



TABLE OF CONTENTS
SECTION 15

	PAGE
15.0 EFFECTS ASSESSMENT SUMMARY TABLES.....	15-1

LIST OF TABLES

Table 15-1: Air Quality - Summary of Potential Effects, Mitigation, Residual Effects and Significance ...	15-1
Table 15-2: Noise and Vibration - Summary of Potential Effects, Mitigation, Residual Effects and Significance.....	15-7
Table 15-3: Greenhouse Gases - Summary of Potential Effects, Mitigation, Residual Effects and Significance.....	15-8
Table 15-4: Groundwater - Summary of Potential Effects, Mitigation, Residual Effects and Significance	15-9
Table 15-5: Birch Lake System - Summary of Potential Effects, Mitigation, Residual Effects and Significance	15-11
Table 15-6: Springpole Lake, North Basin System - Summary of Potential Effects, Mitigation, Residual Effects and Significance.....	15-13
Table 15-7: Springpole Lake, Southeast Arm System - Summary of Potential Effects, Mitigation, Residual Effects and Significance.....	15-16
Table 15-8: Local Inland Waterbodies - Summary of Potential Effects, Mitigation, Residual Effects and Significance.....	15-18
Table 15-9: Fish and Fish Habitat - Summary of Potential Effects, Mitigation, Residual Effects and Significance.....	15-20
Table 15-10: Vegetation Communities and Wetlands - Summary of Potential Effects, Mitigation, Residual Effects and Significance.....	15-22
Table 15-11: Wildlife and Wildlife Habitat - Summary of Potential Effects, Mitigation, Residual Effects and Significance.....	15-26
Table 15-12: Boreal Caribou - Summary of Potential Effects, Mitigation, Residual Effects and Significance	15-31
Table 15-13: Wolverine - Summary of Potential Effects, Mitigation, Residual Effects and Significance	15-35
Table 15-14: Bats - Summary of Potential Effects, Mitigation, Residual Effects and Significance	15-40
Table 15-15: SAR Birds - Summary of Potential Effects, Mitigation, Residual Effects and Significance .	15-44
Table 15-16: Commercial Land and Resource Use - Summary of Potential Effects, Mitigation, Residual Effects and Significance.....	15-49
Table 15-17: Outdoor Recreation - Summary of Potential Effects, Mitigation, Residual Effects and Significance.....	15-52
Table 15-18: Local and Regional Economy - Summary of Potential Effects, Mitigation, Residual Effects and Significance.....	15-54
Table 15-19: Local and Regional Infrastructure and Services - Summary of Potential Effects, Mitigation, Residual Effects and Significance.....	15-57



Table 15-20: Traditional Land and Resource Use - Summary of Potential Effects, Mitigation, Residual Effects and Significance 15-60

Table 15-21: Archaeology - Summary of Potential Effects, Mitigation, Residual Effects and Significance. 15-65

Table 15-22: Built Heritage Resources and Cultural Heritage Landscapes - Summary of Potential Effects, Mitigation, Residual Effects and Significance 15-66

Table 15-23: Human and Ecological Health - Summary of Potential Effects, Mitigation, Residual Effects and Significance..... 15-67

Table 15-24: Indigenous People - Summary of Potential Effects, Mitigation, Residual Effects and Significance..... 15-70

15.0 EFFECTS ASSESSMENT SUMMARY TABLES

Table 15-1: Air Quality - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	CO	PM	SO ₂		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
Air Quality Valued Component (Section 6.2) <ul style="list-style-type: none"> Area of Federal Jurisdiction: Indigenous people Linkage from other VCs: None Linkage to other VCs: Surface Water Systems (Section 6.6 to 6.9); Vegetation Communities and Wetlands (Section 6.11); and Human and Ecological Health (Section 6.24) 								
Without mitigation, there may be a change in criteria air parameters during construction, operation and closure. This could occur due to movement, handling, crushing and screening of mine rock and ore that emits dust, and the combustion of fuel from the operation of mobile and stationary equipment that emits nitrogen dioxide and sulphur dioxide.	•	•	•	Dust emissions from roads and mineral stockpiles will be controlled through the application of water spray and supplemented by dust suppressants if required.	The modelled cumulative concentrations for suspended particulate matter, PM ₁₀ , PM _{2.5} , nitrogen dioxide and sulphur dioxide are below the respective Ambient Air Quality Criteria at the extent of the property boundary and all points of reception during all Project phases. With the implementation of mitigation there will be an increase in criteria air parameters compared to baseline conditions. The residual effect is confined to the local study area and will occur continuously during the operation phase of the Project but is reversible at closure.	Ecological and Social Context: Level I Magnitude: Level I Geographic Extent: Level I Duration: Level II Frequency: Level III Reversibility: Level I	Not Significant	High
	•	•	•	Site roads will be maintained in good condition, with regular inspections and timely maintenance completed to minimize the silt loading on the roads.				
	•	•	•	Vehicle speeds will be limited.				
	-	•	-	The process plant emission sources will be enclosed where possible and designed to allow good atmospheric dispersion. To reduce emissions, dust control equipment and best practices will be used, where necessary, as described below: <ul style="list-style-type: none"> Conveyor transfer (drop) points will be controlled via enclosure or water spray; Crushed ore stockpile will be enclosed, and emissions controlled by a baghouse; A wet scrubber or equivalent will be used to control emissions in grinding (baghouse controlled); Truck unloading at the primary crusher will be enclosed and emissions controlled by a baghouse; Drill rigs will be equipped with a dust shroud on the drill and a wet suppression (spray) system will be used; Truck placement of mine rock onto the co-disposal facility will be controlled using water sprays and surface wetting; Travel surfaces will be maintained to minimize silt (fine material); Crushing of ore materials and reclaim at stockpiles will be controlled by baghouses; The vents from the lime silo will be controlled by a dust collector; Areas for ore mixing and handling will be controlled by dust collectors; and, A regular maintenance schedule will be followed to ensure baghouses and dust collectors are functioning properly. 				
•	•	•	Air emissions from the use of diesel fuel for the mobile heavy equipment will be controlled through strategic mine scheduling to minimize the total distance travelled by haul trucks and other equipment and through the use of low sulphur diesel fuel.					

Table 15-1: Air Quality - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	C		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
	•	•	•	A preventive maintenance program will be employed that encompasses all pollution control equipment, diesel-fired engines (vehicle, equipment and standby power generation) and all processes with the potential for air quality effects.				
	-	-	•	Exposed dust sources will be revegetated, and progressive reclamation will be conducted wherever appropriate to better control dust emissions from the mineral waste stockpiles and co-disposal facility.				
	-	•	-	Potentially acid generating mine rock will be placed in the co-disposal facility with thickened tailings being deposited into the mine rock gaps and voids from the perimeter dam to minimize the exposure of tailings that could generate dust. Further, the mine rock level will be maintained above the tailings to minimize the exposed tailings surface area.				
	-	-	•	Following completion of potentially acid generating mine rock disposal within the north cell of the co-disposal facility, non-acid generating tailings will be deposited over the entire north cell surface to fully cover the potentially acid generating mine rock and limit oxygen ingress. To minimize the exposure of tailings to winds generating dust, a vegetation cover will be established.				
	•	•	-	A dust management plan will be implemented to identify potential sources of fugitive dusts, outline mitigation measures that will be employed to control dust generation and detail the inspection and record keeping required to demonstrate that fugitive dusts are being effectively managed.				
	•	•	-	A blasting plan will be implemented and include measures to minimize the length of time the blasting material is allowed to sit in a drill hole before blasting. The blast schedule will optimize air dispersion to minimize effects on air quality, including by avoiding blasting during unfavourable meteorological conditions as needed.				
	•	•	•	Dust emissions from roads and mineral stockpiles will be controlled through the application of water spray and supplemented by dust suppressants if required.				
Without mitigation, there may be a change in metals during construction, operation and closure. This could occur due to the movement, handling, crushing and screening of mine rock and ore that emits dust which may include metals and respirable silica.	•	•	•	Vehicle speeds will be limited.	The modelled cumulative concentrations for metals are below the respective Ambient Air Quality Criteria at the extent of the property boundary and all points of reception during construction and operation. With the implementation of mitigation, emissions will result in an increase in the concentration of metals compared to baseline conditions. The residual effect is confined to the local study area and will occur continuously during	Ecological and Social Context: Level I Magnitude: Level I Geographic Extent: Level I Duration: Level II Frequency: Level III Reversibility: Level I	Not Significant	High
	-	•	-	The process plant emission sources will be enclosed where possible and designed to allow good atmospheric dispersion. To reduce emissions, dust control equipment and best practices will be used, where necessary, as described below: <ul style="list-style-type: none"> Conveyor transfer (drop) points will be controlled via enclosure or water spray; Crushed ore stockpile will be enclosed, and emissions controlled by a baghouse; A wet scrubber or equivalent will be used to control emissions in grinding (baghouse controlled); 				

Table 15-1: Air Quality - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	C		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
				<ul style="list-style-type: none"> Truck unloading at the primary crusher will be enclosed and emissions controlled by a baghouse; Drill rigs will be equipped with a dust shroud on the drill and a wet suppression (spray) system will be used; Truck placement of mine rock onto the co-disposal facility will be controlled using water sprays and surface wetting; Travel surfaces will be maintained to minimize silt (fine material); Crushing of ore materials and reclaim at stockpiles will be controlled by baghouses; The vents from the lime silo will be controlled by a dust collector; Areas for ore mixing and handling will be controlled by dust collectors; and A regular maintenance schedule will be followed to ensure baghouses and dust collectors are functioning properly. 	the operation phase of the Project but is reversible at closure.			
	-	•	-	Air emissions from the use of diesel fuel for the mobile heavy equipment will be controlled through strategic mine scheduling to minimize the total distance travelled by haul trucks and other equipment and through the use of low sulphur diesel fuel.				
	•	•	•	A preventive maintenance program will be employed that encompasses all pollution control equipment, diesel-fired engines (vehicle, equipment and standby power generation) and all processes with the potential for air quality effects.				
	-	-	•	Exposed dust sources will be revegetated, and progressive reclamation will be conducted wherever appropriate to better control dust emissions from the mineral waste stockpiles and co-disposal facility.				
	-	•	-	PAG mine rock will be placed in the co-disposal facility with thickened tailings being deposited into the mine rock gaps and voids from the perimeter dam to minimize the exposure of tailings that could generate dust. Further, the mine rock level will be maintained above the tailings to minimize the exposed tailings surface area.				
	-	-	•	Following completion of potentially acid generating mine rock disposal within the north cell of the co-disposal facility, non-acid generating tailings will be deposited over the entire north cell surface to fully cover the potentially acid generating mine rock and limit oxygen ingress. To minimize the exposure of tailings to winds generating dust, a vegetation cover will be established.				
	•	•	-	A dust management plan will be implemented to identify potential sources of fugitive dusts, outline mitigation measures that will be employed to control dust generation and detail the inspection and record keeping required to demonstrate that fugitive dusts are being effectively managed.				

Table 15-1: Air Quality - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	C		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
	•	•	-	A blasting plan will be implemented and include measures to minimize the length of time the blasting material is allowed to sit in a drill hole before blasting. The blast schedule will optimize air dispersion to minimize effects on air quality, including by avoiding blasting during unfavourable meteorological conditions as needed.				
Without mitigation, there may be a change in polycyclic aromatic hydrocarbons and volatile organic compounds during construction, operation and closure. This could occur due to the combustion of fuel from the operation of mobile and stationary equipment that emits polycyclic aromatic hydrocarbons and volatile organic compounds.	-	•	-	Air emissions from the use of diesel fuel for the mobile heavy equipment will be controlled through strategic mine scheduling to minimize the total distance travelled by haul trucks and other equipment and through the use of low sulphur diesel fuel.	Under the expected construction and operating scenarios, the increase in the modelled concentrations of b(a)p due to the Project will not exceed Ambient Air Quality Criteria at the extent of the leased property boundary and all points of reception during all Project phases; however, the modelled cumulative concentration will exceed Ambient Air Quality Criteria due to the elevated baseline condition for benzo(a)pyrene. With the implementation of mitigation measures, there will be an increase in the modelled concentrations of polycyclic aromatic compounds as represented by benzo(a)pyrene compared to baseline conditions. The residual effect is confined to the local study area and will occur continuously during the operation phase of the Project but is reversible at closure.	Ecological and Social Context: Level I Magnitude: Level I Geographic Extent: Level I Duration: Level II Frequency: Level III Reversibility: Level I	Not Significant	High
	•	•	•	A preventive maintenance program will be employed that encompasses all pollution control equipment, diesel-fired engines (vehicle, equipment and standby power generation) and all processes with the potential for air quality effects.				
Without mitigation, there may be a change in other air quality parameters during construction, operation and closure. This could occur due to combustion of fuel from the operation of mobile and stationary equipment that emits diesel particulate matter, the incomplete combustion of fuel from equipment operation and blasting (ANFO) that emits carbon monoxide, and the handling of reagents such as hydrogen cyanide, calcium oxide and copper sulphate.	•	•	•	Dust emissions from roads and mineral stockpiles will be controlled through the application of water spray as needed, supplemented by dust suppressants if required.	The modelled cumulative concentrations of respirable silica, diesel particulate matter, and volatile organic compounds will not exceed the Ambient Air Quality Criteria at the extent of the leased property boundary and all points of reception during all phases. With the implementation of mitigation, emissions will result in an increase in the concentration	Ecological and Social Context: Level I Magnitude: Level I Geographic Extent: Level I Duration: Level II Frequency: Level III Reversibility: Level I	Not Significant	High
	•	•	•	Vehicle speeds will be limited.				
	-	•	-	The process plant emission sources will be enclosed where possible and designed to allow good atmospheric dispersion. To reduce emissions, dust control equipment and best practices will be used, where necessary, as described below: <ul style="list-style-type: none"> Conveyor transfer (drop) points will be controlled via enclosure or water spray; Crushed ore stockpile will be enclosed, and emissions controlled by a baghouse; 				

Table 15-1: Air Quality - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	C		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
				<ul style="list-style-type: none"> A wet scrubber or equivalent will be used to control emissions in grinding (baghouse controlled); Truck unloading at the primary crusher will be enclosed and emissions controlled by a baghouse; Drill rigs will be equipped with a dust shroud on the drill and a wet suppression (spray) system will be used; Truck placement of mine rock onto the co-disposal facility will be controlled using water sprays and surface wetting; Travel surfaces will be maintained to minimize silt (fine material); Crushing of ore materials and reclaim at stockpiles will be controlled by baghouses; The vents from the lime silo will be controlled by a dust collector; Areas for ore mixing and handling will be controlled by dust collectors; and A regular maintenance schedule will be followed to ensure baghouses and dust collectors are functioning properly. 	of respirable silica, diesel particulate matter, and volatile organic compounds compared to baseline conditions The residual effect will be confined to the local study and will occur continuously during construction and operation phases of the Project but is reversible at closure.			
	-	•	-	Air emissions from the use of diesel fuel for the mobile heavy equipment will be controlled through strategic mine scheduling to minimize the total distance travelled by haul trucks and other equipment and through the use of low sulphur diesel fuel.				
	-	•	-	Hydrogen cyanide emissions will be eliminated through the sulphur dioxide / oxygen cyanide treatment process to reduce cyanide in the tailings at the process plant and before deposition of tailings in the co-disposal facility. Excess sulphur dioxide used in this process will be recirculated (i.e., a closed-loop) without release to the air.				
	•	•	•	A preventive maintenance program will be employed that encompasses all pollution control equipment, diesel-fired engines (vehicle, equipment and standby power generation) and all processes with the potential for air quality effects.				
	-	•	-	Potentially acid generating mine rock will be placed in the co-disposal facility with thickened tailings being deposited into the mine rock gaps and voids from the perimeter dam to minimize the exposure of tailings that could generate dust. Further, the mine rock level will be maintained above the tailings to minimize the exposed tailings surface area.				
	-	-	•	Following completion of potentially acid generating mine rock disposal within the north cell of the co-disposal facility, non-acid generating tailings will be deposited over the entire north cell surface to fully cover the potentially acid generating mine rock and limit oxygen ingress. To minimize the exposure of tailings to winds generating dust, a vegetation cover will be established.				
	•	•	-	A dust management plan will be implemented to identify potential sources of fugitive dusts, outline mitigation measures that will be employed to control dust generation and detail the inspection and record keeping required to demonstrate that fugitive dusts are being effectively managed.				

Table 15-1: Air Quality - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	Cl		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
	•	•	-	A blasting plan will be implemented and include measures to minimize the length of time the blasting material is allowed to sit in a drill hole before blasting. The blast schedule will optimize air dispersion to minimize effects on air quality, including by avoiding blasting during unfavourable meteorological conditions as needed.				

Notes:

1 Con = Construction phase; Op = Operations phase; and, Cl = Closure phase

2 Bolded text indicates a key mitigation measure.

3 Level I is indicative of a negligible or low potential to contribute to an overall significant environmental effect, and Level III is indicative of a high potential to contribute to an overall significant environmental effect. Level II represents an intermediate condition.

Table 15-2: Noise and Vibration - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	Cl		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
Noise and Vibration Valued Component (Section 6.3) <ul style="list-style-type: none"> Area of Federal Jurisdiction: Fish and Fish Habitat, Migratory Birds, Species at Risk and Indigenous people Linkage from other VCs: None Linkage to other VCs: Fish and Fish Habitat (Section 6.10); Wildlife and Wildlife Habitat (Section 6.12); Boreal Caribou (Section 6.13); Wolverine (Section 6.14); Bats (Section 6.15); SAR Birds (Section 6.16); Commercial Land and Resource Use (Section 6.17); Outdoor Recreation (Section 6.18); and, Traditional Land and Resource Use (Section 6.21) 								
Without mitigation, there may be a change in sound levels during construction, operation and closure. This could occur due to the operation of mobile and stationary equipment.	•	•	-	Site equipment will be operated to meet NPC-300 and Health Canada operational noise and vibration limits at points of reception, when applicable.	The noise prediction modelling indicates that no exceedances of applicable limits are expected due to activities at the mine site at the identified points of reception and, therefore, no residual noise effects from mine site activities are predicted. With the implementation of mitigation measures, there will be a potential exceedance of noise criteria within 500 metres of the transmission line during construction. The residual effect will be confined to the local study and occur intermittently during the period when construction will take place near a confirmed point of reception that is in use and will be fully reversible once construction in the area is complete.	Ecological and Social Context: Level I Magnitude: Level II Geographic Extent: Level I Duration: Level I Frequency: Level II Reversibility: Level I	Not Significant	High
	•	-	-	Local Indigenous communities and identified points of reception will be advised ahead of transmission line construction work periods and as the construction work proceeds.				
	•	-	-	Work with local Indigenous communities to coordinate construction activities related to the transmission line to minimize overlap with the timing of traditional land use activities (e.g., fall moose hunt) and other sensitive periods.				
	•	•	•	A mechanism will be established for receiving and responding to noise complaints in a timely manner during construction, operation and closure phases.				
	•	-	-	Construction of the transmission line will occur primarily during the daytime hours.				
	•	•	•	Motorized equipment will be selected or designed with mufflers / silencers to limit noise emissions.				
	•	•	•	Reversing alarms should be dimmable with white noise and/or strobe lights, but they will be in accordance with the applicable health and safety regulations.				
	•	•	•	Regular inspections will take place to confirm that equipment and machinery used on site is operated in good working condition through regular maintenance.				
	•	•	•	The use of engine brakes will be prohibited and engines will need to be stopped for vehicles on standby, depending on seasons and weather.				
	•	•	•	Vehicles and equipment will be operated in such a way that impulsive noise is minimized, where possible.				
	•	-	-	For helicopter use during transmission line construction, minimum flight altitudes will be maintained unless the helicopters are engaged in construction tasks, landing or departure.				
•	•	•	Acoustical enclosures will be used in the process plant to limit overall noise emissions from key noise sources, such as the ball mills.					
Without mitigation, there may be a change in vibration levels during construction, operation and closure. This could occur due to the use of explosives.	•	•	-	Site equipment will be operated to meet NPC-119, DFO and Health Canada operational vibration limits at points of reception, when applicable.	With the implementation of mitigation measures, there is no residual effect due to changes in vibration levels during any phase of the Project.	Not applicable	Not applicable	High
	•	•	-	Prior to construction, a detailed blasting plan will be developed for the Project to determine the maximum allowable explosive loading at various locations within the Project Development Area to aid in complying with NPC-119, Health Canada and Fisheries and Oceans Canada limits for vibration at receptors.				
	•	•	-	A mechanism will be established for receiving and responding to vibration complaints in a timely manner during construction, operation and closure phases.				

