and pits. The North Pit will be flooded (at least partially), and limited impact on groundwater flow directions or quantity is anticipated.	• CPP • O	• Groundwater and surface water monitoring • Implementation of the Site Water Management Plan	No	N/A	N/A	N/A	N/A

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
	a Secondary Source of Process Make-Up Water								
	Changes to Groundwater Quantity Associated with Surface Water-Groundwater Interactions During Discharge of Effluent from the Interim Sediment Pond and Main Sediment Pond During Operation and Decommissioning	Potential effects are related to interactions between surface water and groundwater during discharge of mine effluent to West Alexander Creek.	• O • RC	• Installation of impermeable liners in the Interim and Main Sediment Ponds • Implementation of the Site Water Management Plan	No	N/A	N/A	N/A	N/A
	Changes to Water Table Elevation in the Local Vicinity of the Pits Following Reclamation and Filling of Pits to Spill Point Levels	Filling of pits to spill point levels and re-equilibration of the groundwater flow system will occur as the pits are completed, which will occur. Local water levels in the vicinity of the pits will be altered from baseline conditions due to altered surface topography and rock mass removal. Reclamation of mine rock dumps may reduce infiltration to a degree and further modify groundwater recharge within their footprints.	• RC • PC	• Groundwater and surface water monitoring • Implementation of the Site Water Management Plan	Yes	Duration: Permanent Magnitude: High Geographic Extent: Local Frequency: Continuous Reversibility: Irreversible Context: Neutral	Not significant (Moderate)	N/A	N/A
Groundwater Quality	Changes in Groundwater Quality due to Infiltration of Non-Contact Surface Water Runoff to Groundwater During Construction, Site Clearing, and Maintenance and Reclamation Activities	Erosion and sedimentation during site clearing, construction, maintenance, and reclamation activities could result in elevated levels of total suspended solids (TSS) and turbidity in nearby watercourses.	• CPP • O • RC	• Limit erosion and contain sediment through the application of standard industry practices • Conduct regular inspections to ensure control measures are effective and functioning properly • Divert clean runoff around mine disturbed areas, where possible • Capture clean surface water that cannot be diverted in sediment ponds prior to release • Limit the mine disturbance footprint through Project design and progressive reclamation • Groundwater and surface water monitoring • Implementation of the Erosion and Sediment Control Plan and the Site Water Management Plan	No	N/A	N/A	N/A	N/A
	Changes in Groundwater Quality due to Infiltration of Contact Water (i.e., Surface Water and Mine Site Drainage) to Groundwater	Contact water runoff and infiltration to groundwater from mine disturbed areas and infrastructure may increase sediment load and metal leaching potential. Changes to surface water quality via seepage from mine disturbed areas could result in potential changes to groundwater quality. Residues containing nitrogen compounds from blasting can remain on mine rock and excavated	• CPP • O • RC	• Limit the mine disturbance footprint through Project design and progressive reclamation. Control mine site drainage through layered MRSF design and diversion ditches to sedimentation ponds • Equip ponds with impermeable liners to minimize effects of seepage/leakage of pond water to groundwater • Groundwater and surface water monitoring	Yes	Duration: Permanent Magnitude: Low Geographic Extent: Local Frequency: Continuous Reversibility: Reversible Long-Term	Not significant (Moderate	N/A	N/A

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		rock and result in elevated levels of nitrogen compounds in mine site drainage released to the receiving environment. Water from mine dewatering activities released to the receiving environment may contain elevated concentrations of suspended solids or other parameters such as metals and nutrients. Changes to groundwater quantity can affect local groundwater flow rates and redox conditions, which can affect metal loading in groundwater.		• Minimizing the Project footprint, particularly area of exposed soils, minimizes potential wind erosion and dust generation • Follow provincial and federal requirements for the storing and handling of explosives • Collection and disposal of decontamination water off site • Lining all blast holes to keep the ammonium nitrate/fuel oil (ANFO) dry • Minimizing the use of emulsion bulk explosives and limiting the sleep time of a loaded pattern to one week • Optimizing the blast hole size and pattern design • Training of employees to limit spillage of explosive agents on the blast pattern • Implementation of the Erosion and Sediment Control Plan and the Site Water Management Plan		Context: High			
	Routine Use of Hydrocarbon Fuels on Site, Fuel Handling, Dispensing and Transferring	The storage and transport of petroleum hydrocarbon products (e.g., gasoline, diesel, lubricants, hydraulic fluids, and solvents), as well as fueling and maintenance of machinery, heavy equipment, and vehicles, have the potential affect water quality at local drainages and nearby watercourses.	• CPP • O • RC • PC	• The storage and transfer of fuel will be restricted to certain areas • Implementing procedures for handling and storing fueling and fuel transfer • Conducting regular site and vehicle inspections • Preventative maintenance for all vehicles and equipment on site	No	N/A	N/A	N/A	N/A
	Changes in Groundwater Quality from Loading, Hauling and Disposal of Mine Rock and Coal Rejects	Disposal of mine rock and coal rejects through seepage and metal leaching/acid rock drainage (ML/ARD) and infiltration to groundwater, resulting in increased metal loading (i.e., selenium and nitrate) from pit walls and the MRSF within their footprints. Impacted groundwater will discharge to ground surface relatively close to the MRSF.	• CPP • O • RC • PC	• Divert clean runoff around mine disturbed areas, where possible • Capture clean surface water that cannot be diverted in sediment ponds prior to release • Conduct regular inspections to ensure control measures are effective and functioning properly • Engineered layering of the MRSF • Progressive reclamation of the mine rock storage facilities • Implementation of the Erosion and Sediment Control Plan	Yes	Duration: Permanent Magnitude: High Geographic Extent: Local Frequency: Continuous Reversibility: Irreversible Context: Neutral	Not significant (Moderate	N/A	N/A
	Changes in Groundwater Quality from Runoff of Water During Washing Coal and Stockpiling of Coal	Washing of coal may result in potential increased sediment load and metal leaching. Stockpiling of coal also carries the potential for seepage and metal leaching (i.e., sulphate and selenium) from stockpiles.	• O	• Handling of coal product is on controlled surfaces or indoors • Implementation of the Erosion and Sediment Control Plan and Site Water Management Plan	No	N/A	N/A	N/A	N/A

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
	Changes in Groundwater Quality due to Management and Discharge of Sediment Pond Water to West Alexander Creek via Infiltration to Groundwater	Sediment pond discharge to the receiving environment through surface water-groundwater interactions and potential seepage/leakage from pond to groundwater. Discharge from the sediment ponds has the potential to contain elevated concentrations of TSS, selenium, nitrate, and other parameters that will be released to the receiving environment.	• O • RC • PC	• Divert clean, non-contact water away from the sediment ponds where possible • Appropriate sizing of sediment ponds and installation of impermeable liner to minimize seepage losses and convey runoff during storm events • Treat water prior to discharge as required in order to meet effluent standards • Limit the mine disturbance footprint through Project design and progressive reclamation. Monitoring and adaptive management • Implementation of the Erosion and Sediment Control Plan and Site Water Management Plan	Yes	Duration: Long-Term Magnitude: Moderate Geographic Extent: Local Frequency: Regular Reversibility: Reversible, Long-Term Context: Neutral	Not significant (Moderate	N/A	N/A
Surface Water Quantity	Changes to Surface Water Quantity due to Site Construction Activities	Project activities such as the removal of trees (timber), clearing and grubbing, site grading, and the construction of mine site facilities and transportation and drainage infrastructure will alter local topography and cause localized changes to surface water hydrology.	• CPP	• Implementation of the Site Water Management Plan • Segregation and diversion of non-contact surface runoff around mine disturbed areas and water control facilities • Controlling outflows from water management facilities to maintain streamflow conditions in the receiving watercourses to the extent possible, particularly during low flow conditions	Yes	Duration: Short-term Magnitude: Low to High Geographic Extent: Local Frequency: Continuous Reversibility: Reversible long-term Context: Neutral	Not Significant (Moderate)	Duration: Short-term Magnitude: Low Geographic Extent: Local Frequency: Continuous Reversibility: Reversible long-term Context: Neutral	Not Significant (Moderate to High)
	Change to Surface Water Quantity due to Surface Water Withdrawals	The construction of the Grave Creek Reservoir and ongoing surface water withdrawals from Grave Creek have the potential to reduce streamflows in the downstream reaches of Grave Creek.	• O	• Implementation of the Site Water Management Plan • Limiting surface water withdrawals to minimize impacts on streamflows	No	N/A	N/A	N/A	N/A
	Changes to Surface Water Quantity due to Operational Activities	Drainage and water management infrastructure will continue to be constructed and modified to collect, convey, and divert surface runoff within the mine area, along linear infrastructure, and around mine facilities. The Main Sediment Pond is scheduled to be constructed in Year 5, after which the Interim Sediment Pond will be decommissioned. Outflows from the Main Sediment Pond will discharge via a controlled outlet structure to West Alexander Creek, partially restoring streamflow that would otherwise result from sequestering water in the pond.	• O	• Implementation of the Site Water Management Plan • Controlling outflows from water management facilities to maintain streamflow conditions in the receiving watercourses to the extent possible, particularly during low flow conditions • Implementation of progressive contouring and reclamation of the Mine Rock Storage Facility to minimize changes in land use and hydrological characteristics	Yes	Duration: Short-term Magnitude: Low to High Geographic Extent: Local Frequency: Continuous Reversibility: Irreversible Context: Neutral	Not Significant (Moderate)	Duration: Short-term Magnitude: Low Geographic Extent: Local Frequency: Continuous Reversibility: Irreversible Context: Neutral	Not Significant (Moderate to High)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
Surface Water Quality	Changes to Surface Water Quantity due to Mine Closure and Reclamation Activities	Site reclamation activities will involve several changes within the Project footprint, including site grading and surface cover modifications of the Mine Rock Storage Facility. In addition, mine site infrastructure and water management facilities will be decommissioned. These activities have the potential to affect streamflows within the Alexander Creek system.	• RC • PC	• Implementation of the Site Water Management Plan • Implementation of progressive contouring and reclamation of the Mine Rock Storage Facility to minimize changes in land use and hydrological characteristics • Decommissioning and reclaiming water management facilities to restore natural streamflow conditions in the receiving watercourses to the extent possible • Reclamation monitoring	Yes	Duration: Permanent Magnitude: Low to High Geographic Extent: Local Frequency: Continuous Reversibility: Irreversible Context: Neutral	Not Significant (Moderate)	Duration: Short-term Magnitude: Low Geographic Extent: Local Frequency: Continuous Reversibility: Irreversible Context: Neutral	Not Significant (Moderate to High)
	Change in Surface Water Quality from Non-Contact Water Runoff	Erosion and sedimentation during site clearing, construction, maintenance, and reclamation activities could result in elevated levels of TSS and turbidity in nearby watercourses.	• CPP • O • RC	• Limit erosion and contain sediment through the application of standard industry practices • Conduct regular inspections to ensure control measures are effective and functioning properly • Divert clean runoff around mine disturbed areas, where possible • Capture clean surface water that cannot be diverted in sediment ponds prior to release • Limit the mine disturbance footprint through Project design and progressive reclamation	No	N/A	N/A	N/A	N/A
	Change in Surface Water Quality from Dust Deposition	Project activities such as on-site transportation of personnel, construction materials, and raw and clean coal; mine rock movement; blasting; and coal processing may generate dust, resulting in elevated TSS concentrations in nearby waterbodies through atmospheric deposition.	• CPP • O • RC	• Limit dust generation and emissions through the application of standard industry practices and emissions control measures • Conduct regular inspections to ensure control measures are effective and functioning properly • Limit the mine disturbance footprint through Project design and progressive reclamation	No	N/A	N/A	N/A	N/A
	Change in Surface Water Quality from Mine Site Drainage	Open pit mining and mine development will require blasting, and fixed emulsion and ammonium nitrate (ANFO) will be stored on site. Trace residues from blasting contain nitrogen compounds that can remain on the surface, including on mine rock and excavated rock. As a result, mine site drainage released to the receiving environment may contain elevated levels of nitrogen compounds. The storage and transport of petroleum hydrocarbon products, as well as fueling and maintenance of machinery, heavy equipment, and vehicles, have the potential to release minor amounts of hydrocarbons from routine	• CPP • O • RC	Nitrogen loading: • Following provincial and federal requirements for the storing and handling of explosives • Collection and disposal of decontamination water off site • Bagging all blastholes to keep the ANFO dry • Minimizing the use of emulsion bulk explosives • Optimizing the blasthole size and pattern design • Limiting the sleep time of a loaded pattern to one week • Training of employees to limit spillage of explosive agents on the blast pattern Hydrocarbons:	No	N/A	N/A	N/A	N/A

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		activities to local drainages and nearby watercourses. During active mining of the pits, it will be necessary to dewater each pit through the use of drainage ditches, berms, sumps, and pumps. Mine dewater released to the receiving environment may contain elevated concentrations of suspended solids or other parameters such as metals and nutrients.		• Restricting the storage and transfer of fuel to certain areas • Implementing procedures for handling and storing fuel and fuel transfer • Conducting regular site and vehicle inspections • Preventative maintenance for all vehicles and equipment on site Pit dewatering: • During active mining, dewatering will be carried out using drainage ditches, berms, sumps and pumps. Pit dewatering will be coordinated to meet overall water quality objectives • Once backfilled and allowed to fill with groundwater inflows, selenium and nitrate are effectively reduced in mildly suboxic saturated rock fill					
	Change in Surface Water Quality from Disposal of Mine Rock and Coal Rejects	Seepage and metal leaching/acid rock drainage (ML/ARD) from the Mine Rock Storage Facility may result in increased concentrations of selenium or other substances in the mine site drainage released to the receiving environment.	• O • RC • PC	• Engineered layering of coal rejects and mine rock to limit ML/ARD • Saturated backfill of mine rock in the East and North Pits • Progressive reclamation of the Mine Rock Storage Facility	Yes	Duration: Permanent Magnitude: Low Geographic Extent: Discrete Frequency: Continuous Reversibility: Reversible long-term Context: High	Not Significant (Moderate)	N/A – This effect does not overlap spatially and temporally with other present or reasonably foreseeable future projects or activities.	N/A
	Change in Surface Water Quality from Surface Water – Groundwater Interactions	The Project area includes both gaining and losing reaches within Project area watercourses. Changes to groundwater quality via seepage from mine disturbed areas could result in potential changes to surface water quality.	• O • RC • PC	• Installation of impermeable liners in the Interim and Main Sediment Ponds • Groundwater and surface water quality monitoring	Yes	Duration: Permanent Magnitude: High Geographic Extent: Discrete Frequency: Continuous Reversibility: Reversible long-term Context: Neutral	Not Significant (Moderate)	N/A – This effect does not overlap spatially and temporally with other present or reasonably foreseeable future projects or activities.	N/A
	Change in Surface Water Quality from Sediment Pond Discharge	Discharge from the sediment ponds has the potential to contain elevated concentrations of TSS, selenium, nitrate, and other parameters that will be released to the receiving environment. Sediment pond discharge may	• O • RC • PC	• Diverting clean, non-contact water away from the sediment ponds, where possible • Appropriate sizing of sediment ponds to minimize seepage losses and convey runoff during storm events	Yes	Duration: Long-term Magnitude: Moderate Geographic	Not Significant (Moderate)	Duration: Long-term Magnitude: Low Geographic Extent: Regional Frequency: Continuous	Not Significant (Moderate)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		result in increased calcite formation and erosion downstream of the Project.		• Limit the mine disturbance footprint through Project design and progressive reclamation		Extent: Local/Discrete Frequency: Regular Reversibility: Reversible long-term Context: Neutral		Reversibility: Reversible long-term Context: Neutral	
	Fish Mortality	Any Project activity or physical work in or near streams that could alter or impact the aquatic environment could lead to fish mortality. Such activities may include but are not limited to: machinery operating near or in streams while excavating, transporting, or constructing infrastructure; increased TSS caused by erosion, logging, excavating, increased dust and dispersion, construction runoff, soil movement, transportation, and relocation of materials; and loading, hauling, and stockpiling of soil in or near a streambed.	• CPP • O • RC	• Avoiding killing fish by means other than fishing • Avoiding using explosives in or near water • Planning in water works, undertakings, or activities to respective timing windows to protect fish	No	N/A	N/A	N/A	N/A
Westslope Cutthroat Trout ** and Bull Trout	Change in Fishing Pressure	Project road development/upgrades could result in changes in fishing pressure in Alexander Creek.	• CPP • O • RC	• Develop NUE areas to prohibit public access to the Project footprint • Secure access roads to restrict and enforce unauthorized access • Implement the Access Management Plan • Implement a no angling policy for NWP employees and contractors • Coordination with local conservation enforcement for Alexander and West Alexander Creeks should increases in recreational fishing be observed by NWP employees	No	N/A	N/A	N/A	N/A
	Instream Habitat Loss Due to Mine Design and Development	Some Project activities will lead to unavoidable instream habitat loss due to mine design and development. Instream habitat loss is expected to be caused by construction of the Interim and Main Sediment Ponds in West Alexander Creek; loading, hauling, and stockpiling of soil in West Alexander Creek; and loading, hauling, and dumping of mine rock in West Alexander Creek.	• CPP • O	• Avoid conducting works, undertakings, or activities in water, where possible • Avoid disturbing or removing materials from the banks, shoreline, or waterbody bed, such as sand, rocks, aquatic vegetation, or natural wood debris • Minimize the impact by obtaining and authorization under the *Fisheries Act* for harmful alteration, disruption, or destruction (HADD) of fish habitat caused by habitat loss, and developing an offsetting plan to	Yes	<u>Westslope Cutthroat Trout:</u> Duration: Permanent Magnitude: High Geographic Extent: Discrete Frequency: Once Reversibility: Irreversible Context: Low to neutral	Significant (High)	N/A	N/A

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				compensate and replace for habitat loss caused by the Project		<u>Bull Trout:</u> Duration: Permanent Magnitude: Low Geographic Extent: Discrete Frequency: Once Reversibility: Irreversible Context: Low to neutral	Not Significant (High)	N/A	N/A
	Habitat Loss Due to Changes in Water Quantity	Project activities such as logging, clearing and grubbing, site grading, and construction of sediment ponds and drainage infrastructure will alter topography and cause localized changes to surface water hydrology. Construction of the Grave Creek Reservoir and surface water withdrawals may reduce streamflows in the downstream reaches of Grave Creek. The Main Sediment Pond will discharge via a controlled outlet structure to West Alexander Creek. Reclamation activities will include site grading and surface cover modifications, in addition to decommissioning of mine site infrastructure and water management facilities. These activities have the potential to affect streamflows within the Alexander Creek system.	• CPP • O • RC • PC	• Controlling outflows from water management facilities to maintain streamflow conditions in the receiving watercourses to the extent possible, particularly during low flow conditions • Limiting surface water withdrawals to minimize impacts on streamflow • Implementation of the Site Water Management Plan. • Maintain fish passage by avoiding changing flow or water level and obstructing or interfering with the movement and migration of fish • Decommissioning and reclaiming water management facilities to restore natural streamflow conditions in the receiving watercourses to the extent possible	Yes	<u>Westslope Cutthroat Trout:</u> Duration: Permanent Magnitude: Moderate to High Geographic Extent: Local Frequency: Continuous Reversibility: Irreversible Context: Neutral	Significant (Moderate)	Duration: Long-term Magnitude: Low Geographic Extent: Local Frequency: Continuous Reversibility: Irreversible Context: High	Not Significant (Moderate)
						<u>Bull Trout:</u> Duration: Permanent Magnitude: Moderate Geographic Extent: Local Frequency: Continuous Reversibility: Irreversible Context: Neutral	Not Significant (Moderate)		
	Changes in Water Quality	Erosion and sedimentation during site clearing, construction, maintenance, and reclamation activities could result in elevated levels of TSS and turbidity in nearby watercourses. Project activities such as on-site transportation of personnel, construction materials, and raw and clean coal; mine rock movement; blasting; and coal processing may generate dust. Mine dewater and sediment pond discharge released	• CPP • O • RC • PC	• Implementation of the Site Water Management Plan and Erosion and Sediment Control Plan • Engineered layering of coal rejects and mine rock to limit ML/ARD • Appropriate sizing of sediment ponds to minimize seepage losses and convey runoff during storm events	Yes	Duration: Long-term Magnitude: Low Geographic Extent: Local Frequency: Continuous Reversibility: Reversible to	Not Significant (Moderate)	Duration: Long-term Magnitude: Low –to Moderate Geographic Extent: Regional Frequency: Continuous Reversibility: Irreversible Context: Neutral	Not Significant (Moderate)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		to the receiving environment may contain elevated concentrations of metals and nutrients, which could bioaccumulate and have an effect on fish and fish habitat VCs.				Irreversible Context: Neutral			
	Change in Fish and Fish Habitat Due to Blasting	Mine pit blasts produce vibrations that could pose serious threats to fish and fish habitat. Blasting in or near water produces shock waves that can damage fish swim bladders and rupture internal organs, may kill or damage fish eggs or larvae, and can have effects on fish and fish habitat through altering spawning habitat/gravel.	• CPP • O	• Reduction of charge per delay by decking the blast holes • Increasing the delay time between rows and holes to produce discrete explosions • Use of bubble/air curtains to disrupt the shock waves • Design of blasts and delay configurations to minimize vibration	No	N/A	N/A	N/A	N/A
	Changes in Streambed Structure	Project activities that may result in increased dust and TSS, such as transportation, land clearing, excavations, and operation and decommissioning of water management infrastructure, may result in increased sediment deposition, leading to changes in stream geomorphology. Discharge of contact water may result in calcite concretion of streambed substrate due to increased calcite loads.	• CPP • O • RC • PC	• Implementation of the Site Water Management Plan and the Erosion and Sediment Control Plan • Limit the mine disturbance footprint through Project design and progressive reclamation	Yes	Duration: Long-term Magnitude: Moderate Geographic Extent: Local Frequency: Continuous Reversibility: Reversible to Irreversible Context: Neutral	Not Significant (Moderate)	N/A	N/A
	Functional Riparian Disturbance	Reduction of riparian habitat is predicted to occur through logging, clearing, and grubbing. Alteration of water quantity in downstream reaches of affected watersheds has the potential to reduce the area of riparian habitat. The operation of vehicles and equipment within the Project footprint can result in the introduction of new occurrences, or the spread of existing occurrences, of non-native and invasive species. In addition, the erosion and suspension of exposed soils and construction material (e.g., road fill) can result in sedimentation of, or deposition of, dust in riparian habitats downstream/downwind from the Project footprint.	• CPP • O • RC • PC	• Maintaining an undisturbed vegetated buffer zone between areas of on-land activity and the high-water mark of any waterbody • Implementation of the Ecological Restoration Plan • Minimizing disturbance and cleared areas through Project design optimization	Yes	Duration: Long-term to permanent Magnitude: Low to High Geographic Extent: Discrete to Regional Frequency: Once to Continuous Reversibility: Reversible Long-term to Irreversible Context: Low to Neutral	Not Significant (Moderate)	Duration: Long-term to Permanent Magnitude: Low Geographic Extent: Discrete to Regional Frequency: Once to Continuous Reversibility: Reversible Long-term to Irreversible Context: Neutral	Not Significant (Moderate)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
Mountain Whitefish	Changes in Water Quality	Erosion and sedimentation during site clearing, construction, maintenance, and reclamation activities could result in elevated levels of TSS and turbidity in nearby watercourses. Project activities such as on-site transportation of personnel, construction materials, and raw and clean coal; mine rock movement; blasting; and coal processing may generate dust. Mine dewater and sediment pond discharge released to the receiving environment may contain elevated concentrations of metals and nutrients, which could bioaccumulate and have an effect on fish and fish habitat VCs.	• CPP • O • RC • PC	• Implementation the Site Water Management Plan and the Erosion and Sediment Control Plan • Engineered layering of coal rejects and mine rock to limit ML/ARD • Appropriate sizing of sediment ponds to minimize seepage losses and convey runoff during storm events	No	N/A	N/A	Duration: Long-term Magnitude: Low –to Moderate Geographic Extent: Regional Frequency: Continuous Reversibility: Irreversible Context: Neutral	Not Significant (Moderate)
	Changes in Streambed Structure	Project activities that may result in increased dust and TSS, such as transportation, land clearing, excavations, and operation and decommissioning of water management infrastructure, may result in increased sediment deposition, leading to changes in stream geomorphology. Discharge of contact water may result in calcite concretion of streambed substrate due to increased calcite loads.	• CPP • O • RC • PC	• Implementation of the Site Water Management Plan and the Erosion and Sediment Control Plan • Limit the mine disturbance footprint through Project design and progressive reclamation	No	N/A	N/A	N/A	N/A
Kokanee, Burbot, and Longnose Sucker	Changes in Water Quality	Erosion and sedimentation during site clearing, construction, maintenance, and reclamation activities could result in elevated levels of TSS and turbidity in nearby watercourses. Project activities such as on-site transportation of personnel, construction materials, and raw and clean coal; mine rock movement; blasting; and coal processing may generate dust. Mine dewater and sediment pond discharge released to the receiving environment may contain elevated concentrations of metals and nutrients, which could bioaccumulate and have an effect on fish and fish habitat VCs.	• CPP • O • RC • PC	• Implementation of the Site Water Management Plan and the Erosion and Sediment Control Plan • Engineered layering of coal rejects and mine rock to limit ML/ARD • Appropriate sizing of sediment ponds to minimize seepage losses and convey runoff during storm events	No	N/A	N/A	Duration: Long-term Magnitude: Low –to Moderate Geographic Extent: Regional Frequency: Continuous Reversibility: Irreversible Context: Neutral	Not Significant (Moderate)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
Benthic Invertebrates	Instream Habitat Loss Due to Mine Design and Development	Some Project activities will lead to unavoidable instream habitat loss due to mine design and development. Instream habitat loss is expected to be caused by construction of the Interim and Main Sediment Ponds in West Alexander Creek; loading, hauling, and stockpiling of soil in West Alexander Creek; and loading, hauling, and dumping of mine rock in West Alexander Creek.	• CPP • O	• Avoid conducting works, undertakings, or activities in water, where possible • Avoid disturbing or removing materials from the banks, shoreline, or waterbody bed, such as sand, rocks, aquatic vegetation, or natural wood debris • Minimize the impact by obtaining and authorization under the *Fisheries Act* for HADD of fish habitat caused by habitat loss, and developing an offsetting plan to compensate and replace for habitat loss caused by the Project	Yes	Duration: Permanent Magnitude: High Geographic Extent: Discrete Frequency: Once Reversibility: Irreversible Context: Low to neutral	Not Significant (High)	N/A	N/A
	Habitat Loss Due to Changes in Water Quantity	Project activities such as logging, clearing and grubbing, site grading, and construction of sediment ponds and drainage infrastructure will alter topography and cause localized changes to surface water hydrology. Construction of the Grave Creek Reservoir and surface water withdrawals may reduce streamflows in the downstream reaches of Grave Creek. The Main Sediment Pond will discharge via a controlled outlet structure to West Alexander Creek. Reclamation activities will include site grading and surface cover modifications, in addition to decommissioning of mine site infrastructure and water management facilities. These activities have the potential to affect streamflows within the Alexander Creek system.	• CPP • O • RC • PC	• Controlling outflows from water management facilities to maintain streamflow conditions in the receiving watercourses to the extent possible, particularly during low flow conditions • Limiting surface water withdrawals to minimize impacts on streamflow • Implementation the Site Water Management Plan • Decommissioning and reclaiming water management facilities to restore natural streamflow conditions in the receiving watercourses to the extent possible	Yes	Duration: Permanent Magnitude: Moderate to High Geographic Extent: Local Frequency: Continuous Reversibility: Irreversible Context: Neutral	Not Significant (Moderate)	Duration: Long-term Magnitude: Low Geographic Extent: Local Frequency: Continuous Reversibility: Irreversible Context: High	Not Significant (Moderate)
	Changes in Water Quality	Erosion and sedimentation during site clearing, construction, maintenance, and reclamation activities could result in elevated levels of TSS and turbidity in nearby watercourses. Project activities such as on-site transportation of personnel, construction materials, and raw and clean coal; mine rock movement; blasting; and coal processing may generate dust. Mine dewater and sediment pond discharge released to the receiving environment may contain elevated concentrations of metals and nutrients, which could bioaccumulate and have an effect on benthic invertebrates.	• CPP • O • RC • PC	• Implementation the Site Water Management Plan and the Erosion and Sediment Control Plan • Engineered layering of coal rejects and mine rock to limit ML/ARD • Appropriate sizing of sediment ponds to minimize seepage losses and convey runoff during storm events	Yes	Duration: Long-term Magnitude: Low Geographic Extent: Local Frequency: Continuous Reversibility: Reversible to Irreversible Context: Neutral	Not Significant (Moderate)	Duration: Long-term Magnitude: Low –to Moderate Geographic Extent: Regional Frequency: Continuous Reversibility: Irreversible Context: Neutral	Not Significant (Moderate)
	Changes in Streambed Structure	Project activities that may result in increased dust and TSS, such as transportation, land clearing, excavations, and operation and	• CPP • O • RC	• Implementation of the Site Water Management Plan and the Erosion and Sediment Control Plan	Yes	Duration: Long-term Magnitude:	Not Significant (Moderate)	N/A	N/A

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		decommissioning of water management infrastructure, may result in increased sediment deposition, leading to changes in stream geomorphology. Discharge of contact water may result in calcite concretion of streambed substrate due to increased calcite loads.	• PC	• Limit the mine disturbance footprint through Project design and progressive reclamation		Moderate Geographic Extent: Local Frequency: Continuous Reversibility: Reversible to Irreversible Context: Neutral			
	Functional Riparian Disturbance	Reduction of riparian habitat is predicted to occur through logging, clearing, and grubbing. Alteration of water quantity in downstream reaches of affected watersheds has the potential to reduce the area of riparian habitat .The operation of vehicles and equipment within the Project footprint can result in the introduction of new occurrences, or the spread of existing occurrences, of non-native and invasive species. In addition, the erosion and suspension of exposed soils and construction material (e.g., road fill) can result in sedimentation of, or deposition of, dust in riparian habitats downstream/downwind from the Project footprint.	• CPP • O • RC • PC	• Maintaining an undisturbed vegetated buffer zone between areas of on-land activity and the high-water mark of any waterbody • Implementation of the Ecological Restoration Plan • Minimizing disturbance and cleared areas through Project design optimization • Develop and implement an offsetting/compensation plan for riparian habitat to ensure no net loss occurs	Yes	Duration: Long-term to permanent Magnitude: Low to High Geographic Extent: Discrete to Regional Frequency: Once to Continuous Reversibility: Reversible Long-term to Irreversible Context: Low to Neutral	Not Significant (Moderate)	Duration: Long-term to Permanent Magnitude: Low Geographic Extent: Discrete to Regional Frequency: Once to Continuous Reversibility: Reversible Long-term to Irreversible Context: Neutral	Not Significant (Moderate)
Avalanche Chutes	Change in Abundance and Distribution of Avalanche Chutes	Logging, clearing, and grubbing of vegetation, and removal of soil and overburden will necessarily remove areas of avalanche chutes within the Project footprint that will reduce the abundance and alter the distribution of avalanche chutes. Additionally, complete removal of avalanche start zones may stabilize the disturbance regime, causing the successional trajectory of downslope avalanche chutes to change so substantially such that the baseline ecosystem is complete lost.	• CPP • O	• Project design optimization • Implementation of the Ecological Restoration Plan, and the Vegetation and Ecosystems Management and Monitoring Plan • Minimizing disturbance and cleared areas • Construct diversion berms and/or retention walls where avalanche chutes runout on to the Project footprint • Schedule blasting during periods of relatively high stability in the snowpack, when feasible	Yes	Duration: Permanent Magnitude: Moderate Geographic Extent: Local Frequency: Once Reversibility: Irreversible Context: Neutral	Not Significant (Moderate)	Duration: Permanent Magnitude: Moderate Geographic Extent: Regional Frequency: Once Reversibility: Irreversible Context: Neutral	Not Significant (Moderate)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
	Change in Composition and Structure of Avalanche Chutes	Operation of vehicles and equipment and the deposition of dust from exposed soils, construction material (e.g., road fill), coal stockpiles, and mine waste has the potential to affect ecosystem composition and structure. Vehicles and equipment may also introduce invasive and non-native plants.	• CPP • O • RC	• Project design optimization • Implement Vegetation and Ecosystems Management and Monitoring Plan • Limit the frequency of use and explosive potential for all explosives • Construct diversion berms and/or retention walls where avalanche chutes runout on to the Project footprint	Yes	Duration: Permanent Magnitude: Moderate Geographic Extent: Local Frequency: Once to Regular Reversibility: Reversible Long-Term to Irreversible Context: Neutral	Not Significant (Moderate)		
Grassland Ecosystems	Change in Grassland Abundance and Distribution	Site clearing, construction, removal and movement of soil, rail loadout construction, and reclamation may result in changes to the size and location of grassland ecosystems.	• CPP • O • RC	• Project design optimization • Minimizing disturbance and cleared areas • Establish exclusion / “no work” zones and setback buffers • Education and training • Implementation of the Soil Management Plan, Erosion and Sediment Control Plan, Vegetation and Ecosystems Management and Monitoring Plan, and the Ecological Restoration Plan	Yes	Duration: Long-Term to Permanent Magnitude: Moderate Geographic Extent: Discrete Frequency: Once Reversibility: Reversible Long-Term to Irreversible Context: Low	Not Significant (Moderate)	Duration: Long-term to Permanent Magnitude: Moderate Geographic Extent: Regional Frequency: Once Reversibility: Reversible long-term to Irreversible Context: Low to Neutral	Not Significant (Moderate)
	Change in Grassland Composition and Structure	Vegetation removal and soil disturbance (removal and compaction of soils), vehicle traffic, stockpiling of salvaged soil, transportation of soil, reclamation activities, and creation of exposed soils may affect grassland composition and structure.	• CPP • O • RC	• Project design optimization • Establish exclusion / “no work” zones and setback buffers • Minimizing disturbance and cleared areas • Retain vegetation and groundcover • Restore with appropriate native vegetation • Adhere to least risk windows • Minimize soil compaction • Implementation of the Soil Management Plan, Erosion and Sediment Control Plan, Vegetation and Ecosystems Management and Monitoring Plan, and the Ecological Restoration Plan • Education and training • Monitor changes in plant community and areas of revegetation	Yes	Duration: Long-Term Magnitude: Low to Moderate Geographic Extent: Local Frequency: Once Reversibility: Reversible Long-Term Context: Low	Not Significant (Moderate)		
	Change in Grassland Vegetation Vigour	Site clearing, construction, removal and movement of materials, detonating of explosives, maintenance, and long-term traffic	• CPP • O • RC	• Project design optimization • Implementation of Air Quality and Greenhouse Gas Management Plan, Vegetation and	No	N/A	N/A	N/A	N/A