Notes:

1 Con = Construction phase; Op = Operations phase; and, Cl = Closure phase

2 Bolded text indicates a key mitigation measure.

3 Level I is indicative of a negligible or low potential to contribute to an overall significant environmental effect, and Level III is indicative of a high potential to contribute to an overall significant environmental effect. Level II represents an intermediate condition.

Table 15-3: Greenhouse Gases - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	Cl		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
Greenhouse Gases Valued Component (Section 6.4) <ul style="list-style-type: none"> Area of Federal Jurisdiction: Transboundary Linkage from other VCs: Air Quality (Section 6.2) Linkage to other VCs: Air Quality (Section 6.2) 								
Without mitigation, there may be a change in carbon dioxide, methane and nitrous oxide during construction, operation and closure. This could occur due to the combustion of fuel from the operation of mobile and stationary equipment.	•	•	•	Implement the mitigation measures for air quality (Section 6.2.4), during the construction, operations and closures phases of the Project, including: <ul style="list-style-type: none"> During construction, operations and active closure, site roads will be maintained in good condition, with regular inspections and timely maintenance completed; and During operations, GHGs from the use of diesel fuel for the mobile heavy equipment will be minimized through strategic mine scheduling to minimize the total distance travelled by haul trucks and other equipment. 	With the implementation of mitigation, there will be a minor increase in the emission of greenhouse gases of less than 0.1% of Canada's target during construction and operation phases, which will be continuous but reversible at closure. The emissions will contribute to atmospheric greenhouse gas concentrations beyond the regional study area.	Ecological and Social Context: Level I Magnitude: Level I Geographic Extent: Level III Duration: Level II Frequency: Level III Reversibility: Level I	Not Significant	High
	-	•	-	Construct a 230 kV transmission line to supply power during the operation of the Project, which obtains electricity from the Ontario grid.				
	•	•	•	A Greenhouse Gas Management Plan will be developed that will describe the energy and heat conservation, efficiency and management programs for the Project, and outline mitigation measures for GHG emissions during construction, operations and closure phases, including but not limited to the following: <ul style="list-style-type: none"> Fuel use tracking on a regular basis (such as monthly); Limiting vehicle speeds; No-idling policies, where practicable and safe, to avoid unnecessary releases of greenhouse gas emissions; Regular maintenance and servicing of mining equipment and vehicles to maximize operational efficiency; Operational planning to minimize the distances haulage trucks travel on site to the extent possible; and Blast optimization to reduce the rehandling of materials. 				
	•	•	•	Implementation of Net-Zero Strategy to reduce the net greenhouse emissions over the life of the Project.				

Notes:

1 Con = Construction phase; Op = Operations phase; and, Cl = Closure phase

2 Bolded text indicates a key mitigation measure.

3 Level I is indicative of a negligible or low potential to contribute to an overall significant environmental effect, and Level III is indicative of a high potential to contribute to an overall significant environmental effect. Level II represents an intermediate condition.

Table 15-4: Groundwater - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Co	Op	C		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
Groundwater Valued Component (Section 6.5) <ul style="list-style-type: none"> Area of Federal Jurisdiction: Fish and Fish Habitat, Migratory Birds, Species at Risk and Indigenous people Linkage from other VCs: None Linkage to other VCs: Surface Water Systems (Sections 6.6 to 6.9); Vegetation Communities and Wetlands (Section 6.11); and Traditional Land and Resource Use (Section 6.21) 								
Without mitigation, there may be a change in groundwater quantity during construction, operation and closure. This could occur due to the dewatering of the open pit during construction and operation which will lower the groundwater table in the affected area, and ongoing water management in areas disturbed due to site development throughout operations which may affect groundwater infiltration rates.	•	•	-	Development of a compact mine site to limit the areal extent of disturbance, and to limit the overall areas of contact water that requires management.	The predicted change in groundwater discharge represents a negligible component of the overall lake water balance for Birch and Springpole Lakes and will not affect surface water quantity or lake water levels. With the implementation of mitigation measures, there will be a residual effect due to a minor change in groundwater flow of less than 0.2%. The residual effect will be confined to the Project Development Area within the local study area, and will occur only throughout operation, but groundwater flow is expected to return to near baseline conditions in the post-closure phase after cessation of open pit operations, and the filling of the open pit basin.	Ecological and Social Context: Level I Magnitude: Level I Geographic Extent: Level I Duration: Level II Frequency: Level I Reversibility: Level I	Not Significant	High
	•	-	-	Strategic placement of the open pit dikes which limit and isolate the open pit basin and maintain 94% of Springpole Lake untouched by the Project.				
	•	•	•	An integrated water management system will be operated to collect and control contact water from the stockpiles, co-disposal facility and plant site areas. Collected contact water that is not used in ore processing will be treated at the effluent treatment plant and discharged to the southeast arm of Springpole Lake in accordance with permitting requirements.				
	-	•	•	A geosynthetic clay liner will be installed on the upstream side of the perimeter embankment of the co-disposal facility south cell (specifically the south, west, and east sides) to mitigate seepage potential during the operation and closure phases.				
	•	-	•	Revegetation and encouragement of natural revegetation / recolonization of disturbed areas, will be undertaken as part of progressive and final reclamation to minimize the length of time disturbed areas are exposed to reduce infiltration.				
	-	-	•	During the filling of the open pit basin, accelerate the return of groundwater levels to baseline conditions, by transferring water from Springpole Lake in a controlled manner while maintaining lake water levels in Springpole Lake within natural variation.				
Without mitigation, there may be a change in groundwater quality during construction, operation and closure. This could occur due to the operation of the co-disposal facility and ore stockpiles which may increase seepage from these facilities.	•	•	-	Development of a compact mine site to limit the areal extent of disturbance, and to limit the overall areas of contact water that requires management.	The change in groundwater quality due to seepage will not result in an exceedance of surface water guidelines in the receiving water and there is unlikely to be an adverse effect to a surface water system. With the implementation of mitigation measures, there will be minor change in groundwater quality within the Project Development Area that will occur frequently during the operation and closure phases that will be partially reversible with mitigation.	Ecological and Social Context: Level I Magnitude: Level I Geographic Extent: Level I Duration: Level III Frequency: Level III Reversibility: Level II	Not Significant	High
	•	•	•	Locating the co-disposal facility on favourable geologic conditions at the Project site to support long-term stability and effective seepage management.				
	•	•	•	An integrated water management system will be operated to collect and control all contact water from the stockpiles, co-disposal facility and plant site areas. Collected contact water that is not used in ore processing will be treated at the effluent treatment plant and discharged to the southeast arm of Springpole Lake in accordance with permitting requirements.				
	•	•	-	Water collection ditches will be constructed and operated around the perimeter of key infrastructure, including the co-disposal facility and stockpiles, to collect overland flow and seepage and direct it to the integrated water management system.				

Table 15-4: Groundwater - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	Cl		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
	•	•	-	Best management practices (such as following approved blasting plans, and using appropriate drilling, explosive handling and loading procedures) will be implemented for the use of explosives to reduce the potential presence of blasting residuals on mine rock stored in the co-disposal facility that could otherwise infiltrate into groundwater.				
	•	-	-	A geosynthetic clay liner will be installed on the upstream side of the perimeter embankment of the co-disposal facility south cell (specifically the south, west, and east sides) to mitigate seepage potential during the operation and closure phases.				
	•	-	•	Revegetation and encouragement of natural revegetation / recolonization of disturbed areas, will be undertaken as part of progressive and final reclamation to minimize the length of time disturbed areas are exposed to reduce infiltration.				

Notes:

1 Con = Construction phase; Op = Operations phase; and, Cl = Closure phase

2 Bolded text indicates a key mitigation measure.

3 Level I is indicative of a negligible or low potential to contribute to an overall significant environmental effect, and Level III is indicative of a high potential to contribute to an overall significant environmental effect. Level II represents an intermediate condition.

Table 15-5: Birch Lake System - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Co	Op	C		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
Surface Water: Birch Lake System Valued Component (Section 6.6) <ul style="list-style-type: none"> Area of Federal Jurisdiction: Fish and Fish Habitat Linkage from other VCs: Air Quality (Section 6.2); and, Groundwater (Section 6.5) Linkage to other VCs: Fish and Fish Habitat (Section 6.10); Vegetation Communities and Wetlands (Section 6.11); Wildlife and Wildlife Habitat (Section 6.12); Species at Risk (Sections 6.13 to 6.16); Outdoor Recreation (Section 6.18); Traditional Land and Resource Use (Section 6.21); and Human and Ecological Health (Section 6.24) 								
Without mitigation, there may be a change in water quantity during construction, operation and closure. This could occur due to the withdrawal of supplementary water for the process plant, and changes in the catchment areas from site preparation and the construction and operation of mine site infrastructure such as the co-disposal facility and ore stockpiles which may reduce the contribution of water to adjacent waterbodies.	•	•	-	Development of a compact mine site to limit the areal extent of disturbance, and to limit the overall areas of site contact water that requires management.	The estimated changes to inflows to Birch Lake will not measurably affect water levels or velocities as the Birch Lake system is outlet controlled. With the implementation of mitigation measures, there will be a minor decrease of 0.4% in the catchment area of Birch Lake that will affect base flows compared to baseline conditions. The residual effect will be confined within the Project Development Area and occur seasonally during construction and operation but will be fully reversible at closure.	Ecological and Social Context: Level I Magnitude: Level I Geographic Extent: Level I Duration: Level I Frequency: Level III Reversibility: Level I	Not Significant	High
	•	•	-	To reduce freshwater demand from Birch Lake, water recycling measures will be implemented. For example, water collected in the co-disposal facility internal pond will be reclaimed and redirected to the plant / mill, minimizing the need for additional freshwater intake from the lake.				
	•	•	•	Water collection ditches will be constructed and operated around the perimeter of infrastructure, including the co-disposal facility and stockpiles to collect overland flow and seepage and direct it to the integrated water management system. Non-contact water will be diverted away from Project components using ditches, diversion berms and other suitable measures.				
Without mitigation, there may be a change in water quality during construction, operation and closure. This could occur due to site preparation and final closure activities which may lead to erosion, sedimentation and dust that may affect adjacent waterbodies. Further, the operation of the co-disposal facility and ore stockpiles which may result in seepage affecting adjacent waterbodies.	•	•	-	Development of a compact mine site to limit the areal extent of disturbance, and to limit the overall areas of site contact water that requires management.	The minor changes in some water quality parameters in Birch Lake will not exceed Water Quality Guidelines for the Protection of Aquatic Life. With the implementation of mitigation measures, there will be a minor change of water quality parameters compared to baseline conditions. The residual effect is conservatively predicted at assessment node 08 and will continue into post-closure for some parameters on a seasonal basis. The residual effect will be partially reversible, as most parameters return to baseline conditions.	Ecological and Social Context: Level I Magnitude: Level I Geographic Extent: Level II Duration: Level III Frequency: Level I Reversibility: Level II	Not Significant	High
	•	•	•	Maintain a minimum 120 metre setback from Birch Lake to the co-disposal facility, the low-grade ore stockpile and the associated seepage collection system.				
	•	•	•	Implementation of mitigation measures for potential effects on air quality relevant to dust (Section 6.2.4), including: <ul style="list-style-type: none"> During construction, operations and active closure, a dust management plan will be implemented to identify potential sources of fugitive dusts, outline mitigation measures that will be employed to control dust generation and detail the inspection and record keeping required to demonstrate that fugitive dusts are being effectively managed; and Dust emissions from roads and mineral stockpiles will be controlled through the application of water spray and supplemented by dust suppressants, if required; Site roads will be maintained in good condition, with regular inspections and timely maintenance completed to minimize the silt loading on the roads; and Vehicle speeds will be limited. 				
	•	-	-	Implementation of mitigation measures for potential effects on groundwater relevant to surface water (Section 6.5) including: <ul style="list-style-type: none"> Locating the co-disposal facility on favourable geologic conditions at the Project site to support long-term stability and effective seepage management; and 				

Table 15-5: Birch Lake System - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	Cl		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
				<ul style="list-style-type: none"> During construction, a geosynthetic clay liner will be installed on the upstream side of the perimeter embankment of the co-disposal facility south cell (specifically the south, west and east sides) to mitigate seepage potential during the operation and closure phases. 				
	•	•	•	An integrated water management system will be designed to collect and control contact water from the stockpiles, co-disposal facility and plant site areas. Collected contact water that is not used in ore processing will be treated at the effluent treatment plant and discharged to the southeast arm of Springpole Lake in accordance with permitting requirements.				
	•	•	•	An erosion and sediment control plan will be implemented to manage runoff water around disturbed areas. The erosion and sediment control plan will be prepared prior to the construction phase with the intent to minimize site erosion and protect surface water from sedimentation. The erosion and sediment control plan will provide further details on measures to minimize slope length and grade, ditching and diversion berms, contact water management ponds, use of natural vegetation buffers and runoff controls.				
	•	•	•	Water collection ditches will be constructed and operated around the perimeter of infrastructure, including the co-disposal facility and stockpiles to collect overland flow and seepage and direct it to the integrated water management system. Non-contact water will be diverted away from Project components using ditches, diversion berms and other suitable measures.				
	•	•	-	Best management practices (such as following approved blasting plans, and using appropriate drilling, explosive handling and loading procedures) will be implemented for the use of explosives used to reduce the potential presence of blasting residuals in the open pit and on stockpiled mine rock and ore.				
	•	•	-	During construction and operation, co-manage and store potentially acid generating mine rock and thickened non-acid generating tailings in the north cell of the co-disposal facility. potentially acid generating mine rock will be encapsulated with thickened non-acid generating tailings to isolate it from atmospheric oxygen and mitigate potential acid generation and metal leaching.				
	-	•	-	In-plant destruction of cyanide in tailings using the sulphur dioxide / oxygen treatment process to minimize residual cyanide and metals concentrations in the - disposal facility.				
	-	•	•	Revegetation and encouragement of natural revegetation / recolonization of disturbed areas will be undertaken as part of progressive and final reclamation to minimize the length of time disturbed areas are exposed, to reduce erosion.				

Notes:

1 Con = Construction phase; Op = Operations phase; and, Cl = Closure phase

2 Bolded text indicates a key mitigation measure.

3 Level I is indicative of a negligible or low potential to contribute to an overall significant environmental effect, and Level III is indicative of a high potential to contribute to an overall significant environmental effect. Level II represents an intermediate condition.

Table 15-6: Springpole Lake, North Basin System - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	CO	OP	C		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
<p>Surface Water: Springpole Lake, North Basin System (Section 6.7)</p> <ul style="list-style-type: none"> Area of Federal Jurisdiction: Fish and Fish Habitat Linkage from other VCs: Air Quality (Section 6.2); and Groundwater (Section 6.5) Linkage to other VCs: Fish and Fish Habitat (Section 6.10); Vegetation Communities and Wetlands (Section 6.11); Wildlife and Wildlife Habitat (Section 6.12); Species at Risk (Sections 6.13 to 6.16); Outdoor Recreation (Section 6.18); Traditional Land and Resource Use (Section 6.21); and Human and Ecological Health (Section 6.24) 								
<p>Without mitigation, there may be a change in water quantity during construction, operation and closure. This could occur due to changes in catchment areas from site preparation activities which may reduce the contribution of water to adjacent waterbodies, the controlled dewatering of the open pit basin that may affect water levels and flows in the north basin of Springpole Lake, and the refilling of the open pit basin at closure, which may affect water levels and flows.</p>	•	•	•	<p>Implementation of relevant mitigation measures for potential effects on surface water, as described in Section 6.6.4, including:</p> <ul style="list-style-type: none"> Development of a compact mine site to limit the areal extent of disturbance, and to limit the overall areas of site contact water that requires management; During construction, operation and active closure, an integrated water management system will be designed to collect and control all contact water from the stockpiles, co-disposal facility and plant site areas. Collected contact water that is not recycled in ore processing will be treated at the effluent treatment plant and discharged to the southeast arm of Springpole Lake in accordance with final permitting requirements, including the MDMER; and During construction, operation and active closure phases, water collection ditches will be constructed and operated around the perimeter of infrastructure, including the co-disposal facility and stockpiles to collect overland flow and seepage and direct it to the integrated water management system. Non-contact water will be diverted away from Project components using ditches, diversion berms and other suitable measures. 	<p>The seasonal changes in outflows, velocity and lake levels in the north basin of Springpole Lake will be within the same order of magnitude and scale of existing conditions. With the implementation of mitigation measures, the residual effect on the surface water quantity for the north basin of Springpole Lake will be less than 15% compared to baseline conditions. The residual effect will occur within the local study area intermittently during operation and will be fully reversible, when the north basin returns to baseline conditions in the final closure phase.</p>	<p>Ecological and Social Context: Level I Magnitude: Level I Geographic Extent: Level I Duration: Level II Frequency: Level II Reversibility: Level I</p>	<p>Not Significant</p>	<p>High</p>
	•	•	-	<p>Strategic placement of the open pit dikes limits and isolates the open pit basin so that the Project directly affects only 6% of Springpole Lake surface area, while maintaining dam stability.</p>				
	•	-	-	<p>During controlled dewatering of the open pit basin, clean water will be pumped over the dikes at a rate consistent with the natural variability of Springpole Lake while water not suitable for direct discharge will be pumped to the central water storage pond to manage suspended sediments prior to discharge.</p>				
	-	•	-	<p>To reduce the overall volume of water required to refill the open pit basin and support future fish habitat creation, recontouring of a portion of the north end of the open pit basin will be undertaken during operations.</p>				
	-	-	•	<p>Passive filling with precipitation and groundwater will be supplemented by water transferred from Springpole Lake in a controlled manner to reduce the fill time while maintaining lake water levels in Springpole Lake within the same order of magnitude and scale as existing conditions.</p>				
	-	-	•	<p>During filling of the open pit basin, efforts will also be made to minimize water takings during natural periods of low flow, to maintain lake levels within the same order of magnitude and scale as existing conditions of Springpole Lake.</p>				

Table 15-6: Springpole Lake, North Basin System - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	C		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
Without mitigation, there may be a change in water quality during construction, operation and closure. This could occur due to site preparation and final closure activities which may lead to erosion, sedimentation and dust that may affect adjacent waterbodies. Further, the construction of the dikes and the controlled dewatering of the open pit basin may result in sedimentation to the north basin of Springpole Lake. In addition, the operation of the co-disposal facility may result in seepage to adjacent waterbodies, and the refilling of the open pit basin may change water quality parameters due to the pit walls and seepage from the co-disposal facility.	•	•	•	Implementation of relevant mitigation measures for potential effects on air quality particularly for dust (Section 6.2.4) including: <ul style="list-style-type: none"> • During construction, operations and active closure, a dust management plan will be implemented to identify potential sources of fugitive dusts, outline mitigation measures that will be employed to control dust generation and detail the inspection and record keeping required to demonstrate that fugitive dusts are being effectively managed; • Dust emissions from roads and mineral stockpiles will be controlled through the application of water spray and supplemented by dust suppressants, if required; • Site roads will be maintained in good condition, with regular inspections and timely maintenance completed to minimize the silt loading on the roads; and • Vehicle speeds will be limited. 	The minor changes in some water quality parameters in Birch Lake will not exceed Water Quality Guidelines for the Protection of Aquatic Life. With the implementation of mitigation measures, there will be a minor change of water quality parameters compared to baseline conditions. The residual effect is confined to the PDA and will continue into post-closure on a frequent basis. The residual effect will be partially reversible, as most parameters return to baseline conditions.	Ecological and Social Context: Level I Magnitude: Level I Geographic Extent: Level I Duration: Level III Frequency: Level III Reversibility: Level II	Not Significant	High
	•	-	-	Implementation of mitigation measures for potential effects on groundwater relevant to surface water (Section 6.5.4) including: <ul style="list-style-type: none"> • Locating the co-disposal facility on favourable geologic conditions at the Project site to support long term stability and effective seepage management; and, • During construction, a geosynthetic clay liner will be installed on the upstream side of the perimeter embankment of the co-disposal facility south cell (specifically the south, west, and east sides) to mitigate seepage potential during the operation and closure phases. 				
	•	•	•	Implementation of relevant mitigation measures for potential effects on surface water, as described in Section 6.6.4, including: <ul style="list-style-type: none"> • Development of a compact mine site to limit the areal extent of disturbance, and to limit the overall areas of site contact water that requires management. • During construction, operation and active closure, an integrated water management system will be designed to collect and control all contact water from the stockpiles, co-disposal facility and plant site areas. Collected contact water that is not recycled in ore processing will be treated at the effluent treatment plant and discharged to the southeast arm of Springpole Lake in accordance with final permitting requirements, including the MDMER; • During construction, operation and active closure phases, water collection ditches will be constructed and operated around the perimeter of infrastructure, including the co-disposal facility and stockpiles to collect overland flow and seepage and direct it to the integrated water management system. Non-contact water will be diverted away from Project components using ditches, diversion berms and other suitable measures; • During construction, operation and active closure, an erosion and sediment control plan will be implemented to manage runoff water around disturbed areas. The erosion and sediment control plan will be prepared prior to the construction phase with the purpose of minimizing site erosion and 				

Table 15-6: Springpole Lake, North Basin System - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	Cl		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
				<p>protecting surface water from sedimentation. The erosion and sediment control plan will provide further details on measures to minimize slope length and grade, ditching and diversion berms, contact water management ponds, use of natural vegetation buffers and runoff controls;</p> <ul style="list-style-type: none"> During construction and operation, best management practices (such as following approved blasting plans, and using appropriate drilling, explosive handling and loading procedures) will be implemented for the use of explosives use to reduce the potential presence of blasting residuals in the open pit and on stockpiled mine rock and ore; During construction and operation, co-manage and store potentially acid generating mine rock and thickened non-acid generating tailings in the north cell of the co-disposal facility. Potentially acid generating mine rock will be encapsulated with thickened non-acid generating tailings to isolate it from atmospheric oxygen and mitigate potential acid generation and metal leaching; During operations, in-plant destruction of cyanide in tailings using the SO₂/O₂ treatment process to minimize residual cyanide in the co-disposal facility; and During operation and closure phases, revegetation and encouragement of natural revegetation / recolonization of disturbed areas will be undertaken as part of progressive and final reclamation to minimize the length of time disturbed areas are exposed, to reduce erosion. 				
	•	-	-	During the construction of the dikes, turbidity curtains will be implemented to minimize sedimentation in Springpole Lake, as a proven measure used for in-water works.				
	•	-	-	During controlled dewatering of the open pit basin, clean water will be pumped over the dikes at a rate consistent with the natural variability of Springpole Lake while water not suitable for direct discharge will be pumped to the central water storage pond to manage suspended sediments prior to discharge.				

Notes:

1 Con = Construction phase; Op = Operations phase; and, Cl = Closure phase

2 Bolded text indicates a key mitigation measure.

3 Level I is indicative of a negligible or low potential to contribute to an overall significant environmental effect, and Level III is indicative of a high potential to contribute to an overall significant environmental effect. Level II represents an intermediate condition.

Table 15-7: Springpole Lake, Southeast Arm System - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	CON	OP	C		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
Surface Water: Springpole Lake, Southeast Arm System Valued Component (Section 6.8) <ul style="list-style-type: none"> Area of Federal Jurisdiction: Fish and Fish Habitat Linkage from other VCs: Air Quality (Section 6.2); and Groundwater (Section 6.5) Linkage to other VCs: Fish and Fish Habitat (Section 6.10); Vegetation Communities and Wetlands (Section 6.11); Wildlife and Wildlife Habitat (Section 6.12); Species at Risk (Sections 6.13 to 6.16); Outdoor Recreation (Section 6.18); Traditional Land and Resource Use (Section 6.21); and Human and Ecological Health (Section 6.24) 								
Without mitigation, there may be a change in water quantity during construction, operation and closure. This could occur due the controlled dewatering of the open pit basin, the discharge of treated effluent during operations and active closure and the refilling of the open pit basin during active closure which may change the water levels and flows in Springpole Lake.	•	•	•	Implement mitigation measures for potential effects on surface water (Section 6.6 and 6.7.4), relevant to the southeast arm including: <ul style="list-style-type: none"> A compact mine site will be developed to limit the areal extent of disturbance, and to limit the overall areas of site contact water that requires management; During controlled dewatering of the open pit basin, clean water will be pumped over the dikes at a rate consistent with the natural variability of Springpole Lake while water not suitable for direct discharge will be pumped to the central water storage pond to manage suspended sediments prior to discharge; To reduce the overall volume of water required to refill the open pit basin and support fish habitat development area creation, recontouring of a portion of the north end of the open pit basin will be undertaken during operations; Passive filling with precipitation and groundwater will be supplemented by water transferred from Springpole Lake in a controlled manner to reduce the fill time while maintaining lake water levels in Springpole Lake within the same magnitude and scale as existing conditions natural variation; and During filling of the open pit basin, efforts will also be made to minimize water takings during natural periods of low flow, to maintain lake levels within the same magnitude and scale as existing conditions of Springpole Lake. 	During construction and operation phases, lake levels and flows in the southeast arm of Springpole Lake will be negligible and not expected to be measurably different than baseline conditions. With the implementation of mitigation measures, the residual effect on the flows for the southeast arm of Springpole Lake will be a decrease up to 10% during active closure compared to baseline conditions. The residual effect will occur within the local study area with a certain degree of regularity during the active closure phase but will be fully reversible, when the open pit basin is refilled.	Ecological and Social Context: Level I Magnitude: Level I Geographic Extent: Level I Duration: Level II Frequency: Level II	Not Significant	High
	-	•	•					
Without mitigation, there may be a change in water quality during construction, operation and closure. This could occur due to site preparation activities which may lead to erosion, sedimentation and dust that may affect adjacent waterbodies, and the discharge of treated mine and sewage effluent which may affect water quality.	•	•	•	Implementation of mitigation measures for potential effects on air quality relevant to dust (Section 6.2.4) including the following: <ul style="list-style-type: none"> During construction, operations and active closure, a dust management plan will be implemented; Dust emissions from roads and mineral stockpiles will be controlled through the application of water spray and supplemented by dust suppressants, if required; and Site roads will be maintained in good condition, with regular inspections and timely maintenance completed to minimize the silt loading on the roads. Vehicle speeds will be limited. 	All modelled water quality parameters are predicted to remain below Water Quality Guidelines for the Protection of Aquatic Life within the southeast arm of Springpole Lake for all phases. With the implementation of mitigation measures, there will be a minor change in some water quality parameters compared to baseline conditions. The residual effect is confined to the local study area and will occur continuously in operation and active closure but	Ecological and Social Context: Level I Magnitude: Level I Geographic Extent: Level I Duration: Level II Frequency: Level II	Not Significant	High
	•	-	-					

Table 15-7: Springpole Lake, Southeast Arm System - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	Cl		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
				<ul style="list-style-type: none"> During construction, a geosynthetic clay liner will be installed on the upstream side of the perimeter embankment of the co-disposal facility south cell (specifically the south, west, and east sides) to mitigate seepage potential during the operation and closure phases. 	will be fully reversible at closure when discharge ceases.			
	•	•	•	Implement mitigation measures for potential effects on surface water (Section 6.6.4 and 6.7.4), relevant to the southeast arm including the following: <ul style="list-style-type: none"> A compact mine site will be developed to limit the areal extent of disturbance, and to limit the overall areas of site contact water that requires management; During construction, operations and active closure, an erosion and sediment control plan will be implemented to manage runoff water around disturbed areas. The erosion and sediment control plan will be prepared prior to the construction phase and provide further details on measures to minimize slope length and grade, ditching and diversion berms, contact water management ponds, use of natural vegetation buffers runoff controls, and working in and around water such as with the installation of the effluent discharge; and During controlled dewatering of the open pit basin, clean water will be pumped over the dikes at a rate consistent with the natural variability of Springpole Lake while water not suitable for direct discharge will be pumped to the central water storage pond to manage suspended sediments prior to discharge. 				
	-	•	•	Treated effluent will be discharged at a location where sufficient flow exists to reduce the potential for erosion and promote assimilation at the discharge location. A diffuser or other means could be used to encourage greater mixing and attenuation of the effluent plume at the discharge location, if required. Consistent with Ministry of the Environment, Conservation and Parks (2016) Policy B-1-5, the mixing zone size will be minimized to the extent practicable.				
	-	•	•	The effluent treatment plant will be designed and operated to produce an effluent quality appropriate for discharge to the environment in accordance with applicable regulatory requirements, including the Metal and Diamond Mining Effluent Regulations. Best available technologies that are economical achievable will be considered for the effluent treatment plant to meet protection requirements. The effluent treatment plant will be refined with ongoing Project planning and engineering design, and as discharge criteria are finalized during the approvals process.				
	•	•	-	Domestic sewage will be treated to meet regulatory requirements before discharge to the environment. Note that sewage treatment plant discharges will be combined with effluent treatment plant effluent before discharge to the southeast arm; and excess water in the central water storage pond will be treated at the effluent treatment plant, before being discharged to the southeast arm to maintain the site water balance.				

Notes:
 1 Con = Construction phase; Op = Operations phase; and, Cl = Closure phase
 2 Bolded text indicates a key mitigation measure.
 3 Level I is indicative of a negligible or low potential to contribute to an overall significant environmental effect, and Level III is indicative of a high potential to contribute to an overall significant environmental effect. Level II represents an intermediate condition.

Table 15-8: Local Inland Waterbodies - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Co	O	C		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
Surface Water: Local Inland Waterbodies Valued Component (Section 6.9) <ul style="list-style-type: none"> Area of Federal Jurisdiction: Fish and Fish Habitat Linkage from other VCs: Air Quality (Section 6.2) and Groundwater (Section 6.5) Linkage to other VCs: Fish and Fish Habitat (Section 6.10); Vegetation Communities and Wetlands (Section 6.11); Wildlife and Wildlife Habitat (Section 6.12); Species at Risk (Sections 6.13 to 6.16); Outdoor Recreation (Section 6.18); Traditional Land and Resource Use (Section 6.21); and Human and Ecological Health (Section 6.24) 								
Without mitigation, there may be a change in water quantity during construction, operation and closure. This could occur due to changes in catchment areas during site preparation and final reclamation activities for the mine site area and mine access road which may reduce the contribution of water to adjacent waterbodies.	•	•	-	Development of a compact mine site to limit the areal extent of disturbance, and to limit the overall areas of site contact water that requires management.	With the implementation of mitigation measures, there is no residual effect due to changes in water quantity for local inland waterbodies during any phase of the Project.	Not applicable	Not applicable	High
	•	-	-	Watercourse crossings will be designed and constructed using best management practices such as appropriately sized structures (e.g., embedded culverts) to maintain hydraulic capacity and connectivity.				
	-	•	-	Inspect culverts periodically and remove accumulated material and debris upstream and downstream of the culverts to prevent erosion, flooding, and mobilization of sediment.				
	•	-	-	Construction of the transmission line during frozen conditions to minimize effects on waterbodies and watercourses within the Project Development Area of the transmission line corridor.				
Without mitigation, there may be a change in water quality during construction, operation and closure. This could occur due to ground disturbance during site preparation and final reclamation activities for the mine site area and mine access road, which may lead to erosion, sedimentation and dust that may affect adjacent waterbodies.	•	•	•	Implementation of mitigation measures for potential effects on air quality relevant to dust (Section 6.2.4) including: <ul style="list-style-type: none"> During construction, operations and active closure, a dust management plan will be implemented; Dust emissions from roads and mineral stockpiles will be controlled through the application of water spray and supplemented by dust suppressants, if required; Site roads will be maintained in good condition, with regular inspections and timely maintenance completed to minimize the silt loading on the roads; and Vehicle speeds will be limited. 	With the implementation of mitigation measures, there is no residual effect due to changes in water quality for local inland waterbodies during any phase of the Project.	Not applicable	Not applicable	High
	•	-	-	Implementation of mitigation measures for potential effects on groundwater relevant to surface water (Section 6.5.4) including: <ul style="list-style-type: none"> Locating the co-disposal facility on favourable geologic conditions at the Project site to support long term stability and effective seepage management; and During construction, a geosynthetic clay liner will be installed on the upstream side of the perimeter embankment of the co-disposal facility south cell (specifically the south, west, and east sides) to mitigate seepage potential during the operation and closure phases. 				
	•	•	-	Development of a compact mine site to limit the areal extent of disturbance, and to limit the overall areas of site contact water that requires management.				
	•	-	-	An erosion and sediment control plan will be prepared and implemented prior to the construction phase with the intent to minimize site erosion and protect surface water from sedimentation. The erosion and sediment control plan will provide further details on measures to minimize erosion, sedimentation and stabilization including the use of natural vegetation buffers.				

Table 15-8: Local Inland Waterbodies - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	Cl		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
	•	•	-	During construction and operation, best management practices (such as following approved blasting plans, and using appropriate drilling, explosive handling and loading procedures) will be implemented for the use of explosives use to reduce the potential presence of blasting residuals in the open pit and on stockpiled mine rock and ore.				
	-	•	-	Inspect culverts periodically and remove accumulated material and debris upstream and downstream of the culverts to prevent erosion, flooding, and mobilization of sediment.				
	•	-	-	Construction of the transmission line during frozen conditions to minimize effects on waterbodies and watercourses within the Project Development Area of the transmission line corridor.				

Notes:

1 Con = Construction phase; Op = Operations phase; and, Cl = Closure phase

2 Bolded text indicates a key mitigation measure.

3 Level I is indicative of a negligible or low potential to contribute to an overall significant environmental effect, and Level III is indicative of a high potential to contribute to an overall significant environmental effect. Level II represents an intermediate condition.

Table 15-9: Fish and Fish Habitat - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Co	Op	C		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
Fish and Fish Habitat Valued Component (Section 6.10) <ul style="list-style-type: none"> Area of Federal Jurisdiction: Fish and Fish Habitat Linkage from other VCs: Noise and Vibration (Section 6.3); and Surface Water Systems (Section 6.6 to 6.9) Linkage to other VCs: Commercial Land and Resource Use (Section 6.17); Outdoor Recreation (Section 6.18); Traditional Land and Resource Use (Section 6.21); and Human and Ecological Health (Section 6.24) 								
Without mitigation, there may be a change in fish habitat during construction, operation and closure. This is due to ground disturbance during site preparation activities that may lead to sedimentation in fish habitat, changes in catchment areas that may change water flows in fish habitat, the construction of the co-disposal facility, dikes, central water storage pond and other mine site infrastructure that will overprint fish habitat, and construction of fish habitat offsetting measures.	•	•	•	Minimize the mine site footprint and overprinting of waterbodies where possible.	With the implementation of mitigation measures, there is no residual effect due to changes in fish habitat during any phase of the Project.	Not applicable	Not applicable	High
	•	•	•	During construction (and other phases as applicable), implement a site-specific erosion and sediment control plan to mitigate the entry of sediment into surrounding waterbodies.				
	•	-	-	Install isolation measures for in-water works associated with the construction of the dikes in the north basin of Springpole Lake and water crossings following the guidance of DFO's Interim Standard: In-Water Site Isolation (DFO 2023a).				
	•	•	•	Complete required maintenance of in-water structures following the guidance of DFO's Interim Code of Practice: Repair and Maintenance of In-Water Structures (DFO 2023b).				
	•	•	•	Implement the measures outlined in the Fish Habitat Offsetting and Compensation Plan (Appendix F), including: <ul style="list-style-type: none"> Overbuild and integrate spawning shoals along the active lake-facing embankments of the dikes to replace Lake Trout and Lake Whitefish spawning opportunities lost within the dewatered basin; Coordinate with the provincial government (Ministry of Mines) to implement the reclamation of fish habitat at the abandoned South Bay Mine; Implement the investigation and study of Lake Sturgeon in the Birch River and Cat River system and consider measures to reinstate or augment the population; Place coarse wood structure along Springpole Lake shorelines currently lacking structural diversity; Construct a new and significant embayment (46 ha fish habitat development area) to the east of the dewatered area to be functional at closure; Enhance the open pit basin (dewatered) area for selected key species (determined during engagement and consultation) by modifying cover, structure and substrates to improve habitat suitability where appropriate; Contour the north end of the main open pit and the Phase 1 pit and optimize fish habitat structures, substrates and depth for selected key species as determined during engagement and consultation; and Restore flow to unnamed lake L-1 on completion of mining and filling of the dewatered basin. 				
Without mitigation, there may be a change to fish communities during construction, operation and closure.	•	-	-	Install isolation measures for in-water works associated with the construction of the dikes in the north basin of Springpole Lake and water crossings following the guidance of DFO's Interim Standard: In-Water Site Isolation (DFO 2023a).	With the implementation of mitigation measures, there is no residual effect due to changes in fish communities during any phase of the Project.	Not applicable	Not applicable	High

Table 15-9: Fish and Fish Habitat - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	Cl		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
This is due to the construction of the dikes and other mine site infrastructure that may isolate fish within the work area, the controlled dewatering of the open pit basin which may entrain fish in water pumps and isolate fish in the work area, the operation of the water intake structure which may entrain fish, and the use of explosives during construction and operation which may expose fish to blasting overpressure.	•	•	•	Relocate fish from the work area prior to undertaking in-water works for the construction of Project infrastructure.				
	•	-	-	Prior to dewatering the open pit basin area, conduct a comprehensive fish removal program (fish-out) within the basin to minimize the unintentional death of fish.				
	•	•	•	Undertake in-water construction activities outside of the fish spawning and egg incubation periods to reduce the potential for effect on fish as per DFO's Measures to Protect Fish and Fish Habitat and the Ministry of Natural Resource's in-water timing windows, unless exempt.				
	•	•	•	Prohibit fishing and hunting within the controlled access portion of the Project Development Area by Project personnel while working or residing on site.				
	•	•	•	Prior to construction, develop a detailed blasting management plan for areas adjacent to fish habitat that meets DFO criteria or alternate values derived in consultation with DFO.				
	•	•	•	Install screens or use other measures at water intakes to prevent entrainment or impingement of fish as per the DFO Code of Practice.				
Without mitigation, there may be a change in fish health during construction, operation and closure. This is due to ground disturbance during site preparation activities that may lead to sedimentation in fish habitat, the construction of the dikes and other mine site infrastructure in fish habitat which may lead to sedimentation, the controlled dewatering of the open pit basin which may lead to sedimentation, the operation of the co-disposal facility and ore stockpiles which may increase seepage to adjacent waterbodies used by fish, and the discharge of the treated effluent which may change water quality in Springpole Lake.	•	•	•	During construction (and other phases as applicable), implement a site-specific erosion and sediment control plan to mitigate the entry of sediment into surrounding waterbodies.	With the implementation of mitigation measures, there is no residual effect due to changes in fish health during any phase of the Project.	Not applicable	Not applicable	High
	•	•	-	Design culverts to provide fish passage and naturalized substrates to mitigate habitat impacts.				
	•	•	•	Implement the measures to mitigate effects on surface water, as outlined in Section 6.6.4, Section 6.7.4 and Section 6.8.4, including the treatment of mine effluent prior to discharging to the southeast arm of Springpole Lake, and the collection and management of runoff and seepage water from the perimeter of the co-disposal facility and ore stockpiles.				

Notes:

1 Con = Construction phase; Op = Operations phase; and, Cl = Closure phase

2 Bolded text indicates a key mitigation measure.

3 Level I is indicative of a negligible or low potential to contribute to an overall significant environmental effect, and Level III is indicative of a high potential to contribute to an overall significant environmental effect. Level II represents an intermediate condition.

Table 15-10: Vegetation Communities and Wetlands - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	CO	OP	CU		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
Vegetation Communities and Wetlands Valued Component (Section 6.11) <ul style="list-style-type: none"> Area of Federal Jurisdiction: Species at Risk; Migratory Birds; Indigenous people Linkage from other VCs: Air Quality (Section 6.2); Groundwater (Section 6.5); and, Surface Water Systems (Section 6.6 to 6.9) Linkage to other VCs: Wildlife and Wildlife Habitat (Section 6.12); Species at Risk (Section 6.13 to 6.16); Commercial Land and Resource Use (Section 6.17); Outdoor Recreation (Section 6.18); Traditional Land and Resource Use (Section 6.21); and Human and Ecological Health (Section 6.24) 								
Without mitigation, there may be a change in the relative abundance and diversity of plant species and vegetation communities during construction, operation and closure. This is due to site preparation activities for the construction of mine site infrastructure, the mine access road and the transmission line, ongoing maintenance of the infrastructure, and the activities associated with final reclamation at closure, which will result in the loss of vegetation communities.	•	-	-	Development of a compact mine site to limit the areal extent of disturbance.	Vegetation communities are common throughout the local study area and regional study area, and therefore, removal in the Project Development Area is unlikely to threaten the long-term viability of vegetation communities. With the implementation of mitigation measures, the residual effect is a loss of less than 1% within the regional study area of vegetation communities compared to baseline conditions. The residual effect is confined to the Project Development Area and will occur once during construction but will be partially reversible as portions of the Project Development Area (i.e. co-disposal facility embankments) will not be fully revegetated at post-closure.	Ecological and Social Context: Level I Magnitude: Level I Geographic Extent: Level I Duration: Level III Frequency: Level I Reversibility: Level II	Not Significant	High
	•	-	-	Co-locate the transmission line, airstrip and mine access road within a shared infrastructure corridor, where feasible.				
	•	•	-	Minimize the clearing of vegetation within the mine access road and transmission line corridor to that needed for the construction and safe operation.				
	•	•	-	Minimize the removal of woody vegetation within the transmission line corridor to maintain natural cover to adjacent areas. The removal of woody vegetation will be limited to hazard trees and clearing to provide safe construction access and infrastructure needs.				
	•	•	-	Undertake progressive rehabilitation of mine development areas, in accordance with a filed Closure Plan under the <i>Mining Act</i> . The progressive rehabilitation measures for the Project may include: <ul style="list-style-type: none"> Removal of construction-related facilities and reclamation of disturbed lands, if not required during operations; Rehabilitation of aggregate sources when no longer required for the Project; Implementation of a revegetation plan that preferentially uses local vegetation sources, incorporates plant species of interest to Indigenous communities, and avoids the use of non-native or invasive species; and Preserving organic material in place where reasonable and/or stockpiling material onsite. 				
	-	-	•	During the active closure phase of the Project, undertake final rehabilitation activities of the mine development areas to create a stable, productive, and naturalized state. The plan includes the rehabilitation of disturbed lands (using commercially available native seed sources) and the establishment of self-sustaining vegetative cover.				
	-	-	•	Vehicular access will be restricted along the mine access road, and the road will be scarified to alleviate surface compaction to aid in vegetative regeneration during the closure phase.				