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		may result in increased dust and deposition on vegetation, reducing vegetation vigour, potentially altering species composition and habitat value.		Ecosystems Management and Monitoring Plan, and the Soil Management Plan • Exclusion zones • Dust suppression methods • Manage machinery and vehicle speed limits • Vehicle covers and decontamination • Road maintenance • Manage timing of construction and earthmoving activities • Education and training • Monitor and inspect dust control measures					
Riparian Habitat	Change in Abundance and Distribution of Riparian Habitat	Reduction of ecosystem abundance is predicted to occur through logging, clearing, and grubbing. Reduction of riparian habitat is specifically anticipated to occur along improvements to existing roads (e.g., Grave Creek Road), new access roads, the rail loadout, service corridors, Grave Creek Reservoir, explosive storage facility, mined areas, mine rock storage areas, and the Main Sediment Pond (including associated components).	• CPP • O • RC	• Project design optimization • Implementation of the Ecological Restoration Plan • Minimizing disturbance and cleared areas • Monitor reclaimed riparian habitat function • Design standards for water management infrastructure • Use energy dissipation devices	Yes	Duration: Long-term to Permanent Magnitude: Low Geographic Extent: Discrete to Regional Frequency: Once to Continuous Reversibility: Reversible Long-Term to Irreversible Context: Neutral	Not Significant (Moderate)	Duration: Long-term to Permanent Magnitude: Moderate Geographic Extent: Regional Frequency: Once Reversibility: Reversible long-term to Irreversible Context: Low to Neutral	Not Significant (Moderate)
	Change in Composition and Structure of Riparian Habitat	The operation of vehicles and equipment within the Project footprint can result in the introduction of new occurrences, or the spread of existing occurrences, of non-native and invasive species. Operation of vehicles and equipment within the Project footprint, as well as the hauling and use of hazardous materials, have the potential for release of deleterious substances to surface water. Finally, the erosion and suspension of exposed soils and construction material (e.g., road fill) can result in sedimentation of, or deposition of, dust in riparian habitats downstream/downwind from the Project footprint.	• CPP • O • RC • PC	• Project design optimization • Minimum design standards for water management infrastructure • Energy dissipation devices • Implementation of the Soil Management Plan, Erosion and Sediment Control Plan, Vegetation and Ecosystems Management and Monitoring Plan, and the Ecological Restoration Plan	Yes	Duration: Permanent Magnitude: Low to High Geographic Extent: Regional Frequency: Regular to Continuous Reversibility: Irreversible Context: Neutral	Not Significant (Moderate)		
Old Growth and Mature Forests	Change in Old Growth and Mature Forest Abundance and Distribution	Clearing of old growth and mature forest will occur during the Construction and Pre-Production phase for construction of the rail loadout, road upgrades, preparation of the service corridor, the overland conveyor, mine	• CPP • O	• Project design optimization - limit Project footprint and clearing near old growth and mature forest areas to the extent feasible • Implementation of Ecological Restoration Plan • Minimizing disturbance and cleared areas	Yes	Duration: Permanent Magnitude: High Geographic Extent: Discrete	Significant (Moderate)	Duration: Long-term Magnitude: Moderate Geographic Extent: Regional Frequency: Once	Not Significant (Moderate)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		site infrastructure and buildings and initial portions of pits and Mine Rock Storage Facility areas.		• Delay construction areas of mine components until ready to mine		Frequency: Once Reversibility: Irreversible Context: Low		Reversibility: Reversible long-term Context: Neutral	
	Change in Old Growth and Mature Forest Composition and Vigour from Spread of Invasive Species and Dust Deposition	Increased vehicle traffic, stockpiling of salvaged soil, transportation of soil, and reclamation have the potential to introduce non-native species to old growth and mature forest. As well, site clearing, construction, removal and movement of materials, detonating of explosives, maintenance, and long-term traffic may result in increased dust and deposition on vegetation, reducing vegetation vigour, potentially altering species composition and habitat value.	• CPP • O • RC • PC	• Implementation of the Air Quality and Greenhouse Gas Management Plan, Soil Management Plan, Erosion and Sediment Control Plan, Vegetation and Ecosystems Management and Monitoring Plan, and the Spill Prevention, Control and Countermeasures Plan • Minimize the extent of disturbance within and adjacent to old growth and mature forest • Education and training • Perform regular road maintenance and restrict traffic in areas infested with invasive plants • Minimize earthworks during windy periods and implement dust suppression methods • Progressive reclamation and revegetation and implementation of the Ecological Restoration Plan • Proper covers/shielding where required. • Establish buffers and “no-work” zones • Decontaminate vehicles and machinery	No	N/A	N/A	N/A	N/A
Wetland Ecosystems	Change in Wetland Ecosystem Extent from Clearing, Grubbing, Logging, and Soil Salvaging	Land clearing and grubbing, logging of timber in the development footprint, and salvaging of wetland soils will result in the physical loss of wetlands within the Project footprint and an associated loss of the wetland functions provided by affected wetlands.	• CPP • RC	• Project design optimization • Implementation of the Ecological Restoration Plan • Reclamation of wetland ecosystems • Minimizing disturbance and cleared areas • Document new wetland areas observed in Project footprint • Monitor reclaimed wetlands and wetland function	Yes	Duration: Long-Term to Permanent Magnitude: Moderate Geographic Extent: Discrete Frequency: Once Reversibility: Reversible Long-Term to Irreversible Context: Low	Not Significant (Moderate)	Duration: Long-term to Permanent Magnitude: Moderate Geographic Extent: Regional Frequency: Once Reversibility: Reversible long-term to Irreversible Context: Low	Not Significant (Moderate)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
	Change in Wetland Ecosystem Functions from Other Project Activities	The use of Project transportation corridors, such as access and haul roads for on-site transportation of personnel and construction materials, the blasting of bedrock, and coal processing may generate dust and result in indirect changes to wetland habitat and biochemical functions through the alteration of wetland surface water (i.e., pH) and nutrient concentrations and changes in wetland plant growth and vigour. Invasive plant species may be introduced to wetland ecosystems through the use of the transportation/utility corridor (e.g., access and haul roads) and increased vehicle traffic, soil salvaging and stockpiling, and the increase of exposed/bare soils over the progressive reclamation of the site. Erosion and sedimentation during site clearing, construction, and reclamation activities could result in elevated levels of total suspended solids and turbidity in nearby watercourses and wetlands. Impacts to surface water quality may alter wetland hydrological, biochemical, and habitat functions.	• CPP • O • RC	• Implementation of the Air Quality and Greenhouse Gas Management Plan, Soil Management Plan, Vegetation and Ecosystems Management and Monitoring Plan, Erosion and Sediment Control Plan, and the Site Water Management Plan • Progressive reclamation and revegetation • Implement an Early Detection Rapid Response (EDRR) system • Control, manage, and remove invasive plants on site • Restrict traffic in known infested areas • Decontaminate vehicles and machinery • Avoid removal of riparian vegetation • Establish buffers and “no-work” zones around wetland ecosystems • Adhere to least risk windows • Education and training • Minimize soil compaction near wetlands • Retain vegetated areas near wetlands • Limit exposed soils near wetlands • Avoid altering wetland drainage areas • Monitor water quality • Avoid draining water to wetlands	No	N/A	N/A	N/A	N/A
Listed and Sensitive Plant Communities and Species	Change in Listed Plant Community or Species Abundance and Distribution through Site Clearing, Grubbing, and Soil Salvaging	Land clearing, grubbing, and soil salvaging associated with the haul road construction to the rail loadout will result in vegetation and soil removal and the direct physical loss of portions of the Red-listed Gg12 *Rough fescue - (bluebunch wheatgrass) - yarrow - clad lichens* ecological community.	• CPP	• Project design optimization • Minimizing disturbance and cleared areas • Establish exclusion / “no work” zones and setback buffers • Education and training • Implementation of the Soil Management Plan and the Erosion and Sediment Control Plan	Yes	Duration: Permanent Magnitude: Low Geographic Extent: Discrete Frequency: Once Reversibility: Irreversible Context: Low	Not Significant (Moderate)	Duration: Long-term to Permanent Magnitude: Moderate Geographic Extent: Discrete Frequency: Once Reversibility: Irreversible Context: Low	Not Significant (Moderate)
	Change in Listed Plant Community or Species Composition and Structure due to Site Clearing, Grubbing, and Soil Salvaging	Vegetation removal and soil disturbance (removal and compaction of soils) within the Project footprint may alter a listed plant community around areas of disturbance, resulting in changes to the plant community composition and structure.	• CPP	• Project design optimization • Establish exclusion / “no work” zones and setback buffers • Minimizing disturbance and cleared areas • Retain vegetation and groundcover • Restore with appropriate native vegetation • Adhere to least risk windows • Minimize soil compaction • Implementation of the Soil Management Plan, Erosion and Sediment Control Plan, and the	Yes	Duration: Long-term Magnitude: Low to Moderate Geographic Extent: Local Frequency: Once Reversibility: Reversible Long-term Context: Low	Not Significant (Moderate)		

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				Vegetation and Ecosystems Management and Monitoring Plan • Education and training • Monitor changes in plant community and areas of revegetation					
	Change in Listed Plant Community and Species Composition from the Introduction and Spread of Invasive Plants	Invasive plant species, as well as introduced agronomic plant species, may be introduced and/or spread during construction activities and site disturbance through soil removal and stockpiling and vegetation removal, altering listed plant community composition and individual listed plant populations. Use of the haul roads within and adjacent to the Project footprint can also spread invasive plants through vehicle and machinery traffic.	• CPP • O	• Implementation an EDRR system • Implementation of the Vegetation and Ecosystems Management and Monitoring Plan • Control, manage, and remove invasive plants on site • Identify and demarcate invasive plant populations • Establish exclusion / “no work” zones and setback buffers • Reduce areas of exposed soils • Restore with appropriate native vegetation • Restrict traffic in known infested areas • Decontaminate vehicles and machinery • Education and training	No	N/A	N/A	N/A	N/A
	Change in Listed Plant Community and Species Vigour through Dust Deposition	Construction and upgrading of the haul road to the rail loadout will result in the generation of dust through site clearing and vegetation removal, movement of soil, and increased vehicle traffic for the transportation of materials and personnel. Dust deposition on vegetation can reduce plant species and plant community vigour, altering composition and habitat value.	• CPP • O	• Project design optimization • Implementation of Air Quality and Greenhouse Gas Management Plan, Vegetation and Ecosystems Management and Monitoring Plan, and the Soil Management Plan • Exclusion zones • Dust suppression methods • Manage machinery and vehicle speed limits • Vehicle covers and decontamination • Road maintenance • Manage timing of construction and earthmoving activities • Education and training • Monitor and inspect dust control measures	No	N/A	N/A	N/A	N/A
Whitebark Pine**	Mortality and/or Loss of Habitat	Logging, clearing, and grubbing of vegetation, and removal of soil and overburden will necessarily remove individual whitebark pine trees and their associated habitat (including critical habitat) within the Project footprint.	• CPP • O • RC	• Project design optimization • Salvage top soils to retain seedbank • Implementation of Ecological Restoration Plan, including: o Complete inventory and mapping of whitebark pine distribution and critical habitat o Replacement of critical habitat o Collection of seeds and scion o Determination of compensation ratio	Yes	Duration: Permanent Magnitude: Moderate Geographic Extent: Regional Frequency: Intermittent	Not Significant (Low)	Duration: Permanent Magnitude: Moderate to High Geographic Extent: Beyond Regional Frequency: Continuous Reversibility: Reversible long-term to Irreversible Context: Low	Not Significant (Low)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				o Operational monitoring of retained critical habitat		Reversibility: Reversible Long-Term Context: Low			
	Change in Rates of Germination, Growth, and Reproduction	Operation of vehicles and equipment within the Project footprint, as well as the hauling and use of hazardous materials, have the potential for release of deleterious substances, deposition of dust, and introduction or spread of non-native and invasive species which may affect whitebark pine rates of germination, growth, and reproduction.	• CPP • O • RC	• Implementation of the Air Quality and Greenhouse Gas Management Plan, Soil Management Plan, Erosion and Sediment Control Plan, Vegetation and Ecosystems Management and Monitoring Plan, and the Spill Prevention, Control and Countermeasures Plan • Minimize the extent of disturbance within and adjacent to whitebark pine and habitat • Inspect erosion and sediment control measures • Education and training • Low speed limits • Regular road maintenance • Minimize earthworks during windy periods • Progressive reclamation and revegetation • Dust suppression methods • Proper covers/shielding where required • Monitor and inspect dust control measures • Establish buffers and “no-work” zones where current infestations exist • Restrict traffic in known infested areas • Decontaminate vehicles and machinery	No	N/A	N/A	N/A	N/A
Limber Pine	No adverse effects to limber pine are anticipated as a result of the Project.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Moose	Habitat Loss and Degradation	Habitat loss will result from clearing and grubbing the infrastructure and pre-production development footprint which includes water management infrastructure (e.g., Interim Sediment Pond, Main Sediment Pond), roads, the conveyor, the powerline, rail loadout, and Mine Rock Storage Facility. Habitat degradation may 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. Habitat degradation may also occur during decommissioning of mine site infrastructure and managing the Main Sediment Pond discharge.	• CPP • O	• Minimize disturbance and encroachment into natural vegetation, to the extent feasible, by clearing and grubbing only what is required for activities and progressive development of pits and Mine Rock Storage Facility • Delay clearing until needed • Implementation of the Erosion and Sediment Control Plan, Air Quality and Greenhouse Gas Management Plan, and the Ecological Restoration Plan • Progressive reclamation and revegetation	Yes	Duration: Long-term and permanent Magnitude: Moderate Geographic Extent: Discrete Frequency: Continuous Reversibility: Reversible long-term Context: Neutral	Not Significant (High)	Duration: Long-term and permanent Magnitude: Moderate Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible long-term Context: Neutral	Not Significant (High)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
	Sensory Disturbance	Sensory disturbance is expected from increased human presence, transportation of personnel and materials (including loading, hauling and dumping), clearing and grubbing, soil salvage, the construction and operation of infrastructure and facilities (including but not limited to roads, rail loadout, Coal Handling Process Plant [CHPP], water management infrastructure), detonating explosives, and coal processing. Sensory disturbance is also expected during the dismantling of infrastructure and facilities, removal of linear infrastructure, and human activity with monitoring and maintenance. Key sources of ground vibration are rail and blasting operations.	• CPP • O • RC	• Implementation of the Noise and Vibration Management Plan, the Traffic Control Plan, and Air Quality and Greenhouse Gas Management Plan • Directed/focused lighting will be used where possible rather than broad area lighting to minimize sensory disturbance • Light in non-essential areas will only be used when necessary, without compromising worker safety • Progressive reclamation and revegetation	Yes	Duration: Long-term Magnitude: Low to Moderate Geographic Extent: Local Frequency: Continuous Reversibility: Reversible long-term Context: Neutral	Not Significant (High)	Duration: Long-term Magnitude: Low Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible long-term Context: Neutral	Not Significant (High)
	Disruption to Movement	Land clearing activities including clearing and grubbing of the infrastructure and pre-production development footprint will eliminate habitat, causing fragmentation and reducing functional connectivity that may disrupt movements. Construction and presence of built structures (e.g., the conveyor, CHPP and other facilities), and the presence of steep pit walls, and snowbanks may impede or present barriers to movement. Dismantling of infrastructure and buildings and removal of linear infrastructure is expected to cause some disruption to movement due to noise and human presence.	• CPP • O • RC	• Implementation of the Noise and Vibration Management Plan • Implementation of the Traffic Control Plan to manage vehicle traffic and reduce barrier effect of roads • Underpasses will be created by elevating the conveyor to at least 2.4 metres (m) above ground (or higher where terrain can be used to create more clearance) at intervals of two per 1,000 m • Gaps will be created in snowbanks to allow for unimpeded ungulate passage across roads at regular intervals • Education and training as described in the Wildlife Management and Monitoring Plan	Yes	Duration: Long-term Magnitude: Moderate Geographic Extent: Local Frequency: Continuous Reversibility: Reversible long-term Context: Neutral	Not Significant (High)	Duration: Long-term Magnitude: Low Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible long-term Context: Neutral	Not Significant (High)
	Increased Mortality Risk	Direct mortality may arise from collisions with Project-related traffic during terrain disturbance and clearing of vegetation, collisions with Project-related traffic on access or mine site roads, entrapment during avalanche control, collisions with rail, operational mining activities (including blasting), ingestion of toxic products from materials stored on site, and entrapment in holding and settlement ponds or along access roads during winter due to high snowbanks. Seeded vegetation adjacent to roads and salt from de-icing and dust suppression may attract ungulates leading to increase animal-vehicle collisions.	• CPP • O • RC • PC	• Education and training as described in the Wildlife Management and Monitoring Plan • Implementation of the Traffic Control Plan to manage vehicle traffic • Measures will be implemented to minimize potential Project effects on movement corridors (e.g., through Grave Creek Canyon); measures will include signage along Project roads to warn vehicle operators of the potential to encounter wildlife • Avalanche control areas will be visually searched for wildlife prior to avalanche control activities along the access road; avalanche	Yes	Duration: Long-term Magnitude: Low Geographic Extent: Discrete Frequency: Intermittent Reversibility: Reversible long-term Context: High	Not Significant (High)	Duration: Long-term Magnitude: Negligible Geographic Extent: Discrete Frequency: Intermittent Reversibility: Reversible long-term Context: High	Not Significant (High)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		Public access along Grave Creek Road may provide increased access to hunters.		control activities will not be conducted when ungulates are present in potential slide areas • Clearing, grubbing and construction activities will be conducted in such a manner that if ungulates are present, there is escape • Prior to blasting at pits, the blast area will be searched for the presence and wildlife and cleared from the area if necessary • Implement measures to avoid and minimize attractants that could increase human-wildlife conflict including but not limited to revegetating disturbed areas along access roads with a seed mixture that is less attractive to foraging wildlife, and minimize the use of salt on roads where possible • Implementation of the Waste Management Plan and Spill Prevention, Control, and Countermeasures Plan					
Elk	Habitat Loss and Degradation	Clearing of vegetation and construction of mine site infrastructure and facilities (including the rail loadout, utility corridor, Mine Rock Storage Facility, water management infrastructure), and pits will result in habitat loss. Habitat degradation may 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. Habitat degradation may also occur during decommissioning of mine site infrastructure and managing the Main Sediment Pond discharge.	• CPP • O	• Minimize disturbance and encroachment into natural vegetation, to the extent feasible, by clearing and grubbing only what is required for activities and progressive development of pits and Mine Rock Storage Facility • Delay clearing until needed • Implementation of the Erosion and Sediment Control Plan, Air Quality and Greenhouse Gas Management Plan, and the Ecological Restoration Plan • Progressive reclamation and revegetation	Yes	Duration: Long-term and permanent Magnitude: Moderate Geographic Extent: Discrete Frequency: Continuous Reversibility: Reversible long-term Context: High	Not Significant (High)	Duration: Long-term and permanent Magnitude: Moderate Geographic Extent: Regional Frequency: Continuous Reversibility: reversible long-term Context: High	Not Significant (High)
	Sensory Disturbance	Sensory disturbance is expected from increased human presence, transportation of personnel and materials (including loading, hauling and dumping), clearing and grubbing, soil salvage, the construction and operation of infrastructure and facilities (including but not limited to roads, rail loadout, Coal Handling Process Plant [CHPP], water management infrastructure), detonating explosives, and coal processing. Sensory disturbance is also expected during the dismantling of infrastructure and facilities,	• CPP • O • RC	• Implementation of the Noise and Vibration Management Plan and Air Quality and Greenhouse Gas Management Plan • Directed/focused lighting will be used where possible rather than broad area lighting to minimize sensory disturbance • Light in non-essential areas will only be used when necessary, without compromising worker safety • Progressive reclamation and revegetation	Yes	Duration: Long-term Magnitude: Low to Moderate Geographic Extent: Local Frequency: Continuous Reversibility: Reversible long-term Context: High	Not Significant (High)	Duration: Long-term Magnitude: Low Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible long-term Context: High	Not Significant (High)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		removal of linear infrastructure, and human activity with monitoring and maintenance. Key sources of ground vibration are rail and blasting operations.							
	Disruption to Movement	The conveyor as well as roads represent a semi-permeable barrier to elk, provided that no physical barriers are created during road upgrades. Snowbank height from snow clearing may also impede movement. During Operations, the mine site footprint will occupy a large portion of West Alexander Creek valley and will be a nearly impermeable barrier. Movements may also be disrupted by sensory disturbance in other areas (e.g., upper slopes of the west side of the valley).	• CPP • O • RC	• Implementation of the Noise and Vibration Management Plan • Implementation of the Traffic Control Plan to manage vehicle traffic and reduce barrier effect of roads • 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 • Gaps will be created in snowbanks to allow for unimpeded ungulate passage across roads at regular intervals • Education and training as described in the Wildlife Management and Monitoring Plan	Yes	Duration: Long-term Magnitude: Moderate Geographic Extent: Local Frequency: Continuous Reversibility: Reversible long-term Context: High	Not Significant (High)	Duration: Long-term Magnitude: Low Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible long-term Context: High	Not Significant (High)
	Increased Mortality Risk	Direct mortality may arise from collisions with Project-related traffic during terrain disturbance and clearing of vegetation, collisions with Project-related traffic on access or mine site roads, entrapment during avalanche control, collisions with rail, operational mining activities (including blasting), ingestion of toxic products from materials stored on site, and entrapment in holding and settlement ponds or along access roads during winter due to high snowbanks. Seeded vegetation adjacent to roads and salt from de-icing and dust suppression may attract ungulates leading to increase animal-vehicle collisions. Public access along Grave Creek Road may provide increased access to hunters.	• CPP • O • RC • PC	• Education and training as described in the Wildlife Management and Monitoring Plan • Implementation of the Traffic Control Plan to manage vehicle traffic • Measures will be implemented to minimize potential Project effects on movement corridors (e.g., through Grave Creek Canyon); measures will include signage along Project roads to warn vehicle operators of the potential to encounter wildlife • Avalanche control areas will be visually searched for wildlife prior to avalanche control activities along the access road; avalanche control activities will not be conducted when ungulates are present in potential slide areas • Clearing, grubbing and construction activities will be conducted in such a manner that if ungulates are present, there is escape • Prior to blasting at pits, the blast area will be searched for the presence and wildlife and cleared from the area if necessary • Implement measures to avoid and minimize attractants that could increase human-wildlife conflict including but not limited to revegetating disturbed areas along access roads with a seed mixture that is less attractive to	Yes	Duration: Long-term Magnitude: Low Geographic Extent: Discrete Frequency: Intermittent Reversibility: Reversible long-term Context: High	Not Significant (High)	Duration: Long-term Magnitude: Negligible Geographic Extent: Discrete Frequency: Intermittent Reversibility: Reversible long-term Context: High	Not Significant (High)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				foraging wildlife, and minimize the use of salt on roads where possible • Implementation of the Waste Management Plan and Spill Prevention, Control, and Countermeasures Plan					
	Habitat Loss and Degradation	Clearing of vegetation and construction of mine infrastructure and facilities (including the rail loadout, utility corridor, Mine Rock Storage Facility, water management infrastructure), and pits will result in habitat loss. Habitat degradation may 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. Habitat degradation may also occur during decommissioning of mine site infrastructure and managing the Main Sediment Pond discharge.	• CPP • O	• Minimize disturbance and encroachment into natural vegetation, to the extent feasible, by clearing and grubbing only what is required for activities and progressive development of pits and Mine Rock Storage Facility • Delay clearing until needed • Implementation of the Erosion and Sediment Control Plan, Air Quality and Greenhouse Gas Management Plan, and the Ecological Restoration Plan • Progressive reclamation and revegetation	Yes	Duration: Long-term and permanent Magnitude: Low Geographic Extent: Discrete Frequency: Continuous Reversibility: Reversible long-term Context: Low	Not Significant (High)	Duration: Long-term Magnitude: Low Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible long-term Context: Low	Not Significant (High)
Bighorn Sheep and Mountain Goat	Sensory Disturbance	Sensory disturbance may result from increased human presence, transportation of personnel and materials (including loading, hauling and dumping) clearing and grubbing, soil salvage, the construction and operation of infrastructure (including but not limited to roads, rail loadout, Coal Handling Process Plant [CHPP], water management infrastructure), detonating explosives, and coal processing. Sensory disturbance is also expected during the dismantling of infrastructure and facilities, removal of linear infrastructure, and human activity with monitoring and maintenance. Key sources of ground vibration are rail and blasting operations.	• CPP • O • RC	• Implementation of the Noise and Vibration Management Plan and Air Quality and Greenhouse Gas Management Plan • Directed/focused lighting will be used where possible rather than broad area lighting to minimize sensory disturbance • Light in non-essential areas will only be used when necessary, without compromising worker safety • Progressive reclamation and revegetation	Yes	Duration: Long-term Magnitude: Low to Moderate Geographic Extent: Local Frequency: Continuous Reversibility: Reversible long-term Context: High (bighorn sheep) and low (mountain goat)	Not Significant (High)	Duration: Long-term Magnitude: Low to moderate Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible long-term Context: High (bighorn sheep), low (mountain goat)	Not Significant (High)
	Disruption to Movement	The conveyor as well as roads represent a semi-permeable barrier, provided that no physical barriers are created during road upgrades. Snowbank height from snow clearing may also impede movement. During Operations, the mine site footprint will occupy a large portion of	• CPP • O • RC	• Implementation of the Noise and Vibration Management Plan • Implementation of the Traffic Control Plan to manage vehicle traffic and reduce barrier effect of roads	Yes	Duration: Long-term Magnitude: Moderate Geographic Extent: Local	Not Significant (High)	Duration: Long-term Magnitude: Low Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible	Not Significant (High)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		West Alexander Creek valley and will be a nearly impermeable barrier. Movements may also be disrupted by sensory disturbance in other areas (e.g., upper slopes of the west side of the valley).		• 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 • Gaps will be created in snowbanks to allow for unimpeded ungulate passage across roads at regular intervals • Education and training as described in the Wildlife Management and Monitoring Plan		Frequency: Continuous Reversibility: Reversible long-term Context: High (bighorn sheep) and low (mountain goat)		long-term Context: High (bighorn sheep), low (mountain goat)	
	Increased Mortality Risk	Direct mortality may arise from collisions with Project-related traffic during terrain disturbance and clearing of vegetation, collisions with Project-related traffic on access or mine site roads, entrapment during avalanche control, collisions with rail, operational mining activities (including blasting), ingestion of toxic products from materials stored on site, and entrapment in holding and settlement ponds or along access roads during winter due to high snowbanks. Seeded vegetation adjacent to roads and salt from de-icing and dust suppression may attract ungulates leading to increase animal-vehicle collisions. Public access along Grave Creek Road may provide increased access to hunters.	• CPP • O • RC • PC	• Education and training as described in the Wildlife Management and Monitoring Plan • Implementation of the Traffic Control Plan to manage vehicle traffic • Measures will be implemented to minimize potential Project effects on movement corridors (e.g., through Grave Creek Canyon); measures will include signage along Project roads to warn vehicle operators of the potential to encounter wildlife • Avalanche control areas will be visually searched for wildlife prior to avalanche control activities along the access road; avalanche control activities will not be conducted when ungulates are present in potential slide areas • Clearing, grubbing and construction activities will be conducted in such a manner that if ungulates are present, there is escape • Prior to blasting at pits, the blast area will be searched for the presence and wildlife and cleared from the area if necessary • Implement measures to avoid and minimize attractants that could increase human-wildlife conflict including but not limited to revegetating disturbed areas along access roads with a seed mixture that is less attractive to foraging wildlife, and minimize the use of salt on roads where possible • Implementation of the Waste Management Plan and Spill Prevention, Control, and Countermeasures Plan	Yes	Duration: Long-term Magnitude: Low Geographic Extent: Discrete Frequency: Intermittent Reversibility: Reversible long-term Context: High context	Not Significant (High)	Duration: Long-term Magnitude: Negligible Geographic Extent: Discrete Frequency: Intermittent Reversibility: Reversible long-term Context: High	Not Significant (High)
Grizzly Bear**	Habitat Loss and Degradation	Clearing vegetation, and construction and operations of the mine site infrastructure and facilities (including the rail loadout, utility corridor, Mine Rock Storage Facility, water	• CPP • O	• Minimizing disturbance and encroachment into natural vegetation	Yes	Duration: Long-term Magnitude: Low Geographic	Not Significant (Moderate)	Duration: Long-term and permanent Magnitude: Low Geographic Extent:	Not Significant (Moderate)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		management infrastructure), and pits will result in habitat loss. Habitat degradation may 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. Habitat degradation may also occur during decommissioning of mine site infrastructure and managing the Main Sediment Pond discharge.		• Clearing vegetation only in the year in which the area will be required for construction or operation • Sequencing the development of pits and Mine Rock Storage Facility areas to limit total disturbance during any one period and maximize progressive reclamation opportunities • Progressive reclamation and revegetation • Implementation of the Erosion and Sediment Control Plan and the Air Quality and Greenhouse Gas Management Plan • Conduct den surveys in high potential habitat. If dens present avoid active dens during vegetation removal and clearing		Extent: Discrete Frequency: Continuous Reversibility: Reversible long-term Context: Low		Regional Frequency: Continuous Reversibility: Reversible long-term Context: Low	
	Sensory Disturbance	Sensory disturbance may result from increased human presence, transportation of personnel and materials (including loading, hauling and dumping) clearing and grubbing, soil salvage, the construction and operation of infrastructure (including but not limited to roads, rail loadout, Coal Handling Process Plant [CHPP], water management infrastructure, detonating explosives, and coal processing. Sensory disturbance is also expected during the dismantling of infrastructure and facilities, removal of linear infrastructure, and human activity with monitoring and maintenance. Key sources of ground vibration are rail and blasting operations. Grizzly bears are sensitive to human activities and may be displaced within the noise zones of influence.	• CPP • O • RC	• Education and training as described in the Wildlife Management and Monitoring Plan • Implementation of the Noise and Vibration Management Plan and the Air Quality and Greenhouse Gas Management Plan • Directed/focused lighting will be used where possible • Deactivate roads wherever possible	Yes	Duration: Long-term Magnitude: Moderate Geographic Extent: Local Frequency: Continuous Reversibility: Reversible long-term Context: Low	Not Significant (Moderate)	Duration: Long-term Magnitude: Low Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible long-term Context: Low	Not Significant (Moderate)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
	Disruption to Movement	Land clearing activities including logging and clearing and grubbing of the infrastructure and pre-production development footprint will result in fragmentation and reducing functional connectivity that may disrupt movements. Built structures, like buildings and the CHPP will be a complete barrier, though on a localized scale. Steep pit walls may present a barrier to movement. The conveyor as well as roads represent a semi-permeable barrier, provided that no physical barriers are created during road upgrades. Movements may also be disrupted by sensory disturbance in other areas.	• CPP • O • RC	• The overland conveyor will be elevated to 3 m at 500 m intervals (to be confirmed) to allow wildlife crossing • Management of vehicle traffic and access as described in Traffic Control Plan contributes to reducing barrier effect of roads • Progressive reclamation and revegetation • Minimize sensory disturbance (measure describe above) • Create gaps in snowbanks to remove physical barriers	Yes	Duration: Long-term Magnitude: Moderate Geographic Extent: Local Frequency: Continuous Reversibility: Reversible long-term Context: Low	Not Significant (Moderate)	Duration: Long-term Magnitude: Low Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible long-term Context: Low	Not Significant (Moderate)
	Increased Mortality Risk	Direct mortality may arise from collisions with Project-related traffic during terrain disturbance and clearing of vegetation, collisions with Project-related traffic on access or mine site roads, collisions with rail, operational mining activities including blasting, ingestion of toxic products from materials stored on site, and entrapment in holding and settlement ponds or along access roads during winter due to high snowbanks. Food odours, food waste, and domestic garbage may be attractants for grizzly bears and may lead to increased human-wildlife conflict. Seeded vegetation adjacent to roads may attract grizzly bear, leading to increase animal-vehicle collisions.	• CPP • O • RC	• Education and training as described in the Wildlife Management and Monitoring Plan • Conduct den surveys in high potential denning habitat to determine whether active dens are present and, if so, develop management strategies to avoid known active dens during vegetation removal and clearing • Management of vehicle traffic and access as described in Traffic Control Plan contributes • Prevent wildlife entrapment • Clear area before blasting and avalanche control • Minimize attractants • Manage chemical hazards	Yes	Duration: Long-term Magnitude: Low Geographic Extent: Discrete Frequency: Intermittent Reversibility: Reversible long-term Context: Low	Not Significant (Moderate)	Duration: Long-term Magnitude: Negligible Geographic Extent: Regional Frequency: Intermittent Reversibility: Reversible long-term Context: Low	Not Significant (Moderate)
Wolverine	Habitat Loss and Degradation	Clearing vegetation, and construction and operations of the mine site infrastructure and facilities (including the rail loadout, utility corridor, Mine Rock Storage Facility, water management infrastructure), and pits will result in habitat loss. Habitat degradation may 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. Habitat	• CPP • O	• Minimizing disturbance and encroachment into natural vegetation • Clearing vegetation only in the year in which the area will be required for construction or operation • Sequencing the development of pits and Mine Rock Storage Facility areas to limit total disturbance during any one period and maximize progressive reclamation opportunities • Progressive reclamation and revegetation	Yes	Duration: Long-term Magnitude: Moderate Geographic Extent: Discrete Frequency: Continuous Reversibility: Reversible long-term Context: Low	Not Significant (High)	Duration: Long-term and permanent Magnitude: Low Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible long-term Context: Low	Not Significant (Moderate)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		degradation may also occur during decommissioning of mine site infrastructure and managing the Main Sediment Pond discharge.		• Implementation of the Erosion and Sediment Control Plan and the Air Quality and Greenhouse Gas Management Plan • Conduct dens surveys in high potential habitat. If dens present avoid active dens during vegetation removal and clearing					
	Sensory Disturbance	Sensory disturbance may result from increased human presence, transportation of personnel and materials (including loading, hauling and dumping) clearing and grubbing, soil salvage, the construction and operation of infrastructure (including but not limited to roads, rail loadout, Coal Handling Process Plant [CHPP], water management infrastructure, detonating explosives, and coal processing. Sensory disturbance is also expected during the dismantling of infrastructure and facilities, removal of linear infrastructure, and human activity with monitoring and maintenance. Key sources of ground vibration are rail and blasting operations.	• CPP • O • RC	• Education and training as described in the Wildlife Management and Monitoring Plan • Implementation of the Noise and Vibration Management Plan and Air Quality and Greenhouse Gas Management Plan • Directed/focused lighting will be used where possible • Deactivate roads wherever possible	Yes	Duration: Long-term Magnitude: Moderate Geographic Extent: Local Frequency: Continuous Reversibility: Reversible long-term Context: Low	Not Significant (High)	Duration: Long-term Magnitude: Low Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible long-term Context: Low	Not Significant (Moderate)
	Disruption to Movement	Land clearing activities including logging and clearing and grubbing of the infrastructure and pre-production development footprint will result in fragmentation and reducing functional connectivity that may disrupt movements. Built structures, like buildings and the CHPP will be a complete barrier, though on a localized scale. Steep pit walls and tall and steep snowbanks from snow clearing along access roads may present a barrier to movement. The conveyor as well as roads represent a semi-permeable barrier, provided that no physical barriers are created during road upgrades. Movements may also be disrupted by sensory disturbance in other areas.	• CPP • O • RC	• The overland conveyor will be elevated to 3 m at 500 m intervals to allow wildlife crossing • Management of vehicle traffic and access as described in Traffic Control Plan contributes to reducing barrier effect of roads • Progressive reclamation and revegetation • Minimize sensory disturbance (measure describe above) • Create gaps in snowbanks to remove physical barriers	Yes	Duration: Long-term Magnitude: Low Geographic Extent: Local Frequency: Continuous Reversibility: Reversible long-term Context: Low	Not Significant (High)	Duration: Long-term Magnitude: Low Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible long-term Context: Low	Not Significant (Moderate)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
American Badger**	Habitat Loss and Degradation	Clearing vegetation, and construction and operations of the mine site infrastructure and facilities (including the rail loadout, utility corridor, Mine Rock Storage Facility, water management infrastructure), and pits will result in habitat loss. Habitat degradation may 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. Habitat degradation may also occur during decommissioning of mine site infrastructure and managing the Main Sediment Pond discharge.	• CPP • O	• Minimizing disturbance and encroachment into natural vegetation • Clearing vegetation only in the year in which the area will be required for construction or operation • Sequencing the development of pits and Mine Rock Storage Facility areas to limit total disturbance during any one period and maximize progressive reclamation opportunities • Progressive reclamation and revegetation • Implementation of the Erosion and Sediment Control Plan and the Air Quality and Greenhouse Gas Management Plan • Conduct dens surveys in high potential habitat. If dens present avoid active dens during vegetation removal and clearing	Yes	Duration: Long-term Magnitude: Low Geographic Extent: Discrete Frequency: Continuous Reversibility: Reversible long-term Context: Moderate	Not Significant (High)	Duration: Long-term Magnitude: Moderate Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible long-term Context: Moderate	Not Significant (High)
	Sensory Disturbance	Sensory disturbance may result from increased human presence, transportation of personnel and materials (including loading, hauling and dumping) clearing and grubbing, soil salvage, the construction and operation of infrastructure (including but not limited to roads, rail loadout, Coal Handling Process Plant [CHPP], water management infrastructure, detonating explosives, and coal processing. Sensory disturbance is also expected during the dismantling of infrastructure and facilities, removal of linear infrastructure, and human activity with monitoring and maintenance. Key sources of ground vibration are rail and blasting operations.	• CPP • O • RC	• Education and training as described in the Wildlife Management and Monitoring Plan • Implementation of the Noise and Vibration Management Plan and the Air Quality and Greenhouse Gas Management Plan • Directed/focused lighting will be used where possible • Deactivate roads wherever possible	Yes	Duration: Long-term Magnitude: Low Geographic Extent: Local Frequency: Continuous Reversibility: Reversible long-term Context: High	Not Significant (High)	Duration: Long-term Magnitude: Moderate Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible long-term Context: High	Not Significant (High)
	Disruption to Movement	Land clearing activities including logging and clearing and grubbing of the infrastructure and pre-production development footprint will result in fragmentation and reducing functional connectivity that may disrupt movements. Built structures, like buildings and the CHPP will be a complete barrier, though on a localized scale. Steep pit walls and tall and steep snowbanks from snow clearing along access roads may present a barrier to movement.	• CPP • O • RC	• The overland conveyor will be elevated to 3 m at 500 m intervals (to be confirmed) to allow wildlife crossing • Management of vehicle traffic and access as described in Traffic Control Plan contributes to reducing barrier effect of roads • Progressive reclamation and revegetation • Minimize sensory disturbance • Create gaps in snowbanks to remove physical barriers	Yes	Duration: Long-term Magnitude: Low Geographic Extent: Local Frequency: Continuous Reversibility: Reversible long-term	Not Significant (High)	Duration: Long-term Magnitude: Low Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible long-term Context: Moderate	Not Significant (High)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		The conveyor as well as roads represent a semi-permeable barrier, provided that no physical barriers are created during road upgrades. Movements may also be disrupted by sensory disturbance in other areas.				Context: Moderate			
	Increased Mortality Risk	Direct mortality may arise from collisions with Project-related traffic during terrain disturbance and clearing of vegetation, collisions with Project-related traffic on access or mine site roads, entrapment during avalanche control, collisions with rail, operational mining activities (including blasting), ingestion of toxic products from materials stored on site, and entrapment in holding and settlement ponds or along access roads during winter due to high snowbanks. Food odours, food waste, and domestic garbage may be attractants and lead to increased human-wildlife conflict.	• CPP • O • RC	• Education and training as described in the Wildlife Management and Monitoring Plan • Conduct den surveys in high potential denning habitat to determine whether active dens are present and, if so, develop management strategies to avoid known active dens during vegetation removal and clearing • Management of vehicle traffic and site access as documented within the Traffic Control Plan • Prevent wildlife entrapment • Clear area before blasting and avalanche control • Avoid and minimize attractants that could lead to increased human-wildlife conflict • Implementation of the Spill Prevention, Control, and Countermeasures Plan	Yes	Duration: Long-term Magnitude: Low Geographic Extent: Discrete Frequency: Intermittent Reversibility: Reversible long-term Context: Low	Not Significant (High)	Duration: Long-term Magnitude: Negligible Geographic Extent: Regional Frequency: Intermittent Reversibility: Reversible long-term Context: Low	Not Significant (High)
American Marten	Habitat Loss and Degradation	Clearing vegetation, and construction and operations of the mine site infrastructure and facilities (including the rail loadout, utility corridor, Mine Rock Storage Facility, water management infrastructure), and pits will result in habitat loss. Habitat degradation may 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. Habitat degradation may also occur during decommissioning of mine site infrastructure and managing the Main Sediment Pond discharge.	• CPP • O	• Minimizing disturbance and encroachment into natural vegetation • Clearing vegetation only in the year in which the area will be required for construction or operation • Sequencing the development of pits and Mine Rock Storage Facility areas to limit total disturbance during any one period and maximize progressive reclamation opportunities • Progressive reclamation and revegetation • Implementation of the Erosion and Sediment Control Plan and the Air Quality and Greenhouse Gas Management Plan • Conduct dens surveys in high potential habitat. If dens present avoid active dens during vegetation removal and clearing	Yes	Duration: Permanent Magnitude: Moderate Geographic Extent: Discrete Frequency: Continuous Reversibility: Reversible long-term Context: Low	Not Significant (High)	Duration: Permanent Magnitude: Moderate Geographic Extent: Regional Frequency: Continuous Reversibility: Permanent Context: Low	Not Significant (High)
	Sensory Disturbance	Sensory disturbance may result from increased human presence, transportation of personnel and materials (including loading, hauling and dumping) clearing and grubbing, soil salvage, the construction and operation of infrastructure (including but not limited to roads, rail loadout,	• CPP • O • RC	• Education and training as described in the Wildlife Management and Monitoring Plan • Implementation of the Noise and Vibration Management Plan and the Air Quality and Greenhouse Gas Management Plan	Yes	Duration: Long-term Magnitude: High Geographic Extent: Local Frequency:	Not Significant (High)	Duration: Long-term Magnitude: Low Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible	Not Significant (High)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		Coal Handling Process Plant [CHPP], water management infrastructure, detonating explosives, and coal processing. Sensory disturbance is also expected during the dismantling of infrastructure and facilities, removal of linear infrastructure, and human activity with monitoring and maintenance. Key sources of ground vibration are rail and blasting operations.		• Directed/focused lighting will be used where possible • Deactivate roads wherever possible		Continuous Reversibility: Reversible long-term Context: Low		long-term Context: Low	
	Disruption to Movement	Land clearing activities including logging and clearing and grubbing of the infrastructure and pre-production development footprint will result in fragmentation and reducing functional connectivity that may disrupt movements. Built structures, like buildings and the CHPP will be a complete barrier, though on a localized scale. Steep pit walls and tall and steep snowbanks from snow clearing along access roads may present a barrier to movement. The conveyor as well as roads represent a semi-permeable barrier, provided that no physical barriers are created during road upgrades. Movements may also be disrupted by sensory disturbance in other areas.	• CPP • O • RC	• The overland conveyor will be elevated to 3 m at 500 m intervals (to be confirmed) to allow wildlife crossing • Management of vehicle traffic and access as described in Traffic Control Plan contributes to reducing barrier effect of roads • Progressive reclamation and revegetation • Minimize sensory disturbance (measure describe above) • Create gaps in snowbanks to remove physical barriers	Yes	Duration: Long-term Magnitude: Low Geographic Extent: Local Frequency: Continuous Reversibility: Reversible long-term Context: Low	Not Significant (High)	Duration: Long-term Magnitude: Low Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible long-term Context: Low	Not Significant (High)
Canada Lynx	Habitat Loss and Degradation	Clearing vegetation, and construction and operations of the mine site infrastructure and facilities (including the rail loadout, utility corridor, Mine Rock Storage Facility, water management infrastructure), and pits will result in habitat loss. Habitat degradation may 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. Habitat degradation may also occur during decommissioning of mine site infrastructure and managing the Main Sediment Pond discharge.	• CPP • O	• Minimizing disturbance and encroachment into natural vegetation • Clearing vegetation only in the year in which the area will be required for construction or operation • Sequencing the development of pits and Mine Rock Storage Facility areas to limit total disturbance during any one period and maximize progressive reclamation opportunities • Progressive reclamation and revegetation • Implementation of the Erosion and Sediment Control Plan and the Air Quality and Greenhouse Gas Management Plan • Conduct dens surveys in high potential habitat. If dens present avoid active dens during vegetation removal and clearing	Yes	Duration: Long-term Magnitude: Moderate Geographic Extent: Discrete Frequency: Continuous Reversibility: Reversible long-term (partly) Context: High	Not Significant (High)	Duration: Long-term Magnitude: Moderate Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible long-term Context: High	Not Significant (High)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
	Sensory Disturbance	Sensory disturbance may result from increased human presence, transportation of personnel and materials (including loading, hauling and dumping) clearing and grubbing, soil salvage, the construction and operation of infrastructure (including but not limited to roads, rail loadout, Coal Handling Process Plant [CHPP], water management infrastructure, detonating explosives, and coal processing. Sensory disturbance is also expected during the dismantling of infrastructure and facilities, removal of linear infrastructure, and human activity with monitoring and maintenance. Key sources of ground vibration are rail and blasting operations.	• CPP • O • RC	• Education and training as described in the Wildlife Management and Monitoring Plan • Implementation of the Noise and Vibration Management Plan and the Air Quality and Greenhouse Gas Management Plan • Directed/focused lighting will be used where possible • Deactivate roads wherever possible	Yes	Duration: Long-term Magnitude: Moderate Geographic Extent: Local Frequency: Continuous Reversibility: Reversible long-term Context: Moderate	Not Significant (High)	Duration: Long-term Magnitude: Low Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible long-term Context: High	Not Significant (High)
	Disruption to Movement	Land clearing activities including logging and clearing and grubbing of the infrastructure and pre-production development footprint will result in fragmentation and reducing functional connectivity that may disrupt movements. Built structures, like buildings and the CHPP will be a complete barrier, though on a localized scale. Steep pit walls and tall and steep snowbanks from snow clearing along access roads may present a barrier to movement. The conveyor as well as roads represent a semi-permeable barrier, provided that no physical barriers are created during road upgrades. Movements may also be disrupted by sensory disturbance in other areas.	• CPP • O • RC	• The overland conveyor will be elevated to 3 m at 500 m intervals (to be confirmed) to allow wildlife crossing • Management of vehicle traffic and access as described in Traffic Control Plan contributes to reducing barrier effect of roads • Progressive reclamation and revegetation • Minimize sensory disturbance (measure describe above) • Create gaps in snowbanks to remove physical barriers	Yes	Duration: Long-term Magnitude: Low Geographic Extent: Local Frequency: Continuous Reversibility: Reversible long-term Context: Moderate	Not Significant (High)	Duration: Long-term Magnitude: Low Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible long-term Context: Neutral	Not Significant (High)
At-Risk Bat Species (i.e., Little Brown Bat, Northern Myotis, and Eastern Red Bat)**	Habitat Loss and Degradation	Clearing vegetation, and construction and operations of the mine site infrastructure and facilities (including the rail loadout, utility corridor, Mine Rock Storage Facility, water management infrastructure), and pits will result in habitat loss. Habitat degradation may 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	• CPP • O • RC	• Avoidance of known and high potential hibernacula • 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 • Sequencing the development of pits and Mine Rock Storage Facility areas to limit total disturbance during any one period and	Yes	Duration: Long-term to permanent Magnitude: Moderate Geographic Extent: Discrete Frequency: Continuous Reversibility: Irreversible Context: Low	Not Significant (Low)	Duration: Long-term to permanent Magnitude: Low to moderate Geographic Extent: Regional Frequency: Continuous Reversibility: Irreversible Context: Low	Not Significant (High)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		solids and affect vegetation. Habitat degradation may also occur during decommissioning of mine site infrastructure and managing the Main Sediment Pond discharge.		maximize progressive reclamation opportunities • Progressive reclamation and revegetation • Implementation of the Erosion and Sediment Control Plan, Noise and Vibration Management Plan and the Air Quality and Greenhouse Gas Management Plan					
	Sensory Disturbance	Sensory disturbance may result from increased human presence, transportation of personnel and materials (including loading, hauling and dumping) clearing and grubbing, soil salvage, the construction and operation of infrastructure (including but not limited to roads, rail loadout, Coal Handling Process Plant [CHPP], water management infrastructure, detonating explosives, and coal processing. Sensory disturbance is also expected during the dismantling of infrastructure and facilities, removal of linear infrastructure, and human activity with monitoring and maintenance. Key sources of ground vibration are rail and blasting operations. Noise may interfere with echolocation, causing a reduction in feeding, depending on the noise frequencies and the bat echolocation frequency level. Noise and vibration from blasting can affect adjacent bat roosts in summer or winter.	• CPP • O • RC	• Minimize habitat and sensory disturbance • Manage vehicle traffic and site access • Education and training as described in the Wildlife Management and Monitoring Plan • Implementation of the Noise and Vibration Management Plan • For blasting activities in the vicinity of roosting or hibernating sites (if any identified), procedures described in B.C. Ministry of Environment (MOE; 2016) will be followed, specifically: o Either ensure sound concussion of less than 150 decibels and that shock wave is less than 15 pounds per square inch (PSI) and the peak particle velocity is less than 15 mm/second; or o Maintain a setback of 2 km from occupied significant roost sites (if any are determined). Blasting may occur during periods when bats are not occupying a roost (if any are identified); however, ensure that the roost habitat is not degraded	Yes	Duration: Long-term Magnitude: Low Geographic Extent: Local Frequency: Continuous Reversibility: Reversible long-term Context: Low	Not Significant (Low)	Duration: Long-term Magnitude: Nil Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible long-term Context: Low	Not Significant (High)
	Increased Mortality Risk	Direct mortality may occur through collisions with Project-related traffic (including rail) on access or mine roads, destruction of occupied roosts occurring in trees, rock crevices, or caves (if present), as well as building or structures when modified or removed. Indirect mortality could occur through spread of white-nose syndrome in all phases of the Project. If workers come in contact with caves where bats are hibernating, the fungus causing white-nose syndrome could be spread on clothing or equipment to other bats.	• CPP • O • RC • PC	• Vegetation clearing activities will be avoided during the most sensitive period for bats (May 30 to September 1 in the Kootenay Region) • Pre-clearing bat roost and hibernaculum surveys will be conducted in areas considered to have high potential for roosting or hibernation • If an active roost site is identified, the tree will not be felled and a suitable buffer zone will be maintained during the maternal roosting period, or the Ministry of Forests, Lands, Natural Resource Operations, and Rural Development (FLNRORD; or the appropriate governing agency) will be contacted for guidance	No	N/A	N/A	N/A	N/A