Table 15-10: Vegetation Communities and Wetlands - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Co	Op	C		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
Without mitigation, there may be a change in the function, connectivity, and quality during construction, operation and closure. This is due to the mine access road and the transmission line, the operation of the processing facility, open pit, haul roads and mine access road which may lead to indirect effects on vegetation and wetlands due to edge effects, dust from Project activities, changes in groundwater levels and the potential introduction of invasive species.	•	-	-	Development of a compact mine site to limit the areal extent of disturbance.	There will be a minimal change in the abundance of vegetation communities and significant wildlife habitat within the regional study area due to the small Project footprint and use of existing routes for linear corridors. With the implementation of mitigation measures, the residual effect will be a decrease of terrestrial communities (0.36%) and wetland communities (0.14%) compared to baseline conditions. The residual effect will be confined to the local study area and occur intermittently through all phases of the Project and will be partially reversible as portions of the Project Development Area (i.e. co-disposal facility embankments) will not be fully revegetated at post-closure.	Ecological and Social Context: Level I Magnitude: Level I Geographic Extent: Level I Duration: Level III Frequency: Level II Reversibility: Level II	Not Significant	High
	•	-	-	Co-locate the transmission line, airstrip and mine access road within a shared infrastructure corridor, where feasible.				
	•	•	•	Mechanical vegetation removal practices will be used, when possible.				
	•	•	•	Implement mitigation measures for potential effects on air quality relevant to vegetation communities and wetlands (Section 6.2.4) including: <ul style="list-style-type: none"> • During construction, operations and active closure, a dust management plan will be implemented to identify potential sources of fugitive dusts, outline mitigation measures that will be employed to control dust generation and detail the inspection and record keeping required to demonstrate that fugitive dusts are being effectively managed; • Dust emissions from roads and mineral stockpiles will be controlled through the application of water spray and supplemented by dust suppressants, if required; • Site roads will be maintained in good condition, with regular inspections and timely maintenance completed to minimize the silt loading on the roads; and • Vehicle speeds will be limited. 				
	•	•	-	Implement mitigation measures for potential effects on groundwater relevant to vegetation communities (Section 6.5.4), including the following: <ul style="list-style-type: none"> • During operation and closure phases, revegetation and encouragement of natural revegetation / recolonization of disturbed areas, will be undertaken as part of progressive and final reclamation to minimize the length of time disturbed areas are exposed to reduce infiltration; and • During the filling of the open pit basin, accelerate the return of groundwater levels to baseline conditions, by transferring water from Springpole Lake in a controlled manner while maintaining lake water levels in Springpole Lake within natural variation. 				
	•	•	-	Minimize the clearing of vegetation within the mine access road and transmission line corridor as feasible.				
	•	•	-	Minimize the removal of woody vegetation within the transmission line corridor to maintain natural cover to adjacent areas. The removal of woody vegetation will be limited to hazard trees and clearing to provide safe construction access and infrastructure needs.				
	•	•	•	An invasive species management plan will be implemented during construction, operation and active closure phases to reduce the spread of invasive and non-native species from the Project, and include the following measures: <ul style="list-style-type: none"> • Construction equipment arriving on the Project site will be clean and free of any plant or soil material; • Where necessary, establish designated cleaning areas onsite to prevent or limit the spread of invasive and non-native species; • Where necessary, store stripped topsoil from the construction of the transmission line corridor in designated locations to avoid the introduction of 				

Table 15-10: Vegetation Communities and Wetlands - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	C		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
				invasive and non-native species from the existing disturbances due to forestry activities; <ul style="list-style-type: none"> If required, topsoil stripped in or near areas with identified invasive and non-native species will be managed and stored in designated locations, where practical; and To limit the introduction of invasive and non-native species, certificates of seed analysis will be requested for seed mixes where available. 				
	•	•	-	Undertake progressive rehabilitation of mine development areas, in accordance with a filed Closure Plan under the <i>Mining Act</i> . The progressive rehabilitation measures for the Project may include: <ul style="list-style-type: none"> Removal of construction-related facilities and reclamation of disturbed lands, if not required during operations; Rehabilitation of aggregate sources when no longer required for the Project; Implementation of a revegetation plan that preferentially uses local vegetation sources, incorporates plant species of interest to Indigenous communities, and avoids the use of non-native or invasive species; and Preserving organic material in place where reasonable and/or stockpiling material onsite. 				
	-	-	•	During the active closure phase of the Project, undertake final rehabilitation activities of the mine development areas to create a stable, productive, and naturalized state. The plan includes the rehabilitation of disturbed lands (using commercially available native seed sources) and the establishment of self-sustaining vegetative cover.				
	-	-	•	Vehicular access will be restricted along the mine access road, and the road will be scarified to alleviate surface compaction to aid in vegetative regeneration during the closure phase.				
Without mitigation, there may be a change in relative abundance and area of wetland extent during construction, operation and closure. This is due to site preparation activities for the construction of mine site infrastructure, the mine access road and the transmission line, ongoing maintenance of the infrastructure, the operation of the processing facility, open pit, haul roads and mine access road, and the activities associated with final reclamation at closure, which may lead to the direct loss of wetlands and indirect changes on wetlands from dust deposition and changes in groundwater levels.	•	-	-	Development of a compact mine site to limit the footprint of disturbance.	As wetlands are common throughout the local and regional study area, the removal within the Project Development Area is not expected to threaten the long-term viability of wetland communities. With the implementation of mitigation measures, the residual effect will be a decrease of less than 0.19% of wetlands compared to baseline conditions. The residual effect is confined to the Project Development Area, and will occur once during construction, but will continue through all phases and will be partially	Ecological and Social Context: Level I Magnitude: Level I Geographic Extent: Level I Duration: Level III Frequency: Level I Reversibility: Level II	Not Significant	High
	•	-	-	Co-locate the transmission line, airstrip and mine access road within a shared infrastructure corridor, where feasible.				
	•	•	•	Implementation of mitigation measures for potential effects on air quality relevant to vegetation communities and wetlands (Section 6.2.4) including: <ul style="list-style-type: none"> During construction, operations and active closure, a dust management plan will be implemented to identify potential sources of fugitive dusts, outline mitigation measures that will be employed to control dust generation and detail the inspection and record keeping required to demonstrate that fugitive dusts are being effectively managed. Dust emissions from roads and mineral stockpiles will be controlled through the application of water spray and supplemented by dust suppressants, if required; Site roads will be maintained in good condition, with regular inspections and timely maintenance completed to minimize the silt loading on the roads; and Vehicle speeds will be limited. 				

Table 15-10: Vegetation Communities and Wetlands - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	Cl		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
	•	•	•	Implement mitigation measures for potential effects on groundwater relevant to wetlands (Section 6.5.4), including the following: <ul style="list-style-type: none"> • During operation and closure phases, revegetation and encouragement of natural revegetation / recolonization of disturbed areas, will be undertaken as part of progressive and final reclamation to minimize the length of time disturbed areas are exposed to reduce infiltration; and • During the filling of the open pit basin, accelerate the return of groundwater levels to baseline conditions, by transferring water from Springpole Lake in a controlled manner while maintaining lake water levels in Springpole Lake within natural variation. 	reversible as it will not be fully revegetated at post-closure.			
	•	•	•	During construction, operation and active closure phases, implement the following mitigation measures for wetlands: <ul style="list-style-type: none"> • Conduct construction activities in wetlands during late summer, fall or winter, whenever practical; • Salvage topsoil and the upper organic layer when constructing in and adjacent to wetlands; • Isolate work areas prior to construction using feasible techniques when working in wetlands during the open water period; and • Install silt fences prior to construction on approaches to wetlands to prevent erosion and sedimentation, and remove silt fencing once the disturbed areas are stabilized. 				
	•	•	-	During construction and operation phases, undertake progressive rehabilitation of mine development areas, in accordance with a filed Closure Plan under the Mining Act. The progressive rehabilitation measures for the Project may include: <ul style="list-style-type: none"> • Removal of construction-related facilities and reclamation of disturbed lands, if not required during operations; • Rehabilitation of aggregate sources when no longer required for the Project; • Implementation of a revegetation plan that preferentially uses local vegetation sources, incorporates plant species of interest to Indigenous communities, and avoids the use of non-native or invasive species; and • Preserving organic material in place where reasonable and/or stockpiling material onsite. 				
	-	-	•	During the active closure phase of the Project, undertake final rehabilitation activities of the mine development areas to create a stable, productive, and naturalized state. The plan includes the rehabilitation of disturbed lands (using commercially available native seed sources) and the establishment of self-sustaining vegetative cover. The closure phase will also include consultation with communities on opportunities for wetland creation.				

Notes:

1 Con = Construction phase; Op = Operations phase; and, Cl = Closure phase

2 Bolded text indicates a key mitigation measure.

3 Level I is indicative of a negligible or low potential to contribute to an overall significant environmental effect, and Level III is indicative of a high potential to contribute to an overall significant environmental effect. Level II represents an intermediate condition.

Table 15-11: Wildlife and Wildlife Habitat - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	CON	OP	CL		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
<p>Wildlife and Wildlife Habitat Valued Component (Section 6.12)</p> <ul style="list-style-type: none"> Area of Federal Jurisdiction: Species at Risk; Migratory Birds; Indigenous people; Change in the Environment that are Directly Linked or Incidental to Areas of Federal Jurisdiction Linkage from other VCs: Air Quality (Section 6.2); Noise and Vibration (Section 6.3); Vegetation Communities and Wetlands (Sections 6.11) Linkage to other VCs: Species at Risk (Section 6.13 to 6.16); Commercial Land and Resource Use (Section 6.17); Outdoor Recreation (Section 6.18); Traditional Land and Resource Use (Section 6.21); and Human and Ecological Health (Section 6.24) 								
<p>Without mitigation, there may be a change in the relative abundance of wildlife habitat during construction, operation and closure.</p> <p>This is due to site preparation activities for the construction of mine site infrastructure, the mine access road and the transmission line, ongoing maintenance of the infrastructure, and the activities associated with final reclamation at closure, which will result in the loss of wildlife habitat.</p>	•	•	-	Develop of a compact mine site to limit the areal extent of disturbance.	<p>Wildlife habitat is common throughout the regional study area and there is a low potential for the Project to adversely affect wildlife habitat throughout the local and regional study area.</p> <p>With the implementation of mitigation measures, the residual effect is the loss of 1.21% of the habitat for Fisher in the regional study area, and less than 5% of the habitat for Osprey. The residual effect is confined to the Project Development Area, occurs once during construction, and will avoid sensitive periods of wildlife use. The residual will continue until post-closure but is partially reversible as site conditions within the Project Development Area will be altered until post-closure although some areas of the Project Development Area will not be revegetated (i.e., the co-disposal facility).</p>	<p>Ecological and Social Context: Level I Magnitude: Level II Geographic Extent: Level I Duration: Level III Frequency: Level I Reversibility: Level II Timing: I</p>	<p>Not significant</p>	<p>High</p>
	•	-	-	Co-locate the transmission line, airstrip and mine access road within a shared infrastructure corridor, where feasible.				
	•	•	-	Follow appropriate timing windows for vegetation removals; in combination with timing windows for Boreal Caribou (6.13), Wolverine (6.14), bats (Section 6.15), and Species at Risk birds (6.16), vegetation removals should only occur between September 15 to January 14. Note that construction activity should never occur during the critical breeding period for Bald Eagle, defined as March 5 to August 31 in northwest Ontario.				
	•	•	-	Permits for specially protected species under the <i>Fish and Wildlife Conservation Act</i> may be required to remove dens, nests, and lodges.				
	-	-	•	Undertake progressive revegetation in the mine site area, where practicable, during operation of the Project.				
	•	-	-	During construction, minimize the disturbance by using existing trails and roads for travel, where practicable.				
	•	•	•	<p>Implement the mitigation measures for potential effects on vegetation communities and wetlands relevant to bat (Section 6.11.4) including:</p> <ul style="list-style-type: none"> During construction and operation, minimize the clearing of vegetation within the mine access road and transmission line corridor to that needed for the construction and safe operation; During construction and operation, minimize the removal of woody vegetation within the transmission line corridor to maintain natural cover to adjacent areas. The removal of woody vegetation will be limited to hazard trees and clearing to provide safe construction access and infrastructure needs; During construction, operation and active closure phases, implement mitigation measures for wetlands; and During operation and closure phases, undertake progressive and final rehabilitation of mine development in accordance with the filed Closure Plan, and implement a revegetation plan that preferentially uses local vegetation sources, incorporates plant species of interest to Indigenous communities, and wildlife habitat features. 				

Table 15-11: Wildlife and Wildlife Habitat - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	Cl		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
<p>Without mitigation, there may be a change in the function, connectivity, and quality of wildlife habitat during construction, operation and closure.</p> <p>This is due to site preparation activities for the construction of mine site infrastructure, the mine access road and the transmission line resulting in sensory disturbances, ongoing maintenance of the infrastructure, and the activities associated with final reclamation at closure, which may result in an indirect loss of wildlife habitat due to edge effects from disturbed areas, change in environmental conditions such as dust deposition and altered surface water and groundwater regimes, and sensory disturbances due to lighting and noise from the operation of mobile and stationary equipment.</p>	•	-	-	Co-locate the transmission line, airstrip and mine access road within a shared infrastructure corridor, where feasible.	<p>Wildlife habitat is common throughout the regional study area and changes due the Project will have a low potential to adversely affect wildlife and/or the habitat required for wildlife to carry out the life processes necessary to survive and reproduce.</p> <p>With the implementation of mitigation measure, the indirect changes on the function, connectivity and quality of wildlife habitat will result in a residual effect of less than 1% loss of habitat for most wildlife species, a 1 to 2% loss of habitat for Fisher, beaver and Wood frog, and a 2 and 3% loss of habitat for Red-eyed Vireo within the regional study area.</p> <p>The residual effect is confined to the local study area and occur intermittently during operations and may occur during sensitive wildlife periods. It is expected to be fully reversible at closure.</p>	<p>Ecological and Social Context: Level I Magnitude: Level II Geographic Extent: Level I Duration: Level II Frequency: Level II Reversibility: Level I</p>	<p>Not significant</p>	<p>High</p>
	•	•	-	Maintain existing hydroperiod conditions, outside the zone of influence for dewatering, by directing water from dewatering activities away from terrestrial habitats, where possible.				
	•	•	-	Follow appropriate timing windows for vegetation removals; in combination with timing windows for Boreal Caribou (6.13), Wolverine (6.14), bats (Section 6.15), and Species at Risk birds (6.16), vegetation removals should only occur between September 15 to January 14. Note that construction activity should never occur during the critical breeding period for Bald Eagle, defined as March 5 to August 31 in northwest Ontario.				
	•	•	•	During construction, operation and closure, where practicable, avoid sensitive wildlife habitat by implementing buffers around sensitive habitats. The implementation of buffers will be sufficient to mitigate acoustic effects on birds.				
	-	•	•	Undertake progressive revegetation in the mine site area, where practicable, during operation of the Project.				
	•	•	-	During construction, minimize the disturbance by using existing trails and roads for travel, where practicable.				
	•	-	-	<p>During construction of the mine access road and transmission line:</p> <ul style="list-style-type: none"> Minimize the area cleared with heavy machinery for the construction of the mine access road, as practicable, recognizing the need for clear sightlines for safety; and Minimize the removal of woody vegetation along the transmission line by limiting removal to hazard trees and only clearing for safe access and infrastructure need. 				
•	•	•	<p>Implement the mitigation measures for air quality relevant to wildlife (Section 6.2.4) including:</p> <ul style="list-style-type: none"> During construction, operation and active closure, a dust management plan will be implemented to identify potential sources of fugitive dusts, outline mitigation measures that will be employed to control dust generation and detail the inspection and record keeping required to demonstrate that fugitive dusts are being effectively managed; Routine maintenance of all pollution control equipment, diesel-fired engines (vehicle, equipment and standby power generation); The process plant emission sources will be enclosed where possible and be designed to allow good atmospheric dispersion, and dust control equipment such as dust collectors and water sprays will be used together with best practices, where necessary, to reduce emissions; Dust emissions from roads and mineral stockpiles will be controlled through the application of water spray and supplemented by dust suppressants if required; 					

Table 15-11: Wildlife and Wildlife Habitat - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	Cl		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
				<ul style="list-style-type: none"> Site roads will be maintained in good condition, with regular inspections and timely maintenance completed to minimize the silt loading on the roads; and Vehicle speeds will be limited. 				
	•	•	•	Implement the mitigation measures for noise and vibration relevant to wildlife (Section 6.3.4) including: <ul style="list-style-type: none"> Building dimensions, layout and orientation will be designed to shield noise sources, where possible; Acoustical enclosures will be used in the process plant to limit overall noise emissions from key noise sources, such as the ball mills; Generator intakes and exhausts in the process plant will use silencers; Motorized equipment will be selected or designed with mufflers / silencers to limit noise emissions; Reversing alarms will be dimmable with white noise and/or strobe lights; The use of engine brakes will be prohibited; Vehicles and equipment will be operated in such a way that impulsive noise is minimized, where possible; Regular inspections will take place to confirm that equipment and machinery used on site is operated in good working condition through regular maintenance; and For helicopter use during transmission line construction, minimum flight altitudes will be maintained unless the helicopters are engaged in construction tasks, landing or departure. 				
	•	•	•	During construction, operation and closure phases, implement mitigation measures for lighting to minimize sensory disturbance (Appendix J), including: <ul style="list-style-type: none"> To prevent a direct line-of-sight from light, maintain light sources below natural barriers such as tree lines or artificial barriers such as berms; and Minimize light spill and glare using shielding on stationary light sources and direct lighting downwards where practicable. 				
	•	•	•	Implement the mitigation measures surface water systems relevant to wildlife (Section 6.6.4) including: <ul style="list-style-type: none"> During construction, operation and active closure, an integrated water management system will be operated to collect and control contact water from the stockpiles, co-disposal facility and plant site areas. Collected contact water that is not used in ore processing will be treated at the effluent treatment plant and discharged to the southeast arm of Springpole Lake in accordance with permitting requirements; During construction, operation and active closure, contact water collection ditches will be constructed and operated around the perimeter of key infrastructure, including the co-disposal facility and stockpiles, to collect overland flow and seepage and direct it to the integrated water management system; 				

Table 15-11: Wildlife and Wildlife Habitat - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	Cl		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
				<ul style="list-style-type: none"> Locating the co-disposal facility on favourable geologic conditions at the Project site to support long-term stability and effective seepage management; and Discouraging wildlife from inhabiting contact water ponds (including the co-disposal facility and central water storage ponds). 				
	•	•	•	Implement the mitigation measures for potential effects on vegetation communities and wetlands relevant to wildlife (Section 6.11.4) including: <ul style="list-style-type: none"> During construction and operation, minimize the clearing of vegetation within the mine access road and transmission line corridor to that needed for the construction and safe operation; During construction and operation, minimize the removal of woody vegetation within the transmission line corridor to maintain natural cover to adjacent areas. The removal of woody vegetation will be limited to hazard trees and clearing to provide safe construction access and infrastructure needs; and During operation and closure phases, undertake progressive and final rehabilitation of mine development in accordance with the filed Closure Plan, and implement a revegetation plan that preferentially uses local vegetation sources, incorporates plant species of interest to Indigenous communities, and wildlife habitat features. 				
Without mitigation, there may be a change in the risk of mortality of wildlife during construction, operation and closure. This is due to site preparation activities for the construction of mine site infrastructure, the mine access road and the transmission line resulting in the loss of habitat and the use of equipment, ongoing operation of the mine access road, and the activities associated with final reclamation at closure, which may increase the risk of interactions between wildlife and the operation of mobile equipment used for construction and maintenance activities.	•	•	-	Develop of a compact mine site to limit the areal extent of disturbance.	With the implementation of mitigation measures, such as timing windows during construction, strictly enforcing speed limits and properly managing domestic waste, there may a minor residual effect due to the change in the risk of mortality for some wildlife species, The residual effect will be confined to the Project Development Area, and may occur infrequently through construction, operation and active closure during sensitive wildlife periods, but is reversible at closure.	Ecological and Social Context: Level I Magnitude: Level I Geographic Extent: Level I Duration: Level II Frequency: Level I Reversibility: Level I Timing: II	Not significant	High
	•	•	-	Co-locate the transmission line, airstrip and mine access road within a shared infrastructure corridor, where feasible.				
	•	•	-	Follow appropriate timing windows for vegetation removals; in combination with timing windows for Boreal Caribou (6.13), Wolverine (6.14), bats (Section 6.15), and Species at Risk birds (6.16), vegetation removals should only occur between September 15 to January 14. Note that construction activity should never occur during the critical breeding period for Bald Eagle, defined as March 5 to August 31 in northwest Ontario.				
	•	•	•	During construction, operation and closure, where practicable, avoid sensitive wildlife habitat by implementing buffers around sensitive habitats. The implementation of buffers will be sufficient to mitigate acoustic effects on birds.				
	•	•	-	Permits for specially protected species under the <i>Fish and Wildlife Conservation Act</i> may be required to remove dens, nests, and lodges.				
	•	•	•	During construction, operation and closure, prohibit hunting and trapping within the gated controlled access portion of the Project Development Area by Project personnel while working or residing on-site, during construction, operation and closure phases.				
	•	•	•	During construction, operation and closure phases, domestic solid waste products and similar materials will be properly secured, stored and disposed of at an offsite licensed facility, particularly anything that is an attractant for scavenging wildlife. Domestic solid waste products will be transported to a landfill off site, mitigating the habitat sink effect of increased predator densities that can be created due to access to landfill sites.				

Table 15-11: Wildlife and Wildlife Habitat - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	Cl		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
	•	•	-	<ul style="list-style-type: none"> Enforce reduced speed limits along Project-controlled roads within high-quality wildlife habitats, particularly along segments with known or recurrent wildlife crossings; Project-related vehicles travelling on the mine access road must come to a stop if wildlife is encountered and provide them with the right-of-way to cross the road; and Minimize vegetation management along the transmission line corridor to that necessary for safe operation. 				
	•	•	•	During construction, operation and closure, wildlife awareness training will be provided to Project employees.				
	•	•	•	During construction, operation and closure, log (and report as needed) observed wildlife, sign / tracks and wildlife-vehicle collisions and alter mitigation measures as appropriate.				
	•	•	•	Implement measures outlined in a spill prevention and contingency plan to be developed prior to construction.				

Notes:

1 Con = Construction phase; Op = Operations phase; and, Cl = Closure phase

2 Bolded text indicates a key mitigation measure.

3 Level I is indicative of a negligible or low potential to contribute to an overall significant environmental effect, and Level III is indicative of a high potential to contribute to an overall significant environmental effect. Level II represents an intermediate condition.

Table 15-12: Boreal Caribou - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Co	Op	C		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
Boreal Caribou Valued Component (Section 6.13) <ul style="list-style-type: none"> Area of Federal Jurisdiction: Species at Risk Linkage from other VCs: Air Quality (Section 6.2); Noise and Vibration (Section 6.3); and Vegetation Communities and Wetlands (Section 6.11) Linkage to other VCs: Commercial Land and Resource Use (Section 6.17); Traditional Land and Resource Use (Section 6.21); and Human and Ecological Health (Section 6.24) 								
Without mitigation, there may be a direct change in Boreal Caribou habitat during construction, operation and closure. This is due to site preparation activities for the construction and operation of mine site infrastructure, the mine access road and the transmission line resulting in the direct loss of Boreal Caribou habitat.	•	•	•	Development of a compact mine site to limit the areal extent of disturbance.	With the implementation of mitigation measures, the residual effect due to direct habitat changes is a 0.10% reduction in General Habitat Description Category 1 Calving/Nursery Habitat, a 0.03% reduction in General Habitat Description Category 1 wintering habitat, and a 0.26% reduction in General Habitat Description Category 2 habitat available in the Churchill Range. With the application of mitigation measures, including measures to avoid, minimize, restore and offset habitat losses, the residual effect is minor and <1% change at Regional Study Habitat Area scale. The residual effect is confined to the local study area, however the effects may only be fully mitigated once the habitat returns after closure. The residual effect will occur once during construction phase, and predicted to be partially reversible during revegetation at closure and includes offsetting objectives that will be immediately implemented to offset habitat loss in the short term (Level I) as regrowth of the vegetation supporting Boreal Caribou will occur over time but site conditions within the Project Development Area will be permanently altered and some areas of the Project Development Area will not be revegetated (i.e., co-disposal facility) at post-closure. The timing of the residual effect is low as the construction activities will not occur during the sensitive nursery period for Boreal Caribou.	Ecological and Social Context: Level II Magnitude: Level II Geographic Extent: Level I Duration: Level III Frequency: Level I Reversibility: Level I Timing: I	Not Significant	Moderate to High
	•	•	•	During construction, co-locate the transmission line, airstrip and mine access road within a shared infrastructure corridor, where feasible.				
	•	•	•	Align the new transmission line route adjacent to the existing E1C transmission line corridor, to the extent possible, to reduce the creation of new linear corridors.				
	•	•	•	During construction of the Project, minimize the disturbance in Category 1 and 2 Boreal Caribou habitats by using existing trails and roads for travel.				
	•	•	•	In collaboration with Indigenous communities and the Ministry of the Environment, Conservation and Parks, design and implement a habitat restoration program for Boreal Caribou, that includes: <ul style="list-style-type: none"> The creation of suitable Boreal Caribou calving habitat through the reclamation of a small island in the open pit basin of Springpole Lake and revegetate the island with mature coniferous forest; The development of suitable restoration of habitat of existing disturbed areas for Boreal Caribou; and The deferral of forestry and mineral exploration lands where suitable Boreal Caribou habitat exists. 				
	•	•	•	During construction, operation and closure phases, implement relevant mitigation measures for noise from Section 6.3.				
•	•	•	During construction of the mine access road and transmission line: <ul style="list-style-type: none"> Minimize the area cleared with heavy machinery in Category 1 Boreal Caribou habitat to the extent possible recognizing the need for clear sightlines for safety along the mine access road; Reduce predator sight lines by minimizing the removal of woody vegetation along the transmission line in Boreal Caribou location clusters and adjacent to Category 1 habitat (overwintering and calving) by limiting removal to hazard trees and only clearing for safe access and infrastructure needs; Avoid clearing and construction activities in Category 1 Boreal Caribou nursery habitat during the calving and nursery period (May 1 to September 15); During construction and operation of the airstrip, avoid construction and overflights of Category 1 nursery habitats during the nursery period (May 1 to September 15); and Efforts will be made to re-supply the mine with bulk of deliveries aiming to be outside the calving period. 					

Table 15-12: Boreal Caribou - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Co	Op	C		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
<p>Without mitigation, there may be a direct change in Boreal Caribou habitat during construction, operation and closure.</p> <p>This is due to site preparation activities for the construction and operation of mine site infrastructure, the mine access road and the transmission line resulting in the indirect loss of Boreal Caribou habitat due to a change in sensory disturbances.</p>	•	•	•	<p>During construction, operation and closure phases of the Project, implement relevant mitigation measures for dust from Section 6.2, including:</p> <ul style="list-style-type: none"> The process plant emission sources will be enclosed where possible and be designed to allow good atmospheric dispersion; During construction, operations and active closure, a dust management plan will be implemented to identify potential sources of fugitive dusts, outline mitigation measures that will be employed to control dust generation and detail the inspection and record keeping required to demonstrate that fugitive dusts are being effectively managed; Dust emissions from roads and mineral stockpiles will be controlled through the application of water spray and supplemented by dust suppressants, if required; Site roads will be maintained in good condition, with regular inspections and timely maintenance completed to minimize the silt loading on the roads; and Vehicle speeds will be limited. 	<p>The predicted residual effect due the indirect loss of habitat from sensory disturbance includes a 0.49% reduction in General Habitat Description Category 1 Nursery Habitat, a 0.9% reduction in General Habitat Description Category 1 Winter Use Habitat, and a 0.83% reduction in General Habitat Description Category 2 habitat at the regional study habitat area scale. Nursery habitat functions are maintained elsewhere in the regional study habitat area. With the application of mitigation measures, including measures to avoid, minimize, restore and offset residual habitat losses, the indirect habitat changes occur at regional study habitat area scale but are minor and < 1% change.</p> <p>The residual effect is confined to the local study area and will be fully mitigated once the sensory disturbance is discontinued at closure. The residual effect will occur intermittently throughout construction and operations, however it will be reversible at closure when sensory disturbances will cease. The timing of the residual effect will not occur during the sensitive nursery period for Boreal Caribou..</p>	<p>Ecological and Social Context: Level II Magnitude: Level II Geographic Extent: Level I Duration: Level II Frequency: Level II Reversibility: Level I Timing: I</p>	<p>Not Significant</p>	<p>Moderate to High</p>
	•	•	•	<p>During construction, operation and closure phases, implement relevant mitigation measures for noise from Section 6.3, including:</p> <ul style="list-style-type: none"> Motorized equipment will be selected or designed with mufflers/silencers to limit noise emissions; Reversing alarms should be dimmable with white noise and/or strobe light but in accordance with the applicable health and safety regulations; Check that equipment and machinery used on site is maintained in good working conditions through regular maintenance and inspection; Prohibit the use of engine brakes and require the engines to be stopped for vehicles on standby, depending on seasons and weather; Operate vehicles and equipment such that impulsive noise is minimized, where possible; and For helicopter use during transmission line construction, maintain minimum flight altitudes unless engaged in construction tasks, landing or departure. 				
	•	•	•	<p>During construction, operation and closure phases of the Project, implement mitigation for lighting to minimize sensory disturbance, including:</p> <ul style="list-style-type: none"> To prevent a direct line-of-sight from light, maintain light sources below natural barriers such as tree lines or artificial barriers such as berms; and Minimize light spill and glare using shielding on stationary light sources and direct lighting downwards where practical. 				

Table 15-12: Boreal Caribou - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Co	Op	C		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
Without mitigation, there may be a change in range conditions for Boreal Caribou during construction, operation and closure. This is due to site preparation activities for the construction and operation of mine site infrastructure, the mine access road and the transmission line resulting in the direct loss of Boreal Caribou habitat, the indirect loss of Boreal Caribou habitat due to a change in sensory disturbances and changes in movement corridors .	•	•	•	During construction, operation and closure phases of the Project, implement the relevant mitigation measures for wildlife from Section 6.12.	With the application of mitigation measures, including measures to avoid, minimize, restore and offset residual habitat losses, the residual effect occurs at regional study habitat area scale but are minor and < 1% change. The residual effect of direct habitat removal is confined to the local study area. The duration of the residual effect may only be fully mitigated once the habitat returns after closure. The residual effect will occur intermittently throughout construction and operations. The residual effect will be partially reversible as regrowth of the vegetation supporting Boreal Caribou will occur over time but site conditions within the Project Development Area will be permanently altered and some areas of the Project Development Area will not be revegetated (i.e., co-disposal facility) at post-closure and includes offsetting objectives that will be immediately implemented to offset habitat loss in the short term. The residual effect will not occur during the sensitive nursery period.	Ecological and Social Context: Level II Magnitude: Level II Geographic Extent: Level I Duration: Level III Frequency: Level II Reversibility: Level II Timing: II	Not Significant	Moderate to High
	•	•	•	Do not disturb encountered Boreal Caribou, during all phases of the Project.				
	•	•	•	During the operation of the mine access road and transmission line: <ul style="list-style-type: none"> Reduce Project-related traffic speed along the mine access road in sections traversing Category 1 habitat during seasonally sensitive periods, particularly along segments with identified crossing locations; Project-related vehicles travelling on the mine access road must come to a stop if Boreal Caribou are encountered and provide them with the right-of-way and time to safely cross the roadway and into native cover without undue sensory disturbance; Minimize vegetation management along the transmission line corridor within Category 1 habitat to that necessary for safe operation; In areas where Boreal Caribou have been recorded crossing the existing transmission line, retain vegetation and undertake strategic vegetation treatments to reduce the potential for barriers to movement; If Boreal Caribou are found to be crossing linear features created by the Project in new areas (outside of the currently identified cluster of movement locations), implement vegetation treatments to mitigate potential barrier effects in these new locations; and A controlled access gatehouse/checkpoint and signage are proposed to control unauthorized use of the 18-km mine access road leading to the mine site. An access management strategy will be developed with local Indigenous communities and the Ministry of Natural Resources to provide access for traditional land and resource use activity along this newly accessible area. Efforts will be made to re-supply the mine with bulk of deliveries aiming to be outside the calving period. 				
	•	•	•	During the closure of the Project, incorporate Boreal Caribou habitat features into the overall closure plan, where possible, including: <ul style="list-style-type: none"> Revegetate suitable areas within the Project Development Area using species that will support the development of mature coniferous refuge habitat for Boreal Caribou, and incorporate the restoration of lichen and lichen treatments in select areas; and Remove or otherwise regraded stockpiles (including surficial soil and ore) to facilitate Boreal Caribou access. 				

Table 15-12: Boreal Caribou - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	Cl		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
	•	•	•	In collaboration with Indigenous communities and the Ministry of the Environment, Conservation and Parks, design and implement a habitat restoration program for Boreal Caribou, that includes: <ul style="list-style-type: none"> • The creation of suitable Boreal Caribou calving habitat through the reclamation of a small island in the open pit basin of Springpole Lake and revegetate the island with mature coniferous forest; • The development of suitable restoration of habitat of existing disturbed areas for Boreal Caribou; • The deferral of forestry and mineral exploration lands where suitable Boreal Caribou habitat exists; and • The application of mitigation measures to specific pathways and phases are illustrated in Table 6.14-4. Mitigation measures described in this section are expected to be effective for their intended purposes given their effective implementation on similar projects. 				
	•	•	•	To meet regulatory requirements, First Mining Gold is advancing various potential offsetting opportunities including: <ul style="list-style-type: none"> • Opportunities to undertake enhanced restoration of lands subject to recent forest fires; • Opportunities to undertake enhanced restoration on lands subject to forestry activities through partnership with the forestry industry. • Opportunities identified by Ontario pursuant to the provincial Woodland Caribou Recovery Strategy. For example, potential habitat restoration in the vicinity of the abandoned South Bay mine.; • Partnership deferrals in other parts of the Churchill Range.; and • At closure, the Project includes the construction of a Boreal Caribou calving island (linked to the Project's fish habitat development area). 				

Notes:

1 Con = Construction phase; Op = Operations phase; and, Cl = Closure phase

2 Bolded text indicates a key mitigation measure.

3 Level I is indicative of a negligible or low potential to contribute to an overall significant environmental effect, and Level III is indicative of a high potential to contribute to an overall significant environmental effect. Level II represents an intermediate condition.

Table 15-13: Wolverine - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Co	Op	C		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
Wolverine Valued Component (Section 6.14) <ul style="list-style-type: none"> Area of Federal Jurisdiction: Species at Risk Linkage from other VCs: Air Quality (Section 6.2); Noise and Vibration (Section 6.3); and Vegetation Communities and Wetlands (Section 6.11) Linkage to other VCs: Commercial Land and Resource Use (Section 6.17); Traditional Land and Resource Use (Section 6.21); and Human and Ecological Health (Section 6.24) 								
Without mitigation, there may be a change in the habitat availability and effectiveness of Wolverine habitat during construction, operation and closure. This is due to site preparation activities for the construction and operation of mine site infrastructure, the mine access road and the transmission line resulting in the direct loss of Wolverine habitat and the indirect loss of Wolverine habitat due to a change in environmental conditions such as dust deposition, and sensory disturbances due to lighting and noise from the operation of mobile and stationary equipment.	•	-	-	Development of a compact mine site to limit the footprint of disturbance.	Wolverine habitat is common throughout the local and regional study area, and there is a low potential to adversely affect Wolverine or their habitat to carry out the life processes necessary to survive and reproduce. With the implementation of mitigation measures, the residual effect is the loss of 0.2% of the available habitat and the alteration of 10% of the available habitat in the regional study area. The residual effect is confined to the local study area, occurs continuously during all phases, and may not avoid sensitive periods for Wolverine. The residual effect will continue until post-closure but is reversible when Project activities end.	Ecological and Social Context: Level I Magnitude: Level II Geographic Extent: Level I Timing: Level II Duration: Level III Frequency: Level III Reversibility: Level I	Not significant	Moderate
	•	•	•	During all phases of the Project, limit the removal of moderate and high-quality Wolverine habitat within the Project Development Area, as practicable.				
	•	-	-	Prior to the construction phase of the Project, undertake pre-construction winter aerial surveys to map activity centres and potentially active natal or maternity dens within a 10 kilometre buffer of the Project Development Area.				
	•	•	•	Implementation of mitigation measures for potential effects on air quality relevant to Wolverine (Section 6.1.4) including: <ul style="list-style-type: none"> Control dust emissions from roads and mineral stockpiles through the application of water spray and supplemented by dust suppressants, if required; Maintain site roads in good condition, with regular inspections and timely maintenance completed to minimize the silt loading on the roads; and Limit vehicle speeds. 				
	•	•	•	Implementation of mitigation measures for potential effects on noise relevant to Wolverine (Section 6.3.4) including: <ul style="list-style-type: none"> Select or design motorized equipment with mufflers / silencers to limit noise emissions; Use reversing alarms that are dimmable with white noise and/or strobe light but in accordance with the applicable health and safety regulations; Check that equipment and machinery used on site is maintained in good working conditions through regular maintenance and inspection.; Prohibit the use of engine brakes and require the engines to be stopped for vehicles on standby, depending on seasons and weather; Operate vehicles and equipment such that impulsive noise is minimized, where possible; and For helicopter use during transmission line construction, maintain minimum flight altitudes unless engaged in construction tasks, landing or departure. 				
	•	•	•	During construction, operations and closure phases of the Project, implement mitigation for lighting to minimize sensory disturbance, including the following: <ul style="list-style-type: none"> To prevent a direct line-of-sight from light, maintain light sources below natural barriers such as tree lines or artificial barriers such as berms; and Minimize light spill and glare using shielding on stationary light sources and direct lighting downwards where practicable. 				
	•	-	-	During construction of the mine site area, the mine access road and the transmission line, implement the following mitigation: <ul style="list-style-type: none"> Avoid the removal of vegetation during the nursery period for Wolverine (January 1 to April 30), when in moderate and high-quality habitat; 				

Table 15-13: Wolverine - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	C		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
				<ul style="list-style-type: none"> In the event of a Wolverine observation or encounter within the construction area, cease Project activities within the construction area and the surrounding 500 metre until the individual is no longer present within 500 metre of the construction area; and In the event a den site is observed or encountered within the construction area, cease all Project activities within 8 kilometre of the den site until a Qualified Professional has assessed the den site. If the den site is deemed active by the Qualified Professional, implement additional Wolverine protective measures as determined in consultation with relevant government agencies. 				
	•	-	-	During construction of the mine access road and transmission line, implement the following mitigation: <ul style="list-style-type: none"> Minimize the area cleared with heavy machinery for the construction of the mine access road, as practicable, recognizing the need for clear sightlines for safety; and Minimize the removal of woody vegetation along the transmission line by limiting removal to hazard trees and only clearing for safe access and infrastructure needs. 				
	-	•	-	During the operation of the mine access road, implement the following mitigation: <ul style="list-style-type: none"> Minimize vegetation management along the transmission corridor to that necessary for safe operation; Enforce reduced speed limits along Project-controlled roads within high-quality wildlife habitats, particularly along segments with known or recurrent wildlife crossings; and Project-related vehicles travelling on the mine access road must come to a stop if wildlife is encountered and provide them with the right-of-way to cross the road. 				
	-	•	-	During operation of the transmission line, implement the following mitigation: <ul style="list-style-type: none"> Minimize vegetation management along the transmission corridor to that necessary for safe operation; and Maintain natural vegetation structure and composition to the extent possible for Wolverine habitat connectivity, in areas along the transmission line identified as moderate or high-quality habitat for Wolverine. 				
	-	-	•	During the closure of the Project restore disturbed Wolverine habitat, implement the following mitigation: <ul style="list-style-type: none"> Remove any infrastructure and install physical barriers to prevent vehicular access; and Replant disturbed areas and monitor vegetation reestablishment; many of the offsetting measures targeted towards other species (e.g., Boreal Caribou) will benefit Wolverine and their habitats. 				