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				• If a cave-based bat hibernaculum is found during pre-clearing surveys, FLNRORD or the applicable provincial government agency will be notified and mitigation enacted, as directed • Decontamination protocols to minimize the introduction and transmission of white-nose syndrome will be followed in all cases where bats are present or likely present (e.g., caves); signs of white-nose syndrome symptoms on bats will be immediately reported to the Ministry of Environment and Climate Change Strategy (ENV) and the B.C. Wildlife Health Program • Buildings will be designed to exclude bat use and will be regularly inspected for openings that may allow for bat entry; if bats use is suspected, then a survey will be conducted to determine presence and a strategy developed to exclude bats with the least impact • Observe speed limits to minimize the potential for collisions with bats					
Migratory Birds (Barn Swallow, Olive-sided Flycatcher, woodpeckers)	Habitat Loss and Degradation	Ground disturbance, logging, and vegetation clearing may result in habitat loss and degradation. Reduced surface water flows may impact riparian feeding or nesting habitat.	• CPP • O	• Minimizing disturbance and encroachment into natural vegetation • Clearing vegetation only in the year in which the area will be required for construction or operation • Sequencing the development of pits and Mine Rock Storage Facility areas to limit total disturbance during any one period and maximize progressive reclamation opportunities • Progressive reclamation and revegetation • Implementation of the Erosion and Sediment Control Plan and the Air Quality and Greenhouse Gas Management Plan	Yes	Duration: Long-term to Permanent Magnitude: Moderate Geographic Extent: Discrete Frequency: Continuous Reversibility: Irreversible to Reversible long-term Context: Neutral (Olive-sided Flycatcher, Barn Swallow); Low (woodpeckers)	Not Significant (High)	Duration: Long-term to permanent Magnitude: Moderate Geographic Extent: Regional Frequency: Continuous Reversibility: Irreversible to reversible long-term Context: Neutral (Olive-sided Flycatcher, Common Nighthawk, and Evening Grosbeak); Low (woodpeckers)	Not Significant (High)
	Sensory Disturbance	Sensory disturbance may result from increased human presence, transportation of personnel and materials (including loading, hauling and dumping) clearing and grubbing, soil salvage, the construction and operation of infrastructure (including but not limited to roads, rail loadout,	• CPP • O	• Education and training as described in the Wildlife Management and Monitoring Plan • Implementation of the Noise and Vibration Management Plan and Air Quality and Greenhouse Gas Management Plan		Duration: Long-term Magnitude: Moderate Geographic Extent: Local	Not Significant (High)	Duration: Long-term Magnitude: Low Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible	Not Significant (High)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		Coal Handling Process Plant [CHPP], water management infrastructure, detonating explosives, and coal processing. Sensory disturbance is also expected during the dismantling of infrastructure and facilities, removal of linear infrastructure, and human activity with monitoring and maintenance. Key sources of ground vibration are rail and blasting operations.		• Directed/focused lighting will be used where possible		Frequency: Continuous Reversibility: Reversible long-term Context: Neutral		long-term Context: Neutral	
	Increased Mortality Risk	Collisions with Project-related equipment and vehicle traffic on access or mine site roads, collisions with electrical wires, chemical hazards (e.g., ingestion of toxic products) from materials, destruction of bird nests when occupied by birds or eggs, and through the physical impact of blasting.	• CPP • O • RC • PC	• All vegetation clearing will be conducted outside the general bird nesting period (Mid-April to Mid-August in each year) • Education and training as described in the Wildlife Management and Monitoring Plan • Management of vehicle traffic and access as described in Traffic Control Plan will contribute to minimization of direct mortality during all Project phases • Signage along Project roads in high-value wildlife areas or known wildlife travel corridors to warn vehicle operators of the potential to encounter wildlife • Implementation of the Spill Prevention, Control, and Countermeasures Plan • Petroleum products and chemicals will be stored in holding tanks or closed facilities that exclude wildlife • Grey water and sewage will be contained in a closed system of holding tanks that will be pumped out as required	No	N/A	N/A	N/A	N/A
Northern Goshawk	Habitat Loss and Degradation	Ground disturbance, logging, and vegetation clearing may result in habitat loss and degradation. Reduced surface water flows may impact riparian feeding or nesting habitat.	• CPP • O	• Minimizing disturbance and encroachment into natural vegetation • Clearing vegetation only in the year in which the area will be required for construction or operation • Sequencing the development of pits and Mine Rock Storage Facility areas to limit total disturbance during any one period and maximize progressive reclamation opportunities • Progressive reclamation and revegetation	Yes	Duration: Permanent Magnitude: Moderate Geographic Extent: Discrete Frequency: Continuous Reversibility: Irreversible Context: Low	Not Significant (High)	Duration: Permanent Magnitude: Moderate Geographic Extent: Regional Frequency: Continuous Reversibility: Irreversible Context: Low	Not Significant (Moderate)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				• Implementation of the Erosion and Sediment Control Plan and the Air Quality and Greenhouse Gas Management Plan					
	Sensory Disturbance	Sensory disturbance may result from increased human presence, transportation of personnel and materials (including loading, hauling and dumping) clearing and grubbing, soil salvage, the construction and operation of infrastructure (including but not limited to roads, rail loadout, Coal Handling Process Plant [CHPP], water management infrastructure, detonating explosives, and coal processing. Sensory disturbance is also expected during the dismantling of infrastructure and facilities, removal of linear infrastructure, and human activity with monitoring and maintenance. Key sources of ground vibration are rail and blasting operations.	• CPP • O	• Education and training as described in the Wildlife Management and Monitoring Plan • Implementation of the Noise and Vibration Management Plan and Air Quality and Greenhouse Gas Management Plan • Directed/focused lighting will be used where possible	Yes	Duration: Long-term Magnitude: Low Geographic Extent: Local Frequency: Continuous Reversibility: Reversible long-term Context: Neutral	Not Significant (High)	Duration: Long-term Magnitude: Low Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible long-term Context: Neutral	Not Significant (Moderate)
	Increased Mortality Risk	Collisions with Project-related equipment and vehicle traffic on access or mine site roads, collisions with electrical wires, chemical hazards (e.g., ingestion of toxic products) from materials, destruction of bird nests when occupied by birds or eggs, and through the physical impact of blasting.	• CPP • O • RC	• All vegetation clearing will be conducted outside the general bird nesting period (Mid-April to Mid-August in each year) • Education and training as described in the Wildlife Management and Monitoring Plan • Management of vehicle traffic and access as described in Traffic Control Plan will contribute to minimization of direct mortality during all Project phases • Signage along Project roads in high-value wildlife areas or known wildlife travel corridors to warn vehicle operators of the potential to encounter wildlife • Implementation of the Spill Prevention, Control, and Countermeasures Plan • Petroleum products and chemicals will be stored in holding tanks or closed facilities that exclude wildlife • Grey water and sewage will be contained in a closed system of holding tanks that will be pumped out as required	No	N/A	N/A	N/A	N/A
Waterbirds (American Dipper, Mallard, Harlequin Duck, Red-winged	Waterbird Health (Selenium Risk)	The Project has the potential to emit chemical contaminants to the environment through controlled or uncontrolled emission such as permitted effluent discharge, surface water	• CPP • O • RC • PC	• Implementation of the Site Water Management Plan	Yes	Duration: Long-term Magnitude: Negligible	Not Significant (High)	Duration: Long-term Magnitude: Negligible Geographic Extent: Local Frequency: Continuous	Not Significant (Moderate)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
Blackbird, Spotted Sandpiper		runoff, fugitive dust, and emissions from vehicle traffic or other direct facility emissions. These emissions in turn have the potential to alter environmental quality of local and regional landscapes which could potentially expose birds to chemical emissions from the Project.				Geographic Extent: Local Frequency: Continuous Reversibility: Reversible long-term Context: Low		Reversibility: Reversible long-term Context: Low	
Western Toad	Habitat Loss and Degradation	Clearing vegetation, and construction and operations of the mine site infrastructure and facilities (including the rail loadout, utility corridor, Mine Rock Storage Facility, water management infrastructure), and pits will result in habitat loss. Habitat degradation may 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. Habitat degradation may also occur during decommissioning of mine site infrastructure and managing the Main Sediment Pond discharge.	• CPP • O	• Minimizing disturbance and encroachment into natural vegetation • Clearing vegetation only in the year in which the area will be required for construction or operation • Sequencing the development of pits and the Mine Rock Storage Facility to limit total disturbance during any one period and maximize progressive reclamation opportunities • Progressive reclamation and revegetation • Implementation of the Erosion and Sediment Control Plan, Air Quality and Greenhouse Gas Management Plan, and Site Water Management Plan	Yes	Duration: Permanent Magnitude: Low Geographic Extent: Discrete to local Frequency: Continuous Reversibility: Reversible long-term to Irreversible Context: Low	Not Significant (High)	Duration: Long-term and permanent Magnitude: Moderate Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible long-term Context: Low	Not Significant (High)
	Increased Mortality Risk	Vegetation clearing and grubbing, mine rock placement, and collisions with vehicles have the potential to cause increased mortality risk.	• CPP • O • RC • PC	• Conduct surveys of suitable amphibian breeding habitat prior to clearing, grubbing, and deposition of mine rock and, if amphibians are found, conduct a salvage program to avoid mortality • Education and training as described in the Wildlife Management and Monitoring Plan • Management of vehicle traffic and access as described in Traffic Control Plan • Signage along Project roads in high-value wildlife areas or known wildlife travel corridors to warn vehicle operators of the potential to encounter wildlife	Yes	Duration: Long-term Magnitude: Low Geographic Extent: Discrete Frequency: Intermittent Reversibility: Reversible long-term Context: Low	Not Significant (High)	Duration: Long-term Magnitude: Negligible Geographic Extent: Regional Frequency: Intermittent Reversibility: Reversible long-term Context: Low	Not Significant (Moderate)
Amphibians within the RSA (also referred to as Amphibian Health)	Contaminant Exposure	Effluent discharge from the Project site is predicted to have a measurable effect on surface water quality and as such this contaminant exposure pathway is of primary importance to the overall quantitative environmental risk assessment and is the basis	• CPP • O • RC • PC	• Implementation of the Site Water Management Plan	Yes	Duration: Long-term Magnitude: Negligible Geographic Extent: Local	Not Significant (Moderate)	Duration: Long-term Magnitude: Low Geographic Extent: Local Frequency: Continuous Reversibility: Reversible long-term	Not Significant (Moderate)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		for the aquatic health risk assessment that includes amphibians.				Frequency: Continuous Reversibility: Reversible long-term Context: Low		Context: Low	
Gillette's Checkerspot	Habitat Loss and Degradation	There is a potential for changes to the existing available habitat and distribution through logging, clearing, and grubbing, and excavation for the Project footprint, construction of site components for Project infrastructure, and mining and dumping of mine rock during Operations. In addition, habitat may be degraded through dust deposition.	• CPP • O	• Pre-disturbance surveys will be completed in high-quality habitats within the Project footprint. If Gillette's checkerspot are identified within the Project footprint, a management strategy will be developed by a Qualified Environmental Professional and in consultation with regulatory agencies • 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 the Mine Rock Storage Facility during Operations • Clearing vegetation only in the year (or prior year) during which the area will be required for construction or operation 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 maximize progressive reclamation opportunities • Progressive reclamation and revegetation • Implementation of the Erosion and Sediment Control Plan and Air Quality and Greenhouse Gas Management Plan	Yes	Duration: Long-term Magnitude: Moderate Geographic Extent: Discrete Frequency: Continuous Reversibility: Reversible long-term Context: Low	Not Significant (Moderate)	Duration: Long-term Magnitude: Moderate Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible long-term Context: Low	Not Significant (Moderate)
Physical and Cultural Heritage	Change in Paleontological Resources due to Ground Disturbance Activities	Based on the nature of the geological formations located within the Project footprint, there is potential for ground disturbance activities during site clearing, construction, and mining to result in changes to paleontological resources in the Project footprint.	• CPP • O	• Minimize Project footprint through Project design • Limit Project activities to the extent of the approved Project footprint • Implement Chance Find Protocol	No	N/A	N/A	N/A	N/A
	Change in Archaeological Resources due to Ground Disturbance Activities	There is potential for activities during site clearing, construction, and mining that involve ground disturbance to result in both direct and indirect changes to archaeological resources in	• CPP • O	• The Project footprint has been consciously placed to minimize direct impacts to as many archaeological sites as possible • Limit Project activities to the extent of the approved Project footprint	Yes	Duration: Permanent Magnitude: High Geographic Extent: Discrete to	Not Significant (Moderate)	N/A	N/A

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		the Project footprint and Archaeological Local Study Area (LSA).		• Conduct consultation with the B.C. Archaeology Branch and appropriate Indigenous groups and develop a lawful and ethically appropriate mitigation plan that will likely require site-specific methodologies • Conduct subsequent archaeological impact assessment and investigations under a Section 12.2 Heritage Inspection Permit on provisionally delineated site areas, areas within the Project footprint that have been identified with high archaeological potential, and previously unassessed areas • Application for a provincial Section 12.4 Alteration Permit, to facilitate the Project where it overlaps with identified pre-contact archaeological sites • Implementation of an incident procedure as per the Section 12.4 Alteration Permit		local Frequency: Once Reversibility: Irreversible Context: High			
Economic Conditions	Change in Employment, Employment Income, and Training	Employment and income are expected to be impacted by the Project, as the site activities will require labour during Construction and Pre-Production, Operations, and Reclamation and Closure. The direct employment at the site and procurement of goods and services is expected to generate indirect and induced employment driven by supplier demand for labour in response to the Project, and household spending, respectively.	• CPP • O • RC	• Development of and adherence to Skills, Training, and Employment Plan • Encourage employees and contractors to transition from positions held during Construction and Pre-Production to positions available during Operations • Develop and encourage opportunities for Indigenous capacity building, direct and indirect employment, and education and training, as outlined in NWP's Indigenous Policy • Implement an inclusive recruitment process through inclusive language in advertisements, defining roles to draw a wider set of expertise, using a diverse hiring panel, and setting a goal for parity in the recruiting outcomes • Develop an equal opportunities program that includes mentorship, coaching, programs, and training to allow for training and advancement for all employees	Yes (Positive)	N/A	N/A	N/A	N/A
	Change in Regional and Local Economy	Project procurement of goods and services is expected to have a positive effect on local and regional business revenues. These activities include hiring labour, hiring contractors, buying equipment, renting equipment, and buying materials or supplies. As these activities underpin development, mining, and	• CPP • O • RC	• Create and encourage participation in procurement opportunities by Indigenous owned businesses, as described in NWP's Indigenous Policy • Project procurement opportunities to be designed/ packaged to increase participation	Yes (Positive)	N/A	N/A	N/A	N/A

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		reclamation and closure activities, most Project activities can be expected to have a positive effect on the regional and local economies.		• Build relationships with existing Indigenous-owned businesses and provide support for creation of new businesses • Develop partnerships with the local Chamber of Commerce and other economic development organizations • Leverage existing economic planning initiatives and efforts • Build relationships with regional and local suppliers					
	Change in Government Finances	Economic activities associated with the Project can be expected to result in tax revenues for all levels of government. Taxation on both products and production factors, such as land, can be expected to generate revenues through all Project phases roughly consistent with the occurrence of economic activity and the rate of production.	• CPP • O • RC	• Payment of taxes to Economic Conditions LSA municipalities through the Elk Valley Property Tax Sharing Agreement	Yes (Positive)	N/A	N/A	N/A	N/A
Housing, Community Services, and Infrastructure	Change in Population and Demographics	Project-related labour requirements have the potential to affect populations and demographics within the Socio-Community LSA communities. This effect considers population growth due to Project-related direct labour requirements, which would include the hiring of workers by NWP to support the construction, operation, and closure of the mine.	• CPP • O • RC	• Implement measures to support local, Indigenous, and regional hiring and training to capture the local labour force and limit the change in population • Ongoing development of a local hiring system, including local and Indigenous employment targets, to capture local labour force and limit the change in population	No	N/A	N/A	N/A	N/A
	Change in Housing Demand and Supply	Project-related population growth resulting from the influx of temporary and permanent employees during the Construction and Pre-Production and Operations phases of the Project has the potential to affect the housing demand and supply in the Socio-Community LSA.	• CPP • O • RC	• NWP to monitor housing supply and engage with local municipalities, agencies/ non-governmental organizations (NGOs), and developers to determine how best to support the provision of housing for mining workers in the community • NWP to support a local community working group	No	N/A	N/A	N/A	N/A
	Change in Availability of Community Services	Population growth related to Project workforce hiring during Construction and Pre-Production and Operations could increase public demand on community services, which could decrease public access and quality of community services including education, healthcare, emergency services, protective services, childcare, and recreational services.	• CPP • O • RC	• NWP to develop relationships with local municipalities and B.C. Ambulance Service • NWP to support a local community working group • Payments of taxes to Socio-Community LSA communities through the Elk Valley Property Tax Sharing Agreement, which could support	No	N/A	N/A	N/A	N/A

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				government expenditures on community services					
	Change in Community Infrastructure Demand and Availability	Population growth resulting from workforce hiring during Construction and Pre-Production and Operations could increase the demand for community infrastructure including water, wastewater, solid waste management, and transportation infrastructure.	• CPP • O	• NWP to support a local community working group • Payments of taxes to Socio-Community LSA communities through the Elk Valley Property Tax Sharing Agreement, which could support government expenditures on community services and infrastructure • Implement measures to support local, Indigenous, and regional hiring and training, to capture the local labour force and limit the change in local population • Payments of taxes to Socio-Community LSA communities through the Elk Valley Property Tax Sharing Agreement, which could support government expenditures on community services and infrastructure	No	N/A	N/A	N/A	N/A
Community Health and Well-Being	Change in Community Well-Being	Associated population growth and increased personal income from new employment opportunities has the potential to amplify existing social issues (e.g., drug and alcohol abuse, crime rates, etc.) within the Socio-Community LSA.	• CPP • O	• Implement and adhere to policies outlined in the Health and Safety Management Plan • NWP to support a local community working group • Incorporate diversity and inclusivity and Gender Based Analysis Plus (GBA+) in all areas of the company to ensure acceptable and expected behaviours are integrated in the company and are reflected at the community level	No	N/A	N/A	N/A	N/A
	Change in Public Safety Due to Physical Hazards	Public safety is a concern over the course of the Project as the public may be impacted if exposed to physical hazards such as the operational of heavy machinery and trucks. Potential effects related to Project-public safety interactions include: increased traffic on roads used as part of the clean coal haul route; increased traffic on public highways and roads to access the site; and blasting activities at the mine site.	• CPP • O • RC	• Implementation of the Access Management Plan and Traffic Control Plan	No	N/A	N/A	N/A	N/A

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
	Potential in Project Nuisance Effects to Residents Due to Change in the Acoustic Environment	Activities and components associated with the Project have the potential to cause adverse changes to the socio-community environment from Project related noise and vibration at human receptors nearby. This effect focuses on noise and vibration nuisance effects on permanent residences, which are located in the vicinity of the transmission line infrastructure and the rail loadout. Construction activities, use of heavy equipment, transportation, blasting, and rail activity will affect the acoustic environment in these locations.	• CPP • O • RC	• Implementation of the Noise and Vibration Management Plan	No	N/A	N/A	N/A	N/A
	Potential in Project Nuisance Effects to Residents Due to Change in the Atmospheric Environment	Activities and components associated with the Project have the potential to cause adverse changes to the socio-community environment from Project related changes to air quality (e.g., localized dust effects) at human receptors nearby. This effect focuses on air quality nuisance effects on permanent residences, which are located in the vicinity of the transmission line infrastructure and the rail loadout. Construction activities, use of heavy equipment, transportation, blasting, and rail activity may affect the atmospheric environment in these locations.	• CPP • O • RC	• Implementation of the Air Quality and Greenhouse Gas Management Plan	No	N/A	N/A	N/A	N/A
	Change in Community Health Conditions	Community or temporary residents, Indigenous peoples, and seasonal land users may be exposed to chemical constituents associated with fugitive air release from Project activities through direct inhalation, direct contact and ingestion of surface water affected by the Project, and ingestion of plant and animal tissues collected from the vicinity of the Project.	• CPP • O • RC	• Implementation of the Air Quality and Greenhouse Gas Management Plan, Site Water Management Plan, and Soil Management Plan	No	N/A	N/A	N/A	N/A
	Change in Availability and Reliance on Country Foods	Project activities and physical works have the potential to limit access to country foods that are potentially relied upon by Indigenous communities that may fish, hunt, trap, harvest, and gather within the Project footprint. Project construction and operation may also reduce the quantity of country foods available within the Project area by resulting in changes to local fish, wildlife, and plant populations.	• CPP • O • RC	• Continue to engage with Indigenous communities to determine extent to which Project lands are used for traditional harvesting activities • Establish new conservations lands to support species of interest and access for hunting • Develop closure landscape in consultation with Indigenous groups to support species of interest and use of the land for hunting	No	N/A	N/A	N/A	N/A

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				• Establish fisheries offsets to support species of interest and access for fishing • Participate in and support Indigenous food security initiatives including access to country food					
Land Use and Access	Change in Access to Lands Used for Recreation Activities	Project upgrades to Grave Creek Road may temporarily disrupt access to lands used for recreational purposes. Increased traffic on Harmer Creek Road and Grave Creek Road could result in safety concerns for some users, and these users may choose to use different areas or access routes. Blasting activities may result in temporary closures around the Project.	• CPP • O • RC	• Publically communicate the blasting restriction zone, including with local clubs/associations and the owners of the cabins • Provide adequate training to NWP employees that will be responsible for the enforcement of the blasting restriction zone and who would have direct contact with recreation users • Allow bow hunting in vicinity of the Project. Establish boundaries of bow hunting area with local associations and agencies • Harmer Creek Road and Grave Creek Road to remain open to public use during all Project phases • Communicate to the public when road use restrictions may be in place • In order to maintain access to the Alexander Creek Access Management Area (AMA), NWP intends to create and maintain (snow plow) a new loadout area for snowmobile use for the duration of the Project. This new loadout is to be located further up Grave Creek Road, likely just past the mine site entrance. • Communicate with local user groups and clubs regarding any access restrictions • Continue to work with snowmobile club to ensure that access to their cabin is still possible • NWP to continue discussions with the Government of B.C. and stakeholders about potentially developing an alternate trail that would remain open during blasting activities, thereby maintaining access to cabins	Yes	Duration: Long-term Magnitude: Moderate Geographic Extent: Local Frequency: Continuous Reversibility: Reversible Context: High	Not Significant (Moderate)	Duration: Temporary Magnitude: Moderate Geographic Extent: Local Frequency: Ongoing/Continuous Reversibility: Reversible Context: Common	Not Significant (Moderate)
Commercial Land Use	Change in Quantity of Land Available for Trapping	The development of Project components, including the rail loadout, mine site, and/or new supporting infrastructure, as well as operation of the mine (e.g., blasting activities) could result in the loss of lands used for some commercial purposes.	• CPP • O • RC	• NWP to continue discussions related to accommodations with the tenure holder of TR0423T006, which overlaps with the mine site	Yes	Duration: Permanent Magnitude: Moderate Geographic Extent: Discrete Frequency: Once Reversibility:	Not Significant (Moderate)	Duration: Permanent Magnitude: Moderate Geographic Extent: Regional Frequency: Once Reversibility: Permanent Context: Common	Not Significant (Moderate)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
						Reversible Context: High			
	Change in the Quantity of Land Available for Forestry	The development of Project components, including the rail loadout, mine site, and/or new supporting infrastructure, as well as operation of the mine (e.g., blasting activities) could result in the loss of lands used for some commercial purposes.	• CPP • O • RC	• Prior to construction, complete an assessment of the affected forested lands to determine the need for any compensation to Canfor • NWP will work with Canfor for the harvesting of the timber	Yes	Duration: Permanent Magnitude: Moderate Geographic Extent: Discrete Frequency: Once Reversibility: Irreversible Context: Low	Not Significant (Moderate)	Duration: Permanent Magnitude: Moderate Geographic Extent: Regional Frequency: Once Reversibility: Reversible Context: Common	Not Significant (moderate)
Recreation and Tourism	Change in the Quantity of Land Available for Recreation Activities	Development of the Project will result in the loss of lands used for recreation activities, including development of the rail loadout, the powerline, upgrades to Harmer Creek and Grave Creek Roads, and the mine site. Noise from blasting has the potential to affect land use for recreation and tourism purposes.	• CPP • O • RC	• Develop No Unauthorized Entry (NUE) area with input of local land users and agencies • Publically communicate the NUE areas including with local clubs/associations and the owners of the cabins • Minimize length of period of NUE areas • Provide adequate training to NWP employees that will be responsible for the enforcement of the NUE and who would have direct contact with recreation users • Most activities can resume after mining activity ceases including snowmobiling and hunting • Remaining roads within the Project footprint would be available for use after the mine closes • Planned revegetation is expected to result in some wildlife species to return to support hunting activity • Create new conservation lands that would exceed the amount removed from the rail load out facility	Yes	Duration: Long-term Magnitude: Moderate Geographic Extent: Local Frequency: Once Reversibility: Reversible Context: High	Not Significant (Moderate)	Duration: Permanent Magnitude: Moderate Geographic Extent: Regional Frequency: Once Reversibility: Reversible Context: Common	Not Significant (Moderate)
	Change in Waterways Available for Recreational Angling Activities	Development of the mine rock management areas in West Alexander Creek and associated infrastructure (e.g., Main Sediment Pond) may result in the loss of a waterway used for fishing.	• CPP • O • RC	• None available	Yes	Duration: Permanent Magnitude: Low Geographic Extent: Discrete Frequency: Once Reversibility: Irreversible Context: Low	Not Significant (Moderate)	Duration: Permanent Magnitude: Moderate Geographic Extent: Regional Frequency: Once Reversibility: Irreversible Context: Common	Not Significant (Moderate)
	Change in the Quality of Recreation Experiences on Adjacent Lands and Waterways	Development of the Project will result in the loss of lands used for recreation activities, including development of the rail loadout, the	• CPP • O • RC	• Implementation of the Noise and Vibration Management Plan	Yes	Duration: Long-term Magnitude:	Not Significant (High)	Duration: Temporary Magnitude: Moderate Geographic Extent: Local	Not Significant (Moderate)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		powerline, upgrades to Harmer Creek and Grave Creek Roads, and the mine site. Noise from blasting has the potential to affect land use for recreation and tourism purposes.		• Implementation of site-specific Best Management Practices provided in Chapter 7 • Monitoring and follow-up of any public complaints regarding Project noise		Moderate Geographic Extent: Local Frequency: Continuous Reversibility: Reversible Context: High		Frequency: Ongoing/Continuous Reversibility: Reversible Context: Common	
Visual Aesthetics	Change in Sightlines	Development of the Project may result in potential sightlines to the rail loadout from sensitive receptors.	• CPP • O • RC	• Implementation of the Ecological Restoration Plan to mitigate changes in the local landscape resulting from the Project	No	N/A	N/A	N/A	N/A
Wildlife Health	Changes to Terrestrial Wildlife Health due to Operations	Particulate matter emissions are associated with land disturbance, coal handling, hauling, and combustion emissions associated with vehicle traffic and other emission sources associated with the Project. Chemical constituents associated with Project-derived particulate emissions have the potential to accumulate in soils and may result in uptake and accumulation of Project-related chemical constituents in vegetation. Effluent discharge from the Project site is predicted to have a measurable effect on surface water quality which may influence sediment chemistry in receiving waterbodies.	• O	• Implementation of the Water Management Plan and Air Quality and Greenhouse Gas Management Plan	Yes	Duration: Long-term Magnitude: Low Geographic Extent: Local Frequency: Continuous Reversibility: Reversible long-term Context: Neutral	Not Significant (Moderate)	Duration: Long-term Magnitude: Low Geographic Extent: Local Frequency: Continuous Reversibility: Reversible long-term Context: Neutral	Not Significant (Moderate)
Aquatic Health	Changes to Aquatic Wildlife Health due to Operations	Effluent discharge from the Project site is predicted to have a measurable effect on surface water quality which may influence sediment chemistry in receiving waterbodies.	• O	• Implementation of the Site Water Management Plan	Yes	Duration: Long-term Magnitude: Low to moderate Geographic Extent: Local Frequency: Continuous Reversibility: Reversible Context: Neutral	Not Significant (Moderate)	Duration: Long-term Magnitude: Low to moderate Geographic Extent: Local Frequency: Continuous Reversibility: Reversible Context: Neutral	Not Significant (Moderate)
Human Health	Changes to Human Health due to Operations	Particulate matter emissions are associated with land disturbance, coal handling, hauling, and combustion emissions associated with vehicle traffic and other emission sources associated with the Project. Chemical constituents associated with Project-derived	• O	• Implementation of the Water Management Plan and Air Quality and Greenhouse Gas Management Plan	Yes	Duration: Long-term Magnitude: Low Geographic Extent: Local Frequency:	Not Significant (High)	Duration: Long-term Magnitude: Low Geographic Extent: Local Frequency: Continuous Reversibility: Reversible Context: High	Not Significant (High)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		particulate emissions have the potential to accumulate in soils and may result in uptake and accumulation of Project-related chemical constituents in vegetation and wildlife (through ingestion of plant and prey items). Effluent discharge from the Project site is predicted to have a measurable effect on surface water quality which may influence sediment chemistry in receiving waterbodies. Exposure to chemical constituents associated with fugitive air release from Project activities may occur through inhalation, ingestion of foods and surface water.				Continuous Reversibility: Reversible Context: High			
Indigenous Peoples - Ktunaxa Nation	Change to Use of Water for Traditional Purposes	The Ktunaxa Nation have identified some HHRA and sensory receptor locations within the Project footprint and the KNRI LSA that relate to current and rights-based use for water. Project-impacted watercourses within the Project area of influence have not been specifically identified as being used by the KNC but there is potential for the Ktunaxa Nation to utilize these watercourses for traditional purposes as well as other watercourses in the KNRI LSA. The Project is anticipated to result in short-term to long-term changes in opportunities for access to and use of watercourses and waterbodies as access to upstream West Alexander Creek is restricted over the course of the Project. The change in water quantity is projected to be moderate in West Alexander Creek. The resulting influence on the downstream reaches of Alexander Creek is considerably lower during this Project phase. The potential reduction in water quantity in West Alexander Creek could result in a change in the natural flow regime, which may cause fluvial/geomorphologic changes (i.e., erosion potential, bedload movement) and sediment transport capacity to downstream reaches of Alexander Creek.	• CPP • O • RC • P	• The mitigation measures identified for the change to the use of water for traditional purposes are related to management and monitoring plans associated with water quality as identified in Chapter 10, Section 10.5.3 and Chapter 11, Section 11.5.3 including the Erosion and Sediment Control Management Plan (Section 33.4.1.4), Air Quality and Greenhouse Gas Management Plan (Section 33.4.1.1), and the Site Water Management Plan (Section 33.4.1.8). • These are identified in combination with the key mitigations for traditional activities in relation to water use to reduce the impacts on the Ktunaxa Nation's rights including those related to their ability to know and teach the Ktunaxa way of living during all Project phases. • Key mitigation measures for water use include where practicable progressive reclamation and re-vegetation throughout the mine life to minimize erosion potential and reduce the Project footprint, minimizing the potential for runoff effects to surface water. • Mitigation measures related to the effects of the Project on the Ktunaxa Nation are outlined in this chapter in the Indigenous Impact Management Plan that was developed in response to the concerns raised by the Ktunaxa Nation and the identified Indigenous Communities.	Yes	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 (Moderate)	Duration: Long-term Magnitude: Low Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible Long-term to Irreversible Context: Neutral	Not Significant (Moderate)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		The residual effects on surface water quantity and quality due to site construction, operation, and mine closure and reclamation activities and from the disposal of mine rock and coal rejects from the Project, the surface water – groundwater interactions, and the sediment pond discharge are considered not significant and as such, no permanent losses to the ability to access to and use of watercourses and waterbodies is anticipated.		• NWP is committed to continued consultation and engagement with Ktunaxa Nation to identify and adapt mitigation measures to address impacts on use of the use of water resources for traditional purposes within the Project footprint and the KNRI LSA. The mitigation measures relevant to surface water quality and quantity are connected to the Ktunaxa Nation's rights and interests related to their ability to access healthy aquatic systems, their perspectives on water quality and access, the values associated with sustenance based on water resources available to the Ktunaxa Nation, and their ability to know and teach the Ktunaxa way of living during all Project phases.					
	Change to Use of Lands and Resources for Traditional Fishing Purposes	Based on HHRA and sensory receptor locations and information provided from publicly available sources authored by Ktunaxa Nation, Ktunaxa Nation has not currently made available information regarding their use of the watercourses in the Project footprint for fishing purposes while it is assumed that Ktunaxa Nation utilize the KNRI LSA for traditional purposes. It is acknowledged that Ktunaxa Nation has the potential to use watercourses that support Westslope Cutthroat Trout, Kokanee, Burbot, Mountain Whitefish, and Bull Trout VC given their current use and interest in these species, among other species of interest. The Project is anticipated to result in short-term to long-term changes in opportunities for fishing as access to upstream Grave Creek is already restricted and West Alexander Creek is restricted for some Project periods. The residual effects of the Project to the fish and fish habitat VCs, including Westslope Cutthroat Trout, have the potential to result in the residual effect on Ktunaxa Nation's opportunity to fish and access healthy aquatic systems for fishing opportunities.	• CPP • O • RC • P	• 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 (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 Ktunaxa Nation's fishing rights including those related to their ability to know and teach the Ktunaxa way of living during all Project phases. • Key mitigation measures for fishing also include, where practicable limiting the mine disturbance footprint through Project design and progressive reclamation. • The Fish and Fish Habitat Management Plan will verify whether the Project is successfully	Yes	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)	Duration: Long-term Magnitude: Moderate Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible Long-term to Irreversible Context: Neutral	Not Significant (Low)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				avoiding and mitigating adverse effects on fish and fish habitat. • The Aquatic Effects Monitoring Program is designed to evaluate water and sediment quality, periphyton, benthic invertebrates, and fish, in addition to tissue metal concentrations. • NWP is committed to continued consultation and engagement with Ktunaxa Nation to identify and adapt mitigation measures to address impacts on the use of lands and resources for traditional purposes within the Project footprint and the KNRI LSA will be undertaken where appropriate to implement an adaptive management strategy that creates feedback loops through monitoring and reporting. The mitigation measures relevant to the fish and fish habitat VCs are connected to the Ktunaxa Nation'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 Ktunaxa Nation, and their ability to know and teach the Ktunaxa way of living during all Project phases.					
	Change to Use of Lands and Resources for Traditional Hunting and Trapping Purposes	Based on the HHRA and sensory receptor locations provided by the Ktunaxa Nation, information from publicly available sources authored by Ktunaxa Nation, and preliminary consultation with the Ktunaxa Nation, it is assumed that hunting and subsistence harvesting occurs within the Project footprint and the KNRI LSA. Information on what species in the Project Footprint and harvested and to what degree and frequency has not been shared. It is anticipated that currently Ktunaxa Nation has a moderate level of use in the Terrestrial LSA based on the above. The anticipated moderate level of use by Ktunaxa coupled with the lack of significant adverse effects to wildlife VCs that potentially used for hunting and trapping purposes indicates the low-level residual effect on the change in lands and resources for traditional	• CPP • O • RC	• 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.	Yes	Duration: Long-Term Magnitude: Low to Moderate Geographic Extent: Local Frequency: Continuous Reversibility: Reversible Long-Term Context: Neutral	Not Significant (Low to Moderate)	Duration: Long-term to Permanent Magnitude: Low Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible Long-term to Irreversible Context: Neutral	Not Significant (Low)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		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, and bird species.		• These are identified in combination with the key mitigations for traditional hunting and trapping activities to reduce the impacts on the Ktunaxa Nation's hunting and trapping rights including those related to their ability to know and teach the Ktunaxa 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. • 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. • 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. • Developing NUE areas in collaboration with Ktunaxa Nation, 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. • NWP is committed to continued consultation and engagement with Ktunaxa Nation to identify and adapt mitigation measures to address impacts on the use of lands and resources for traditional purposes within the Project footprint and the KNRI LSA will be					

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				undertaken where appropriate to implement an adaptive management strategy that creates feedback loops through monitoring and reporting. The mitigation measures relevant to the wildlife VCs are connected to the Ktunaxa Nation'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 Ktunaxa Nation, and their ability to know and teach the Ktunaxa way of living during all Project phases.					
	Change to Use of Lands and Resources for Traditional Harvesting and Gathering Purposes	Based on these HHRA and sensory receptor locations, information provided from publicly available sources authored by Ktunaxa Nation, and preliminary consultation, sites where harvesting and gathering may occur within the Project footprint and the KNRI LSA have been identified. It is expected that the Project footprint and the KNRI LSA is utilized for traditional purposes. The Project is anticipated to result in a reduction in the abundance and distribution of culturally significant plants and ecosystems, including the potential alteration of the respective composition and structure through a reduction in vigor and alteration of nutritional value. Potential effects to culturally significant plants and ecosystems affecting harvesting and gathering will be reduced through implementation of recommended mitigation measures and the Ecological Restoration Plan (Chapter 33, Section 33.4.1.3). 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 Ktunaxa Nation within the Project footprint.	• CPP • O • RC	• 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 Ktunaxa Nation's harvesting and gathering rights including those related to their ability to know and teach the Ktunaxa way of living during all Project phases. • Key mitigation measures for harvesting and gathering also include, where practicable sequencing the development of pits and Mine Rock Storage Facility areas to limit total disturbance during any one period and maximizing progressive reclamation	Yes	Duration: Long-term to Permanent Magnitude: Low to Moderate Geographic Extent: Discrete Frequency: Once Reversibility: Reversible Long-Term Context: Neutral	Not Significant (Low)	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)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				opportunities during Operations where practicable. • 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. • NWP is committed to continued consultation and engagement with Ktunaxa Nation to identify and adapt mitigation measures to address impacts on the use of lands and resources for traditional purposes within the Project footprint and the KNRI LSA will be undertaken where appropriate to implement an adaptive management strategy that creates feedback loops through monitoring and reporting. The mitigation measures relevant to the plant and vegetation VCs are connected to the Ktunaxa Nation'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 Ktunaxa Nation, and their ability to know and teach the Ktunaxa way of living during all Project phases.					
	Change to Physical and Cultural Heritage and Change to a Structure, Site, or Thing that is of Historical, Archaeological, Paleontological, or Architectural Significance	A significant adverse residual environmental effect on Ktunaxa Nation 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 Ktunaxa Nation that cannot be mitigated or compensated. Currently, there are no identified linkages to pre-contact archaeological sites within the Project footprint with the Ktunaxa Nation.	• CPP • O	• 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 Ktunaxa Nation. 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	Yes	Duration: Permanent Magnitude: High Geographic Extent: Discrete Frequency: Once Reversibility: Irreversible Context: Low	Not Significant (Low)	Duration: Permanent Magnitude: High Geographic Extent: Regional Frequency: Once Reversibility: Irreversible Context: Low	Not Significant (Low)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		Based on information provided by Ktunaxa Nation Council via correspondence to NWP, Grave Prairie is a landscape containing extremely important Ktunaxa cultural values and is located within the Project footprint. 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 Ktunaxa Nation, the environmental effects of the Project on physical and cultural heritage and on a structure, site, or thing that is of historical, archaeological, paleontological, or architectural significance for all phases of the Project are rated as significant. It is also noted that Ktunaxa citizens have previously expressed elevated concern regarding impact on physical and cultural heritage due to past disturbance which has removed areas of particular Ktunaxa cultural value, including trails, habitation areas, and harvesting areas within the KNRI RSA, and culturally and spiritually important sites elsewhere in the Elk Valley outside of the Project footprint. Continued consultation to mitigate these impacts where they have the potential to interact with Project-related activities will be undertaken through the Indigenous Impact Management Plan (Chapter 33, Section 33.4.3.4).		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. • Key mitigation measures for physical and cultural heritage also include, where practicable seeking Ktunaxa Nation consent where applicable on any cultural heritage site or resource that may be impacted by a proposed development/land alteration. • 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. • Supporting measures to document and protect Ktunaxa efforts to safeguard knowledge and language related to Elk Valley and surrounding areas including support for establishing a plan for educational and potential archaeological work designed to identify, record, and protect remaining tangible and intangible Ktunaxa cultural heritage to result in legacy benefits to the Ktunaxa Nation and be geared to the protection and revitalization of Ktunaxa knowledge and language for future Ktunaxa generations in the Elk Valley will also be considered. • NWP is committed to continued consultation and engagement with Ktunaxa Nation to identify and adapt mitigation measures to address impacts on physical and cultural					

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				heritage, and structures, sites, or things of historical, archaeological, paleontological, or architectural significance within the Project footprint and the KNRI LSA will be undertaken where appropriate to implement an adaptive management strategy that creates feedback loops through monitoring and reporting. The mitigation measures relevant to the Ktunaxa Nation's physical and cultural heritage are connected to the Ktunaxa Nation's rights and interests related to their perspectives on access to these sites, the values associated with the traditional resources available to the Ktunaxa Nation, and their ability to know and teach the Ktunaxa 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 Ktunaxa Nation 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. • 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 Ktunaxa Nation to address related concerns. • Measures recommended by KNC to address the Grave Prairie Cultural Landscape have been included in the Indigenous Impact Management Plan (Section 33.4.3.4).					
	Change to Social, Health, and Economic Conditions	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). 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.	• O	• 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	Yes	Duration: Long-Term Magnitude: Low Geographic Extent: Discrete to Local Frequency: Continuous	Not Significant (Moderate to High)	Duration: Long-term Magnitude: Low Geographic Extent: Local to Discrete Frequency: Continuous Reversibility: Reversible Long-term Context: Neutral	Not Significant (Moderate to High)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		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. 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, are also considered not significant. Based on the publicly available information, and the consultation activities conducted with the Ktunaxa Nation to date, there are no anticipated unmitigated negative Project effects related to the Ktunaxa Nation's economic ventures such as commercial operations, forestry, or logging, and commercial fishing. Some impacts to hunting (and trapping, where applicable). The Project can be expected to result in positive economic outcomes for employment, income, the regional and local economies, and government finances within the KNRI RSA. 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. In this light, specific Project-related effects to economic conditions are not carried forward in this assessment.		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 this chapter 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 Ktunaxa Nation's traditional activities to reduce the impacts on the Ktunaxa Nation's interests including those related to their ability to know and teach the Ktunaxa way of living during all Project phases. • Key mitigation measures for change to social, health, and economic conditions also include, where practicable NWP with guidance from the Ktunaxa Nation, will include a process to monitor during the relevant phases of the Project potential Project contaminants to water, country foods, and medicines, and the development and implementation of mitigation strategies and measures, and a culturally appropriate communication strategy to inform Ktunaxa Nation citizens regarding the relative safety or risks of water, country foods, and medicine consumption in proximity of the Project based on scientific and Ktunaxa Traditional Knowledge. • 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.		Reversibility: Reversible Long-Term Context: Neutral			

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				• Providing preferential employment provisions including where applicable training programs that encourage the Ktunaxa Nation citizens 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. • 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. • Where practicable, contracting and sub-contracting related to the Project will be given to qualified businesses that are owned at least in part by Ktunaxa Nation citizens and requirements that all businesses contract employ Indigenous employees. • NWP will work with the Ktunaxa Nation 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 is committed to continued consultation and engagement with Ktunaxa Nation to identify and adapt mitigation measures to address impacts on social, health, and economic conditions within the Project footprint and the KNRI LSA will be undertaken where appropriate to implement an adaptive management strategy that creates feedback loops through monitoring and reporting. The mitigation measures relevant to the Ktunaxa Nation's social, health, and economic conditions are connected to the Ktunaxa Nation's interests related to their perspectives on country food consumption, the values associated with the traditional resources available to the Ktunaxa Nation, and their					

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				ability to know and teach the Ktunaxa way of living during all Project phases.					
Indigenous Peoples – Shuswap Indian Band	Change to Use of Lands and Resources for Traditional Fishing Purposes	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.	• CPP • O • RC • PC	• 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). • 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. • 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. • NWP is committed to continued consultation and engagement with the Shuswap Band to	Yes	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)	Duration: Long-term Magnitude: Moderate Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible Long-term Context: Neutral	Not Significant (Low)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				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.					
	Change to Use of Lands and Resources for Traditional Hunting and Trapping Purposes	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.	• CPP • O • RC	• 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	Yes	Duration: Long-Term Magnitude: Low to Moderate Geographic Extent: Local Frequency: Continuous Reversibility: Reversible Long-Term Context: Neutral	Not Significant (Low)	Duration: Long-term to Permanent Magnitude: Low Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible Long-term to Irreversible Context: Neutral	Not Significant (Low)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				progressive development of pits and Mine Rock Storage Facility. • 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. • 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. • 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. • 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.					
	Change to Use of Lands and Resources for Traditional Harvesting and Gathering Purposes	Shuswap Band have not currently made available information regarding their use of the Project footprint for harvesting and gathering	• CPP • O • RC	• 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	Yes	Duration: Long-term to Permanent	Not Significant (Low to Moderate)	Duration: Long-term to Permanent Magnitude: Moderate Geographic Extent:	Not Significant (Low)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		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.		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 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. • 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. • 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. • NWP is committed to continued consultation and engagement with the Shuswap Band to		Magnitude: Low to Moderate Geographic Extent: Discrete Frequency: Once Reversibility: Reversible Long-Term Context: Moderate to High		Regional Frequency: Once to Intermittent Reversibility: Reversible Long-term to Irreversible Context: Neutral	

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				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.					
	Change to Physical and Cultural Heritage and Change to a Structure, Site, or Thing that is of Historical, Archaeological, Paleontological, or Architectural 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.	• CPP • O	• 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.	Yes	Duration: Permanent Magnitude: High Geographic Extent: Discrete Frequency: Once Reversibility: Irreversible Context: Low	Not Significant (Low)	Duration: Permanent Magnitude: High Geographic Extent: Regional Frequency: Once Reversibility: Irreversible Context: Low	Not Significant (Low)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				• 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 seeking Shuswap Band consent where applicable on any cultural heritage site or resource that may be impacted by a proposed development/land alteration. • 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 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.					

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				• 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.					
	Change to Social, Health, and Economic Conditions	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. Based on the publicly available information, and the consultation activities conducted with the Shuswap Band to date, 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. 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	• O	• 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	Yes	Duration: Long-Term Magnitude: Low Geographic Extent: Discrete to Local Frequency: Continuous Reversibility: Reversible Long-Term Context: Neutral	Not Significant (Moderate to High)	Duration: Long-term Magnitude: Low Geographic Extent: Local to Discrete Frequency: Continuous Reversibility: Reversible Long-term Context: Neutral	Not Significant (Moderate to High)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		through training programs to maximize the hiring of local workers and from Indigenous Communities.		Shuswap Band, will include a process to monitor during the relevant phases of the Project, potential Project contaminants to water, country foods, and medicines, the development and implementation of mitigation strategies and measures to address contaminants, and 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. • 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. • 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. • 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 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. •					

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
Indigenous Peoples – Stoney Nakoda Nation	Change to Use of Lands and Resources for Traditional Fishing Purposes	Stoney Nakoda Nations 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 Stoney Nakoda Nations asserted Traditional Territory. It is acknowledged that Stoney Nakoda Nations have the potential to use Project impacted watercourses that support fish species of importance given their current use and interest in fish 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 Mountain Whitefish is anticipated. 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.	• CPP • O • RC	• The mitigation measures identified for the change to current 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 Stoney Nakoda's fishing rights including those related to their ability to know and teach the Stoney Nakoda 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). • 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. • NWP is committed to continued consultation and engagement with the Stoney Nakoda Nations 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 Stoney Nakoda's rights and interests related to their ability to fish for	Yes	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)	Duration: Long-term Magnitude: Moderate Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible Long-term Context: Neutral	Not Significant (Low)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				species of interest, their perspectives on fish quality and abundance, the values associated with sustenance based on fish resources available to the Stoney Nakoda Nations, and their ability to know and teach the Stoney Nakoda way of living during all Project phases.					
	Change to Use of Lands and Resources for Traditional Hunting and Trapping Purposes	Stoney Nakoda Nations have not currently made available information regarding their use of the Project footprint for hunting and trapping purposes and it is anticipated that currently Stoney Nakoda Nations have a low level of use in the Terrestrial LSA due to previously noted disturbances (e.g., existing mining activity). The anticipated low level of use by Stoney Nakoda Nations coupled with the lack of significant adverse effects to wildlife VCs that are potentially used for hunting and trapping purposes indicates that there is potentially low to no 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, and bird species.	• CPP • O • RC	• 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 Stoney Nakoda's hunting and trapping rights including those related to their ability to know and teach the Stoney Nakoda 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. • 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	Yes	Duration: Long-Term Magnitude: Low to Moderate Geographic Extent: Local Frequency: Continuous Reversibility: Reversible Long-Term Context: Neutral	Not Significant (Low to Moderate)	Duration: Long-term to Permanent Magnitude: Low Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible Long-term to Irreversible Context: Neutral	Not Significant (Low)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				mitigation/control measures through appropriate training. • 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. • NWP is committed to continued consultation and engagement with Stoney Nakoda Nations 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 Stoney Nakoda'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 Stoney Nakoda Nations, and their ability to know and teach the Stoney Nakoda way of living during all Project phases.					
	Change to Use of Lands and Resources for Traditional Harvesting and Gathering Purposes	Stoney Nakoda Nations 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 Stoney Nakoda Nations, in particular the Project footprint and the Landscape and Ecosystems LSA, for traditional harvesting and gathering is anticipated to be low as the Stoney Nakoda Nations have not	• CPP • O • RC	• The mitigation measures identified for the change to use of lands and resources for traditional harvesting and gathering purposes are as identified in Chapters 13 (e.g., riparian habitat, Section 13.6.5.2) and (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	Yes	Duration: Long-term to Permanent Magnitude: Low to Moderate Geographic Extent: Discrete Frequency: Intermittent Reversibility: Reversible Long-Term Context: Neutral	Not Significant (Low to Moderate)	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)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		provided information regarding their use of the Project footprint 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.		the Stoney Nakoda's harvesting and gathering rights including those related to their ability to know and teach the Stoney Nakoda way of living during all Project phases. • Key mitigation measures for harvesting and gathering also include where practicable 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. • 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. • 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. • NWP is committed to continued consultation and engagement with the Stoney Nakoda Nations 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 Stoney Nakoda'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 Stoney Nakoda Nations, and their ability to know and teach the Stoney Nakoda way of living during all Project phases.					
	Change to Physical and Cultural Heritage and Change to a Structure, Site, or Item that is of Historical, Archaeological, Paleontological, or Architectural Significance	A significant adverse residual environmental effect on Stoney Nakoda Nations 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	• CPP • O	• 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	Yes	Duration: Permanent Magnitude: High Geographic Extent: Discrete Frequency: Once	Not Significant (Low)	Duration: Permanent Magnitude: High Geographic Extent: Regional Frequency: Once Reversibility: Irreversible	Not Significant (Low)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		of importance, to the spiritual or cultural identity of Stoney Nakoda Nations that cannot be mitigated or compensated. Currently, there are no identified linkages to pre-contact archaeological sites within the Project footprint with the Stoney Nakoda Nations. 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, and the mitigation that will be implemented as the Project moves forward, both under provincial regulation and authorization and through consultation with the Stoney Nakoda Nations, 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 not significant.		monitoring plans associated with the identification of appropriate mitigation for pre-contact archaeological sites based on collaboration with the Stoney Nakoda Nations. 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. • These are identified in combination with the key mitigations for physical and cultural heritage to reduce the impacts on the Stoney Nakoda's rights including those related to their ability to know and teach the Stoney Nakoda way of living during all Project phases. • Key mitigation measures for physical and cultural heritage also include where practicable seeking Stoney Nakoda Nations consent where applicable on any cultural heritage site or resource that may be impacted by a proposed development/land alteration. • 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 is committed to continued consultation and engagement with the Stoney Nakoda Nations to identify and adapt mitigation		Reversibility: Irreversible Context: Low		Context: Low	

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				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 Stoney Nakoda's physical and cultural heritage are connected to the Stoney Nakoda's rights and interests related to their perspectives on access to these sites, the values associated with the traditional resources available to the Stoney Nakoda Nations, and their ability to know and teach the Stoney Nakoda way of living during all Project phases.					
	Change to Social, Health, and Economic Conditions	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. 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	• O	• 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 have 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 Stoney Nakoda's traditional activities to reduce the impacts on the Stoney Nakoda Nations' interests including those related to their ability to know and teach	Yes	Duration: Long-Term Magnitude: Low Geographic Extent: Discrete to Local Frequency: Continuous Reversibility: Reversible Long-Term Context: Neutral	Not Significant (Moderate to High)	Duration: Long-term Magnitude: Low Geographic Extent: Local to Discrete Frequency: Continuous Reversibility: Reversible Long-term Context: Neutral	Not Significant (Moderate to High)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		hiring of local workers and from Indigenous Communities.		the Stoney Nakoda 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 Stoney Nakoda Nations, 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, the development and implementation of mitigation strategies and measures to address contaminants, and 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. • 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; • 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. • 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.					

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				• NWP will work with the Stoney Nakoda Nations 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 is committed to continued consultation and engagement with the Stoney Nakoda Nations 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 Stoney Nakoda's social, health, and economic conditions are connected to the Stoney Nakoda Nations' interests related to their perspectives on country food consumption, the values associated with the traditional resources available to the Stoney Nakoda Nations, and their ability to know and teach the Stoney Nakoda way of living during all Project phases.					
Indigenous Peoples – Métis Nation of British Columbia	Change to Use of Lands and Resources for Traditional Fishing Purposes	It is currently unknown by the proponent if MNBC currently uses watercourses within the ATRI LSA; though, it is acknowledged that MNBC has the potential to use Project-impacted watercourses that support Kokanee, Burbot, and Mountain Whitefish given their 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, Burbot, and Mountain Whitefish 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	• CPP • O • RC	• 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 Métis' fishing rights including those related to their ability to know and teach the Métis way of living during all Project phases.	Yes	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)	Duration: Long-term Magnitude: Moderate Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible Long-term Context: Neutral	Not Significant (Low)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		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.		• 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). • 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. • 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. • NWP is committed to continued consultation and engagement with the MNBC 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 Métis' 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 Métis, and their ability to know and teach the Métis way of living during all Project phases.					
	Change to Use of Lands and Resources for Traditional Hunting and Trapping Purposes	The MNBC have not currently made available information regarding their use of the Project footprint for hunting and trapping purposes and it is anticipated that currently the MNBC have a low level of use in the Terrestrial LSA due to previously noted disturbances (e.g., existing mining activity). The anticipated low level of use by MNBC 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.	• CPP • O • RC	• 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	Yes	Duration: Long-Term Magnitude: Low to Moderate Geographic Extent: Local Frequency: Continuous Reversibility: Reversible Long-Term Context: Neutral	Not Significant (Low to Moderate)	Duration: Long-term to Permanent Magnitude: Low Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible Long-term to Irreversible Context: Neutral	Not Significant (Low)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		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, and bird species.		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 Métis' hunting and trapping rights including those related to their ability to know and teach the Métis 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. • 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. • 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. • NWP is committed to continued consultation and engagement with the MNBC to identify and adapt mitigation measures to address impacts on use of lands and resources for traditional purposes within the Project footprint and the					

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				ATRI LSA. The mitigation measures relevant to the wildlife VCs are connected to the Métis' 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 Métis, and their ability to know and teach the Métis way of living during all Project phases.					
	Change to Use of Lands and Resources for Traditional Harvesting and Gathering Purposes	MNBC (including EVM Nation) has 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 MNBC (including EVM Nation), in particular of the Project footprint and the Landscape and Ecosystems LSA, for traditional harvesting and gathering is anticipated to be low as the MNBC (including EVM Nation) have not provided information regarding their use of the Project footprint 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.	• CPP • O • RC	• 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 Métis' harvesting and gathering rights including those related to their ability to know and teach the Métis way of living during all Project phases. • Key mitigation measures for harvesting and gathering also include, where practicable 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.	Yes	Duration: Long-term to Permanent Magnitude: Low to Moderate Geographic Extent: Discrete Frequency: Intermittent Reversibility: Reversible Long-Term Context: Neutral	Not Significant (Low to Moderate)	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)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				• 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. • • 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. • NWP is committed to continued consultation and engagement with the MNBC 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 Métis' 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 Métis, and their ability to know and teach the Métis way of living during all Project phases.					
	Change to Physical and Cultural Heritage and Change to a Structure, Site, or Thing that is of Historical, Archaeological, Paleontological, or Architectural Significance	A significant adverse residual environmental effect on MNBC and EVM Nation 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 MNBC and EVM Nation that cannot be mitigated or compensated. Currently, there are no identified linkages to pre-contact archaeological sites within the Project footprint with the MNBC and EVM Nation. 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, and the mitigation that will be implemented as the Project moves	• CPP • O	• 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 MNBC. 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	Yes	Duration: Permanent Magnitude: High Geographic Extent: Discrete Frequency: Once Reversibility: Irreversible Context: Low	Not Significant (Low)	Duration: Permanent Magnitude: High Geographic Extent: Regional Frequency: Once Reversibility: Irreversible Context: Low	Not Significant (Low)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		forward, both under provincial regulation and authorization and through consultation with the MNBC and EVM Nation, 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 not significant.		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. • These are identified in combination with the key mitigations for physical and cultural heritage to reduce the impacts on the Métis' rights including those related to their ability to know and teach the Métis way of living during all Project phases. • Key mitigation measures for physical and cultural heritage also include, where practicable seeking MNBC consent where applicable on any cultural heritage site or resource that may be impacted by a proposed development/land alteration. • 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 is committed to continued consultation and engagement with the MNBC 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 Métis' physical and cultural heritage are connected to the Métis' rights and interests related to their perspectives on access to these sites, the values associated with the traditional resources available to the Métis, and their ability to know and teach the Métis way of living during all Project phases.					