Table 15-13: Wolverine - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	C		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
Without mitigation, there may be a change in movement for Wolverine during construction, operation and closure. This is due to site preparation activities for the construction and operation of mine site infrastructure, the mine access road and the transmission line resulting in the direct loss of Wolverine habitat and the indirect loss due to a change in sensory disturbances that may affect movement corridors for Wolverine.	•	-	-	Development of a compact mine site to limit the footprint of disturbance.	The change in movement is a temporary change in behaviour, that is not expected to have long-term impacts on the population of wolverine. With the implementation of mitigation measures, the residual effect due to a change in movement is moderate. The residual effect is confined to the local study area, will occur continuously throughout all phases, and may occur during sensitive periods for wolverine. It is fully reversible at closure.	Ecological and Social Context: Level I Magnitude: Level II Geographic Extent: Level I Timing: Level II Duration: Level III Frequency: Level III Reversibility: Level I	Not significant	Moderate
	•	•	•	Implementation of mitigation measures for potential effects on noise relevant to Wolverine (Section 6.3.4) including: <ul style="list-style-type: none"> Select or design motorized equipment with mufflers / silencers to limit noise emission; Use reversing alarms that are dimmable with white noise and/or strobe light but in accordance with the applicable health and safety regulations; Check that equipment and machinery used on site is maintained in good working conditions through regular maintenance and inspection; Prohibit the use of engine brakes and require the engines to be stopped for vehicles on standby, depending on seasons and weather; Operate vehicles and equipment such that impulsive noise is minimized, where possible; and For helicopter use during transmission line construction, maintain minimum flight altitudes unless engaged in construction tasks, landing or departure. 				
	•	-	-	During construction of the mine site area, the mine access road and the transmission line, implement the following mitigation: <ul style="list-style-type: none"> Avoid the removal of vegetation during the nursery period for Wolverine (January 1 to April 30), when in moderate and high-quality habitat; In the event of a Wolverine observation or encounter within the construction area, cease Project activities within the construction area and the surrounding 500 metre until the individual is no longer present within 500 metre of the construction area; and In the event a den site is observed or encountered within the construction area, cease all Project activities within 8 kilometre of the den site until a Qualified Professional has assessed the den site. If the den site is deemed active by the Qualified Professional, implement additional Wolverine protective measures as determined in consultation with relevant government agencies. 				
	•	-	-	During construction of the mine access road and transmission line, implement the following mitigation: <ul style="list-style-type: none"> Minimize the area cleared with heavy machinery for the construction of the mine access road, as practicable, recognizing the need for clear sightlines for safety; and Minimize the removal of woody vegetation along the transmission line by limiting removal to hazard trees and only clearing for safe access and infrastructure needs. 				
	-	•	-	During the operation of the mine access road, implement the following mitigation: <ul style="list-style-type: none"> Minimize vegetation management along the transmission corridor to that necessary for safe operation; Enforce reduced speed limits along Project-controlled roads within high-quality wildlife habitats, particularly along segments with known or recurrent wildlife crossings; and 				

Table 15-13: Wolverine - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	C		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
				<ul style="list-style-type: none"> Project-related vehicles travelling on the mine access road must come to a stop if wildlife is encountered and provide them with the right-of-way to cross the road. 				
	-	•	-	During operation of the transmission line, implement the following mitigation: <ul style="list-style-type: none"> Minimize vegetation management along the transmission corridor to that necessary for safe operation; and Maintain natural vegetation structure and composition to the extent possible for Wolverine habitat connectivity, in areas along the transmission line identified as moderate or high-quality habitat for Wolverine. 				
	-	-	•	During the closure of the Project restore disturbed Wolverine habitat, implement the following mitigation: <ul style="list-style-type: none"> Remove any infrastructure and install physical barriers to prevent vehicular access; and Replant disturbed areas and monitor vegetation reestablishment; many of the offsetting measures targeted towards other species (e.g., Boreal Caribou) will benefit Wolverine and their habitats. 				
Without mitigation, there may be a change in the risk of mortality of Wolverine during construction, operation and closure. This is due to site preparation activities for the construction of mine site infrastructure, the mine access road and the transmission line resulting in the loss of habitat and the use of equipment, ongoing operation of the mine access road, and the activities associated with final reclamation at closure which may increase the risk of interactions between Wolverine and the operation of mobile equipment used for construction and maintenance activities.	•	•	•	Any person who engages in Project activities will be provided education and awareness training by a Qualified Professional, prior to entering the site to perform any Project activities. Training will address existence of Protected Species on site; identification of Protected Species and their habitats; awareness of Wolverine on roads within site to avoid collisions; the care that should be taken to avoid Protected Species individuals and/or their habitat; appropriate actions to take if any Protected Species is encountered; and how to record impacts to the Protected Species.	With the proposed design and mitigation measures, residual effects due to change in the risk of mortality is not predicted and therefore a determination of significance is not required.	Not applicable	Not applicable	Moderate
	•	-	-	Prior to the construction phase of the Project, undertake pre-construction winter aerial surveys to map activity centres and potentially active natal or maternity dens within a 10 kilometre buffer of the Project Development Area.				
	•	•	•	Implementation of mitigation measures for potential effects on wildlife and wildlife habitat relevant to Wolverine (Section 6.12.4) including: <ul style="list-style-type: none"> Provide any person who engages in Project activities with education and awareness training prior to entering the site to perform any Project activities. Training will address existence of Protected Species on site, identification of Protected Species and their habitats, awareness of Wolverine on roads within site to avoid collisions, the care that should be taken to avoid Protected Species individuals and/or their habitat, appropriate actions to take if any Protected Species is encountered; and how to record impacts to the Protected Species; Log (and report as needed) observed wildlife, sign / tracks and wildlife-vehicle collisions and alter mitigation measures as appropriate; and Properly secure, store and dispose of all domestic solid waste products and similar materials at an offsite licensed facility, particularly anything that is an attractant for scavenging wildlife. All domestic solid waste products will be transported to a landfill off site and therefore mitigating the habitat sink effect of increased predator densities that can be created due to access to landfill sites. 				

Table 15-13: Wolverine - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	Cl		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
	•	-	-	<p>During construction of the mine site area, the mine access road and the transmission line, implement the following mitigation:</p> <ul style="list-style-type: none"> Avoid the removal of vegetation during the nursery period for Wolverine (January 1 to April 30), when in moderate and high-quality habitat; In the event of a Wolverine observation or encounter within the construction area, cease Project activities within the construction area and the surrounding 500 m until the individual is no longer present within 500 m of the construction area; and In the event a den site is observed or encountered within the construction area, cease all Project activities within 8 kilometre of the den site until a Qualified Professional has assessed the den site. If the den site is deemed active by the Qualified Professional, implement additional Wolverine protective measures as determined in consultation with relevant government agencies. 				
	-	•	-	<p>During the operation of the mine access road, implement the following mitigation:</p> <ul style="list-style-type: none"> Minimize vegetation management along the transmission corridor to that necessary for safe operation; Enforce reduced speed limits along Project-controlled roads within high-quality wildlife habitats, particularly along segments with known or recurrent wildlife crossings; and Project-related vehicles travelling on the mine access road must come to a stop if wildlife is encountered and provide them with the right-of-way to cross the road. 				

Notes:
 1 Con = Construction phase; Op = Operations phase; and, Cl = Closure phase
 2 Bolded text indicates a key mitigation measure.
 3 Level I is indicative of a negligible or low potential to contribute to an overall significant environmental effect, and Level III is indicative of a high potential to contribute to an overall significant environmental effect. Level II represents an intermediate condition.

Table 15-14: Bats - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	C		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
Bats Valued Component (Section 6.15) <ul style="list-style-type: none"> Area of Federal Jurisdiction: Species at Risk Linkage from other VCs: Noise and Vibration (Section 6.3); and Vegetation Communities and Wetlands (Section 6.11) Linkage to other VCs: Human and Ecological Health (Section 6.24) 								
Without mitigation, there may be a change in the relative abundance of bat habitat during construction, operation and closure. This is due to site preparation activities for the construction of mine site infrastructure, the mine access road and the transmission line, ongoing maintenance of the infrastructure, and the activities associated with final reclamation at closure, which will result in the loss of maternity and roosting habitat for bats.	•	-	-	Develop a compact mine site to limit the areal extent of disturbance.	Bat maternity and foraging habitats are common throughout the local and regional study area, and there is a low potential to adversely affect bats or their habitat required to carry out the life processes necessary to survive and reproduce. There is no candidate hibernacula located in the Project Development Area, and therefore, none will not be impacted. With the implementation of mitigation measures, the residual effect is the removal of maternity roosting and foraging bat habitat within the Project Development Area representing less than 1% of the available habitat in the regional study area. The residual effect is confined to the Project Development Area, occurs once during construction, and will occur outside sensitive periods bats. The residual will continue until post-closure but is partially reversible as site conditions within the Project Development Area will be altered until post-closure.	Ecological and Social Context: Level I Magnitude: Level I Geographic Extent: Level I Timing: Level I Duration: Level III Frequency: Level I Reversibility: Level II	Not significant	Moderate
	•	-	-	Co-locate the transmission line, airstrip and mine access road within a shared infrastructure corridor, where feasible.				
	•	-	-	Avoid the removal of bat maternity habitat between April 15 and August 31 during the construction phase, unless authorized under an <i>Endangered Species Act</i> or other appropriate approval.				
	•	-	-	Follow appropriate timing windows for vegetation removals; in combination with timing windows for wildlife and wildlife habitat (6.12), Boreal Caribou (6.13), Wolverine (6.14), and Species at Risk birds (6.16), vegetation removals should only occur between September 15 to January 14.				
	•	•	-	During construction and operation phases, avoid the removal / disturbance of foraging habitat within 2.6 km of candidate bat hibernacula, unless authorized under an <i>Endangered Species Act</i> or other appropriate approval.				
	•	•	•	Undertake offsetting measures for bats such as establishing artificial hibernacula, as required by relevant <i>Endangered Species Act</i> approvals.				
	•	•	•	Implementation of mitigation measures for potential effects on wildlife and wildlife habitat relevant to bats (Section 6.12.4) including: <ul style="list-style-type: none"> During construction of the Project, minimize the disturbance by using existing trails and roads for travel, where practical; and During the operation phase of the transmission line, minimize vegetation management to that necessary for safe operation. 				
•	•	•	Implementation of mitigation measures for potential effects on vegetation communities and wetlands relevant to bats (Section 6.2.4) including: <ul style="list-style-type: none"> During construction and operation, minimize the clearing of vegetation within the mine access road and transmission line corridor to that needed for the construction and safe operation; During construction and operation, minimize the removal of woody vegetation within the transmission line corridor to maintain natural cover to adjacent areas. The removal of woody vegetation will be limited to hazard trees and clearing to provide safe construction access and infrastructure needs; and During operation and closure phases, undertake progressive and final rehabilitation of mine development in accordance with the filed Closure Plan, and implement a revegetation plan that preferentially uses local vegetation sources, incorporates plant species of interest to Indigenous communities, and wildlife habitat features including bats. 					

Table 15-14: Bats - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	C		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
Without mitigation, there may be a change in the function, connectivity, and quality of bat habitat during construction, operation and closure. This is due to site preparation activities for the construction and operation of mine site infrastructure, the mine access road and the transmission line, the ongoing maintenance of the infrastructure, and the activities associated with final reclamation at closure, which may result in an indirect loss of maternity and roosting habitat for bats due to edge effects from disturbed areas, change in environmental conditions such as dust deposition and altered surface water and groundwater regimes, and sensory disturbances due to lighting and noise from the operation of mobile and stationary equipment.	•	-	-	Develop a compact mine site to limit the areal extent of disturbance.	The change in the abundance and/or distribution of bats and their habitats are not predicted to change the status of populations or the availability of unique habitats, as the removed habitat types are abundant across the regional study area. With the implementation of mitigation measure, the indirect changes on the function, connectivity and quality of wildlife habitat will result in a residual effect is predicted to be less than 1% of the available bat maternity and foraging habitat in the regional study area. The residual effect is confined to the local study area and occur intermittently throughout construction, operation and active closure, but is fully reversible at closure. With the implementation of timing windows, the timing of the residual effect will be low.	Ecological and Social Context: Level I Magnitude: Level I Geographic Extent: Level I Timing: Level I Duration: Level II Frequency: Level II Reversibility: Level I	Not significant	Moderate
	•	-	-	Co-locate the transmission line, airstrip and mine access road within a shared infrastructure corridor, where feasible.				
	•	-	-	Avoid the removal of bat maternity habitat between April 15 and August 31 during the construction phase, unless authorized under an <i>Endangered Species Act</i> approval.				
	•	•	-	Maintain a 500 metre radius of uncleared habitat around the entrance for confirmed bat hibernacula, unless otherwise authorized under an <i>Endangered Species Act</i> approval.				
	•	•	-	During construction and operation phases, avoid the removal / disturbance of foraging habitat within 2.6 kilometre of confirmed bat hibernacula, unless authorized under an <i>Endangered Species Act</i> approval.				
	•	•	•	Undertake offsetting measures for bats such as establishing artificial hibernacula, as required by relevant <i>Endangered Species Act</i> approvals.				
	•	•	•	Implementation of mitigation measures for potential effects on air quality relevant to bats (Section 6.2.4) including: <ul style="list-style-type: none"> • During construction, operation and active closure, a dust management plan will be implemented to identify potential sources of fugitive dusts, outline mitigation measures that will be employed to control dust generation and detail the inspection and record keeping required to demonstrate that fugitive dusts are being effectively managed; • Dust emissions from roads and mineral stockpiles will be controlled through the application of water spray and supplemented by dust suppressants, if required; and • Site roads will be maintained in good condition, with regular inspections and timely maintenance completed to minimize the silt loading on the roads; and, • Vehicle speeds will be limited. 				
•	•	•	Implement the mitigation measures for potential effects on noise relevant to bats (Section 6.3.4), including: <ul style="list-style-type: none"> • Building dimensions, layout and orientation will be designed to shield noise sources, where possible; • Acoustical enclosures will be used in the process plant to limit overall noise emissions from key noise sources, such as the ball mills; • Generator intakes and exhausts in the process plant will use silencers; • Motorized equipment will be selected or designed with mufflers / silencers to limit noise emissions during all phases of the Project; • Reversing alarms should be dimmable with white noise and/or strobe lights, but in accordance with the applicable health and safety regulations, during all phases of the Project; • The use of engine brakes will be prohibited; • Vehicles and equipment will be operated in such a way that impulsive noise is minimized, where possible, during all phases of the Project; • Regular inspections will take place to confirm that equipment and machinery used on site is operated in good working condition through regular maintenance; and 					

Table 15-14: Bats - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	C		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
				<ul style="list-style-type: none"> For helicopter use during transmission line construction, minimum flight altitudes will be maintained unless the helicopters are engaged in construction tasks, landing or departure. 				
	•	•	•	Implement mitigation measures for lighting to minimize sensory disturbance, including: <ul style="list-style-type: none"> To prevent a direct line-of-sight from light, maintain light sources below natural barriers such as tree lines or artificial barriers such as berms; and Minimize light spill and glare using shielding on stationary light sources and direct lighting downwards where practicable. 				
	•	•	•	Implement the mitigation measures for potential effects on surface water relevant to bats (Section 6.6.4, Section 6.7.4 and 6.8.4), including: <ul style="list-style-type: none"> During construction, operation and active closure, an erosion and sediment control plan will be implemented to manage runoff water in disturbed areas; During construction, operation and active closure, an integrated water management system will be designed to collect and control contact water; Water collection ditches will be constructed and operated around the perimeter of infrastructure, including the co-disposal facility and stockpiles to collect overland flow and seepage and direct it to the integrated water management system; Non-contact water will be diverted away from Project components using ditches, diversion berms and other suitable measures; and Collected contact water that is not recycled in ore processing will be treated at the effluent treatment plant and discharged to the southeast arm of Springpole Lake in accordance with permitting requirements. 				
	•	•	•	Implementation of mitigation measures for potential effects on vegetation communities and wetlands relevant to bats (Section 6.2.4) including: <ul style="list-style-type: none"> During construction and operation, minimize the clearing of vegetation within the mine access road and transmission line corridor to that needed for the construction and safe operation; During construction and operation, minimize the removal of woody vegetation within the transmission line corridor to maintain natural cover to adjacent areas. The removal of woody vegetation will be limited to hazard trees and clearing to provide safe construction access and infrastructure needs; During construction, operation and active closure phases, implement mitigation measures for wetlands; and During operation and closure phases, undertake progressive and final rehabilitation of mine development in accordance with the filed Closure Plan, and implement a revegetation plan that preferentially uses local vegetation sources, incorporates plant species of interest to Indigenous communities, and wildlife habitat features including bats. 				
	•	•	•	Implementation of mitigation measures for potential effects on wildlife and wildlife habitat relevant to bats (Section 6.12.4) including: <ul style="list-style-type: none"> During construction of the Project, minimize the disturbance by using existing trails and roads for travel, where practical; and During the operation phase of the transmission line, minimize vegetation management to that necessary for safe operation. 				

Table 15-14: Bats - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	Cl		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
Without mitigation, there may be a change in the risk of mortality of bats during construction, operation and closure. This is due to site preparation activities for the construction of mine site infrastructure, the mine access road and the transmission line, ongoing operation of the mine access road, and the activities associated with final reclamation at closure, which increases the risk of interactions between bats and the operation of mobile equipment used for construction and maintenance activities.	•	-	-	Avoid the removal of bat maternity habitat between April 15 and August 31 during the construction phase, unless authorized under an <i>Endangered Species Act</i> approval.	The candidate hibernaculum is not located in the Project Development Area and noise from Project activities is not expected to affect potential swarming or hibernating bats at Cliff 1 with mitigation.	Ecological and Social Context: Level I Magnitude: Level I Geographic Extent: Level I Timing: Level I Duration: Level II Frequency: Level I Reversibility: Level I	Not significant	Moderate
	•	•	-	Maintain a 500 metre radius of uncleared habitat around the entrance for confirmed bat hibernacula, unless otherwise authorized under an <i>Endangered Species Act</i> approval.				
	•	•	-	During construction and operation phases, avoid the removal / disturbance of foraging habitat within 2.6 kilometre of confirmed bat hibernacula, unless authorized under an <i>Endangered Species Act</i> approval.	With implementation of mitigation measures, there may be a low potential for a change in the risk of mortality during construction and operational activities in previously undisturbed habitat. The residual effect is confined to the Project Development Area, and will occur during construction, operation and active closure, on an infrequent basis, and is fully reversible. With the implementation of timing windows, the timing of the residual effect will be low.			
	•	•	•	Implementation of mitigation measures for potential effects on wildlife and wildlife habitat relevant to bats (Section 6.12.4) including: <ul style="list-style-type: none"> • During construction, operation and closure phases of the Project, domestic solid waste products and similar materials will be properly secured, stored and disposed of at an offsite licensed facility, particularly anything that is an attractant for scavenging wildlife. Domestic solid waste products will be transported to a landfill off site, mitigating the habitat sink effect of increased predator densities that can be created due to access to landfill sites; • During the operation phase of the mine access road, enforce reduced speed limits along Project-controlled roads within high-quality wildlife habitats, particularly along segments with known or recurrent wildlife crossings; • During the operation phase of the mine access road, Project-related vehicles travelling on the mine access road must come to a stop if wildlife is encountered and provide them with the right-of-way to cross the road; • During construction, operation and closure phases, wildlife (including species at risk) awareness training will be provided to Project employees; and • During construction, operation and closure phases, log (and report as needed) observed wildlife, sign / tracks and wildlife-vehicle collisions and alter mitigation measures as appropriate. 				

Notes:

1 Con = Construction phase; Op = Operations phase; and, Cl = Closure phase

2 Bolded text indicates a key mitigation measure.

3 Level I is indicative of a negligible or low potential to contribute to an overall significant environmental effect, and Level III is indicative of a high potential to contribute to an overall significant environmental effect. Level II represents an intermediate condition.