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
	Change to Social, Health, and Economic Conditions	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. 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.	• O	• 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 Métis' traditional activities to reduce the impacts on the Métis' interests including those related to their ability to know and teach the Métis 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 MNBC, will include a process to monitor during the relevant phases of the Project, potential Project contaminants to water, country foods, and medicines, the development and implementation of mitigation strategies and measures, and a culturally appropriate	Yes	Duration: Long-Term Magnitude: Low Geographic Extent: Discrete to Local Frequency: Continuous Reversibility: Reversible Long-Term Context: Neutral	Not Significant (Moderate to High)	Duration: Long-term Magnitude: Low Geographic Extent: Local to Discrete Frequency: Continuous Reversibility: Reversible Long-term Context: Neutral	Not Significant (Moderate to High)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				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. • 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; • 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. • 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. • NWP will work with the MNBC 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 is committed to continued consultation and engagement with the MNBC 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 Métis' social, health, and economic conditions are connected to the Métis' interests related to their perspectives on country food consumption, the values associated with the traditional resources available to the Métis, and					

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				their ability to know and teach the Métis way of living during all Project phases.					
Indigenous Peoples – Kainai (Blood Tribe)	Change to Use of Lands and Resources for Traditional Fishing Purposes	The Kainai 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 Kainai's asserted Traditional Territory. It is acknowledged that Kainai has the potential to use Project impacted watercourses that support Westslope Cutthroat Trout, Bull Trout, and Rocky Mountain Whitefish 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 Westslope Cutthroat Trout, Bull Trout, and Rocky Mountain Whitefish 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.	• CPP • O • RC	• 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 Kainai's fishing rights including those related to their ability to know and teach the Kainai way of living during all Project phases. • Key mitigation measures for traditional 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). • 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	Yes	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)	Duration: Long-term Magnitude: Moderate Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible Long-term Context: Neutral	Not Significant (Low)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				recreational fishing be observed by NWP employees. • NWP is committed to continued consultation and engagement with the Kainai 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 Kainai'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 Kainai, and their ability to know and teach the Kainai way of living during all Project phases.					
	Change to Use of Lands and Resources for Traditional Hunting and Trapping Purposes	The Kainai have not currently made available information regarding their use of the Project footprint for hunting and trapping purposes and it is anticipated that currently the Kainai have a low level of use in the Terrestrial LSA due to previously noted disturbances (e.g., existing mining activity). The anticipated low level of use by the Kainai coupled with the lack of significant adverse effects to wildlife VCs that are 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, and bird species.	• CPP • O • RC	• 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 Kainai's hunting and trapping rights including those related to their ability to know and teach the Kainai way of living during all Project phases. • Key mitigation measures for hunting and trapping also include, where practicable	Yes	Duration: Long-Term Magnitude: Low to Moderate Geographic Extent: Local Frequency: Continuous Reversibility: Reversible Long-Term Context: Neutral	Not Significant (Low to Moderate)	Duration: Long-term to Permanent Magnitude: Low Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible Long-term to Irreversible Context: Neutral	Not Significant (Low)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				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. • 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. • 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. • NWP is committed to continued consultation and engagement with the Kainai 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 Kainai'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 Kainai, and their ability to know and teach the Kainai way of living during all Project phases.					
	Change to Use of Lands and Resources for Traditional Harvesting and Gathering Purposes	The Kainai 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.	• CPP • O • RC	• 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.,	Yes	Duration: Long-term to Permanent Magnitude: Low to Moderate	Not Significant (Low to Moderate)	Duration: Long-term to Permanent Magnitude: Moderate Geographic Extent: Regional	Not Significant (Low)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		The Project is anticipated to result in temporary impacts to lodgepole pine and whitebark pine habitat, and as such, species and areas that may be used by Kainai to harvest and gather. Effects to lodgepole pine and whitebark pine 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 the Kainai, in particular the Project footprint and the Landscape and Ecosystems LSA, for traditional harvesting and gathering is anticipated to be low as the Kainai have not provided information regarding their use of the Project footprint 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.		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 Kainai's harvesting and gathering rights including those related to their ability to know and teach the Kainai way of living during all Project phases. • Key mitigation measures for harvesting and gathering also include, where practicable 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. • 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. • 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. • NWP is committed to continued consultation and engagement with the Kainai to identify and adapt mitigation measures to address impacts		Geographic Extent: Discrete to Regional Frequency: Intermittent Reversibility: Reversible Long-Term Context: Neutral		Frequency: Once to Intermittent Reversibility: Reversible Long-term to Irreversible Context: Neutral	

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				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 Kainai'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 Kainai, and their ability to know and teach the Kainai way of living during all Project phases.					
	Change to Physical and Cultural Heritage and Change to a Structure, Site, or Thing that is of Historical, Archaeological, Paleontological, or Architectural Significance	A significant adverse residual environmental effect on Kainai 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 Kainai that cannot be mitigated or compensated. Currently, there are no identified linkages to pre-contact archaeological sites within the Project footprint with the Kainai. 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, and the mitigation that will be implemented as the Project moves forward, both under provincial regulation and authorization and through consultation with the Kainai, 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 not significant.	• CPP • O	• 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 Kainai. 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. • These are identified in combination with the key mitigations for physical and cultural heritage to reduce the impacts on the Kainai's	Yes	Duration: Permanent Magnitude: High Geographic Extent: Discrete Frequency: Once Reversibility: Irreversible Context: Low	Not Significant (Low)	Duration: Permanent Magnitude: High Geographic Extent: Regional Frequency: Once Reversibility: Irreversible Context: Low	Not Significant (Low)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				rights including those related to their ability to know and teach the Kainai way of living during all Project phases. • Key mitigation measures for physical and cultural heritage also include, where practicable seeking Kainai consent where applicable on any cultural heritage site or resource that may be impacted by a proposed development/land alteration. • 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 is committed to continued consultation and engagement with the Kainai 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 Kainai's physical and cultural heritage are connected to the Kainai's rights and interests related to their perspectives on access to these sites, the values associated with the traditional resources available to the Kainai, and their ability to know and teach the Kainai way of living during all Project phases.					
	Change to Social, Health, and Economic Conditions	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	• O	• 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	Yes	Duration: Long-Term Magnitude: Low Geographic Extent: Discrete to Local Frequency: Continuous Reversibility: Reversible Long-Term Context: Neutral	Not Significant (Moderate to High)	Duration: Long-term Magnitude: Low Geographic Extent: Local to Discrete Frequency: Continuous Reversibility: Reversible Long-term Context: Neutral	Not Significant (Moderate to High)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		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. 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.		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 Kainai's traditional activities to reduce the impacts on the Kainai's interests including those related to their ability to know and teach the Kainai 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 Kainai, will include a process to monitor during the relevant phases of the Project, potential Project contaminants to water, country foods, and medicines, the development and implementation of mitigation strategies and measures, and 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. • 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					

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				company and are reflected at the community level; • 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. • 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. • NWP will work with the Kainai 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 is committed to continued consultation and engagement with the Kainai 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 Kainai's social, health, and economic conditions are connected to the Kainai's interests related to their perspectives on country food consumption, the values associated with the traditional resources available to the Kainai, and their ability to know and teach the Kainai way of living during all Project phases.					
Indigenous Peoples – Piikani Nation	Change to Use of Lands and Resources for Traditional Fishing Purposes	Piikani Nation has not currently made available information regarding their use of the watercourses in the ATRI LSA for fishing purposes though it is understood that the Project is located within Piikani Nation's asserted Traditional Territory. It is acknowledged that the Piikani Nation has the potential to use watercourses that support Westslope Cutthroat Trout given their stated current use and interest in this species. The Project is anticipated to result in short-term to long-term changes in opportunities for	• CPP • O • RC	• 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	Yes	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)	Duration: Long-term Magnitude: Moderate Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible Long-term Context: Neutral	Not Significant (Low)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		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 Westslope Cutthroat Trout is 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.		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 Piikani Nation's fishing rights including those related to their ability to know and teach the Piikani 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). • 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. • 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. • NWP is committed to continued consultation and engagement with the Piikani Nation 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 Piikani Nation'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 Piikani Nation, and their ability to know and teach the Piikani way of living during all Project phases.					
	Change to Use of Lands and Resources for Traditional Hunting and Trapping Purposes	Piikani Nation has not currently made available information regarding their use of the Project footprint and the ATRI LSA, and it is anticipated	• CPP • O • RC	• The measures to mitigate impacts to wildlife VCs are part of protocols described in Chapter 33 including the Air Quality and Greenhouse	Yes	Duration: Long-Term	Not Significant (Low to Moderate)	Duration: Long-term to Permanent Magnitude: Low	Not Significant (Low)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		that currently Piikani Nation has a low level of use in the Terrestrial LSA due to previously noted disturbances (e.g., existing mining activity). The anticipated low level of use by Piikani Nation coupled with the lack of significant adverse effects to wildlife VCs that are 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, and bird species.		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 Piikani Nation's hunting and trapping rights including those related to their ability to know and teach the Piikani 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. • 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. • 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.		Magnitude: Low to Moderate Geographic Extent: Local Frequency: Continuous Reversibility: Reversible Long-Term Context: Neutral		Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible Long-term to Irreversible Context: Neutral	

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				• 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 Piikani Nation 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 Piikani Nation'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 Piikani Nation, and their ability to know and teach the Piikani way of living during all Project phases.					
	Change to Use of Lands and Resources for Traditional Harvesting and Gathering Purposes	The Piikani Nation has 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 long-term impacts to vegetation communities and ecosystems that may include plant species of interest or areas that are accessed to harvest and gather. The 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 Piikani Nation, in particular the Project footprint and the Landscape and Ecosystems LSA, for traditional harvesting and gathering is anticipated to be low as the Piikani	• CPP • O • RC	• 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	Yes	Duration: Long-term to Permanent Magnitude: Low to Moderate Geographic Extent: Discrete Frequency: Once Reversibility: Reversible Long-Term Context: Neutral	Not Significant (Low to Moderate)	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)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		Nation have not provided information regarding their use of the Project footprint 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.		gathering activities to reduce the impacts on the Piikani Nation's harvesting and gathering rights including those related to their ability to know and teach the Piikani way of living during all Project phases. • Key mitigation measures for harvesting and gathering also include, where practicable 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. • 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. • 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. • NWP is committed to continued consultation and engagement with the Piikani Nation 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 Piikani Nation'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 Piikani Nation, and their ability to know and teach the Piikani way of living during all Project phases.					
	Change to Physical and Cultural Heritage and Change to a Structure, Site, or Thing that is of Historical, Archaeological, Paleontological, or Architectural Significance	A significant adverse residual environmental effect on Piikani Nation 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	• CPP • O	• 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	Yes	Duration: Permanent Magnitude: High Geographic Extent: Discrete	Not Significant (Low)	Duration: Permanent Magnitude: High Geographic Extent: Regional Frequency: Once	Not Significant (Low)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		pre-contact heritage resource considered to be of importance, to the spiritual or cultural identity of Piikani Nation that cannot be mitigated or compensated. Currently, there are no identified linkages to pre-contact archaeological sites within the Project footprint with the Piikani Nation. 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 during Project redesign, and the mitigation that will be implemented as the Project moves forward, both under provincial regulation and authorization and through consultation with the Piikani Nation, 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 not significant.		implementation of management and monitoring plans associated with the identification of appropriate mitigation for pre-contact archaeological sites based on collaboration with the Piikani Nation. 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. • These are identified in combination with the key mitigations for physical and cultural heritage to reduce the impacts on the Piikani Nation's rights including those related to their ability to know and teach the Piikani way of living during all Project phases. • Key mitigation measures for physical and cultural heritage also include, where practicable seeking Piikani Nation consent where applicable on any cultural heritage site or resource that may be impacted by a proposed development/land alteration. • 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 is committed to continued consultation and engagement with the Piikani Nation to		Frequency: Once Reversibility: Irreversible Context: Low		Reversibility: Irreversible Context: Low	

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				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 Piikani Nation's physical and cultural heritage are connected to the Piikani Nation's rights and interests related to their perspectives on access to these sites, the values associated with the traditional resources available to the Piikani Nation, and their ability to know and teach the Piikani way of living during all Project phases.					
	Change to Social, Health, and Economic Conditions	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. 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	• O	• 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 Piikani Nation's traditional activities to reduce the impacts on the Piikani Nation's interests including those	Yes	Duration: Long-Term Magnitude: Low Geographic Extent: Discrete to Local Frequency: Continuous Reversibility: Reversible Long-Term Context: Neutral	Not Significant (Moderate to High)	Duration: Long-term Magnitude: Low Geographic Extent: Local to Discrete Frequency: Continuous Reversibility: Reversible Long-term Context: Neutral	Not Significant (Moderate to High)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		hiring of local workers and from Indigenous Communities.		related to their ability to know and teach the Piikani 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 Piikani Nation, will include a process to monitor during the relevant phases of the Project, potential Project contaminants to water, country foods, and medicines, the development and implementation of mitigation strategies and measures, and 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. • 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; • 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. • 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. • NWP will work with the Piikani Nation to create economic benefits for the community that					

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				might include initiatives related to capacity building, direct and indirect employment, education and training, and procurement and business relationships. • NWP is committed to continued consultation and engagement with the Piikani Nation 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 Piikani Nation's social, health, and economic conditions are connected to the Piikani Nation's interests related to their perspectives on country food consumption, the values associated with the traditional resources available to the Piikani Nation, and their ability to know and teach the Piikani way of living during all Project phases.					
Indigenous Peoples – Siksika Nation	Change to Use of Lands and Resources for Traditional Fishing Purposes	The Siksika Nation has not currently made available information regarding their use of the watercourses in the Project footprint for fishing purposes while it is understood that the Siksika Nation utilize the ATRI LSA for traditional purposes. It is acknowledged that Siksika Nation has the potential to use watercourses for fishing. 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 is anticipated. 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,	• CPP • RC	• 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 Siksika Nation's fishing rights including those related to their ability to know and teach the Siksika 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	Yes	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)	Duration: Long-term Magnitude: Moderate Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible Long-term Context: Neutral	Not Significant (Low)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		thus resulting in no net loss of instream habitat as a result of the Project.		standard industry practices (Erosion and Sediment Control Plan, Chapter 33, Section 33.4.1.8). • 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. • 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. • NWP is committed to continued consultation and engagement with the Siksika Nation 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 Siksika Nation'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 Siksika Nation, and their ability to know and teach the Siksika way of living during all Project phases.					
	Change to Use of Lands and Resources for Traditional Hunting and Trapping Purposes	The Siksika Nation has not currently made available information regarding their use of the Project footprint for hunting and trapping purposes and it is anticipated that currently the Siksika Nation has a low level of use in the Terrestrial LSA used to evaluate effects to VCs due to previously noted disturbances. The anticipated level of use by Siksika Nation coupled with the lack of significant adverse effects to wildlife VCs that potentially used for hunting and trapping purposes indicates the no 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	• CPP • O • RC	• 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	Yes	Duration: Long-Term Magnitude: Low to Moderate Geographic Extent: Local Frequency: Continuous Reversibility: Reversible Long-Term Context: Neutral	Not Significant (Low to Moderate)	Duration: Long-term to Permanent Magnitude: Low Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible Long-term Context: Neutral	Not Significant (Low)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		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, and bird species.		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 Siksika Nation's hunting and trapping rights including those related to their ability to know and teach the Siksika 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. • 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. • 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. • NWP is committed to continued consultation and engagement with the Siksika Nation 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 Siksika Nation's rights and					

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				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 Siksika Nation, and their ability to know and teach the Siksika way of living during all Project phases.					
	Change to Use of Lands and Resources for Traditional Harvesting and Gathering Purposes	The Siksika Nation has 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 long-term 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 Siksika Nation, in particular the Project footprint and the Landscape and Ecosystems LSA, for traditional harvesting and gathering is anticipated to be low as the Siksika Nation have not provided information regarding their use of the Project footprint 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.	• CPP • O • RC	• 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 Siksika Nation's harvesting and gathering rights including those related to their ability to know and teach the Siksika way of living during all Project phases. • Key mitigation measures for harvesting and gathering also include, where practicable 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. • 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.	Yes	Duration: Long-term to Permanent Magnitude: Low to Moderate Geographic Extent: Discrete Frequency: Intermittent Reversibility: Reversible Long-Term Context: Neutral	Not Significant (Low to Moderate)	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)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				• 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. • NWP is committed to continued consultation and engagement with the Siksika Nation 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 Siksika Nation'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 Siksika Nation, and their ability to know and teach the Siksika way of living during all Project phases.					
Change to Physical and Cultural Heritage and Change to a Structure, Site, or Thing that is of Historical, Archaeological, Paleontological, or Architectural Significance	A significant adverse residual environmental effect on Siksika Nation 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 Siksika Nation that cannot be mitigated or compensated. Currently, there are no identified linkages to pre-contact archaeological sites within the Project footprint with the Siksika Nation. 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, and the mitigation that will be implemented as the Project moves forward, both under provincial regulation and authorization and through consultation with the Siksika Nation, the environmental effects of the Project on physical and cultural heritage and	• CPP • O	• 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 Siksika Nation. 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	Yes	Duration: Permanent Magnitude: High Geographic Extent: Discrete Frequency: Once Reversibility: Irreversible Context: Low	Not Significant (Low)	Duration: Permanent Magnitude: High Geographic Extent: Regional Frequency: Once Reversibility: Irreversible Context: Low	Not Significant (Low)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		structures, sites, or items that are of historical, archaeological, paleontological, or architectural significance for all phases of the Project are rated not significant.		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. • These are identified in combination with the key mitigations for physical and cultural heritage to reduce the impacts on the Siksika Nation's rights including those related to their ability to know and teach the Siksika way of living during all Project phases. • Key mitigation measures for physical and cultural heritage also include, where practicable seeking Siksika Nation consent where applicable on any cultural heritage site or resource that may be impacted by a proposed development/land alteration. • 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 is committed to continued consultation and engagement with the Siksika Nation 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 Siksika Nation's physical and cultural heritage are connected to the Siksika Nation's rights and interests related to their perspectives on access to these sites, the values associated with the traditional resources available to the Siksika Nation, and their ability to know and teach the Siksika way of living during all Project phases.					
	Change to Social, Health, and Economic Conditions	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	• O	• 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),	Yes	Duration: Long-Term Magnitude: Low	Not Significant (Moderate to High)	Duration: Long-term Magnitude: Low Geographic Extent: Local to Discrete	Not Significant (Moderate to High)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		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. 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.		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 Siksika Nation's traditional activities to reduce the impacts on the Siksika Nation's interests including those related to their ability to know and teach the Siksika 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 Siksika Nation, will include a process to monitor during the relevant phases of the Project, potential Project contaminants to water, country foods, and medicines, the development and implementation of mitigation strategies and measures, and 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		Geographic Extent: Discrete to Local Frequency: Continuous Reversibility: Reversible Long-Term Context: Neutral		Frequency: Continuous Reversibility: Reversible Long-term Context: Neutral	

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				Project based on scientific and Traditional Knowledge. • 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; • 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. • 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. • NWP will work with the Siksika Nation 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 is committed to continued consultation and engagement with the Siksika Nation 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 Siksika Nation's social, health, and economic conditions are connected to the Siksika Nation's interests related to their perspectives on country food consumption, the values associated with the traditional resources available to the Siksika Nation, and their ability to know and teach the Siksika way of living during all Project phases.					

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
Indigenous Peoples – Tsuut'ina Nation	Change to Use of Lands and Resources for Traditional Fishing Purposes	The Tsuut'ina Nation did not identify watercourses within the Project footprint that are utilized for fishing (Appendix 30-A, Table 30.A-2). It is acknowledged that Tsuut'ina Nation has the potential to use Project-impacted watercourses that support Bull Trout given their current use and interest in this species within the ATRI LSA. 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 Bull Trout is 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.	• CPP • O • RC	• 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 Tsuut'ina Nation's fishing rights including those related to their ability to know and teach the Tsuut'ina 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). • 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. • 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. • NWP is committed to continued consultation and engagement with the Tsuut'ina Nation to identify and adapt mitigation measures to address impacts on use of lands (and waters) and resources for traditional fishing purposes	Yes	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 (Moderate)	Duration: Long-term Magnitude: Moderate Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible Long-term Context: Neutral	Not Significant (Low)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				within the Project footprint and the ATRI LSA. The mitigation measures relevant to the fish and fish habitat VCs are connected to the Tsuut'ina Nation'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 Tsuut'ina Nation, and their ability to know and teach the Tsuut'ina way of living during all Project phases.					
	Change to Use of Lands and Resources for Traditional Hunting and Trapping Purposes	Tsuut'ina Nation noted the presence of potential locations for species of cultural importance but did not identify hunting and trapping areas within the Project footprint that are utilized for traditional activities and it is anticipated that currently Tsuut'ina Nation 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 Tsuut'ina coupled with the lack of significant adverse effects to wildlife VCs that potentially used for hunting and trapping purposes indicates the no 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, and bird species.	• CPP • O • RC	• 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 Tsuut'ina Nation's hunting and trapping rights including those related to their ability to know and teach the Tsuut'ina 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.	Yes	Duration: Long-Term Magnitude: Low to Moderate Geographic Extent: Local Frequency: Continuous Reversibility: Reversible Long-Term Context: Neutral	Not Significant (Moderate)	Duration: Long-term to Permanent Magnitude: Low Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible Long-term to Irreversible Context: Neutral	Not Significant (Low)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				• 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. • 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. • NWP is committed to continued consultation and engagement with the Tsuut'ina Nation 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 Tsuut'ina Nation'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 Tsuut'ina Nation, and their ability to know and teach the Tsuut'ina way of living during all Project phases.					
	Change to Use of Lands and Resources for Traditional Harvesting and Gathering Purposes	Tsuut'ina Nation noted the presence of plant and wood species of cultural importance but did not identify specific areas within the Project footprint that are utilized for harvesting and gathering for traditional purposes. The Project is anticipated to result in long-term 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	• CPP • O • RC	• 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	Yes	Duration: Long-term to Permanent Magnitude: Low to Moderate Geographic Extent: Discrete Frequency: Intermittent	Not Significant (Moderate)	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)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		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 Tsuut'ina Nation, in particular the Project footprint and the Landscape and Ecosystems LSA, for traditional harvesting and gathering is anticipated to be low as the Tsuut'ina Nation have not provided information regarding their use of the Project footprint 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 Landscape and Ecosystems LSA.		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 Tsuut'ina Nation's harvesting and gathering rights including those related to their ability to know and teach the Tsuut'ina way of living during all Project phases. • Key mitigation measures for harvesting and gathering also include, where practicable 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. • 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. • 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. • NWP is committed to continued consultation and engagement with the Tsuut'ina Nation 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 Tsuut'ina Nation's rights and interests related to their ability to		Reversibility: Reversible Long-Term Context: Neutral			

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				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 Tsuut'ina Nation, and their ability to know and teach the Tsuut'ina way of living during all Project phases.					
	Change to Physical and Cultural Heritage and Change to a Structure, Site, or Thing that is of Historical, Archaeological, Paleontological, or Architectural Significance	A significant adverse residual environmental effect on Tsuut'ina Nation 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 Tsuut'ina Nation that cannot be mitigated or compensated. Currently, there are no identified linkages to pre-contact archaeological sites within the Project footprint with the Tsuut'ina Nation. 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, and the mitigation that will be implemented as the Project moves forward, both under provincial regulation and authorization and through consultation with the Tsuut'ina Nation, 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 not significant.	• CPP • O	• 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 Tsuut'ina Nation. 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. • These are identified in combination with the key mitigations for physical and cultural heritage to reduce the impacts on the Tsuut'ina Nation's rights including those related to their ability to know and teach the Tsuut'ina way of living during all Project phases. • Key mitigation measures for physical and cultural heritage also include, where practicable	Yes	Duration: Permanent Magnitude: High Geographic Extent: Discrete Frequency: Once Reversibility: Irreversible Context: Low	Not Significant (Low)	Duration: Permanent Magnitude: High Geographic Extent: Regional Frequency: Once Reversibility: Irreversible Context: Low	Not Significant (Low)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				seeking Tsuut'ina Nation consent where applicable on any cultural heritage site or resource that may be impacted by a proposed development/land alteration. • 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 is committed to continued consultation and engagement with the Tsuut'ina Nation 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 Tsuut'ina Nation's physical and cultural heritage are connected to the Tsuut'ina Nation's rights and interests related to their perspectives on access to these sites, the values associated with the traditional resources available to the Tsuut'ina Nation, and their ability to know and teach the Tsuut'ina way of living during all Project phases.					
	Change to Social, Health, and Economic Conditions	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	• O	• 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	Yes	Duration: Long-Term Magnitude: Low Geographic Extent: Discrete to Local Frequency: Continuous Reversibility: Reversible Long-Term Context: Neutral	Not Significant (Moderate to High)	Duration: Long-term Magnitude: Low Geographic Extent: Local to Discrete Frequency: Continuous Reversibility: Reversible Long-term Context: Neutral	Not Significant (Moderate to High)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		Reclamation and Closure, the Project is not anticipated to result in significance adverse effects to aquatic and terrestrial wildlife or Indigenous persons. 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.		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 Tsuut'ina Nation's traditional activities to reduce the impacts on the Tsuut'ina Nation's interests including those related to their ability to know and teach the Tsuut'ina 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 Tsuut'ina Nation, will include a process to monitor during the relevant phases of the Project, potential Project contaminants to water, country foods, and medicines, the development and implementation of mitigation strategies and measures, and 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. • 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; • Developing a well-being management plan with Indigenous partners to address ways to reduce the potential effects of shift work for new					

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				Indigenous employees and to promote the safety and security of Indigenous women, girls, and 2SLGBTQIAA+ people in the workplace. • 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. • NWP will work with the Tsuut'ina Nation 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 is committed to continued consultation and engagement with the Tsuut'ina Nation 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 Tsuut'ina Nation's social, health, and economic conditions are connected to the Tsuut'ina Nation's interests related to their perspectives on country food consumption, the values associated with the traditional resources available to the Tsuut'ina Nation, and their ability to know and teach the Tsuut'ina way of living during all Project phases.					
Indigenous Peoples – Métis Nation of Alberta – Region 3	Change to Use of Lands and Resources for Traditional Fishing Purposes	MNA – Region 3 have not currently made available any information regarding their use of the watercourses in the Project footprint for fishing purposes and it is unknown if MNA – Region 3 currently uses watercourses within the ATRI LSA. 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	• CPP • O • RC	• 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.	Yes	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)	Duration: Long-term Magnitude: Moderate Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible Long-term Context: Neutral	Not Significant (Low)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		permanent losses to the ability to fish is 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.		• These are identified in combination with the key mitigations for traditional fishing activities to reduce the impacts on the Métis' fishing rights including those related to their ability to know and teach the Métis 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). • 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. • 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. • NWP is committed to continued consultation and engagement with the MNA – Region 3 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 Métis' 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 Métis, and their ability to know and teach the Métis way of living during all Project phases.				
	Change to Use of Lands and Resources for Traditional Hunting and Trapping Purposes	MNA – Region 3 have not currently made available information regarding their use of the Project footprint for hunting and trapping purposes and it is anticipated that currently MNA – Region 3 has a low level of use in the Terrestrial LSA due to previously noted disturbances (e.g., existing mining activity). The	• CPP • O • RC	• 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	Yes	Duration: Long-Term Magnitude: Low to Moderate Geographic Extent: Local	Not Significant (Low to Moderate)	Duration: Long-term to Permanent Magnitude: Low Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible	Not Significant (Low)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		anticipated low level of use by the MNA – Region 3 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, and bird species.		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 Métis' hunting and trapping rights including those related to their ability to know and teach the Métis 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. • 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. • Developing NUE areas in collaboration with Indigenous Communities, regulators, and key stakeholders based on safety, logistical, and administrative considerations to restrict public		Frequency: Continuous Reversibility: Reversible Long-Term Context: Neutral		Long-term to Irreversible Context: Neutral	

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				access to traditional hunting and trapping use areas within the Project footprint. • NWP is committed to continued consultation and engagement with the MNA – Region 3 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 Métis' 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 Métis, and their ability to know and teach the Métis way of living during all Project phases.					
	Change to Use of Lands and Resources for Traditional Harvesting and Gathering Purposes	MNA – Region 3 has 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 MNA – Region 3, in particular of the Project footprint and the Landscape and Ecosystems LSA, for traditional harvesting and gathering is anticipated to be low as the MNA – Region 3 have not provided information regarding their use of the ATRI LSA 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.	• CPP • O • RC	• 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 Métis' harvesting and gathering rights including those related to their ability to know and teach the Métis way of living during all Project phases. • Key mitigation measures for harvesting and gathering also include, where practicable	Yes	Duration: Long-term to Permanent Magnitude: Low to Moderate Geographic Extent: Discrete Frequency: Intermittent Reversibility: Reversible Long-Term Context: Neutral	Not Significant (Low to Moderate)	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)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				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. • 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. • 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. • NWP is committed to continued consultation and engagement with the MNA – Region 3 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 Métis' 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 Métis, and their ability to know and teach the Métis way of living during all Project phases.					
	Change to Physical and Cultural Heritage and Change to a Structure, Site, or Thing that is of Historical, Archaeological, Paleontological, or Architectural Significance	A significant adverse residual environmental effect on MNA – Region 3 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 MNA – Region 3 (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 MNA – Region 3.	• CPP • O	• 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 MNA – Region 3. An Archaeology Management Plan (Chapter 33, Section 33.4.1.2) was developed for the Project and describes protocols that will be followed	Yes	Duration: Permanent Magnitude: High Geographic Extent: Discrete Frequency: Once Reversibility: Irreversible Context: Low	Not Significant (Low)	Duration: Permanent Magnitude: High Geographic Extent: Regional Frequency: Once Reversibility: Irreversible Context: Low	Not Significant (Low)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
		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, and the mitigation that will be implemented as the Project moves forward, both under provincial regulation and authorization and through consultation with MNA – Region 3, the environmental effects of the Project on physical and cultural heritage for all phases of the Project are rated not significant.		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. • These are identified in combination with the key mitigations for physical and cultural heritage to reduce the impacts on the Métis' rights including those related to their ability to know and teach the Métis way of living during all Project phases. • Key mitigation measures for physical and cultural heritage also include, where practicable seeking MNA – Region 3 consent where applicable on any cultural heritage site or resource that may be impacted by a proposed development/land alteration. • 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 is committed to continued consultation and engagement with the MNA – Region 3 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 Métis' physical and cultural heritage are connected to the Métis'					

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				rights and interests related to their perspectives on access to these sites, the values associated with the traditional resources available to the Métis, and their ability to know and teach the Métis way of living during all Project phases.					
	Change to Social, Health, and Economic Conditions	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. 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.	• O	• 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 Métis' traditional activities to reduce the impacts on the Métis' interests including those related to their ability to know and teach the Métis 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 MNA – Region 3, will include a process to monitor	Yes	Duration: Long-Term Magnitude: Low Geographic Extent: Discrete to Local Frequency: Continuous Reversibility: Reversible Long-Term Context: Neutral	Not Significant (Moderate to High)	Duration: Long-term Magnitude: Low Geographic Extent: Local to Discrete Frequency: Continuous Reversibility: Reversible Long-term Context: Neutral	Not Significant (Moderate to High)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				during the relevant phases of the Project, potential Project contaminants to water, country foods, and medicines, the development and implementation of mitigation strategies and measures, and 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. • 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; • 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. • 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. • NWP will work with the MNA – Region 3 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 is committed to continued consultation and engagement with the MNA – Region 3 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 Métis' social, health,					

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
				and economic conditions are connected to the Métis' interests related to their perspectives on country food consumption, the values associated with the traditional resources available to the Métis, and their ability to know and teach the Métis way of living during all Project phases.					
	Change in Greenhouse Gas Emissions	The Project will contribute to national and international greenhouse gas emissions, thereby contributing to global climate change at the transboundary level.	• CPP • O • RC	• See mitigation proposed for Change in Greenhouse Gas Emissions above • Use of hyperbaric drying rather than thermal drying • Enforce low speed limits for vehicular traffic throughout the site, limit long-term idling, and inspect and maintain all vehicles and combustion equipment per manufacturer recommendations and operate within regulatory requirements	Yes	Duration: Long-term Magnitude: Moderate Geographic Extent: Beyond regional Frequency: Continuous Reversibility: Reversible long-term to irreversible Context: Neutral	Not Significant (High)	Duration: Long-term Magnitude: Moderate Geographic Extent: Beyond regional Frequency: Continuous Reversibility: Reversible long-term to irreversible Context: Neutral	Not Significant (Low)
Transboundary Lands	Change In Surface Water Quality from Sediment Pond Discharge	Effects on surface water quality in Lake Koocanusa in the U.S.A. as a result of Sediment Pond discharges to the receiving environment in West Alexander Creek.	• O • RC • PC	• See mitigation proposed for Change in Surface Water Quality from Sediment Pond Discharge above • Engineered layering of coal rejects and mine rock to limit metal leaching and acid rock drainage (ML/ARD) to reduce oxygen, nitrate, and selenium within the Mine Rock Storage Facility and remove selenium from contact water • Management of appropriately sized sediment ponds to settle particles and control discharge of contact water into the receiving environment	Yes	Duration: Long-term Magnitude: Low Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible Context: Neutral	Not Significant (Low to Moderate)	Duration: Long-term Magnitude: Low Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible long-term Context: Neutral	Not Significant (Moderate)
	Changes to Fish and Fish Habitat - Water Quality	Effects on fish and fish habitat caused by changes in water quality as a result of Sediment Pond discharges to the receiving environment in West Alexander Creek, and ultimately Lake Koocanusa in the U.S.A.	• CPP • O • RC • PC	• See mitigation proposed for fish VCs above • Engineered layering of coal rejects and mine rock to limit metal leaching and acid rock drainage (ML/ARD) to reduce oxygen, nitrate, and selenium within the Mine Rock Storage Facility and remove selenium from contact water • Management of appropriately sized sediment ponds to settle particles and control discharge of contact water into the receiving environment	Yes	Duration: Long-term Magnitude: Low Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible Context: Neutral	Not Significant (Low to Moderate)	Duration: Long-term Magnitude: Low to Moderate Geographic Extent: Regional Frequency: Continuous Reversibility: Irreversible Context: Neutral	Not Significant (Moderate)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
	Changes to Wildlife and Wildlife Habitat - Ungulates	Effects on wildlife habitat and movement of ungulate populations that span B.C., Alberta, and the U.S.A.	• CPP • O • RC	• See mitigation proposed for ungulate VCs above • Minimizing disturbance and encroachment into natural vegetation • Clearing vegetation only in the year in which the area will be required for construction or operation to minimize the extent of cleared vegetation, to the extent possible • 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 • Prior to winter avalanche control along the access road, avalanche control areas will be visually searched for wildlife prior to avalanche control activities; avalanche control activities will not be conducted when carnivores are present in potential slide areas • Limit the mine disturbance footprint through Project design and progressive reclamation	Yes	Duration: Long-term to Permanent Magnitude: Low to Moderate Geographic Extent: Discrete to Local Frequency: Continuous Reversibility: Reversible long-term Context: Neutral to High	Not Significant (High)	Duration: Long-term Magnitude: Low Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible long-term Context: Neutral (moose), high (elk and bighorn sheep), and low (mountain goat)	Not Significant (High)
	Changes to Wildlife and Wildlife Habitat – Carnivores	Effects on wildlife habitat and movement of carnivore populations that span B.C., Alberta, and the U.S.A.	• CPP • O • RC	• See mitigation proposed for carnivore VCs above • Minimizing disturbance and encroachment into natural vegetation • Clearing vegetation only in the year in which the area will be required for construction or operation to minimize the extent of cleared vegetation, to the extent possible • 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 • Prior to winter avalanche control along the access road, avalanche control areas will be visually searched for wildlife prior to avalanche control activities; avalanche control activities will not be conducted when carnivores are present in potential slide areas • Limit the mine disturbance footprint through Project design and progressive reclamation	Yes	Duration: Long-term to Permanent Magnitude: Low to Moderate Geographic Extent: Discrete to Local Frequency: Continuous Reversibility: Reversible long-term Context: Low to High	Not Significant (Moderate)	Duration: Long-term Magnitude: Low Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible long-term Context: Low (grizzly bear, wolverine, American marten), moderate (American badger), and high (Canada lynx)	Not Significant (Moderate)

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
	Changes to Wildlife and Wildlife Habitat – At Risk Bats	Effects on wildlife habitat of bat populations that span B.C., Alberta, and the U.S.A.	• CPP • O • RC	• See mitigation proposed for at-risk bat VCs above • All vegetation clearing and tree harvesting will be conducted outside the general bird nesting period (April 13 to August 19 in each year) to avoid impacts to nests when occupied by a bird or eggs and will be avoided during the most sensitive period for bats (May 30 to September 1 in the Kootenay Region) • Avoidance of mature and old growth with large-diameter trees, and suitable cave hibernacula, where practical alternatives are available • Directed/focused lighting will be used where possible, rather than broad area lighting, to minimize sensory disturbance. Light in non-essential areas will only be used when necessary, without compromising worker safety	Yes	Duration: Long-term to Permanent Magnitude: Low to Moderate Geographic Extent: Discrete to Local Frequency: Continuous Reversibility: Irreversible to Reversible Long-term Context: Low	Not Significant (Low)	Duration: Long-term to permanent Magnitude: Low to moderate Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible long-term to irreversible Context: Low	Not Significant (High)
	Changes to Wildlife and Wildlife Habitat – Birds	Effects on wildlife habitat and health of bird populations that span B.C., Alberta, and the U.S.A.	• CPP • O	• See mitigation proposed for bird VCs above • Minimizing disturbance and encroachment into natural vegetation • Clearing vegetation only in the year in which the area will be required for construction or operation to minimize the extent of cleared vegetation, to the extent possible • All vegetation clearing and tree harvesting will be conducted outside the general bird nesting period (April 13 to August 19 in each year) to avoid impacts to nests when occupied by a bird or eggs and will be avoided during the most sensitive period for bats (May 30 to September 1 in the Kootenay Region) • Directed/focused lighting will be used where possible, rather than broad area lighting, to minimize sensory disturbance. Light in non-essential areas will only be used when necessary, without compromising worker safety	Yes	Duration: Long-term to Permanent Magnitude: Negligible to Moderate Geographic Extent: Discrete to Local Frequency: Continuous Reversibility: Irreversible to Reversible long-term Context: Low to Neutral	Not Significant (High)	Duration: Long-term to permanent Magnitude: Low to moderate Geographic Extent: Regional Frequency: Continuous Reversibility: Reversible long-term Context: Neutral (migratory birds and), low to neutral (Northern Goshawk)	Not Significant (Moderate)
	Economic Conditions	No adverse Project economic residual effects predicted. The Project will result in positive economic impacts, including additional employment and income, contribute to regional and local economies, and contribute to government finance through taxes and royalty payments.	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Valued Component	Potential Project Effect	Contributing Project Activities and/or Physical Works	Project Phase*	Primary Mitigation Measures	Residual Effect?	Residual Effect Criteria	Residual Effect Significance (Confidence)	Cumulative Effect Criteria	Cumulative Effect Significance (Confidence)
	No measurable transboundary effects are anticipated for air quality, the acoustic environment, soils and terrain, groundwater quality and quantity, landscapes and ecosystems, vegetation, amphibians, Gillette's checkerspot, the socio-community, land use, and human and wildlife health.								

Note: * Project phases include Construction and Pre-Production (CPP), Operations (O), Reclamation and Closure (RC), and Post-Closure (PC)
** Indicates species at risk as defined under the *Species at Risk Act* 2002

34.4 Summary of Impact on Indigenous Communities' Aboriginal and Treaty Rights and Interests

The Application/EIS provides assessments of the potential impacts on the Aboriginal and/or Treaty rights and interests of the identified Indigenous Communities that may occur (after mitigation) as a result of the 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. Potential impacts on the Aboriginal and/or Treaty rights and interests of the identified Indigenous Communities that may occur in relation to social, health, and economic conditions were also assessed. Project effects that were predicted to remain despite the implementation of mitigation measures were considered residual effects.

Criteria were used to characterize the assessment of severity of adverse impacts on Aboriginal and/or Treaty rights and interests and involved 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 Indigenous Communities. The Agency's (IAAC) proposed suite of criteria (IAAC, 2022) has been utilized to evaluate the severity of adverse impacts of the Project on the rights of the identified 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 Indigenous Communities' rights and interests has been determined, based on feedback received from some of the identified Indigenous Communities and the methods and VCs that have been identified. Criteria used to characterize the degree of severity for adverse impacts on rights are defined in Chapters 23 to 31 for each identified Indigenous Community and included likelihood, geographic extent, frequency, duration, reversibility, cultural well-being, health, and cumulative impacts. As a result of publicly available information and feedback received from the Indigenous Communities, the two criteria proposed in the suite that have not been carried forward are governance and impact inequity. As previously noted, the Indigenous Communities (other than Ktunaxa Nation and Tsuut'ina Nation) have yet to conduct and submit a Traditional Knowledge/Traditional Land and Resource Use study within the ATRI/KNRI LSA for the Project. This severity assessment is based on the set of criteria listed above and are noted in the table below based on NWP's current understanding of the identified Indigenous Communities' rights and interests. The Application/EIS evaluated the degrees of severity for adverse impacts of the Project effects on the Indigenous Communities' rights and interests based on:

- Change to use of water for traditional purposes (Ktunaxa Nation);
- 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 (i.e., health and socio-economic conditions).

Table 34.4-1 summarizes the potential impact on the identified Indigenous Communities' rights related to Physical and Cultural Heritage as well as any structure, site, or thing that is of historical, archaeological, paleontological, or architectural significance which are combined for the purposes of the impact assessment.

Table 34.4-1: Conclusions – Impact on the Aboriginal and Treaty Rights and Interests of the identified Indigenous Communities

Valued Component	Potential Impact on Indigenous Communities' Rights and Interests	Project Phase	Summary of Impact on Rights and Interests Characterization	Degree of Severity for Adverse Impacts (High, Moderate, Low)
Indigenous Peoples - Ktunaxa Nation	Potential Impacts on Ktunaxa Nation's Rights related to the Use of Water for Traditional Purposes	• CPP • O • RC • PC	Likelihood: Low to Moderate Geographic Extent: Low Frequency, Duration, and Reversibility: Low to Moderate Cultural Well-being: Moderate Health: Low Cumulative Impacts: Moderate	Moderate to High
	Potential Impacts on Ktunaxa Nation's Fishing Rights	• CPP • O • RC • PC	Likelihood: Low to Moderate Geographic Extent: Low Frequency, Duration, and Reversibility: Low to Moderate Cultural Well-being: Moderate Health: Low Cumulative Impacts: Moderate	Moderate to High
	Potential Impacts on Ktunaxa Nation's Hunting and Trapping Rights	• CPP • O • RC • PC	Likelihood: Low to Moderate Geographic Extent: Moderate Frequency, Duration, and Reversibility: Low to Moderate Cultural Well-being: Moderate Health: Low Cumulative Impacts: Moderate	Moderate
	Potential Impacts on Ktunaxa Nation's Harvesting and Gathering Rights	• CPP • O • RC • PC	Likelihood: Low to Moderate Geographic Extent: Low Frequency, Duration, and Reversibility: Moderate to High Cultural Well-being: Moderate Health: Low Cumulative Impacts: Moderate	Moderate to High

Valued Component	Potential Impact on Indigenous Communities' Rights and Interests	Project Phase	Summary of Impact on Rights and Interests Characterization	Degree of Severity for Adverse Impacts (High, Moderate, Low)
	Potential Impacts on Ktunaxa Nation's Rights related to Physical and Cultural Heritage and Change to any Structure, Site, or Thing that is of Historical, Archaeological, Paleontological, or Architectural Significance	• CPP • O	Likelihood: Moderate Geographic Extent: Low Frequency, Duration, and Reversibility: Low to Moderate Cultural Well-being: Moderate Health: Low Cumulative Impacts: Moderate to High	Moderate to High
	Potential Impact on Ktunaxa Nation's Interests related to Social, Health, and Economic Conditions	• CPP • O • RC	Likelihood: Moderate Geographic Extent: Low Frequency, Duration, and Reversibility: Low to Moderate Cultural Well-being: Moderate Health: Low Cumulative Impacts: Moderate to High	Low to Moderate
Indigenous Peoples – Shuswap Indian Band	Potential Impact on Fishing Rights	• CPP • O • RC • PC	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	• CPP • O • RC • PC	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

Valued Component	Potential Impact on Indigenous Communities' Rights and Interests	Project Phase	Summary of Impact on Rights and Interests Characterization	Degree of Severity for Adverse Impacts (High, Moderate, Low)
Indigenous Peoples – Stoney Nakoda Nation	Potential Impact on Harvesting and Gathering Rights	• CPP • O • RC • PC	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.	• CPP • O	Likelihood: High Geographic Extent: Low Frequency, Duration, and Reversibility: High Cultural Well-being: High Health: Low Cumulative Impacts: Moderate to High	Moderate to High
	Potential Impact on Interests related to Social, Health, and Economic Conditions	• CPP • O • RC	Likelihood: Low Geographic Extent: Low Frequency, Duration, and Reversibility: Low Cultural Well-being: Low Health: Low Cumulative Impacts: Low	Low
	Potential Impact on Fishing Rights	• CPP • O • RC • PC	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

Valued Component	Potential Impact on Indigenous Communities' Rights and Interests	Project Phase	Summary of Impact on Rights and Interests Characterization	Degree of Severity for Adverse Impacts (High, Moderate, Low)
	Potential Impact on Hunting and Trapping Rights	• CPP • O • RC • PC	Likelihood: Low to Moderate Geographic Extent: Moderate 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	• CPP • O • RC • PC	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.	• CPP • O	Likelihood: Moderate Geographic Extent: Low Frequency, Duration, and Reversibility: High Cultural Well-being: High Health: Low Cumulative Impacts: Moderate	Moderate to High
	Potential Impact on Interests related to Social, Health, and Economic Conditions.	• CPP • O • RC	Likelihood: Low Geographic Extent: Low Frequency, Duration, and Reversibility: Low Cultural Well-being: Low Health: Low Cumulative Impacts: Low	Low

Valued Component	Potential Impact on Indigenous Communities' Rights and Interests	Project Phase	Summary of Impact on Rights and Interests Characterization	Degree of Severity for Adverse Impacts (High, Moderate, Low)
Indigenous Peoples – Métis Nation of British Columbia	Potential Impact on Fishing Rights	• CPP • O • RC • PC	Likelihood: Moderate Geographic Extent: Low Frequency, Duration, and Reversibility: Moderate Cultural Well-being: Moderate Health: Low Cumulative Impacts: Moderate	Low to Moderate
	Potential Impact on Hunting and Trapping Rights	• CPP • O • RC • PC	Likelihood: Moderate Geographic Extent: Moderate Frequency, Duration, and Reversibility: Moderate Cultural Well-being: Moderate Health: Low Cumulative Impacts: Moderate	Low to Moderate
	Potential Impact on Harvesting and Gathering Rights	• CPP • O • RC • PC	Likelihood: Moderate Geographic Extent: Moderate Frequency, Duration, and Reversibility: Moderate 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	• CPP • O	Likelihood: Moderate Geographic Extent: Low Frequency, Duration, and Reversibility: High Cultural Well-being: High Health: Low Cumulative Impacts: Moderate	Moderate to High

Valued Component	Potential Impact on Indigenous Communities' Rights and Interests	Project Phase	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	• CPP • O • RC	Likelihood: Low Geographic Extent: Low Frequency, Duration, and Reversibility: Low Cultural Well-being: Low Health: Low Cumulative Impacts: Low	Low
Indigenous Peoples – Kainai (Blood Tribe)	Potential Impact on Fishing Rights	• CPP • O • RC • PC	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	• CPP • O • RC • PC	Likelihood: Low to Moderate Geographic Extent: Moderate 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	• CPP • O • RC • PC	Likelihood: Low to Moderate Geographic Extent: Moderate Frequency, Duration, and Reversibility: Moderate to High Cultural Well-being: Moderate Health: Low Cumulative Impacts: Moderate	Moderate

Valued Component	Potential Impact on Indigenous Communities' Rights and Interests	Project Phase	Summary of Impact on Rights and Interests Characterization	Degree of Severity for Adverse Impacts (High, Moderate, Low)
	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	• CPP • O	Likelihood: Moderate Geographic Extent: Low Frequency, Duration, and Reversibility: High Cultural Well-being: High Health: Low Cumulative Impacts: Moderate	Moderate to High
	Potential Impact on Interests related to Social, Health, and Economic Conditions	• CPP • O • RC	Likelihood: Low Geographic Extent: Low Frequency, Duration, and Reversibility: Low Cultural Well-being: Low Health: Low Cumulative Impacts: Low	Low
Indigenous Peoples – Piikani Nation	Potential Impact on Fishing Rights	• CPP • O • RC • PC	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	• CPP • O • RC • PC	Likelihood: Low to Moderate Geographic Extent: Moderate Frequency, Duration, and Reversibility: Low to Moderate Cultural Well-being: Moderate Health: Low Cumulative Impacts: Moderate	Low to Moderate

Valued Component	Potential Impact on Indigenous Communities' Rights and Interests	Project Phase	Summary of Impact on Rights and Interests Characterization	Degree of Severity for Adverse Impacts (High, Moderate, Low)
Indigenous Peoples – Siksika Nation	Potential Impact on Harvesting and Gathering Rights	• CPP • O • RC • PC	Likelihood: Low to Moderate Geographic Extent: Low 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.	• CPP • O	Likelihood: Moderate Geographic Extent: Low Frequency, Duration, and Reversibility: High Cultural Well-being: High Health: Low Cumulative Impacts: Moderate	Moderate to High
	Potential Impact on Interests related to Social, Health, and Economic Conditions	• CPP • O • RC	Likelihood: Low Geographic Extent: Low Frequency, Duration, and Reversibility: Low Cultural Well-being: Low Health: Low Cumulative Impacts: Low	Low
	Potential Impact on Fishing Rights	• CPP • O • RC • PC	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

Valued Component	Potential Impact on Indigenous Communities' Rights and Interests	Project Phase	Summary of Impact on Rights and Interests Characterization	Degree of Severity for Adverse Impacts (High, Moderate, Low)
	Potential Impact on Hunting and Trapping Rights	• CPP • O • RC • PC	Likelihood: Low to Moderate Geographic Extent: Moderate 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	• CPP • O • RC • PC	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	• CPP • O	Likelihood: Moderate Geographic Extent: Low Frequency, Duration, and Reversibility: High Cultural Well-being: High Health: Low Cumulative Impacts: Moderate	Moderate to High
	Potential Impact on Interests related to Social, Health, and Economic Conditions	• CPP • O • RC	Likelihood: Low Geographic Extent: Low Frequency, Duration, and Reversibility: Low Cultural Well-being: Low Health: Low Cumulative Impacts: Low	Low

Valued Component	Potential Impact on Indigenous Communities' Rights and Interests	Project Phase	Summary of Impact on Rights and Interests Characterization	Degree of Severity for Adverse Impacts (High, Moderate, Low)
Indigenous Peoples – Tsuut'ina Nation	Potential Impact on Fishing Rights	• CPP • O • RC • PC	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	• CPP • O • RC • PC	Likelihood: Low to Moderate Geographic Extent: Moderate 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	• CPP • O • RC • PC	Likelihood: Moderate Geographic Extent: Low 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	• CPP • O	Likelihood: Moderate Geographic Extent: Low Frequency, Duration, and Reversibility: High Cultural Well-being: High Health: Low Cumulative Impacts: Moderate	Moderate to High

Valued Component	Potential Impact on Indigenous Communities' Rights and Interests	Project Phase	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	• CPP • O • RC	Likelihood: Low Geographic Extent: Low Frequency, Duration, and Reversibility: Low Cultural Well-being: Low Health: Low Cumulative Impacts: Low	Low
Indigenous Peoples – Métis Nation of Alberta – Region 3	Potential Impact on Fishing Rights	• CPP • O • RC • PC	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	• CPP • O • RC • PC	Likelihood: Low to Moderate Geographic Extent: Moderate 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	• CPP • O • RC • PC	Likelihood: Low to Moderate Geographic Extent: Moderate Frequency, Duration, and Reversibility: Moderate Cultural Well-being: Moderate Health: Low Cumulative Impacts: Moderate	Moderate

Valued Component	Potential Impact on Indigenous Communities' Rights and Interests	Project Phase	Summary of Impact on Rights and Interests Characterization	Degree of Severity for Adverse Impacts (High, Moderate, Low)
	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	• CPP • O	Likelihood: Moderate Geographic Extent: Low Frequency, Duration, and Reversibility: High Cultural Well-being: High Health: Low Cumulative Impacts: Moderate	Moderate to High
	Potential Impact on Interests related to Social, Health, and Economic Conditions	• CPP • O • RC	Likelihood: Low Geographic Extent: Low Frequency, Duration, and Reversibility: Low Cultural Well-being: Low Health: Low Cumulative Impacts: Low	Low

Note: * Project phases include Construction and Pre-Production (CPP), Operations (O), Reclamation and Closure (RC), and Post-Closure (PC)

34.5 Summary of Proposed Mitigation Measures

Appropriate mitigation measures to avoid, minimize, restore, and compensate and offset Project-related effects are detailed in the Application/EIS. Identification and selection of technically and economically feasible mitigation measures was based on BMPs, guidance documents, mitigation applied to similar projects and effects, and professional judgement. Mitigation was selected using the approach to the mitigation hierarchy outlined by the *Environmental Mitigation Policy for B.C.* (Ministry of Environment, 2014a) and the related *Procedures for Mitigation Impacts on Environmental Values* (Environmental Mitigation Procedures; Ministry of Environment, 2014b). The Application/EIS presents an assessment of the anticipated effectiveness of mitigation measures proposed to eliminate or reduce the Project's effects on a VC or VC group.

Table 34.3-1 details the primary mitigation measures proposed to address potential effects resulting from the Project while Table 34.5-1 summarizes key mitigation measures and commitments made by NWP to mitigate adverse effects of the Project on VCs. It is intended that the measures and commitments outlined in Table 34.5-1 will form the foundation for the development of conditions for the proposed Project by the EAO and the IAAC.

NWP will use a robust Environmental Management System (EMS) to implement management plans and track compliance with regulations and permit requirements while continuously improving environmental protection measures and environmental performance. Management and monitoring plans that contribute to the Project mitigation planning cover three categories: environmental; health and safety; and communication and report. The management and monitoring plans presented in the Application/EIS include:

- Environmental:
  - Air Quality and Greenhouse Gas Management Plan;
  - Archaeology Management Plan;
  - Ecological Restoration Plan;
  - Erosion and Sediment Control Plan;
  - Fish and Fish Habitat Management Plan;
  - Landform Design and Reclamation Plan;
  - Noise and Vibration Management Plan;
  - Site Water Management Plan;
  - Soil Management Plan;
  - Spill Prevention, Control, and Countermeasures Plan;
  - Vegetation and Ecosystems Management and Monitoring Plan;
  - Waste Management Plan;
  - Wildlife Management and Monitoring Plan;
- Health and Safety:
  - Access Management Plan;
  - Mine Emergency Response Plan;
  - Health and Safety Management Plan;
  - Traffic Control Plan;

- Communication and Reporting:
  - Community Relations and Communications Plan;
  - Compliance Reporting Plan;
  - Indigenous Engagement and Reporting Plan; and
  - Indigenous Impact Management Plan.

Specific to Aboriginal and/or Treaty rights and interests, NWP will develop and implement the Indigenous Impact Management Plan based on the result of the outcomes of the assessment processes outlined in Chapters 23 to 31. As the potential for, and consequences of, adverse effects increases; so does the comprehensiveness of the Indigenous Impact Management Plan in order to meet the requirements and objectives of each mitigation measure and/or monitoring program. Continued consultation and engagement with the identified Indigenous Communities to further identify and adapt mitigation measures to address impacts on their rights and related interests within the Project footprint and the ATRI/KNRI LSA are expected to refine this process throughout the Project lifecycle. Ktunaxa Nation provided information regarding the evaluation of options to reduce impacts on the Grave Prairie Cultural Landscape during conformity review, but no Indigenous Community (including Ktunaxa Nation) provided any input into the impact management measures identified in the Indigenous Impact Management Plan. It is to be noted that the effectiveness of these measures has not been confirmed by the identified Indigenous Communities to date.

Table 34.5-1: Conclusions – Mitigation Measures

Valued Component	Potential Project Effect	Applicable Management Plan	Commitment Number	Primary Mitigation Measure	Timing	Legal Requirement?	Responsible Agency
1.0 Air Quality	Change in Ambient Criteria Air Contaminant Concentrations	• Air Quality and Greenhouse Gas Management Plan • Soil Management Plan	1.1	Implement and adhere to the: • Air Quality and Greenhouse Gas Management Plan • Soil Management Plan	• CPP • O • RC	*Environmental Management Act*	ENV
			1.2	Limit CAC emissions through the application of standard industry practices and emissions control measures			
		• Traffic Control Plan	1.3	The layout of the site has been designed to minimize travel distances in order to reduce vehicle travel distances and speeds that would result in additional generation of CAC emissions	• CPP • O • RC	N/A	N/A
			1.4	Enforcement of low speed limits for vehicular traffic throughout the site	• CPP • O • RC	*Mines Act*	EMLCI
		• Landform Design and Reclamation Plan	1.5	Limit the mine disturbance footprint through Project design and progressive reclamation			
2.0 Greenhouse Gases	Change in Greenhouse Gas Emissions	• Air Quality and Greenhouse Gas Management Plan	2.1	Implement and adhere to the Air Quality and Greenhouse Gas Management Plan	• CPP • O • RC	*Canadian Environmental Protection Act*, *Greenhouse Gas Industrial*, *Reporting and Control Act*	ECCC, ENV
		N/A	2.2	Use of hyperbaric drying rather than thermal drying	• O	N/A	N/A
		• Traffic Control Plan	2.3	Enforcement of low speed limits for vehicular traffic throughout the site	• CPP • O • RC	*Mines Act*	EMLCI
		• Air Quality and Greenhouse Gas Management Plan • Traffic Control Plan	2.4	Inspect and maintain all vehicles and combustion equipment per manufacturer recommendations and operate within regulatory requirements	• CPP • O • RC	*Environmental Management Act*	EMLCI
		• Air Quality and Greenhouse Gas Management Plan • Traffic Control Plan	2.5	Limit long-term idling, where possible	• CPP • O • RC	*Mines Act*	EMLCI
		• Landform Design and Reclamation Plan	2.6	Limit the mine disturbance footprint through Project design and progressive reclamation			
3.0 Acoustic Environment	Change to Acoustic Environment, including Noise and Vibration Levels, due to Construction and Pre-Production Activities and Operations Activities	• Noise and Vibration Management Plan	3.1	Implement and adhere to the Noise and Vibration Management Plan	• CPP • O	N/A	N/A
			3.2	Limit construction activities, especially those with high noise impact, to daytime hours	• CPP	N/A	N/A
		• Noise and Vibration Management Plan • Air Quality and Greenhouse Gas Management Plan • Traffic Control Plan	3.3	Regularly inspect and repair equipment and vehicles as needed	• CPP • O	*Mines Act*	EMLCI
		• Noise and Vibration Management Plan	3.4	Utilize standard noise-dampening devices on construction and operations equipment			

Valued Component	Potential Project Effect	Applicable Management Plan	Commitment Number	Primary Mitigation Measure	Timing	Legal Requirement?	Responsible Agency
		• Noise and Vibration Management Plan • Air Quality and Greenhouse Gas Management Plan • Traffic Control Plan	3.5	Discourage unnecessary idling of equipment and vehicles			
		• Noise and Vibration Management Plan • Health and Safety Management Plan	3.6	Inform employees of noise impacts and potential mitigation/control measures through appropriate training			
		• Noise and Vibration Management Plan	3.7	Install and maintain noise mitigation measures, such as silencers, acoustic louvers, and barriers where possible, on and around Project infrastructure	• CPP • O	N/A	N/A
		• Noise and Vibration Management Plan • Communication and Reporting Plan	3.8	Notify near-by residents prior to construction activities that may generate significant noise for which mitigation may not be feasible			
		• Noise and Vibration Management Plan	3.9	Conduct blasting in batches to reduce frequency rather than in smaller, more frequent blasts			
			3.1	The quantity of charge used per delay will not exceed 2,300 kg throughout the Project and the time delay will not be less than 25 ms	• O	N/A	N/A
4.0 Soil Quantity	Loss of soil quantity during clearing and grubbing, and soil salvage activities	• Soil Management Plan • Erosion and Sediment Control Plan	4.1	Biomass salvage and soil salvage practices	• CPP	*Mines Act*	EMLCI
			4.2	Implement a response plan in the event of a sediment release	• O • RC • PC		
			4.3	Erosion control measures such as rough and loose surface preparation and incorporation of woody debris	• CPP • O • RC		
		• Soil Management Plan • Landform Design and Reclamation Plan	4.4	Progressive reclamation, soil replacement and revegetation	• RC • PC		
	Loss of soil during construction of development infrastructure within the Project footprint	• Soil Management Plan • Erosion and Sediment Control Plan	4.5	Engineered controls such as benching, ditching, damming, retention and settling ponds, revegetation and recontouring, slope stabilization, mulching, silt-fencing, designated vehicular and heavy equipment travel areas, and placement of other erosion control features during development of the site, in accordance with the ESCP	• CPP • O • RC • PC	*Mines Act*, *Fisheries Act*	EMLCI, DFO
			4.6	Implement a response plan in the event of a sediment release			
			4.7	Conduct regular inspections to ensure control measures are effective and functioning properly			
		• Soil Management Plan • Landform Design and Reclamation Plan	4.8	Limit the mine disturbance footprint through Project design and progressive reclamation and revegetation as available		*Mines Act*	EMLCI
			4.9	Engineered site drainage directing storm and contact water flow to sediment ponds	• O		

Valued Component	Potential Project Effect	Applicable Management Plan	Commitment Number	Primary Mitigation Measure	Timing	Legal Requirement?	Responsible Agency
5.0 Soil Quality	Loss of soil through erosion associated with site drainage and discharge of mine site water from sedimentation ponds	• Erosion and Sediment Control Plan			• RC	*Mines Act*, *Fisheries Act*	EMLCI, DFO
			4.10	Discharge of water from designated discharge points to West Alexander Creek, including implementation of erosion control measures in accordance with the ESCP	• O • RC • PC		
	Changes to soil quality associated with dust deposition	• Air Quality and Greenhouse Gas Management Plan • Site Water Management Plan	5.1	Efforts to reduce dust generation such as avoiding windy periods, containment and interception, and regular inspections	• O	*Mines Act*, *Environmental Management Act*	EMLCI, ENV
	Changes to soil quality due to interactions with seepage and ML/ARD	• Site Water Management Plan	5.2	Engineered layering of coal rejects and mine rock at the MRSF, engineered site drainage, and progressive reclamation by re-vegetation and re-sloping	• O • RC • PC	*Mines Act*, *Environmental Management Act*	EMLCI, ENV
			5.3	Conduct regular inspections to ensure control measures are effective and functioning properly			
	Changes to soil quality due to infiltration of effluent discharge to soil from sedimentation pond discharge points and during pond decommissioning	• Site Water Management Plan	5.4	Engineered site drainage directing storm and contact water flow to sediment ponds	• O • RC • PC	*Mines Act*, *Environmental Management Act*	EMLCI, ENV
			5.5	Discharge of water from designated discharge points to West Alexander Creek once water quality objectives have been met			
			5.6	Installation of impermeable liners in the Interim and Main Sediment Ponds and appropriate sizing of sediment ponds to minimize seepage losses and convey runoff during storm events			
			5.7	The storage and transfer of fuel will be restricted to designated areas			
	Routine use of hydrocarbon fuels on site, fuel handling, dispensing and transferring	• Spill Prevention, Control, and Countermeasures Plan	5.8	Implementing procedures for handling and storing fueling and fuel transfer such as appropriate secondary containment infrastructure and training of staff	• CPP • O • RC • PC	*Mines Act*, *Environmental Management Act*	EMLCI, ENV
			5.9	Conducting regular site and vehicle inspections			
			5.10	Preventative maintenance for all vehicles and equipment on site			
	Changes to terrain type, slope, and aspect	• Soil Management Plan • Erosion and Sediment Control Plan	6.1	Biomass and soil salvage will be conducted within the Project footprint disturbance areas according to BMPs, including segregation of the upper productive soil unit from lower soils	• CPP • O • RC • PC	*Mines Act*	EMLCI
		• Soil Management Plan • Landscape Design and Reclamation Management Plan	6.2	Progressive reclamation including recontouring towards stable post-mine landforms using salvaged soil and biomass, with an emphasis on the creation of both micro- and meso-topography to facilitate diverse ecosystems	• O • RC • PC		
6.0 Terrain	Changes to terrain stability resulting in increased frequency and intensity of geohazards (i.e., rapid and slow mass movement/landslides) through each Project phase.	• Erosion and Sediment Control Plan	6.3	Implementation of the ESCP through avoidance, minimization controls, and on-site restoration	• CPP • O • RC • PC	*Mines Act*, *Fisheries Act*	EMLCI, DFO
		• Soil Management Plan	6.4	Detailed geotechnical plans required to avoid adverse effects, and design adaptation to address stability issues	• CPP • O • RC	*Mines Act*	EMLCI
		• Erosion and Sediment Control Plan	6.5	Implementation of a response plan in the event of a sediment release		*Mines Act*, *Fisheries Act*	EMLCI, DFO
		• Soil Management Plan	6.6	Identification of high risk areas for terrain stability and geohazards, and avoidance of soil disturbance within and downslope		*Mines Act*	EMLCI

Valued Component	Potential Project Effect	Applicable Management Plan	Commitment Number	Primary Mitigation Measure	Timing	Legal Requirement?	Responsible Agency
		• Landscape Design and Reclamation Management Plan	6.7	The post-mine TEM ecological treatment has been designed to improve terrain within the Project footprint by reshaping during Reclamation to further prevent geohazards over the long term	• RC • PC	*Mines Act*	EMLCI
7.0 Groundwater Quantity	Changes in groundwater quantity from construction of the Interim Sediment Pond, Main Sediment Pond, and Grave Creek Reservoir.	• Site Water Management Plan	7.1	Installation of impermeable liners in the Interim and Main Sediment Ponds	• CPP • O • RC	*Mines Act*	EMLCI
	Changes in groundwater quantity from detonating explosives, mining process and dewatering of pits.	• Site Water Management Plan	7.2	During active mining, dewatering will be carried out using drainage ditches, berms, sumps and pumps to sedimentation ponds. Pit dewatering will be coordinated to meet overall water quality objectives	• O	*Mines Act*	EMLCI
		• Site Water Management Plan	7.3	Groundwater and surface water monitoring			
	Changes to groundwater quantity through altered drainage patterns and groundwater-surface water interaction associated with loading, hauling and dumping of mine rock at the MRSF.	• Site Water Management Plan	7.4	Engineered layering of coal rejects and mine rock at the MRSF, and progressive reclamation by re-vegetation and re-sloping			
			7.5	Groundwater monitoring	• CPP • O • RC	*Mines Act*	EMLCI
	Changes to groundwater quantity due to use of water for use as primary process make-up water from the Interim Sediment Pond (Year 1 to 5) and from the North Pit (Year 5 to 15. Grave Creek Reservoir may be used as a secondary source of process make-up water.	• Site Water Management Plan	7.6	Groundwater and surface water monitoring	• CPP • O	*Mines Act*	EMLCI
	Changes to groundwater quantity associated with surface water-groundwater interactions during discharge of effluent from the Interim Sediment Pond and Main Sediment Pond during operation and decommissioning.	• Site Water Management Plan	7.7	Installation of impermeable liners in the Interim and Main Sediment Ponds	• O • RC		

Valued Component	Potential Project Effect	Applicable Management Plan	Commitment Number	Primary Mitigation Measure	Timing	Legal Requirement?	Responsible Agency
	Changes to water table elevation in the local vicinity of the pits following reclamation and filling of pits to spill point levels.	• Site Water Management Plan	7.8	Groundwater and surface water monitoring	• RC • PC		
8.0 Groundwater Quality	Changes in groundwater quality due to infiltration of non-contact surface water runoff to groundwater during construction, site clearing, and maintenance and reclamation activities.	• Erosion and Sediment Control Plan • Site Water Management Plan	8.1 8.2	Limit erosion and contain sediment through the application of standard industry practices Conduct regular inspections to ensure control measures are effective and functioning properly	• CPP • O • RC	*Mines Act*, *Environmental Management Act*	EMLCI, ENV
			8.3	Divert clean runoff around mine disturbed areas, where possible			
		• Site Water Management Plan	8.4	Capture clean surface water that cannot be diverted in sediment ponds prior to release			
		• Landform Design and Reclamation Plan	8.5	Limit the mine disturbance footprint through Project design and progressive reclamation			
		• Site Water Management Plan	8.6	Groundwater and surface water monitoring			
	Changes in groundwater quality due to infiltration of contact water (i.e., surface water and mine site drainage) to groundwater.	• Site Water Management Plan • Erosion and Sediment Control Plan	8.7	Limit the mine disturbance footprint through Project design and progressive reclamation. Control mine site drainage through layered MRSF design and diversion ditches to sedimentation ponds	• CPP • O • RC	*Mines Act*, *Explosives Act*, *Environmental Management Act*	EMLCI, NRCan, ENV
		• Site Water Management Plan	8.8	Equip ponds with impermeable liners to minimize effects of seepage/leakage of pond water to groundwater			
			8.9	Groundwater and surface water monitoring			
		• Air Quality and Greenhouse Gas Management Plan	8.10	Minimizing the Project footprint, particularly area of exposed soils, minimizes potential wind erosion and dust generation	• CPP • O		
		• Site Water Management Plan	8.11	Follow provincial and federal requirements for the storing and handling of explosives			
			8.12	Collection and disposal of decontamination water off site.			
			8.13	Lining all blast holes to keep the ANFO dry			
			8.14	Minimizing the use of emulsion bulk explosives and limiting the sleep time of a loaded pattern to one week			
			8.15	Optimizing the blast hole size and pattern design			
			8.16	Training of employees to limit spillage of explosive agents on the blast pattern			
	Routine use of hydrocarbon fuels on site, fuel handling, dispensing and transferring.	• Spill Prevention, Control, and Countermeasures Plan	8.17	Implementing procedures for handling and storing fueling and fuel transfer	• CPP • O • RC	*Mines Act*	EMLCI
			8.18	The storage and transfer of fuel will be restricted to designated areas			
			8.19	Conducting regular site and vehicle inspections			
			8.20	Preventative maintenance for all vehicles and equipment on site			
	Changes in groundwater quality from loading, hauling and disposal of mine rock and coal rejects.	• Erosion and Sediment Control Plan • Site Water Management Plan	8.21	Divert clean runoff around mine disturbed areas, where possible	• O	*Mines Act*, *Environmental Management Act*	EMLCI, ENV
			8.22	Capture clean surface water that cannot be diverted in sediment ponds prior to release			
			8.23	Conduct regular inspections to ensure control measures are effective and functioning properly			
			8.24	Engineered layering of the MRSF			

Valued Component	Potential Project Effect	Applicable Management Plan	Commitment Number	Primary Mitigation Measure	Timing	Legal Requirement?	Responsible Agency
		• Site Water Management Plan • Landform Design and Reclamation Plan	8.25	Progressive reclamation of the mine rock storage facilities			
	Changes in groundwater quality from runoff of water during washing coal and stockpiling of coal.	• Site Water Management Plan • Erosion and Sediment Control Plan	8.26	Handling of coal product is on controlled surfaces or indoors	• O • RC • PC	*Mines Act*, *Environmental Management Act*	EMLCI, ENV
	Changes in groundwater quality due management and discharge of sediment pond water to West Alexander Creek via infiltration to groundwater.	• Site Water Management Plan • Erosion and Sediment Control Plan	8.27	Divert clean, non-contact water away from the sediment ponds where possible	• CPP • O	*Mines Act*, *Environmental Management Act*, *Fisheries Act*	EMLCI, ENV, DFO
			8.28	Appropriate sizing of sediment ponds and installation of impermeable liner to minimize seepage losses and convey runoff during storm events			
			8.29	Treat water prior to discharge as required in order to meet effluent standards			
		• Site Water Management Plan • Landform Design and Reclamation Plan	8.30	Limit the mine disturbance footprint through Project design and progressive reclamation. Monitoring and adaptive management	• CPP • O • RC	*Mines Act*	EMLCI
9.0 Surface Water Quantity	Changes to Surface Water Quantity due to Site Construction Activities	• Site Water Management Plan	9.1	Segregation and diversion of non-contact surface runoff around mine disturbed areas and water control facilities	• CPP	*Mines Act*	EMLCI
			9.2	Controlling outflows from water management facilities to maintain streamflow conditions in the receiving watercourses to the extent possible, particularly during low flow conditions	• CPP	*Mines Act*, *Fisheries Act*	EMLCI, DFO
	Change to Surface Water Quantity due to Surface Water Withdrawals	• Site Water Management Plan	9.3	Limiting surface water withdrawals to minimize impacts on streamflows	• O	*Water Sustainability Act*	FLNRORD
	Changes to Surface Water Quantity due to Operational Activities	• Site Water Management Plan	9.4	Controlling outflows from water management facilities to maintain streamflow conditions in the receiving watercourses to the extent possible, particularly during low flow conditions	• O	*Mines Act*, *Fisheries Act*	EMLCI, DFO
		• Landform Design and Reclamation Plan	9.5	Implementation of progressive contouring and reclamation of the Mine Rock Storage Facility to minimize changes in land use and hydrological characteristics	• O	*Mines Act*	EMLCI
	Changes to Surface Water Quantity due to Mine Closure and Reclamation Activities	• Landform Design and Reclamation Plan	9.6	Implementation of progressive contouring and reclamation of the Mine Rock Storage Facility to minimize changes in land use and hydrological characteristics	• RC	*Mines Act*	EMLCI
			9.7	Decommissioning and reclaiming water management facilities to restore natural streamflow conditions in the receiving watercourses to the extent possible	• RC • PC		
10.0 Surface Water Quality	Change in Surface Water Quality from Non-Contact Water Runoff	• Erosion and Sediment Control Plan	10.1	Limit erosion and contain sediment through the application of standard industry practices	• CPP • O • RC	*Mines Act*, *Fisheries Act*, *Environmental Management Act*	EMLCI, DFO, ENV
		• Site Water Management Plan	10.2	Divert clean runoff around mine disturbed areas, where possible, and capture clean surface water that cannot be diverted in sediment ponds prior to release	• CPP • O • RC	*Mines Act*	EMLCI
		• Landform Design and Reclamation Plan	10.3	Limit the mine disturbance footprint through Project design and progressive reclamation			
	Change in Surface Water Quality from Dust Deposition	• Air Quality and Greenhouse Gas Management Plan	10.4	Limit dust generation and emissions through the application of standard industry practices and emissions control measures	• CPP • O • RC	*Mines Act*, *Environmental Management Act*, *Fisheries Act*	EMLCI, ENV, DFO