Table 15-15: SAR Birds - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures	Residual Adverse Effect(s)			
	Con	Op	Cl		Description	Characterization ²	Significance of Residual Adverse Effect	Prediction Confidence
SAR Birds Valued Component (Section 6.16) <ul style="list-style-type: none"> Area of Federal Jurisdiction: Species at Risk Linkage from other VCs: Air Quality (Section 6.2); Noise and Vibration (Section 6.3); and Vegetation Communities and Wetlands (Section 6.11) Linkage to other VCs: Commercial Land and Resource Use (Section 6.17); Outdoor Recreation (Section 6.18); Traditional Land and Resource Use (Section 6.21); and Human and Ecological Health (Section 6.24) 								
Without mitigation, there may be a change in the relative abundance of Species at Risk bird habitat during construction, operation and closure. This is due to site preparation activities for the construction of mine site infrastructure, the mine access road and the transmission line, ongoing maintenance of the infrastructure, and the activities associated with final reclamation at closure, which will result in the loss of habitat for SAR birds.	•	•	-	Develop of a compact mine site to limit the areal extent of disturbance.	The change in SAR bird habitat meets the protection requirement of the Recovery Strategy for Eastern Whip-poor-will. Further, there is sufficient Species at Risk bird habitat maintained elsewhere in the regional study area and there is a low potential to adversely affect SAR birds. With the implementation of mitigation measures, there will be less than a 1% direct loss of breeding habitat for Eastern Whip-poor-will, Lesser Yellowlegs and Short-eared Owl in the regional study area. The residual effect is confined to the Project Development Area, occurs once during construction, but the continues until rehabilitation measures have stabilized during the post-closure phase, when it will be partially reversible. With the implementation of timing windows, the timing of the residual effect will be low.	Ecological and Social Context: Level I Magnitude: Level I Geographic Extent: Level I Timing: Level I Duration: Level III Frequency: Level I Reversibility: Level II	Not Significant	Moderate
	•	-	-	Co-locate the transmission line, airstrip and mine access road within a shared infrastructure corridor, where feasible.				
	•	•	-	Follow appropriate timing windows for vegetation removals; in combination with timing windows for wildlife and wildlife habitat (6.12), Boreal Caribou (6.13), Wolverine (6.14), and bats (6.15), vegetation removals should only occur between September 15 to January 14.				
	•	•	-	Avoid the removal of Category 1, 2 and 3 habitat for Eastern Whip-poor-will, unless authorized under an <i>Endangered Species Act</i> or other appropriate approval.				
	•	•	-	Avoid the removal of nests for Barn Swallow, Eastern Whip-poor-will or Lesser Yellowlegs, unless authorized under an <i>Endangered Species Act</i> approval and/or a permit issued under the Migratory Bird Regulations.				
	•	•	•	Implementation of mitigation measures for potential effects on vegetation communities and wetlands relevant to SAR birds (Section 6.2.4) including: <ul style="list-style-type: none"> During construction and operation, minimize the clearing of vegetation within the mine access road and transmission line corridor to that needed for the construction and safe operation; During construction and operation, minimize the removal of woody vegetation within the transmission line corridor to maintain natural cover to adjacent areas. The removal of woody vegetation will be limited to hazard trees and clearing to provide safe construction access and infrastructure needs; and During operations and closure phases, undertake progressive and final rehabilitation of mine development in accordance with the filed Closure Plan, and implement a revegetation plan that preferentially uses local vegetation sources, incorporates plant species of interest to Indigenous communities, and wildlife habitat features. 				
	•	•	-	Implementation of mitigation measures for potential effects on wildlife and wildlife habitat relevant to Species at Risk birds (Section 6.12.4) including: <ul style="list-style-type: none"> During construction of the Project, minimize the disturbance by using existing trails and roads for travel, where practical; and During the operation phase of the transmission line, minimize vegetation management to that necessary for safe operation. 				

Table 15-15: SAR Birds - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures	Residual Adverse Effect(s)			
	Con	Op	Cl		Description	Characterization ²	Significance of Residual Adverse Effect	Prediction Confidence
Without mitigation, there may be a change in the function, connectivity, and quality of Species at Risk bird habitat during construction, operation and closure. This is due to site preparation activities for the construction of mine site infrastructure, the mine access road and the transmission line, ongoing maintenance of the infrastructure, and the activities associated with final reclamation at closure, which may result in an indirect loss of habitat for SAR birds due to edge effects from disturbed areas, change in environmental conditions such as dust deposition and altered surface water and groundwater regimes, and sensory disturbances due to lighting and noise from the operation of mobile and stationary equipment.	•	-	-	Develop of a compact mine site to limit the areal extent of disturbance.	As there is sufficient Species at Risk bird habitat elsewhere in the regional study area, there is a low potential to adversely affect SAR birds and the habitat. Further, the indirect effects will meet the requirements of the Recovery Strategy for Eastern Whip-poor-will habitat and forest cover in the regional study area. With the implementation of mitigation measure, the residual effect is predicted to affect less than 1% of the available Species at Risk bird habitat in the regional study area compared to baseline conditions. The residual effect is constrained within the local study area and will occur intermittently during construction, operation and active closure and may occur occasionally during sensitive periods for Species at Risk birds.	Ecological and Social Context: Level I Magnitude: Level I Geographic Extent: Level I Timing: Level II Duration: Level II Frequency: Level III Reversibility: Level I	Not Significant	Moderate
	•	•	-	Co-locate the transmission line, airstrip and mine access road within a shared infrastructure corridor, where feasible.				
	•	•	-	Follow appropriate timing windows for vegetation removals; in combination with timing windows for wildlife and wildlife habitat (6.12), Boreal Caribou (6.13), Wolverine (6.14), and bats (6.15), vegetation removals should only occur between September 15 to January 14.				
	•	•	-	Avoid the removal of Category 1, 2 and 3 habitat for Eastern Whip-poor-will, unless authorized under an <i>Endangered Species Act</i> or other appropriate approval.				
	•	•	-	Avoid the removal of nests for Barn Swallow, Eastern Whip-poor-will or Lesser Yellowlegs, unless authorized under an <i>Endangered Species Act</i> approval and/or a permit issued under the Migratory Bird Regulations.				
	•	•	•	Implementation of mitigation measures for potential effects on air quality relevant to SAR birds (Section 6.2.4) including: <ul style="list-style-type: none"> • During construction, operations and active closure, a dust management plan will be implemented to identify potential sources of fugitive dusts, outline mitigation measures that will be employed to control dust generation and detail the inspection and record keeping required to demonstrate that fugitive dusts are being effectively managed; • Dust emissions from roads and mineral stockpiles will be controlled through the application of water spray and supplemented by dust suppressants, if required; • Site roads will be maintained in good condition, with regular inspections and timely maintenance completed to minimize the silt loading on the roads; and • Vehicle speeds will be limited. 				
	•	•	•	Implement the mitigation measures for potential effects on noise relevant to SAR birds (Section 6.3.4), including: <ul style="list-style-type: none"> • Building dimensions, layout and orientation will be designed to shield noise sources, where possible; • Acoustical enclosures will be used in the process plant to limit overall noise emissions from key noise sources, such as the ball mills; • Generator intakes and exhausts in the process plant will use silencers; • Motorized equipment will be selected or designed with mufflers / silencers to limit noise emissions during all phases of the Project; • Reversing alarms should be dimmable with white noise and/or strobe lights, but in accordance with the applicable health and safety regulations, during all phases of the Project; • The use of engine brakes will be prohibited; • Vehicles and equipment will be operated in such a way that impulsive noise is minimized, where possible, during all phases of the Project; 				

Table 15-15: SAR Birds - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures	Residual Adverse Effect(s)			
	Con	Op	Cl		Description	Characterization ²	Significance of Residual Adverse Effect	Prediction Confidence
				<ul style="list-style-type: none"> Regular inspections will take place to confirm that equipment and machinery used on site is operated in good working condition through regular maintenance; and For helicopter use during transmission line construction, minimum flight altitudes will be maintained unless the helicopters are engaged in construction tasks, landing or departure. 				
	•	•	•	During construction, operation and closure phases, implement mitigation measures for lighting to minimize sensory disturbance (Appendix J), including: <ul style="list-style-type: none"> To prevent a direct line-of-sight from light, maintain light sources below natural barriers such as tree lines or artificial barriers such as berms; and Minimize light spill and glare using shielding on stationary light sources and direct lighting downwards where practicable. 				
	•	•	•	Implement the mitigation measures for potential effects on surface water relevant to SAR birds (Section 6.6.4, Section 6.7.4 and 6.8.4), including. <ul style="list-style-type: none"> During construction, operation and active closure, an erosion and sediment control plan will be implemented to manage runoff water in disturbed area; During construction, operation and active closure, an integrated water management system will be designed to collect and control contact water; Water collection ditches will be constructed and operated around the perimeter of infrastructure, including the co-disposal facility and stockpiles to collect overland flow and seepage and direct it to the integrated water management system; Non-contact water will be diverted away from Project components using ditches, diversion berms and other suitable measures; Collected contact water that is not recycled in ore processing will be treated at the effluent treatment plant and discharged to the southeast arm of Springpole Lake in accordance with permitting requirements; and Implement measures outlined in a spill prevention and contingency plan to be developed prior to construction. 				
	•	•	•	Implementation of mitigation measures for potential effects on vegetation communities relevant to SAR birds (Section 6.2.4) including: <ul style="list-style-type: none"> During construction and operation, minimize the clearing of vegetation within the mine access road and transmission line corridor to that needed for the construction and safe operation; During construction and operation, minimize the removal of woody vegetation within the transmission line corridor to maintain natural cover to adjacent areas. The removal of woody vegetation will be limited to hazard trees and clearing to provide safe construction access and infrastructure needs; and During operations and closure phases, undertake progressive and final rehabilitation of mine development in accordance with the filed Closure Plan, and implement a revegetation plan that preferentially uses local vegetation sources, incorporates plant species of interest to Indigenous communities, and wildlife habitat features. 				

Table 15-15: SAR Birds - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures	Residual Adverse Effect(s)			
	Con	Op	Cl		Description	Characterization ²	Significance of Residual Adverse Effect	Prediction Confidence
	•	•	-	Implementation of mitigation measures for potential effects on wildlife and wildlife habitat relevant to SAR birds (Section 6.12.4) including: <ul style="list-style-type: none"> • During construction of the Project, minimize the disturbance by using existing trails and roads for travel, where practical; • Maintain existing hydroperiod conditions, outside the zone of influence for dewatering, by directing water from dewatering activities away from terrestrial habitats, where possible; and • During the operation phase of the transmission line, minimize vegetation management to that necessary for safe operation. 				
Without mitigation, there may be a change in the risk of mortality of SAR birds during construction, operation and closure. This is due to site preparation activities for the construction of mine site infrastructure, the mine access road and the transmission line resulting in the loss of habitat and the use of equipment, ongoing operation of the mine access road, and the activities associated with final reclamation at closure, which increase the risk of interactions between SAR birds and the operation of mobile equipment used for construction and maintenance activities.	•	•	-	Follow appropriate timing windows for vegetation removals; in combination with timing windows for wildlife and wildlife habitat (6.12), Boreal Caribou (6.13), Wolverine (6.14), and bats (6.15), vegetation removals should only occur between September 15 to January 14.	With the implementation of mitigation measure, there may a minor residual effect due to the change in the risk of mortality for Species at Risk bird species. The residual effects will be confined to the Project Development Area, occurs infrequently during construction, operations and active closure, and is fully reversible at closure. With the implementation of timing windows, the timing of the residual effect will be low.	Ecological and Social Context: Level I Magnitude: Level I Geographic Extent: Level I Timing: Level I Duration: Level III Frequency: Level I Reversibility: Level I	Not Significant	Moderate
	•	•	-	Avoid the removal of Category 1, 2 and 3 habitat for Eastern Whip-poor-will, unless authorized under an <i>Endangered Species Act</i> or other appropriate approval.				
	•	•	-	Avoid the removal of nests for Barn Swallow, Eastern Whip-poor-will or Lesser Yellowlegs, unless authorized under an <i>Endangered Species Act</i> approval and/or a permit issued under the Migratory Bird Regulations.				
	•	•	-	Comply with the requirements of the <i>Migratory Birds Convention Act</i> and Migratory Birds Regulations, if Barn Swallow, Eastern Whip-poor-will or Lesser Yellowlegs individuals are encountered during Project activities.				
	•	•	•	Implement the mitigation measures for potential effects on surface water relevant to Species at Risk birds (Section 6.6.4, Section 6.7.4 and 6.8.4), including: <ul style="list-style-type: none"> • Implement measures outlined in a spill prevention and contingency plan to be developed prior to construction. 				
	•	•	•	Implementation of mitigation measures for potential effects on wildlife and wildlife habitat relevant to Species at Risk birds (Section 6.12.4) including: <ul style="list-style-type: none"> • During construction, operation and closure phases of the Project, domestic solid waste products and similar materials will be properly secured, stored and disposed of at an offsite licensed facility, particularly anything that is an attractant for scavenging wildlife. Domestic solid waste products will be transported to a landfill off site, mitigating the habitat sink effect of increased predator densities that can be created due to access to landfill sites; • Discouraging wildlife from inhabiting contact water ponds (including the co-disposal facility and central water storage pond); • During the operation phase of the mine access road, enforce reduced speed limits along Project-controlled roads within high-quality wildlife habitats, particularly along segments with known or recurrent wildlife crossings; • During the operation phase of the mine access road, Project-related vehicles travelling on the mine access road must come to a stop if wildlife is encountered and provide them with the right-of-way to cross the road; 				

Table 15-15: SAR Birds - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures	Residual Adverse Effect(s)			
	Con	Op	Cl		Description	Characterization ²	Significance of Residual Adverse Effect	Prediction Confidence
				<ul style="list-style-type: none"> • During construction, operation and closure phases, wildlife (including Species at Risk) awareness training will be provided to Project employees; and • During construction, operation and closure phases, log (and report as needed) observed wildlife, sign / tracks and wildlife–vehicle collisions and alter mitigation measures as appropriate. 				

Notes:

1 Con = Construction phase; Op = Operations phase; and Cl = Closure phase

2 Bolded text indicates a key mitigation measure.

3 Level I is indicative of a negligible or low potential to contribute to an overall significant environmental effect, and Level III is indicative of a high potential to contribute to an overall significant environmental effect. Level II represents an intermediate condition.

Table 15-16: Commercial Land and Resource Use - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	C		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
Commercial Land and Resource Use Valued Component (Section 6.17) <ul style="list-style-type: none"> Area of Federal Jurisdiction: Change in the Environment that are Directly Linked or Incidental to Areas of Federal Jurisdiction Linkage from other VCs: Noise and Vibration (Section 6.3); Fish and Fish Habitat (Section 6.10); Vegetation Communities and Wetlands (Sections 6.11); and Wildlife and Wildlife Habitat (Section 6.12) Linkage to other VCs: Local and Regional Economy (Section 6.19). 								
Without mitigation, there may be a change in forestry resources during construction, operation and closure. This is due to site preparation activities for the construction of mine site infrastructure, the mine access road and the transmission line resulting in the loss of vegetation used for forestry.	•	-	-	Limit the removal of merchantable timber through: <ul style="list-style-type: none"> Development of a compact mine site. Co-locating the transmission line, airstrip and mine access road within a shared infrastructure corridor, where feasible; and Detailed engineering will be conducted to optimize the transmission line route. 	With the implementation of mitigation measures, there is no residual effect due to changes in forestry resources during any phase of the Project.	Not applicable	Not applicable	High
	•	-	-	Prior to, and during construction, First Mining Gold will work with local forestry companies to salvage valued harvestable timber, and offering it to the forestry companies managing the two affected Forest Management Units.				
Without mitigation, there may be a change in trapping ability, including the associated experience during construction, operation and closure. This is due to site preparation activities for the construction and operation of mine site infrastructure, the mine access road and the transmission line resulting in the loss of trapping areas, changes in access to trapping areas and a change in the associated experience due to sensory disturbances from Project-related noise and lighting.	•	-	-	Limit the loss and alteration of wildlife habitat through: <ul style="list-style-type: none"> Development of a compact mine site; Co-locating the transmission line, airstrip and mine access road within a shared infrastructure corridor, where feasible; and Detailed engineering will be conducted to optimize the transmission line route. 	Wildlife species that are trapped are relatively tolerant of sensory disturbance associated with human and infrastructure presence. Although less than 10% of the habitat is affected, it is recognized that noise could have an effect on the experience of individual trappers; however, the degree to which avoidance may occur is subject to individual sensitivities and choices. With the implementation of mitigation measures, the residual effect on trapping is a less than 10% change. The residual effect is constrained to the local study area, occurs continuously throughout construction, operation and active closure and will be partially reversible at post-closure as some areas of the Project Development Area will not be revegetated (i.e., co-disposal facility embankments).	Ecological and Social Context: Level I Magnitude: Level I Geographic Extent: Level I Duration: Level III Frequency: Level III Reversibility: Level II	Not Significant	High
	•	•	•	Implement the mitigation measures for reducing sensory disturbance (noise [Section 6.3], light) [Appendix J] including: <ul style="list-style-type: none"> Building dimensions, layout and orientation will be designed to shield noise sources, where possible; Acoustical enclosures will be used in the process plant to limit overall noise emissions from key noise sources, such as the ball mills; Generator intakes and exhausts in the process plant will use silencers; Motorized equipment will be selected or designed with mufflers / silencers to limit noise emissions; Reversing alarms will be dimmable with white noise and/or strobe lights; The use of engine brakes will be prohibited; Vehicles and equipment will be operated in such a way that impulsive noise is minimized, where possible; To prevent a direct line-of-sight from light, maintain light sources below natural barriers such as tree lines or artificial barriers such as berms; and Minimize light spill and glare using shielding on stationary light sources and direct lighting downwards where practical. 				
	•	-	-	Prior to and during construction, maintain active engagement with trappers regarding effects to commercial land and resource use, including engagement about access to resources.				
	•	•	•	A controlled access gate is proposed to control unauthorized use of the mine access road.				
	•	•	-	First Mining Gold will work with the Ministry of Natural Resources and/or trapline license holders to support trapline harvesting enhancements during construction and operation phases.				