Valued Component	Potential Project Effect	Applicable Management Plan	Commitment Number	Primary Mitigation Measure	Timing	Legal Requirement?	Responsible Agency
		• Landform Design and Reclamation Plan	10.5	Limit the mine disturbance footprint through Project design and progressive reclamation	• CPP • O • RC	*Mines Act*	EMLCI
	Change in Surface Water Quality from Mine Site Drainage	• Site Water Management Plan	10.6	Follow provincial and federal requirements for the storing and handling of explosives	• CPP • O • RC	*Explosives Act*, *Mines Act*	NRCan, EMLCI
		• Spill Prevention, Control, and Countermeasures Plan	10.7	Restricting the storage and transfer of fuel to certain areas	• CPP • O • RC	*Mines Act*	EMLCI
			10.8	Implementing procedures for handling and storing fuel and fuel transfer			
			10.9	Conducting regular site and vehicle inspections and preventative maintenance for all vehicles and equipment on site			
		• Site Water Management Plan	10.10	During active mining, dewatering will be carried out using drainage ditches, berms, sumps and pumps. Pit dewatering will be coordinated to meet overall water quality objectives. Once backfilled and allowed to fill with groundwater inflows, selenium and nitrate are effectively reduced in mildly suboxic saturated rock fill	• O • RC	*Mines Act*, *Fisheries Act* *Environmental Management Act*	EMLCI, DFO, ENV
	Change in Surface Water Quality from Disposal of Mine Rock and Coal Rejects	• Site Water Management Plan	10.11	Engineered layering of coal rejects and mine rock to limit ML/ARD	• O • RC • PC	*Mines Act*	EMLCI
			10.12	Saturated backfill of mine rock in the East and North Pits			
		• Landform Design and Reclamation Plan	10.13	Progressive reclamation of the Mine Rock Storage Facility	• O • RC		
	Change in Surface Water Quality from Surface Water – Groundwater Interactions	• Site Water Management Plan	10.14	Installation of impermeable liners in the Interim and Main Sediment Ponds	• O • RC • PC	*Mines Act*, *Fisheries Act*, *Environmental Management Act*	EMLCI, DFO, ENV
	Change in Surface Water Quality from Sediment Pond Discharge	• Site Water Management Plan	10.15	Diverting clean, non-contact water away from the sediment ponds, where possible	• CPP • O	*Environmental Management Act*, *Fisheries Act*	ENV, DFO
			10.16	Appropriate sizing of sediment ponds to minimize seepage losses and convey runoff during storm events	• CPP • O	*Environmental Management Act*, *Fisheries Act*	ENV, DFO
		• Landform Design and Reclamation Plan	10.17	Limit the mine disturbance footprint through Project design and progressive reclamation	• O • RC	*Mines Act*	EMLCI
11.0 Fish and Fish Habitat	Fish Mortality	• Fish and Fish Habitat Management Plan	11.1	Avoiding killing fish by means other than fishing	• CPP • O • RC	*Water Sustainability Act*, *Fisheries Act*	ENV, DFO
			11.2	Planning in water works, undertakings, or activities to respective timing windows to protect fish			
	Instream Habitat Loss Due to Mine Design and Development	• Fish and Fish Habitat Management Plan	11.3	Avoid conducting works, undertakings, or activities in water, where possible	• CPP • O	*Fisheries Act*, *Water Sustainability Act*	DFO, ENV
			11.4	Avoid disturbing or removing materials from the banks, shoreline, or waterbody bed, such as sand, rocks, aquatic vegetation, or natural wood debris			
			11.5	Minimize the impact by obtaining and authorization under the Fisheries Act for harmful alteration, disruption, or destruction (HADD) of fish habitat caused by habitat loss, and developing an offsetting plan to compensate and replace for habitat loss caused by the Project	• CPP • O • RC	*Fisheries Act*	DFO
	Habitat Loss Due to Changes in Water Quantity	• Site Water Management Plan	11.6	Controlling outflows from water management facilities to maintain streamflow conditions in the receiving watercourses to the extent possible, particularly during low flow conditions	• CPP • O	*Mines Act*, *Fisheries Act*	EMLCI, DFO
			11.7	Limiting surface water withdrawals to minimize impacts on streamflow	• O	*Water Sustainability Act*, *Fisheries Act*	FLNRORD, DFO

Valued Component	Potential Project Effect	Applicable Management Plan	Commitment Number	Primary Mitigation Measure	Timing	Legal Requirement?	Responsible Agency
12.0 Landscapes and Ecosystems	Changes in Water Quality	• Fish and Fish Habitat Management Plan	11.8	Maintain fish passage by avoiding changing flow or water level and obstructing or interfering with the movement and migration of fish	• O	*Water Sustainability Act* *Fisheries Act*	FLNRORD, DFO
		• Landform Design and Reclamation Plan	11.9	Decommissioning and reclaiming water management facilities to restore natural streamflow conditions in the receiving watercourses to the extent possible	• RC • PC	*Mines Act*	EMLCI
		• Site Water Management Plan	11.10	Engineered layering of coal rejects and mine rock to limit ML/ARD	• O • RC • PC	*Mines Act*, *Fisheries Act*, *Environmental Management Act*	EMLCI, DFO, ENV
			11.11	Appropriate sizing of sediment ponds to minimize seepage losses and convey runoff during storm events	• CPP • O	*Mines Act*, *Fisheries Act*, *Environmental Management Act*	EMLCI, DFO, ENV
		• Erosion and Sediment Control Plan	11.12	Limit erosion and contain sediment through the application of standard industry practices	• CPP • O • RC	*Mines Act*, *Fisheries Act*, *Environmental Management Act*	EMLCI, DFO, ENV
	Change in Fish and Fish Habitat Due to Blasting	• Noise and Vibration Management Plan	11.13	Design of blasts and delay configurations to minimize vibration	• CPP • O	*Fisheries Act*	DFO
			11.14	Reduction of charge per delay by decking the blast holes			
			11.15	Increasing the delay time between rows and holes to produce discrete explosions			
	Changes in Streambed Structure	• Site Water Management Plan	11.16	Treating water prior to discharge as required to minimize calcite formation.	• O • RC	*Fisheries Act*, *Environmental Management Act*	DFO, ENV
		• Erosion and Sediment Control Plan	11.17	Limit erosion and contain sediment through the application of standard industry practices	• CPP • O • RC	*Mines Act*, *Fisheries Act*, *Environmental Management Act*	EMLCI, DFO, ENV
		• Landform Design and Reclamation Plan	11.18	Limit the mine disturbance footprint through Project design and progressive reclamation	• O • RC	*Mines Act*	EMLCI
	Functional Riparian Disturbance	• Vegetation and Ecosystems Management and Monitoring Plan	11.19	Maintaining an undisturbed vegetated buffer zone between areas of on-land activity and the high-water mark of any waterbody	• CPP • O	*Mines Act*, *Fisheries Act*, *Forest and Range Practices Act*, *Riparian Areas Protection Act*	EMLCI, DFO, FLNRORD
		• Ecological Restoration Plan	11.20	Minimizing disturbance and cleared areas through Project design optimization and progressive reclamation	• O • RC		
			11.21	Develop and implement an offsetting/compensation plan for riparian habitat to ensure no net loss occurs	• RC		
	All potential effects to landscape and ecosystems VCs	• Landform Design and Reclamation Plan • Ecological Restoration Plan	12.1	Limit the mine disturbance footprint and cleared areas through Project design and progressive reclamation	• CPP • O • RC	*Mines Act*, *Weed Control Act*	EMLCI, FLNRORD
		• Vegetation and Ecosystems Management and Monitoring Plan	12.2	Conduct education and training as it relates to the Vegetation Management Plan		N/A	N/A
	Change in Abundance and Distribution of Avalanche Chutes	• Ecological Restoration Plan • Landform Design and Reclamation Plan	12.3	Implement and adhere to the: • Ecological Restoration Plan • Vegetation and Ecosystems Management Plan	• CPP • O	N/A	N/A

Valued Component	Potential Project Effect	Applicable Management Plan	Commitment Number	Primary Mitigation Measure	Timing	Legal Requirement?	Responsible Agency
		• Vegetation and Ecosystems Management and Monitoring Plan	12.4	Construct diversion berms and/or retention walls where avalanche chutes runout on to the Project footprint		*Mines Act*	EMLCI
		• Noise and Vibration Management Plan	12.5	Schedule blasting during periods of relatively high stability in the snowpack, when feasible		*Mines Act*	EMLCI
	Change in Composition and Structure of Avalanche Chutes	• Vegetation and Ecosystems Management and Monitoring Plan	12.6	Implement and adhere to the Vegetation and Ecosystems Management Plan	• CPP • O • RC	N/A	N/A
		• Noise and Vibration Management Plan	12.7	Limit the frequency of use and explosive potential for all explosives		*Mines Act*, *Wildlife Act*	EMLCI, MOE
		• Vegetation and Ecosystems Management and Monitoring Plan	12.8	Construct diversion berms and/or retention walls where avalanche chutes runout on to the Project footprint		*Mines Act*	EMLCI
	Change in Grassland Abundance and Distribution	• Ecological Restoration Plan • Soil Management Plan • Vegetation and Ecosystems Management and Monitoring Plan	12.9	Implement and adhere to the: • Vegetation and Ecosystems Management and Monitoring Plan • Soil Management Plan • Ecological Restoration Plan	• CPP • O • RC	*Weed Control Act*	FLNRORD
		• Vegetation and Ecosystems Management and Monitoring Plan	12.10	Establish exclusion / “no work” zones and setback buffers around grassland ecosystems		N/A	N/A
	Change in Grassland Composition and Structure	• Vegetation and Ecosystems Management and Monitoring Plan • Ecological Restoration Plan • Soil Management Plan • Ecological Restoration Plan	12.11	Implement and adhere to the: • Vegetation and Ecosystems Management and Monitoring Plan • Erosion and Sediment Control Plan • Soil Management Plan • Ecological Restoration Plan	• CPP • O • RC	N/A	N/A
		• Vegetation and Ecosystems Management and Monitoring Plan	12.12	Establish exclusion / “no work” zones and setback buffers around grassland ecosystems		N/A	N/A
		• Ecological Restoration Plan • Vegetation and Ecosystems Management and Monitoring Plan	12.13	Restore with appropriate native vegetation and minimize soil compaction over the course of the Project		*Weed Control Act*	FLNRORD
		• Ecological Restoration Plan • Vegetation and Ecosystems Management and Monitoring Plan	12.14	Monitor changes in plant community and areas of revegetation		N/A	N/A

Valued Component	Potential Project Effect	Applicable Management Plan	Commitment Number	Primary Mitigation Measure	Timing	Legal Requirement?	Responsible Agency
	Change in Grassland Vegetation Vigour	• Air Quality and Greenhouse Gas Management Plan • Vegetation and Ecosystems Management and Monitoring Plan • Soil Management Plan	12.15	Implement and adhere to the: • Air Quality and Greenhouse Gas Management Plan • Vegetation and Ecosystems Management and Monitoring Plan • Soil Management Plan	• CPP • O • RC	N/A	N/A
		• Vegetation and Ecosystems Management and Monitoring Plan	12.16	Establish exclusion / “no work” zones and setback buffers around grassland ecosystems		N/A	N/A
		• Air Quality and Greenhouse Gas Management Plan	12.17	Implement dust control measures, as outlined in the Air Quality and Greenhouse Gas Management Plan, including but not limited to: • Dust suppression methods • Managing machinery and vehicle speed limits • Using vehicle covers and decontamination • Managing timing of construction and earthmoving activities • Monitor and inspect dust control measures		*Mines Act*	EMLCI
	Change in Abundance and Distribution of Riparian Habitat	• Vegetation and Ecosystems Management and Monitoring Plan	12.18	Implement and adhere to the Vegetation and Ecosystems Management Plan	• CPP • O • RC	N/A	N/A
		• Vegetation and Ecosystems Management and Monitoring Plan	12.19	Monitor reclaimed riparian habitat function		N/A	N/A
		• Site Water Management Plan	12.20	Implement design standards for water management infrastructure		*Mines Act*, *Fisheries Act*	EMLCI, DFO
		• Erosion and Sediment Control Plan • Site Water Management Plan	12.21	Use energy dissipation devices		*Mines Act*, *Fisheries Act*	EMLCI, DFO
	Change in Composition and Structure of Riparian Habitat	• Erosion and Sediment Control Plan • Ecological Restoration Plan • Vegetation and Ecosystems Management and Monitoring Plan • Soil Management Plan	12.22	Implement and adhere to the: • Erosion and Sediment Control Plan • Ecological Restoration Plan • Vegetation and Ecosystems Management and Monitoring Plan • Soil Management Plan	• CPP • O • RC • PC	N/A	N/A
		• Site Water Management Plan	12.23	Implement design standards for water management infrastructure		*Mines Act*, *Fisheries Act*	EMLCI, DFO
		• Erosion and Sediment Control Plan • Site Water Management Plan	12.24	Use energy dissipation devices		*Mines Act*, *Fisheries Act*	EMLCI, DFO

Valued Component	Potential Project Effect	Applicable Management Plan	Commitment Number	Primary Mitigation Measure	Timing	Legal Requirement?	Responsible Agency
	Change in Old Growth and Mature Forest Abundance and Distribution	• Ecological Restoration Plan; • Vegetation and Ecosystems Management and Monitoring Plan	12.25	Implement and adhere to the: • Ecological Restoration Plan • Vegetation and Ecosystems Management and Monitoring Plan	• CPP • O	N/A	N/A
		• Landform Design and Reclamation Plan • Ecological Restoration Plan	12.26	Limit Project footprint and clearing near old growth and mature forest areas to the extent feasible		*Mines Act*	EMLCI
		• Landform Design and Reclamation Plan • Ecological Restoration Plan	12.27	Minimize disturbance of old growth and mature forest ecosystems by minimizing disturbance and cleared areas and where possible, delay construction of mine components until ready to mine		*Mines Act*, *Weed Control Act*	EMLCI, FLNRORD
	Change in Old Growth and Mature Forest Composition and Vigour from Spread of Invasive Species and Dust Deposition	• Air Quality and Greenhouse Gas Management Plan • Soil Management Plan • Erosion and Sediment Control Plan • Ecological Restoration Plan • Vegetation and Ecosystems Management and Monitoring Plan • Spill Prevention, Control and Countermeasures Plan	12.28	Implement and adhere to the: • Air Quality and Greenhouse Gas Management Plan • Soil Management Plan • Erosion and Sediment Control Plan • Ecological Restoration Plan • Vegetation and Ecosystems Management and Monitoring Plan • Spill Prevention, Control and Countermeasures Plan		N/A	N/A
		• Landform Design and Reclamation Plan • Ecological Restoration Plan	12.29	Limit Project footprint and clearing near old growth and mature forest areas to the extent feasible	• CPP • O • RC • PC	*Mines Act*	EMLCI
		• Vegetation and Ecosystems Management and Monitoring Plan	12.30	Perform regular road maintenance and restrict traffic in areas infested with invasive plants		*Mines Act*, *Weed Control Act*	EMLCI, FLNRORD
		• Air Quality and Greenhouse Gas Management Plan	12.31	Implement dust control measures, as outlined in the Air Quality and Greenhouse Gas Management Plan, including but not limited to: • Minimizing earthworks during windy periods and implement dust suppression methods Proper covers/shielding where required		*Mines Act*	EMLCI
		• Vegetation and Ecosystems Management and Monitoring Plan	12.32	Establish buffers and “no-work” zones		N/A	N/A
		• Vegetation and Ecosystems Management and Monitoring Plan	12.33	Decontaminate vehicles and machinery		*Weed Control Act*	FLNRORD

Valued Component	Potential Project Effect	Applicable Management Plan	Commitment Number	Primary Mitigation Measure	Timing	Legal Requirement?	Responsible Agency
	Change in Wetland Ecosystem Extent from Clearing, Grubbing, Logging, and Soil Salvaging	• Ecological Restoration Plan	12.34	Implement and adhere to the Ecological Restoration Plan	• CPP • RC	N/A	N/A
		• Ecological Restoration Plan	12.35	Reclaim wetland ecosystems		*Mines Act*, *Weed Control Act*	EMLCI FLNRORD
		• Landform Design and Reclamation Plan • Ecological Restoration Plan	12.36	Limit Project footprint and clearing near wetland ecosystems to the extent feasible		*Fisheries Act*, *Mines Act*, *Riparian Areas Protection Act*, *Water Sustainability Act*	DFO, EMLCI, FLNRORD, FLNRORD
		• Vegetation and Ecosystems Management and Monitoring Plan	12.37	Document new wetland areas observed in Project footprint			
		• Vegetation and Ecosystems Management and Monitoring Plan	12.38	Monitor reclaimed wetlands and wetland function		*Mines Act*, *Weed Control Act*	EMLCI, FLNRORD
		• Air Quality and Greenhouse Gas Management Plan • Soil Management Plan • Erosion and Sediment Control Plan • Site Water Management Plan • Vegetation and Ecosystems Management and Monitoring Plan	12.39	Implement and adhere to the: • Air Quality and Greenhouse Gas Management Plan • Soil Management Plan • Erosion and Sediment Control Plan • Site Water Management Plan • Vegetation and Ecosystems Management and Monitoring Plan		N/A	N/A
	Change in Wetland Ecosystem Functions from Other Project Activities	• Vegetation and Ecosystems Management and Monitoring Plan	12.40	Control the introduction and spread of invasive plants through: • Implementation of an Early Detection and Rapid Response system • Control, manage, and remove invasive plants on site • Restrict traffic in known infested areas • Decontaminate vehicles and machinery • Avoid removal of riparian vegetation	• CPP • O • RC	*Mines Act*, *Weed Control Act*	EMLCI, FLNRORD
		• Vegetation and Ecosystems Management and Monitoring Plan	12.41	Establish buffers and “no-work” zones around wetland ecosystems		*Mines Act*	EMLCI
		• Vegetation and Ecosystems Management and Monitoring Plan • Wildlife Management and Monitoring Plan	12.42	Adhere to least risk windows		*Fisheries Act*, *Wildlife Act*	DFO, MOE
		• Erosion and Sediment Control Plan • Vegetation and Ecosystems Management and Monitoring Plan	12.43	Minimize soil compaction near wetlands		*Water Sustainability Act*	FLNRORD

Valued Component	Potential Project Effect	Applicable Management Plan	Commitment Number	Primary Mitigation Measure	Timing	Legal Requirement?	Responsible Agency
		• Erosion and Sediment Control Plan • Vegetation and Ecosystems Management and Monitoring Plan	12.44	Retain vegetated areas near wetlands		*Mines Act*	EMLCI
		• Erosion and Sediment Control Plan • Vegetation and Ecosystems Management and Monitoring Plan	12.45	Limit exposed soils near wetlands		*Mines Act*, *Water Sustainability Act*	EMLCI, FLNRORD
		• Site Water Management Plan • Vegetation and Ecosystems Management and Monitoring Plan	12.46	Avoid altering wetland drainage areas		*Fisheries Act*, *Mines Act*, *Water Sustainability Act*	DFO, EMLCI, FLNRORD
		• Site Water Management Plan • Vegetation and Ecosystems Management and Monitoring Plan	12.47	Avoid draining water to wetlands			
		• Fish and Fish Habitat Management Plan • Erosion and Sediment Control Plan	12.48	Monitor water quality			
13.0 Vegetation	All potential effects to vegetation VCs	• Landform Design and Reclamation Plan • Ecological Restoration Plan	13.1	Limit the mine disturbance footprint and cleared areas through Project design and progressive reclamation	• CPP • O • RC	*Mines Act*, *Weed Control Act*	EMLCI, FLNRORD
		• Vegetation and Ecosystems Management and Monitoring Plan	13.2	Conduct education and training as it relates to the Vegetation Management Plan		N/A	N/A
	Change in Listed Plant Community or Species Abundance and Distribution through Site Clearing, Grubbing, and Soil Salvaging	• Soil Management Plan • Erosion and Sediment Control Plan • Vegetation and Ecosystems Management and Monitoring Plan	13.3	Implement and adhere to the: • Soil Management Plan • Erosion and Sediment Control Plan • Vegetation and Ecosystems Management and Monitoring Plan	• CPP	N/A	N/A
		• Vegetation and Ecosystems Management and Monitoring Plan	13.4	Establish exclusion / “no work” zones and setback buffers		*Mines Act*	EMLCI
	Change in Listed Plant Community or Species Composition and Structure	• Soil Management Plan • Erosion and Sediment Control Plan	13.5	Implement and adhere to the: • Soil Management Plan • Erosion and Sediment Control Plan • Vegetation and Ecosystems Management and Monitoring Plan	• CPP	N/A	N/A

Valued Component	Potential Project Effect	Applicable Management Plan	Commitment Number	Primary Mitigation Measure	Timing	Legal Requirement?	Responsible Agency
	due to Site Clearing, Grubbing, and Soil Salvaging	• Vegetation and Ecosystems Management and Monitoring Plan					
		• Vegetation and Ecosystems Management and Monitoring Plan	13.6	Establish exclusion / “no work” zones and setback buffers		*Mines Act*	EMLCI
		• Vegetation and Ecosystems Management and Monitoring Plan • Erosion and Sediment Control Plan	13.7	Retain vegetation and groundcover in and around listed plant communities and species		N/A	N/A
		• Vegetation and Ecosystems Management and Monitoring Plan	13.8	Restore areas of disturbance with appropriate native vegetation		*Mines Act*, *Weed Control Act*	EMLCI, FLNRORD
		• Vegetation and Ecosystems Management and Monitoring Plan • Wildlife Management and Monitoring Plan	13.9	Adhere to least risk windows		*Fisheries Act*, *Wildlife Act*	DFO, MOE
		• Vegetation and Ecosystems Management and Monitoring Plan • Erosion and Sediment Control Plan	13.10	Minimize soil compaction		N/A	N/A
		• Vegetation and Ecosystems Management and Monitoring Plan	13.11	Monitor changes in plant community and areas of revegetation		*Mines Act*, *Weed Control Act*	EMLCI, FLNRORD
	Change in Listed Plant Community and Species Composition from the Introduction and Spread of Invasive Plants	• Vegetation and Ecosystems Management and Monitoring Plan	13.12	Implement and adhere to the Vegetation and Ecosystems Management and Monitoring Plan	• CPP • O	N/A	N/A
			13.13	Control the introduction and spread of invasive plants through: • Implementation of an Early Detection and Rapid Response system • Control, manage, and remove invasive plants on site • Identify and demarcate invasive plant populations • Restrict traffic in known infested areas • Reduce areas of exposed soils • Decontaminate vehicles and machinery		*Mines Act*, *Weed Control Act*	EMLCI, FLNRORD
			13.14	Establish exclusion / “no work” zones and setback buffers		*Mines Act*	EMLCI
			13.15	Restore disturbed areas with appropriate native vegetation		*Mines Act* *Weed Control Act*	EMLCI, FLNRORD
	Change in Listed Plant Community and Species Vigour through Dust Deposition	• Air Quality and Greenhouse Gas Management Plan • Soil Management Plan	13.16	Implement and adhere to the: • Air Quality and Greenhouse Gas Management Plan • Soil Management Plan • Vegetation and Ecosystems Management and Monitoring Plan	• CPP • O	N/A	N/A

Valued Component	Potential Project Effect	Applicable Management Plan	Commitment Number	Primary Mitigation Measure	Timing	Legal Requirement?	Responsible Agency
		• Vegetation and Ecosystems Management and Monitoring Plan					
		• Vegetation and Ecosystems Management and Monitoring Plan	13.17	Establish exclusion / “no work” zones and setback buffers		*Mines Act*	EMLCI
		• Air Quality and Greenhouse Gas Management Plan	13.18	Implement dust control measures, as outlined in the Air Quality and Greenhouse Gas Management Plan, including but not limited to: • Using dust suppression methods • Managing machinery and vehicle speed limits • Using vehicle covers and decontamination • Completing road maintenance • Monitoring and inspecting dust control measures			
		• Air Quality and Greenhouse Gas Management Plan • Vegetation and Ecosystems Management and Monitoring Plan	13.19	Manage timing of construction and earthmoving activities			
	Mortality and/or Loss of Whitebark Pin Habitat	• Ecological Restoration Plan	13.20	Implementation of Ecological Restoration Plan, including: • Complete inventory and mapping of whitebark pine distribution and critical habitat • Replacement of critical habitat • Collection of seeds and scion • Determination of compensation ratio • Operational monitoring of retained critical habitat	• CPP • O • RC	*Mines Act*	EMLCI
			13.21	Salvage top soils in areas where whitebark pine are removed to retain seedbank		N/A	N/A
	Change in Whitebark Pine Rates of Germination, Growth, and Reproduction	• Air Quality and Greenhouse Gas Management Plan • Soil Management Plan • Erosion and Sediment Control Plan • Vegetation and Ecosystems Management and Monitoring Plan • Spill Prevention, Control, and Countermeasures Plan	13.22	Implement and adhere to the: • Air Quality and Greenhouse Gas Management Plan • Soil Management Plan • Erosion and Sediment Control Plan • Vegetation and Ecosystems Management and Monitoring Plan • Spill Prevention, Control, and Countermeasures Plan	• CPP • O • RC	N/A	N/A
		• Vegetation and Ecosystems Management and Monitoring Plan	13.23	Minimize the extent of disturbance within and adjacent to whitebark pine and habitat		*Species at Risk Act*	ECCC
		• Erosion and Sediment Control Plan	13.24	Inspect erosion and sediment control measures		*Fisheries Act*, *Mines Act*, *Water Sustainability Act*	DFO, EMLCI, FLNRORD

Valued Component	Potential Project Effect	Applicable Management Plan	Commitment Number	Primary Mitigation Measure	Timing	Legal Requirement?	Responsible Agency
		• Air Quality and Greenhouse Gas Management Plan	13.25	Implement dust control measures, as outlined in the Air Quality and Greenhouse Gas Management Plan, including but not limited to: • Using dust suppression methods • Managing machinery and vehicle speed limits • Using vehicle covers and decontamination • Completing road maintenance • Monitoring and inspecting dust control measures • Lower speed limits to reduce dust generation • Minimizing earthworks during windy periods		*Mines Act*	EMLCI
		• Vegetation and Ecosystems Management and Monitoring Plan	13.26	Establish buffers and “no-work” zones where current infestations exist			
		• Vegetation and Ecosystems Management and Monitoring Plan	13.27	Control the introduction and spread of invasive plants through: • Implementation of an Early Detection and Rapid Response system • Control, manage, and remove invasive plants on site • Identify and demarcate invasive plant populations • Restrict traffic in known infested areas • Reduce areas of exposed soils • Decontaminate vehicles and machinery		*Mines Act*, *Weed Control Act*	EMLCI, FLNRORD
14.0 Ungulate Community	Habitat Loss and Degradation	• Erosion and Sediment Control Plan • Air Quality and Greenhouse Gas Management Plan • Ecological Restoration Plan • Noise and Vibration Management Plan • Wildlife Management and Monitoring Plan • Landform Design and Reclamation Plan	14.1	Minimize disturbance and encroachment into natural vegetation, to the extent feasible, by clearing and grubbing only what is required for activities and progressive development of pits and Mine Rock Storage Facility	• CPP • O	*Forest and Range Practices Act*, *Wildlife Act*, *Mines Act*	FLNRORD, MOE, EMLCI
			14.2	Delay clearing until needed			
			14.3	Sequencing the development of pits and Mine Rock Storage Facility areas to limit total disturbance during any one period and maximize progressive reclamation opportunities	• CPP • O • RC	*Wildlife Act*, *Mines Act*	MOE, EMLCI
	Sensory Disturbance	• Wildlife Management and Monitoring Plan	14.4	Directed/focused lighting will be used where possible rather than broad area lighting to minimize sensory disturbance	• CPP • O • RC	*Wildlife Act*, *Mines Act*	MOE, EMLCI
			14.5	Light in non-essential areas will only be used when necessary, without compromising worker safety			
		• Air Quality and Greenhouse Gas Management Plan • Noise and Vibration Management Plan	14.6	Implement and adhere to measures in the Noise and Vibration Management Plan			
	Disruption to Movement	• Noise and Vibration Management Plan • Traffic Control Plan	14.7	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	• CPP • O • RC	*Forest and Range Practices Act*, *Wildlife Act*, *Mines Act*	FLNRORD, MOE, EMLCI
			14.8	Minimize sensory disturbance			

Valued Component	Potential Project Effect	Applicable Management Plan	Commitment Number	Primary Mitigation Measure	Timing	Legal Requirement?	Responsible Agency
		• Wildlife Management and Monitoring Plan					
		• Traffic Control Plan • Wildlife Management and Monitoring Plan	14.9	Gaps will be created in snowbanks to allow for unimpeded ungulate passage across roads at regular intervals		*Wildlife Act*, *Mines Act*	MOE, EMLCI
	Increased Mortality	• Wildlife Management and Monitoring Plan • Traffic Control Plan	14.10	Measures will be implemented to minimize potential Project effects on movement corridors (e.g., through Grave Creek Canyon); measures will include signage along Project roads to warn vehicle operators of the potential to encounter wildlife	• CPP • O • RC • PC	*Wildlife Act*, *Mines Act*, *Firearms Act*, *Environmental Management Act*	MOE, EMLCI, RCMP-CFP, ENV
		• Traffic Control Plan	14.11	Management of vehicle traffic and access contributes to minimization of direct mortality during all project phases		*Firearms Act*, *Mines Act*	*RCMP-CFP, EMLCI*
		• Wildlife Management and Monitoring Plan	14.12	Avalanche control areas will be visually searched for wildlife prior to avalanche control activities along the access road; avalanche control activities will not be conducted when ungulates are present in potential slide areas	• CPP • O • RC	*Wildlife Act*, *Mines Act*	MOE, EMLCI
			14.13	Clearing, grubbing and construction activities will be conducted in such a manner that if ungulates are present, there is escape	• CPP • O		
			14.14	Prior to blasting at pits, the blast area will be searched for the presence and wildlife and cleared from the area if necessary	• O		
		• Wildlife Management and Monitoring Plan • Waste Management Plan • Spill Prevention, Control, and Countermeasures Plan	14.15	Implement measures to avoid and minimize attractants that could increase human-wildlife conflict including but not limited to revegetating disturbed areas along access roads with a seed mixture that is less attractive to foraging wildlife, and minimize the use of salt on roads where possible	• O • RC		
15.0 Carnivore Community	Habitat Loss and Degradation	• Erosion and Sediment Control Plan • Air Quality and Greenhouse Gas Management Plan • Ecological Restoration Plan • Wildlife Management and Monitoring Plan • Noise and Vibration Management Plan	15.1	Minimizing disturbance and encroachment into natural vegetation		*Forest and Range Practices Act*, *Wildlife Act*, *Mines Act*, *Species at Risk Act*	FLNRORD, MOE, EMLCI, ECCC
			15.2	Clearing vegetation only in the year in which the area will be required for construction or operation	• CPP • O		
			15.3	Sequencing the development of pits and Mine Rock Storage Facility areas to limit total disturbance during any one period and maximize progressive reclamation opportunities	• CPP • O • RC	*Wildlife Act*, *Mines Act*, *Species at Risk Act*	MOE, EMLCI, ECCC,
		• Wildlife Management and Monitoring Plan	15.4	Conduct den surveys in high potential habitat. If dens present avoid active dens during vegetation removal and clearing	• CPP • O	*Wildlife Act*, *Species at Risk Act*	MOE, ECCC
	Sensory Disturbance	• Wildlife Management and Monitoring Plan	15.5	Directed/focused lighting will be used where possible	• CPP • O		
			15.6	Deactivate roads wherever possible			

Valued Component	Potential Project Effect	Applicable Management Plan	Commitment Number	Primary Mitigation Measure	Timing	Legal Requirement?	Responsible Agency
		• Air Quality and Greenhouse Gas Management Plan • Noise and Vibration Management Plan	15.7	Implement and adhere to measures in the Noise and Vibration Management Plan	• RC	*Wildlife Act*, *Mines Act*, *Species at Risk Act*	MOE, EMLCI, ECCC
	Disruption to Movement	• Noise and Vibration Management Plan • Traffic Control Plan • Wildlife Management and Monitoring Plan	15.8	The overland conveyor will be elevated to 3 m at 500 m intervals (to be confirmed) to allow wildlife crossing	• CPP • O • RC	*Forest and Range Practices Act*, *Wildlife Act*, *Mines Act*, *Species at Risk Act*	FLNRORD, MOE, EMLCI, ECCC
			15.9	Minimize sensory disturbance			
		• Wildlife Management and Monitoring Plan • Traffic Control Plan	15.10	Create gaps in snowbanks to remove physical barriers		*Wildlife Act*, *Mines Act*, *Species at Risk Act*	MOE, EMLCI, ECCC
	Increased Mortality	• Wildlife Management and Monitoring Plan • Traffic Control Plan	15.11	Conduct den surveys in high potential denning habitat to determine whether active dens are present and, if so, develop management strategies to avoid known active dens during vegetation removal and clearing	• CPP • O • RC	*Forest and Range Practices Act*, *Wildlife Act*, *Mines Act*, *Species at Risk Act*, *Environmental Management Act*	FLNRORD MOE EMLCI ECCC ENV
			15.12	Prevent wildlife entrapment	• CPP • O	*Wildlife Act*, *Mines Act*, *Species at Risk Act*	MOE EMLCI ECCC
			15.13	Clear area before blasting and avalanche control		*Wildlife Act*, *Mines Act*, *Species at Risk Act*	MOE, EMLCI, ECCC
		• Wildlife Management and Monitoring Plan • Waste Management Plan • Spill Prevention, Control, and Countermeasures Plan	15.14	Minimize attractants	• CPP • O • RC	*Wildlife Act*, *Mines Act*, *Species at Risk Act*	MOE, EMLCI, ECCC
			15.15	Manage chemical hazards		*Wildlife Act*, *Mines Act*, *Species at Risk Act*, *Environmental Management Act*	MOE, EMLCI, ECCC, ENV
		• Traffic Control Plan	15.16	Management of vehicle traffic and access contributes to minimization of direct mortality during all project phases	• CPP • O • RC		
16.0 Bat Community	Habitat Loss and Degradation	• Noise and Vibration Management Plan • Air Quality and Greenhouse Gas Management Plan • Wildlife Management and Monitoring Plan	16.1	Avoidance of known and high potential hibernacula	• CPP • O • RC	*Forest and Range Practices Act*, *Wildlife Act*, *Mines Act*, *Species at Risk Act*	FLNRORD, MOE, EMLCI, ECCC
		• Erosion and Sediment Control Plan	16.2	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	• CPP • O		

Valued Component	Potential Project Effect	Applicable Management Plan	Commitment Number	Primary Mitigation Measure	Timing	Legal Requirement?	Responsible Agency
		• Noise and Vibration Management Plan • Air Quality and Greenhouse Gas Management Plan • Wildlife Management and Monitoring Plan • Ecological Restoration Plan • Landform Design and Reclamation Plan	16.3	Sequencing the development of pits and Mine Rock Storage Facility areas to limit total disturbance during any one period and maximize progressive reclamation opportunities	• CPP • O • RC	*Wildlife Act*, *Mines Act*, *Species at Risk Act*	MOE, EMLCI, ECCC
	Sensory Disturbance	• Wildlife Management and Monitoring Plan • Noise and Vibration Management Plan	16.4	Minimize habitat and sensory disturbance	• CPP • O • RC	*Wildlife Act,* *Mines Act,* *Species at Risk Act*	MOE, EMLCI, ECCC
		• Traffic Control Plan • Wildlife Management and Monitoring Plan	16.5	Manage vehicle traffic and site access	• CPP • O • RC	*Mines Act*	EMLCI
		• Wildlife Management and Monitoring Plan • Noise and Vibration Management Plan	16.6	For blasting activities in the vicinity of roosting or hibernating sites (if any identified), procedures described in B.C. MOE (2016) will be followed, specifically: • Either ensure sound concussion of less than 150 decibels and that shock wave is less than 15 pounds per square inch (PSI) and the peak particle velocity is less than 15 mm/second; or • Maintain a setback of 2 km from occupied significant roost sites (if any are determined). Blasting may occur during periods when bats are not occupying a roost (if any are identified); however, ensure that the roost habitat is not degraded	• CPP • O	*Wildlife Act*, *Mines Act*, *Species at Risk Act*	MOE, EMLCI, ECCC
	Increased Mortality	• Wildlife Management and Monitoring Plan • Noise and Vibration Management Plan	16.7	Vegetation clearing activities will be avoided during the most sensitive period for bats (May 30 to September 1 in the Kootenay Region)	• CPP • O • RC • PC	*Forest and Range Practices Act*, *Wildlife Act*, *Mines Act*, *Species at Risk Act*	FLNRORD, MOE, EMLCI, ECCC
			16.8	Pre-clearing bat roost and hibernaculum surveys will be conducted in areas considered to have high potential for roosting or hibernation	• CPP		
		• Wildlife Management and Monitoring Plan	16.9	If an active roost site is identified, the tree will not be felled and a suitable buffer zone will be maintained during the maternal roosting period, or FLNRORD (or the appropriate governing agency) will be contacted for guidance	• CPP • O		
			16.10	If a cave-based bat hibernaculum is found during pre-clearing surveys, FLNRORD or the applicable provincial government agency will be notified and mitigation enacted, as directed	• CPP	*Wildlife Act*, *Mines Act*, *Species at Risk Act*	MOE, EMLCI, ECCC
			16.11	Decontamination protocols to minimize the introduction and transmission of white-nose syndrome will be followed in all cases where bats are present or likely present (e.g., caves); signs of white-nose syndrome symptoms on bats will be immediately reported to ENV and the B.C. Wildlife Health Program	• CPP • O • RC • PC	*Wildlife Act*, *Species at Risk Act*	MOE, ECCC
			16.12	Buildings will be designed to exclude bat use and will be regularly inspected for openings that may allow for bat entry; if bats use is suspected, then a survey will be conducted to determine presence and a strategy developed to exclude bats with the least impact		*Wildlife Act*, *Mines Act*, *Species at Risk Act*	MOE, EMLCI, ECCC

Valued Component	Potential Project Effect	Applicable Management Plan	Commitment Number	Primary Mitigation Measure	Timing	Legal Requirement?	Responsible Agency
		• Wildlife Management and Monitoring Plan • Traffic Control Plan	16.13	Observe speed limits to minimize the potential for collisions with bats			
	Migratory Bird Habitat Loss and Degradation	• Erosion and Sediment Control Plan • Air Quality and Greenhouse Gas Management Plan • Ecological Restoration Plan • Site Water Management Plan • Noise and Vibration Management Plan • Wildlife Management and Monitoring Plan	17.1	Minimizing disturbance and encroachment into natural vegetation	• CPP • O	*Migratory Birds Convention Act*, *Species at Risk Act*, *Forest and Range Practices Act*, *Wildlife Act*, *Mines Act*	ECCC-CWS, ECCC, FLNRORD, MOE, EMLCI
			17.2	Clearing vegetation only in the year in which the area will be required for construction or operation			
			17.3	Sequencing the development of pits and Mine Rock Storage Facility areas to limit total disturbance during any one period and maximize progressive reclamation opportunities	• CPP • O • RC	*Migratory Birds Convention Act*, *Species at Risk Act*, *Wildlife Act*, *Mines Act*	ECCC-CWS, ECCC, MOE, EMLCI
	Migratory Bird Sensory Disturbance	• Wildlife Management and Monitoring Plan • Noise and Vibration Management Plan • Air Quality and Greenhouse Gas Management Plan	17.4	Directed/focused lighting will be used where possible	• CPP • O	*Migratory Birds Convention Act*, *Species at Risk Act*, *Wildlife Act*, *Mines Act*	ECCC-CWS, ECCC, MOE, EMLCI
	Migratory Bird Increased Mortality Risk	• Wildlife Management and Monitoring Plan • Traffic Control Plan	17.5	All vegetation clearing will be conducted outside the general bird nesting period (Mid-April to Mid-August in each year)	• CPP • O	*Migratory Birds Convention Act*, *Species at Risk Act*, *Wildlife Act*, *Mines Act*	ECCC-CWS, ECCC, MOE, EMLCI
			17.6	Signage along Project roads in high-value wildlife areas or known wildlife travel corridors to warn vehicle operators of the potential to encounter wildlife	• CPP • O • RC • PC		
		• Spill Prevention, Control, and Countermeasures Plan • Wildlife Management and Monitoring Plan • Waste Management Plan	17.7	Petroleum products and chemicals will be stored in holding tanks or closed facilities that exclude wildlife	• CPP • O • RC	*Migratory Birds Convention Act*, *Species at Risk Act*, *Wildlife Act*, *Mines Act*, *Environmental Management Act*	ECCC-CWS, ECCC, MOE, EMLCI, ENV
		• Wildlife Management and Monitoring Plan • Waste Management Plan	17.8	Grey water and sewage will be contained in a closed system of holding tanks that will be pumped out as required	• CPP • O • RC		
	Northern Goshawk Habitat Loss and Degradation	• Erosion and Sediment Control Plan	17.9	Minimizing disturbance and encroachment into natural vegetation	• CPP • O	*Migratory Birds Convention Act*, *Forest and Range Practices Act*, *Wildlife Act*, *Mines Act*	ECCC-CWS, ECCC, FLNRORD,
			17.10	Clearing vegetation only in the year in which the area will be required for construction or operation			

Valued Component	Potential Project Effect	Applicable Management Plan	Commitment Number	Primary Mitigation Measure	Timing	Legal Requirement?	Responsible Agency
		• Air Quality and Greenhouse Gas Management Plan • Ecological Restoration Plan • Wildlife Management and Monitoring Plan • Noise and Vibration Management Plan • Landform Design and Reclamation Plan					MOE, EMLCI
			17.11	Sequencing the development of pits and Mine Rock Storage Facility areas to limit total disturbance during any one period and maximize progressive reclamation opportunities	• CPP • O • RC	*Migratory Birds Convention Act*, *Forest and Range Practices Act*, *Wildlife Act*, *Mines Act*	ECCC-CWS, ECCC, FLNRORD, MOE, EMLCI
	Northern Goshawk Sensory Disturbance	• Wildlife Management and Monitoring Plan • Noise and Vibration Management Plan • Air Quality and Greenhouse Gas Management Plan • Site Water Management Plan	17.12	Directed/focused lighting will be used where possible	• CPP • O	*Migratory Birds Convention Act*, *Wildlife Act*, *Mines Act*	ECCC-CWS, ECCC, MOE, EMLCI
	Northern Goshawk Increase Mortality Risk	• Wildlife Management and Monitoring Plan	17.13	All vegetation clearing will be conducted outside the general bird nesting period (Mid-April to Mid-August in each year	• CPP • O	*Migratory Birds Convention Act*, *Wildlife Act*, *Mines Act*	ECCC-CWS, ECCC, MOE, EMLCI
		• Wildlife Management and Monitoring Plan • Traffic Control Plan	17.14	Signage along Project roads in high-value wildlife areas or known wildlife travel corridors to warn vehicle operators of the potential to encounter wildlife	• CPP • O • RC • PC		
		• Spill Prevention, Control, and Countermeasures Plan • Wildlife Management and Monitoring Plan • Waste Management Plan	17.15	Petroleum products and chemicals will be stored in holding tanks or closed facilities that exclude wildlife	• CPP • O • RC	*Migratory Birds Convention Act*, *Wildlife Act*, *Mines Act*, *Environmental Management Act*	ECCC-CWS, ECCC, MOE, EMLCI, ENV
		• Wildlife Management and Monitoring Plan • Waste Management Plan	17.16	Grey water and sewage will be contained in a closed system of holding tanks that will be pumped out as required	• CPP • O • RC		
18.0 Western Toad	Habitat Loss and Degradation	• Erosion and Sediment Control Plan • Air Quality and Greenhouse Gas Management Plan • Ecological Restoration Plan • Site Water Management Plan	18.1	Minimizing disturbance and encroachment into natural vegetation	• CPP • O	*Species at Risk Act*, *Wildlife Act*, *Forest and Range Practices Act*, *Mines Act*	ECCC, MOE, FLNRORD, EMLCI
			18.2	Clearing vegetation only in the year in which the area will be required for construction or operation			
			18.3	Sequencing the development of pits and Mine Rock Storage Facility areas to limit total disturbance during any one period and maximize progressive reclamation opportunities	• CPP • O • RC	*Species at Risk Act*, *Wildlife Act*, *Mines Act*	ECCC, MOE, EMLCI

Valued Component	Potential Project Effect	Applicable Management Plan	Commitment Number	Primary Mitigation Measure	Timing	Legal Requirement?	Responsible Agency
		• Noise and Vibration Management Plan • Wildlife Management and Monitoring Plan • Landform Design and Reclamation Plan					
	Increased Mortality	• Wildlife Management and Monitoring Plan	18.4	Conduct surveys of suitable amphibian breeding habitat prior to clearing, grubbing, and deposition of mine rock and, if amphibians are found, conduct a salvage program to avoid mortality	• CPP • O	*Species at Risk Act*, *Wildlife Act*, *Mines Act*	ECCC, MOE, EMLCI
		• Wildlife Management and Monitoring Plan; Traffic Control Plan	18.5	Management of vehicle traffic and access as described in Traffic Control Plan	• CPP • O • RC • PC		
			18.6	Signage along Project roads in high-value wildlife areas or known wildlife travel corridors to warn vehicle operators of the potential to encounter wildlife			
19.0 Amphibians within the RSA (also referred to as Amphibian Health)	Contaminant Exposure	• Site Water Management Plan	19.1	Implement and adhere to the Site Water Management Plan	• CPP • O • RC • PC	*Species at Risk Act*, *Wildlife Act*, *Fisheries Act*, *Mines Act*, *Environmental Management Act*	ECCC, MOE, DFO, EMLCI, ENV
20.0 Gillette's Checkerspot	Habitat Loss and Degradation	• Wildlife Management and Monitoring Plan	20.1	Pre-disturbance surveys will be completed in high-quality habitats within the Project footprint. If Gillette's checkerspot are identified within the Project footprint, a management strategy will be developed by a Qualified Environmental Professional and in consultation with regulatory agencies	• CPP • O	*Mines Act*, *Wildlife Act*	EMLCI, MOE
		• Ecological Restoration Plan • Erosion and Sediment Control Plan • Air Quality and Greenhouse Gas Management Plan • Landform Design and Reclamation Management Plan	20.2	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 the Mine Rock Storage Facility during Operations		*Riparian Areas Protection Act*, *Forest and Range Practices Act*, *Mines Act*, *Wildlife Act*	FLNRORD, FLNRORD, EMLCI, MOE
			20.3	Clearing vegetation only in the year (or prior year) during which the area will be required for construction or operation to minimize the extent of cleared vegetation, to the extent possible			
21.0 Physical and Cultural Heritage	Change in Paleontological Resources due to Ground Disturbance Activities	N/A	21.1	Minimize Project footprint through Project design, and limit Project activities to the extent of the approved Project footprint	• CPP • O	*Mines Act*	EMLCI
			21.2	Implement Chance Find Protocol		*Heritage Conservation Act* *Land Act*	FLNRORD
	Change in Archaeological Resources due to Ground Disturbance Activities	N/A	21.3	Consciously place and minimize the Project footprint through Project design to minimize direct impacts to as many archaeological sites as possible, and limit Project activities to the extent of the approved Project footprint		*Mines Act* *Heritage Conservation Act*	EMLCI, FLNRORD
		• Archaeology Management Plan	21.4	Conduct consultation with the B.C. Archaeology Branch and appropriate Indigenous groups and develop a lawful and ethically appropriate mitigation plan that will likely require site-specific methodologies		*Heritage Conservation Act*	FLNRORD
			21.5	Conduct subsequent archaeological impact assessment and investigations under a Section 12.2 Heritage Inspection Permit on provisionally delineated site areas, areas within the Project footprint that have been identified with high archaeological potential, and previously unassessed areas			

Valued Component	Potential Project Effect	Applicable Management Plan	Commitment Number	Primary Mitigation Measure	Timing	Legal Requirement?	Responsible Agency
			21.6	Application for a provincial Section 12.4 Alteration Permit, to facilitate the Project where it overlaps with identified pre-contact archaeological sites			
			21.7	Implementation of an incident procedure as per the Section 12.4 Alteration Permit			
22.0 Economic Conditions	Change in Employment, Employment Income, and Training	N/A	22.1	Development of and adherence to a Skills, Training, and Employment Plan, including the following: • Encourage employees and contractors to transition from positions held during Construction and Pre-Production to positions available during Operations • Develop and encourage opportunities for Indigenous capacity building, direct and indirect employment, and education and training, as outlined in NWP's Indigenous Policy • Implement an inclusive recruitment process through inclusive language in advertisements, defining roles to draw a wider set of expertise, using a diverse hiring panel, and setting a goal for parity in the recruiting outcomes • Develop an equal opportunities program that includes mentorship, coaching, programs, and training to allow for training and advancement for all employees	• CPP • O • RC	N/A	N/A
	Change in Regional and Local Economy	N/A	22.2	Create and encourage participation in procurement opportunities by Indigenous owned businesses, as described in NWP's Indigenous Policy, build relationships with existing Indigenous-owned businesses, and provide support for creation of new businesses	• CPP • O • RC	N/A	N/A
			22.3	Develop partnerships with the local Chamber of Commerce and other economic development organizations and leverage existing economic planning initiatives and efforts			
			22.4	Build relationships with regional and local suppliers			
	Change in Government Finances	N/A	22.5	Payment of taxes to Economic Conditions LSA municipalities through the Elk Valley Property Tax Sharing Agreement	• CPP • O • RC	N/A	N/A
23.0 Socio-Community	Change in Population and Demographics	N/A	23.1	Implement measures to support local, Indigenous, and regional hiring and training, including ongoing development of a local hiring system with local and Indigenous employment targets to capture the local labour force and limit the change in population	• CPP • O • RC	N/A	N/A
	Change in Housing Demand and Supply	N/A	23.2	NWP to monitor housing supply and engage with local municipalities, agencies/NGOs, and developers to determine how best to support the provision of housing for mining workers in the community, and support a local community working group	• CPP • O • RC	N/A	N/A
	Change in Availability of Community Services and Change in Community Infrastructure Demand and Availability	N/A	23.3	NWP to develop relationships with local municipalities and BC Ambulance Service and support a local community working group	• CPP • O	N/A	N/A
		N/A	23.4	Payments of taxes to Socio-Community LSA communities through the Elk Valley Property Sharing Agreement, which could support government expenditures on community services and infrastructure	• CPP • O • RC	N/A	N/A
	Change in Community Well-Being	• Health and Safety Management Plan	23.5	Implement and adhere to policies outlined in the Health and Safety Management Plan, and support a local community working group	• CPP • O	N/A	N/A
		N/A	23.6	Incorporate diversity and inclusivity and GBA+ in all areas of the company to ensure acceptable and expected behaviours are integrated in the company and are reflected at the community level			
	Change in Public Safety Due to Physical Hazards	• Access Management Plan • Traffic Control Plan	23.7	Implement and adhere to the: • Access Management Plan • Traffic Control Plan	• CPP • O • RC	N/A	N/A
	Potential in Project Nuisance Effects to Residents Due to	• Noise and Vibration Management Plan	23.8	Implement and adhere to the: • Noise and Vibration Management Plan	• CPP • O	N/A	N/A

Valued Component	Potential Project Effect	Applicable Management Plan	Commitment Number	Primary Mitigation Measure	Timing	Legal Requirement?	Responsible Agency
	Change in the Acoustic Environment and Change in the Atmospheric Environment	• Air Quality and Greenhouse Gas Management Plan		• Air Quality and Greenhouse Gas Management Plan	• RC		
	Change in Community Health Conditions	• Air Quality and Greenhouse Gas Management Plan • Site Water Management Plan • Soil Management Plan	23.9	Implement and adhere to the: • Air Quality and Greenhouse Gas Management Plan • Site Water Management Plan • Soil Management Plan	• CPP • O • RC	N/A	N/A
	Change in Availability and Reliance on Country Foods	• Indigenous Engagement and Reporting Plan	23.10	Continue to engage with Indigenous communities to determine extent to which Project lands are used for traditional harvesting activities	• CPP • O • RC	N/A	N/A
		N/A	23.11	Establish new conservations lands to support species of interest and access for hunting	• CPP • O • RC	N/A	N/A
		• Ecological Restoration Plan	23.12	Develop closure landscape in consultation with Indigenous groups to support species of interest and use of the land for hunting	• O • RC	*Mines Act*	EMLCI
		• Fish and Fish Habitat Management Plan	23.13	Establish fisheries offsets to support species of interest and access for fishing	• O • RC	*Fisheries Act*	DFO
		N/A	23.14	Participate in and support Indigenous food security initiatives including access to country food	• CPP • O • RC	N/A	N/A
24.0 Land Use and Access	Change in Access to Lands Used for Recreation Activities	• Community Relations and Communications Plan	24.1	Communicate to the public, including local user groups and clubs on the following: • Road use and access restrictions • Access changes to cabins in the area • Blasting restriction zones	• CPP • O • RC	N/A	N/A
		• Access Management Plan • Traffic Control Plan	24.2	Maintain access to Harmer Creek Road and Grave Creek Road for public use during all Project phases. Related to this, maintain access to the Alexander Creek AMA by creating a new loadout area for snowmobile use for the duration of the Project. This new loadout is to be located further up Grave Creek Road, likely just past the mine site entrance.		*Mines Act*, *Forest and Range Practices Act*, *Forest Act*	EMLCI, FLNRORD, FLNRORD
		• Community Relations and Communications Plan	24.3	NWP to continue discussions with the Government of B.C. and stakeholders about potentially developing an alternate trail that would remain open during blasting activities, thereby maintaining access to cabins		*Lands Act*, *Forest and Range Practices Act*	FLNRORD, FLNRORD
		N/A	24.4	Provide adequate training to NWP employees that will be responsible for the enforcement of the blasting restriction zone and who would have direct contact with recreation users		N/A	N/A
	Change in Quantity of Land Available for Trapping	• Community Relations and Communications Plan	24.5	Continue discussions related to accommodations with the tenure holder of TR0423T006 and determine appropriate accommodations as it relates to use of TR0423T006	• CPP • O • RC	N/A	N/A
	Change in the Quantity of Land Available for Forestry	• Community Relations and Communications Plan	24.6	Complete a pre-construction assessment of the affected forested lands to determine the potential need for any compensation to Canfor	• CPP • O • RC	N/A	N/A

Valued Component	Potential Project Effect	Applicable Management Plan	Commitment Number	Primary Mitigation Measure	Timing	Legal Requirement?	Responsible Agency
	Change in the Quantity of Land Available for Recreation Activities	• Community Relations and Communications Plan	24.7	Collaborate with Canfor for the harvesting of the timber	• CPP • O • RC	*Private Managed Forest Land Act*	FLNRORD
		• Community Relations and Communications Plan	24.8	Develop NUE area in collaboration with local land users and provincial agencies and minimize the length of period of NUE areas	• CPP • O • RC	*Mines Act*	EMLCI
		• Community Relations and Communications Plan	24.9	Communicate with local clubs/associations and the owners of the cabins on the NUE areas developed	• CPP • O • RC	N/A	N/A
		N/A	24.10	Provide adequate training to NWP employees that will be responsible for the enforcement of the NUE and who would have direct contact with recreation users	• CPP • O • RC	N/A	N/A
		• Access Management Plan	24.11	Allow access to roads within the Project footprint as part of Post-Closure	• PC	N/A	N/A
		• Ecological Restoration Plan • Landform Design and Reclamation Plan • Vegetation Management and Monitoring Plan	24.12	Revegetate following disturbance to restore wildlife habitat and support the return of wildlife species for hunting activity	• CPP • O • RC	*Mines Act*	EMLCI
		N/A	24.13	Establish conservation lands that would exceed the amount removed from the rail load out facility	• CPP • O • RC	N/A	N/A
	Change in the Quality of Recreation Experiences on Adjacent Lands and Waterways	• Noise and Vibration Management Plan	24.14	Implement and adhere to the: • Noise and Vibration Management Plan	• CPP • O • RC	N/A	N/A
		• Noise and Vibration Management Plan	24.15	Implement commitments and related mitigation measures for noise and vibration (see Commitments 3.1 to 3.9)	• CPP • O	N/A	N/A
		• Community Relations and Communications Plan	24.16	Monitoring public complaints regarding Project noise and conduct follow-up on each complaint received	• CPP • O • RC	N/A	N/A
25.0 Visual Aesthetics	Change in Sightlines	• Ecological Restoration Plan	25.1	Implement the proposed Ecological Restoration Plan to mitigate changes in the local landscape resulting from the Project	• CPP • O • RC	*Mines Act*	EMLCI
26.0 Human Health	Changes to Human Health due to Operations	• Site Water Management Plan	26.1	Implement and adhere to the: • Site Water Management Plan • Air Quality and Greenhouse Gas Management Plan	• O	*Canadian Environmental Protection Act*, *Mines Act*, *Fisheries Act*, *Environmental Management Act*	ECCC, EMLCI, DFO, ENV

Valued Component	Potential Project Effect	Applicable Management Plan	Commitment Number	Primary Mitigation Measure	Timing	Legal Requirement?	Responsible Agency
27.0 Wildlife Health	Changes to Terrestrial Wildlife Health due to Operations	• Site Water Management Plan • Air Quality and Greenhouse Gas Management Plan	27.1	Implement and adhere to the: • Site Water Management Plan • Air Quality and Greenhouse Gas Management Plan	• O	*Canadian Environmental Protection Act*, *Mines Act*, *Fisheries Act*, *Environmental Management Act*	ECCC, EMLCI, DFO, ENV
	Change to Use of Water for Traditional Purposes	• Erosion and Sediment Control Plan • Site Water Management Plan • Air Quality and Greenhouse Gas Management Plan	28.1	Implement and adhere to the: • Erosion and Sediment Control Plan • Site Water Management Plan • Air Quality and Greenhouse Gas Management Plan	• CPP • O	N/A	N/A
		• Ecological Restoration Plan • Landform Design and Reclamation Plan	28.2	Conduct progressive reclamation and re-vegetation throughout the life of the mine		*Mines Act*	EMLCI
		• Indigenous Impact Management Plan • Indigenous Engagement and Reporting Plan	28.3	Implement and adhere to the: • Indigenous Engagement and Reporting Plan • Indigenous Impact Management Plan • Support of the Indigenous-Guardians Program • Incorporation of feedback from Indigenous Communities in the Access Management Plan	• CPP • O • RC • PC	N/A	N/A
28.0 Aboriginal Peoples	Change to Use of Lands and Resources for Traditional Fishing Purposes	• Site Water Management Plan • Erosion and Sediment Control Plan • Fish and Fish Habitat Management Plan • Ecological Restoration Plan • Landform Design and Reclamation Plan	28.4	Implement and adhere to the: • Site Water Management Plan • Erosion and Sediment Control Plan • Fish and Fish Habitat Management Plan • Ecological Restoration Plan • Landform Design and Reclamation Plan	• CPP • RC	*Fisheries Act*, *Environmental Management Act*	DFO, ECCC
		• Ecological Restoration Plan • Landform Design and Reclamation Plan	28.5	Limit the mine disturbance footprint through Project design and progressive reclamation	• CPP • RC	*Mines Act*	EMLCI
		• Indigenous Impact Management Plan • Indigenous Engagement and Reporting Plan	28.6	Implement and adhere to the: • Indigenous Engagement and Reporting Plan • Indigenous Impact Management Plan • Support of the Indigenous-Guardians Program • Incorporation of feedback from Indigenous Communities in the Access Management Plan • Respecting traditional fisheries timing windows and seasonal rounds where possible • Consultation and engagement with Indigenous Communities to identify and understand current use of lands and resources for traditional purposes	• CPP • O • RC • PC	N/A	N/A

Valued Component	Potential Project Effect	Applicable Management Plan	Commitment Number	Primary Mitigation Measure	Timing	Legal Requirement?	Responsible Agency
	Change to Use of Lands and Resources for Traditional Hunting and Trapping Purposes	• Wildlife Management and Monitoring Plan • Access Management Plan • Ecological Restoration Plan • Landform Design and Reclamation Plan	28.7	Implement and adhere to the: • Wildlife Management and Monitoring Plan • Access Management Plan • Ecological Restoration Plan • Landform Design and Reclamation Plan	• CPP • O • RC	N/A	N/A
		• Ecological Restoration Plan • Landform Design and Reclamation Plan	28.8	Limit the mine disturbance footprint through Project design and progressive reclamation		*Mines Act*	EMLCI
		• Wildlife Management and Monitoring Plan	28.9	Complete wildlife education for contractors and employees		*Mines Act*, *Wildlife Act*, *Firearms Act*	EMLCI, FLNRORD, ECCC-CWS, RCMP-CFP
		• Wildlife Management and Monitoring Plan • Noise and Vibration Management Plan • Traffic Control Plan • Air Quality and Greenhouse Gas Management Plan • Ecological Restoration Plan • Spill Prevention, Control, and Countermeasures Plan • Traffic Control Plan • Landform Design and Reclamation Plan	28.10	Implement commitments and related mitigation measures for wildlife VCs (see Commitments 14.1 to 15.16): • Minimize disturbance and encroachment into natural vegetation, to the extent feasible, by clearing and grubbing only what is required for activities and progressive development of pits and Mine Rock Storage Facility • Delay clearing until needed • Sequencing the development of pits and Mine Rock Storage Facility areas to limit total disturbance during any one period and maximize progressive reclamation opportunities • Directed/focused lighting will be used where possible • Deactivate roads wherever possible • Create gaps in snowbanks to remove physical barriers • Complete wildlife education for contractors and employees		*Mines Act*, *Wildlife Act*, *Firearms Act* *Species at Risk Act*, *Migratory Birds Convention Act*	EMLCI MOE RCMP-CFP ECCC-CWS
		• Indigenous Impact Management Plan • Indigenous Engagement and Reporting Plan	28.11	Implement and adhere to the: • Indigenous Engagement and Reporting Plan • Indigenous Impact Management Plan • Support of the Indigenous-Guardians Program • Incorporation of feedback from Indigenous Communities in the Access Management Plan • Respecting traditional hunting and trapping timing windows and seasonal rounds where possible • Wildlife education for contractors and employees to prevent wildlife entrapment • Consultation and engagement with Indigenous Communities to identify and understand current use of lands and resources for traditional purposes	• CPP • O • RC • PC	N/A	N/A
	Change to Use of Lands and Resources for Traditional Harvesting and Gathering Purposes	• Vegetation and Ecosystems Management and Monitoring Plan	28.12	Implement and adhere to the: • Vegetation and Ecosystems Management and Monitoring Plan • Air Quality and Greenhouse Gas Management Plan • Ecological Restoration Plan	• CPP • O • RC	N/A	N/A

Valued Component	Potential Project Effect	Applicable Management Plan	Commitment Number	Primary Mitigation Measure	Timing	Legal Requirement?	Responsible Agency
		• Air Quality and Greenhouse Gas Management Plan • Ecological Restoration Plan					
		• Ecological Restoration Plan • Landform Design and Reclamation Plan	28.13	Limit the mine disturbance footprint through Project design and progressive reclamation, including delaying clearing of areas until required for construction or operation as a means to support and maintain ecosystem functioning		*Mines Act*	EMLCI
		• Indigenous Impact Management Plan • Indigenous Engagement and Reporting Plan	28.14	Implement and adhere to the: • Indigenous Engagement and Reporting Plan • Indigenous Impact Management Plan • Support of the Indigenous-Guardians Program • Incorporation of feedback from Indigenous Communities in the Access Management Plan • Respecting traditional harvesting and gathering timing windows and seasonal rounds where possible • Revegetation with Indigenous species to limit the effects that invasive plants may have on natural vegetation • Reestablishment of plant harvesting activities in the reclamation phase • Consultation and engagement with Indigenous Communities to identify and understand current use of lands and resources for traditional purposes	• CPP • O • RC • PC	N/A	N/A
	Change to Physical and Cultural Heritage and Change to a Structure, Site, or Thing that is of Historical, Archaeological, Paleontological, or Architectural Significance	• Archaeology Management Plan	28.15	Submit an application for a provincial Section 12.4 Alteration Permit, to be held concurrently with a Section 12.2 Heritage Inspection Permit	• CPP • O	*Heritage Conservation Act*	FLNRORD
		• Archaeology Management Plan	28.16	Consultation with Indigenous communities to identify appropriate mitigation for the pre-contact archaeological sites		*Heritage Conservation Act*	FLNRORD
		• Indigenous Impact Management Plan • Indigenous Engagement and Reporting Plan	28.17	Implement and adhere to the: • Indigenous Engagement and Reporting Plan • Indigenous Impact Management Plan • Opportunities for ceremonies on the land prior to construction of Project infrastructure • Consultation and engagement with Indigenous communities to identify and understand current use of lands and resources for traditional purposes	• CPP • O • RC • PC	N/A	N/A
	Change to Social, Health, and Economic Conditions	• Site Water Management Plan • Air Quality and Greenhouse Gas Management Plan • Access Management Plan	28.18	Implement and adhere to the: • Site Water Management Plan • Air Quality and Greenhouse Gas Management Plan • Access Management Plan	• O	N/A	N/A

Valued Component	Potential Project Effect	Applicable Management Plan	Commitment Number	Primary Mitigation Measure	Timing	Legal Requirement?	Responsible Agency
		• Indigenous Impact Management Plan Indigenous Engagement and Reporting Plan	28.19	Implement and adhere to the: • Indigenous Engagement and Reporting Plan • Indigenous Impact Management Plan • Opportunities for ceremonies on the land prior to construction of Project infrastructure • Traditional and Cultural Protection Plan • Health and Safety Management Plan • Provide social safety measures and preventative plans, including incident support programs to Indigenous Communities • Employment and Procurement Policies • Incorporation of feedback from Indigenous Communities in the Access Management Plan • Consultation and engagement with Indigenous communities to identify and understand current use of lands and resources for traditional purposes	• CPP • O • RC • PC	N/A	N/A

Note: * Project phases include Construction and Pre-Production (CPP), Operations (O), Reclamation and Closure (RC), and Post-Closure (PC)

34.6 Conclusion and Request for an Environmental Certificate

This Application/EIS represents the application made by NWP to the B.C. EAO and IAAC under the provincial *Environmental Assessment Act, 2018* and the federal *Canadian Environmental Assessment Act, 2012*. Following review and consideration of the content provided in the Application/EIS, and other information received by the B.C. EAO and IAAC during the environmental assessment (EA) process, NWP requests that the Province of B.C. issue an Environmental Assessment Certificate and the federal Minister of Environment issue a decision statement for the Project to proceed. NWP acknowledges the requirement to successfully complete a federal EIS, an Application for an Environmental Assessment Certificate, as well as the subsequent and relevant permitting/authorization processes prior to proceeding with Project construction, operation, and decommissioning.

The proposed Project strives to use best practice mining and environmental management methods to extract shallow steelmaking coal reserves at the site and to process and export premium low-volatile hard coking coal in high demand by Asian steelmakers. The development of the Project provides an opportunity for the continuation of the existing steelmaking coal export industry from the Elk Valley with substantial employment generation and significant ongoing regional, provincial, and national economic benefit. The Project will provide a positive economic return to shareholders and the economy whilst ensuring a far improved environmental outcome than that of historical and current coal production. NWP's goal is carry out establish sustainable development and operations where they are a trusted community partner with environmentally responsible operations. NWP will look to foster and maintain enduring relationships based on trust – implementing a range of strategies focused on being socially responsible, opportunities for Indigenous employment, foster diversity and stakeholder engagement.

Over the course of the Project, NWP believes the Project will offer several benefits locally and regionally, including:

- Creation of 330 full-time equivalent jobs when in operation creating more than 5,500 person-years of direct employment on the Project plus substantial indirect employment in the region due to demand for goods and services for the Project;
- Creation of significant local and regional employment during Project construction;
- Contribution of more than $1.21 billion in Gross Domestic Product to the region during the life of the Project;
- Generation of tax revenue to Municipal, Provincial and Federal Governments of more than $40 million (M) during construction and more than $400M during the life of the Project; and
- Based on long term hard coking coal price forecasts of United States Dollar (USD) 165/tonne (as used in the Project BFS [Bankable Feasibility Study]), generation of Mineral royalty payments to British Columbia of more than $200M. It is noted that current coal prices (circa USD 400/tonne) and future forecasts are well in excess of the long term price used in the BFS. At a long term average price of USD200/tonne, the total mineral royalty payable to British Columbia would be more than $450M.

As demonstrated in this Application/EIS, the effects assessments have concluded, for the most part, that the residual adverse effects of the Project (including cumulative environmental effects) to various VCs and

transboundary lands affected by the Project are not significant, with a generally moderate to high level of confidence. In addition, mitigation and management measures have been developed to avoid, minimize, or eliminate environmental effects to the extent that they are not significant, and in many cases, to the extent that no residual effect is predicted. Follow-up measures to verify the effects predictions or the effectiveness of mitigation have been proposed where there is uncertainty in the predictions or where additional confidence is needed to determine that the mitigation will effectively reduce or eliminate the effects.

NWP acknowledges that provincial and federal authorities have the difficult task of balancing the societal needs for goods and commodities such as metallurgical coal, the effects of the Project including cumulative effects, and potential rights and interests of Indigenous peoples, particularly in light of cumulative effects in the Elk Valley as well as other regulatory and policy frameworks such Government of Canada's climate goals. At the same time, while the Project has the potential to result in significant adverse residual effects on Westslope Cutthroat Trout and old growth and mature forest, the Project is intended to fill a societal need to soften surging global demand for metallurgical coal while creating employment, income, investment, taxes, royalties, and value-added spin-offs for the benefit of residents of the Elk Valley, where employment and incomes tend to lag behind those of other economic regions of rural B.C. Where significant adverse residual effects were predicted, NWP has committed to carefully monitor the Project performance through follow-up measures, management actions, and collaborations with other parties throughout the Project life, and to adapt to changing conditions as negative changes occur to minimize the extent of those adverse effects. In this light, although significant adverse residual effects are anticipated for some VCs, NWP believes that the significant adverse residual effects of the Project, carefully monitored and managed through design, careful execution, mitigation, response, and adaptive management are outweighed by the benefits of the Project to the residents of the Elk Valley and the Province of B.C., such that those significant adverse residual effects should be deemed by the respective Ministers to be justifiable under the circumstances.

NWP is committed to creating and sustaining relationships and ongoing dialogue with regulators, communities, and stakeholders to support the environmental, social, and economic sustainability of the Project. Through the implementation of an EMS and Project-specific mitigation measures and policies and procedures, NWP anticipates the Project will create economic, social, and environmental benefits for local communities, the Elk Valley, the Province of B.C., and Canada.

34.7 References

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