Table 15-16: Commercial Land and Resource Use - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	C		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
Without mitigation, there may be a change in commercial bait harvesting, including the associated experience during construction, operation and closure. This is due to site preparation activities for the construction and operation of mine site infrastructure, the mine access road and the transmission line resulting in the loss of bait harvesting areas, changes in access to bait harvesting areas and a change in the associated experience due to sensory disturbances from Project-related noise and lighting.	•	-	-	Limit the aerial extent of the Project and overprinting of bait harvesting areas through the development of a compact mine site.	There will be a minor reduction in the area available to bait harvesters; however, additional habitat will be created once the dewatered basin is reconnected with the remainder of Springpole Lake. With the implementation of mitigation measures, the residual effect on baitfish harvesting is less than 7% within the regional study area. The residual effect is constrained to the Project Development Area, occurs continuously through construction, operation and active closure, and will be fully reversible at closure.	Ecological and Social Context: Level I Magnitude: Level I Geographic Extent: Level I Duration: Level III Frequency: Level III Reversibility: Level I	Not Significant	High
	•	•	•	Implement the mitigation measures for reducing sensory disturbance (noise [Section 6.3], light) [Appendix J] including: <ul style="list-style-type: none"> • Building dimensions, layout and orientation will be designed to shield noise sources, where possible; • Acoustical enclosures will be used in the process plant to limit overall noise emissions from key noise sources, such as the ball mills; • Generator intakes and exhausts in the process plant will use silencers; • Motorized equipment will be selected or designed with mufflers / silencers to limit noise emissions; • Reversing alarms will be dimmable with white noise and/or strobe lights; • The use of engine brakes will be prohibited; • Vehicles and equipment will be operated in such a way that impulsive noise is minimized, where possible; • To prevent a direct line-of-sight from light, maintain light sources below natural barriers such as tree lines or artificial barriers such as berms; and • Minimize light spill and glare using shielding on stationary light sources and direct lighting downwards where practical. 				
	•	•	•	Install screens or use other measures at water intakes to prevent entrainment or impingement of fish as per the DFO Code of Practice (DFO 2020).				
	•	-	-	Keeping the dewatering (discharge to the downstream environment) to within the framework 10% of instantaneous flow so that the activity is not harmful to fish and fish habitat, and maintains downstream water quantity and flow within natural variation.				
	•	•	•	A controlled access gate is proposed to control unauthorized use of the mine access road.				
	•	•	•	Implement the mitigation measures for reducing changes in the viewscape (Appendix U), including: <ul style="list-style-type: none"> • Development of a compact mine site; • Co-locating the transmission line, airstrip and mine access road within a shared infrastructure corridor, where feasible; • Preserving a tree line as a buffer around the mine site to diminish the amount of the mine site that can be seen; • This buffer around the Project will be maintained wide enough to withstand the loss of trees, such as toppled by wind; and • All buildings and facilities will be deconstructed and removed, and disturbed areas will be stabilized. 				
Without mitigation, there may be a change in outfitter camps, including the associated experience during construction, operation and closure. This is due to site preparation activities for the construction and operation of mine site infrastructure, the mine access road and the transmission line resulting in the changes in viewscales, changes in access to outfitter camps and a change in the associated experience due to sensory disturbances from Project-related noise, and lighting.	•	•	•	Implement the mitigation measures for reducing sensory disturbance (noise [Section 6.3], light) [Appendix J] including: <ul style="list-style-type: none"> • Building dimensions, layout and orientation will be designed to shield noise sources, where possible; • Acoustical enclosures will be used in the process plant to limit overall noise emissions from key noise sources, such as the ball mills; 	With the implementation of mitigation measures, there is no residual effect due to changes in outfitter camps during any phase of the Project.	Not applicable	Not applicable	High
	•	•	•					

Table 15-16: Commercial Land and Resource Use - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	Cl		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
				<ul style="list-style-type: none"> Generator intakes and exhausts in the process plant will use silencers; Motorized equipment will be selected or designed with mufflers / silencers to limit noise emissions; Reversing alarms will be dimmable with white noise and/or strobe lights; The use of engine brakes will be prohibited; Vehicles and equipment will be operated in such a way that impulsive noise is minimized, where possible; To prevent a direct line-of-sight from light, maintain light sources below natural barriers such as tree lines or artificial barriers such as berms; and Minimize light spill and glare using shielding on stationary light sources and direct lighting downwards where practical. 				
	•	-	-	Prior to and during construction, maintain active engagement with Indigenous communities and outfitters regarding effects to commercial land and resource use, including engagement about access to resources.				
	•	•	•	A controlled access gate is proposed to control unauthorized use of the mine access road.				
Without mitigation, there may be a change in aggregate resources during construction, operation and closure. This is due to site preparation activities for the construction and operation of mine site infrastructure, the mine access road and the transmission line resulting in the reduction of aggregate resources.	•	-	-	Development of a compact mine site to limit the amount of aggregate material required for construction.	With the implementation of mitigation measures, there is no residual effect due to changes in aggregate resources during any phase of the Project.	Not applicable	Not applicable	High
Without mitigation, there may be a change in access to mineral claims during construction, operation and closure. This is due to site preparation activities for the construction and operation of mine site infrastructure, the mine access road and the transmission line resulting in changes in access to mineral claims.	•	•	•	During all phases, First Mining Gold will work with mineral claim holders and regulators to accommodate access to mineral claims by claim holders and to secure permission to construct the transmission line on mineral claims held by others.	With the implementation of mitigation measures, there is no residual effect due to changes in access to mineral claims during any phase of the Project.	Not applicable	Not applicable	High

Notes:

1 Con = Construction phase; Op = Operations phase; and Cl = Closure phase

2 Bolded text indicates a key mitigation measure.

3 Level I is indicative of a negligible or low potential to contribute to an overall significant environmental effect, and Level III is indicative of a high potential to contribute to an overall significant environmental effect. Level II represents an intermediate condition.

Table 15-17: Outdoor Recreation - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	C		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
Outdoor Recreation Valued Component (Section 6.18) <ul style="list-style-type: none"> Area of Federal Jurisdiction: Navigation; Change in the Environment that are Directly Linked or Incidental to Areas of Federal Jurisdiction Linkage from other VCs: Noise and Vibration (Section 6.3); Surface Water Systems (Section 6.6 to 6.9); Fish and Fish Habitat (Section 6.10); Vegetation Communities and Wetlands (Sections 6.11); and Wildlife and Wildlife Habitat (Section 6.12) Linkage to other VCs: Local and Regional Economy (Section 6.19); and Human and Ecological Health (Section 6.24). 								
Without mitigation, there may be a change in recreational fishing during construction, operation and closure. This could occur due to the construction of the dikes, the controlled dewatering of the open pit basin and the operation of the mine site area that may change the availability of areas used for recreational fishing, access to recreational fishing areas and the the associated experience due to sensory disturbances from Project-related noise .	•	•	•	Implement the mitigation measures for potential effects on noise (Section 6.3.4).	With the implementation of mitigation measures, there is no residual effect due to changes in recreational fishing during any phase of the Project.	Not applicable	Not applicable	High
	•	•	•	Implement the mitigation measures for the potential effects on surface water (Section 6.6.4).				
	•	•	•	Implement the mitigation measures for potential effects on fish and fish habitat (Section 6.10.4).				
	•	-	-	Minimize the Project footprint (areal extent).				
	-	•	•	Conduct progressive reclamation during operations and final reclamation during closure to promote the re-establishment of wildlife and aquatic habitat.				
	•	•	•	Prohibit fishing and hunting within the controlled access portion of the Project Development Area by Project personnel while working or residing on site.				
Without mitigation, there may be a change in recreational hunting during construction, operation and closure. This could occur due to the construction of the dikes, the controlled dewatering of the open pit basin and the operation of the mine site area that may change the availability of areas used for recreational hunting, access to recreational hunting areas and the associated experience due to sensory disturbances from Project-related noise.	•	•	•	Implement the mitigation measures for potential effects on noise (Section 6.3.4).	With the implementation of mitigation measures, there is no residual effect due to changes in recreational hunting during any phase of the Project.	Not applicable	Not applicable	High
	•	•	•	Implement the mitigation measures for potential effects on wildlife and wildlife habitat (Section 6.12.4).				
	•	-	-	Minimize the Project footprint (areal extent).				
	-	•	•	Conduct progressive reclamation during operations and final reclamation during closure to promote the reestablishment of wildlife and aquatic habitat.				
	•	•	•	Prohibit fishing and hunting within the controlled access portion of the Project Development Area by Project personnel while working or residing on site.				
Without mitigation, there may be a change by users of recreational areas during construction, operation and closure. This could occur due to the construction of the mine site infrastructure, mine access road and transmission line, and the operation of the mine site area that may change the availability of areas used for recreational activities, access to recreational areas and the the associated experience due to sensory disturbances from Project-related noise and lighting.	•	•	•	Implement the mitigation measures for potential effects on air quality (Section 6.2.4).	With the implementation of mitigation measures, there is no residual effect due to changes in recreational areas during any phase of the Project.	Not applicable	Not applicable	High
	•	•	•	Implement the mitigation measures for potential effects on noise (Section 6.3.4).				
	•	•	•	Implement the mitigation measures for the potential effects on surface water (Section 6.6.4).				
	•	-	-	Minimize the Project footprint (areal extent).				
	•	•	•	Implement mitigation for lighting and changes to viewsapes to minimize sensory disturbance, including: <ul style="list-style-type: none"> To prevent a direct line-of-sight from light, maintain light sources below natural barriers such as tree lines or artificial barriers such as berms; Minimize light spill and glare by through the use of shielding on stationary light sources and direct lighting downwards where practical; and Preserve a tree line as a buffer to minimize the amount of the mine site that can be seen from recreational areas. 				

Table 15-17: Outdoor Recreation - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	Cl		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
<p>Without mitigation, there may be a change in navigation during construction, operation and closure.</p> <p>This could occur due to the construction of the dikes, and mine site area which may affect navigational routes during all phases.</p>	•	•	•	Implement the mitigation measures for the potential effects on surface water (Section 6.6.4).	<p>With the implementation of mitigation measures, there is no residual effect due to changes in navigation during any phase of the Project.</p>	<p>Not applicable</p>	<p>Not applicable</p>	<p>High</p>
	•	-	-	Minimize the Project footprint (areal extent).				
	•	•	-	Maintain alternate access to portages for navigation routes that traverse the Project Development Area during construction and operations phases.				
	-	-	•	Re-establish portage routes during the closure phase in a suitable location based on feedback from land and resource users.				
	•	•	•	Communicate Project activities affecting waterbodies/watercourse used for navigation throughout the construction, operation, and decommissioning/closure phases to potentially affected local resource users.				
	•	•	•	Post signage around the Project Development Area to alert local resource users of the presence of Project facilities and activities.				

Notes:

1 Con = Construction phase; Op = Operations phase; and Cl = Closure phase

2 Bolded text indicates a key mitigation measure.

3 Level I is indicative of a negligible or low potential to contribute to an overall significant environmental effect, and Level III is indicative of a high potential to contribute to an overall significant environmental effect. Level II represents an intermediate condition.

Table 15-18: Local and Regional Economy - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	CO	OP	C		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
Local and Regional Economy Valued Component (Section 6.19) <ul style="list-style-type: none"> Area of Federal Jurisdiction: Indigenous people Linkage from other VCs: Commercial Land and Resource Use (Section 6.17); and Outdoor Recreation (Section 6.18) Linkage to other VCs: Local and Regional Infrastructure and Services (Section 6.20) 								
Change in employment levels in municipalities during construction, operation and closure due to Project employment and expenditures.	•	•	-	Post job qualifications early and identify available training and training providers so local and Indigenous residents can acquire the necessary skills and qualify for potential Project employment.	With the proposed design and mitigation measures, an adverse negative residual effects due to change in employment levels in municipalities are not predicted and therefore a determination of significance is not required.	Not applicable	Not applicable	High
	•	•	•	Advertise open job postings within the Indigenous communities as soon as possible.				
	•	•	-	Conduct recruiting programs as well as regular and effective outreach and communications with Indigenous communities to support recruitment, including through the use of career fairs, information sessions, workshops, public notices, factsheets, community meetings and any other measures that may increase awareness of and access to information on employment opportunities at the Project—and associated education, training, skills and employment experience requirements and opportunities.				
	•	•	•	Establish a Health and Wellness Strategy (Appendix Q-3) focused on employee mental health and wellness to complement health and safety programs and to support local and Indigenous employees through the following: <ul style="list-style-type: none"> Consideration for individuals in addiction treatment and their ongoing treatment needs; Transportation and logistics support to individuals accessing treatment programs; Collaborate with proximate communities in securing funding for employment readiness programs, to be delivered by health care service providers and trainers to prepare community members for Springpole Project opportunities, with a focus on long-term operational phase employment; Mandatory diversity, cultural and gender sensitivity training for managers, supervisors and contractors; Onsite orientation for Indigenous cultural awareness content; Financial wellness and literacy workshops; Training and employment incentives for women and youth; and The provision of welcoming and safe environments, including mine sites and accommodations complexes that comply with high standards of health and safety; measures taken to help ensure the security and safety of women in mine accommodation; support given to provide cultural spaces for smudging, prayer and other ceremonies; and the creation of washroom facilities for all genders. 				
	•	•	•	Provide an opportunity to form one or more Human Resources Committees with proximate participating Indigenous communities.				

Table 15-18: Local and Regional Economy - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	C		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
	•	•	-	Provide additional coaching and mentoring for advancement to senior, supervisory and/or management-level positions on the Project to employees who are members of Indigenous communities and have expressed an interest in career development, and who have demonstrated a likelihood to succeed in such development.				
	•	•	-	Share information about employment preparation and training with Indigenous communities, non-Indigenous organizations and educational institutions.				
	•	•	•	Establish a skills inventory and local and Indigenous business inventory that are updated and retained until the active closure phase.				
	-	-	•	Provide job search assistance to employees at the closure phase.				
	•	•	-	Provide onsite accommodations that are safe and welcoming for the Project workforce during the construction and operations phases.				
	•	•	-	Use a rotational workforce for the construction and operation of the Project to support the employment of local and regional workers.				
	•	•	•	Provide bus transportation for employees to the worksite from a centralized location to facilitate the employment of local and regional workers.				
	•	•	•	Give preference to Indigenous communities and local municipalities in hiring Project employees.				
	•	•	-	Communicate Project schedule, labour demand and potential sources with local municipalities for housing planning purposes.				
Change in labour income during construction, operation and closure due to Project employment and expenditures.	•	•	•	Establish a skills inventory and local and Indigenous business inventory that are updated and retained until the active closure phase.	With the proposed design and mitigation measures, an adverse negative residual effect due to change in labour income is not predicted and therefore a determination of significance is not required.	Not applicable	Not applicable	High
	•	•	-	Provide onsite accommodations that are safe and welcoming for the Project workforce during the construction and operations phases.				
	•	•	-	Use a rotational workforce for the construction and operation of the Project to support the employment of local and regional workers.				
	•	•	•	Provide bus transportation for employees to the worksite from a centralized location to facilitate the employment of local and regional workers.				
	•	•	•	Give preference to Indigenous communities and local municipalities in hiring Project employees.				
Change in business opportunities during construction, operation and closure due to Project employment and expenditures.	•	•	-	Work with local and Indigenous businesses to enhance the opportunity to participate in the supply of goods and services for construction and operations (e.g., facilitate workshops about opportunities available, collaborate with small businesses to prepare bids in response to requests for proposal, provide business education).	With the proposed design and mitigation measures, an adverse negative residual effect due to change in business opportunities is not predicted and therefore a determination of significance is not required.	Not applicable	Not applicable	High
	•	•	•	Give preference to contracting for goods and services from the businesses in the Indigenous communities and local municipalities.				

Table 15-18: Local and Regional Economy - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	Cl		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
Change in business income during construction, operation and closure due to Project employment and expenditures.	•	•	-	Work with local and Indigenous businesses to enhance the opportunity to participate in the supply of goods and services for construction and operations (e.g., facilitate workshops about opportunities available, collaborate with small businesses to prepare bids in response to requests for proposal, provide business education).	With the proposed design and mitigation measures, an adverse negative residual effect due to change in business income is not predicted and therefore a determination of significance is not required.	Not applicable	Not applicable	High
	•	•	•	Give preference to contracting for goods and services from the businesses in the Indigenous communities and local municipalities.				
	•	•	•	Establish and maintain a process to track local and regional contracting, subcontracting and procurement opportunities.				
Change in demand for training during construction, operation and closure due to Project employment and expenditures.	•	•	-	Post job qualifications early and identify available training and training providers so local and Indigenous residents can acquire the necessary skills and qualify for potential Project employment.	With the proposed design and mitigation measures, an adverse negative residual effect due to change in demand for training is not predicted and therefore a determination of significance is not required.	Not applicable	Not applicable	High
	•	•	-	Support processes and initiatives related to employment readiness, training and educational initiatives with Indigenous communities.				
	•	•	-	Communicate employment skills requirements to local training providers to plan appropriate Project-related training; participate in the development of training programs to inform needs.				
	•	•	-	Work with local communities to develop training programs oriented to operational needs.				
	•	•	•	Share information regarding available funding programs and provide support for applications, as feasible.				
	•	•	•	Share information about employment preparation and training with Indigenous communities, non-Indigenous organizations and educational institutions.				
	-	•	•	Support retraining programs to establish transferable skills for employees during the latter part of the operations phase.				
Change in government revenues during construction, operation and closure due to Project employment and expenditures.	•	•	•	Give preference to Indigenous communities and local municipalities in hiring Project employees.	With the proposed design and mitigation measures, an adverse negative residual effect due to change in government revenues is not predicted and therefore a determination of significance is not required.	Not applicable	Not applicable	High
	•	•	-	Work with local and Indigenous businesses to enhance the opportunity to participate in the supply of goods and services for construction and operations (e.g., facilitate workshops about opportunities available, collaborate with small businesses to prepare bids in response to requests for proposal, provide business education).				
	•	•	•	Give preference to contracting for goods and services from the businesses in the Indigenous communities and in local municipalities.				

Notes:

1 Con = Construction phase; Op = Operations phase; and Cl = Closure phase

2 Bolded text indicates a key mitigation measure.

3 Level I is indicative of a negligible or low potential to contribute to an overall significant environmental effect, and Level III is indicative of a high potential to contribute to an overall significant environmental effect. Level II represents an intermediate condition.

Table 15-19: Local and Regional Infrastructure and Services - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	CON	OP	C		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
Local and Regional Infrastructure and Services Valued Component (Section 6.20) <ul style="list-style-type: none"> Area of Federal Jurisdiction: Indigenous people; Change in the Environment that are Directly Linked or Incidental to Areas of Federal Jurisdiction Linkage from other VCs: Local and Regional Economy (Section 6.19) Linkage to other VCs: None 								
Without mitigation, there may be a change in the demand for educational services during construction, operation and closure. This is due to site preparation activities for the construction and operation of mine site infrastructure, the mine access road and the transmission line, which may change the demand for educational services from local service providers.	•	•	-	Communicate employment skill requirements to local education / training providers during construction and operations to facilitate planning for appropriate Project-related training.	The residual effect on education is limited to the demand for employment-related training and will be within existing capacity of education providers. With the implementation of mitigation measures, the residual effect will be low, localized, and will occur once during construction, operation and active closure. It will be fully reversible at closure.	Magnitude: Level I Geographic Extent: Level I Duration: Level II Frequency: Level I Reversibility: Level I	Not Significant	High
	•	•	•	Support education and training programs for workers. Support re-training of employees to establish transferable skills, in the latter portion of the operations phase to reduce adverse impacts on employment levels at closure.				
Without mitigation, there may be a change in the demand for housing during construction, operation and closure. This is due to site preparation activities for the construction and operation of mine site infrastructure, the mine access road and the transmission line, which may change the demand for housing in local communities.	•	•	-	Provide onsite accommodations for the Project workforce during construction and operations phases to minimize daily commuting from local communities.	With the proposed design and mitigation measures, a residual effect due to change in demand for housing is not predicted and therefore a determination of significance is not required.	Not applicable	Not applicable	High
	•	•	-	Construct and operate the Project with a rotational workforce which reduces the need for Project workers to move to the local communities for employment as well as potential impacts on roads from daily commuting.				
	•	•	•	Implement preferential hiring of employees from the local municipalities during all phases to provide local employment and labour income and to reduce potential in-migration and potential additional demands on infrastructure and services.				
	•	•	-	Communicate Project schedule, labour demand and potential sources with local municipalities during construction and operations phases for housing planning purposes.				
	•	•	•	Support education and training programs for workers.				
	-	•	•	Support re-training of employees to establish transferable skills, in the latter portion of the operations phase to reduce adverse impacts on employment levels at closure.				
Without mitigation, there may be a change in the demand for emergency services, municipal services and infrastructure during construction, operation and closure. This is due to site preparation activities for the construction and operation of mine site infrastructure, the mine access road and the transmission line, which may change the demand for emergency services, municipal services and	•	•	•	Construct a helipad on site to support emergency transportation of personnel and to support field investigations. A small airstrip will be constructed to transport personnel on an infrequent basis. These would reduce road traffic to the Project Development Area.	The residual effect on the municipal services resulting from the disposal of Project non-recyclable waste material and demand for emergency services, will be within available facility capacities. With the implementation of mitigation measures, the residual effect will be low, localized, and will occur continuously during construction,	Magnitude: Level I Geographic Extent: Level I Duration: Level II Frequency: Level III Reversibility: Level I	Not Significant	High
	•	•	•	Implement preferential hiring of employees from the local municipalities during all phases to provide local employment and labour income and to reduce potential in-migration and potential additional demands on infrastructure and services.				
	•	•	-	Maintain communications with relevant agencies and organizations during construction and operations to facilitate management of Project-related implications for services and infrastructure.				

Table 15-19: Local and Regional Infrastructure and Services - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Co	Op	C		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
demands on local infrastructure in local communities.	•	•	•	Implement a Health and Wellness Strategy for Project employees which will, in part, contribute to management of demands on infrastructure and services in the municipalities and Indigenous communities. The Health and Wellness Strategy priorities are to: <ul style="list-style-type: none"> Establish and promote a workplace culture of positive employee health and well-being; Invest in meaningful and proactive employee health and wellness initiatives; Participate with health service providers towards addressing the major health & wellness challenges facing northern and Indigenous peoples; and Encourage and support employees to develop and maintain healthy lifestyles and habits, including related to mental health and wellbeing. 	operation and active closure. It will be fully reversible at closure.			
	•	•	•	Have Project-rescue vehicles and trained First Responders on site during all phases to reduce potential demands for emergency services.				
	•	•	•	Control access to the mine site and employ onsite security staff during all Project phases to reduce potential demands on emergency services.				
	•	•	-	Provide power for the Project operations through a connection to the Wataynikaneyap 230 kilovolt line to reduce demand on local municipal utilities.				
	•	•	•	Construct a water treatment and sewage treatment system at the Project site to minimize demands on municipal services.				
	•	-	•	Develop cooperative protocols with responsible parties to provide temporary construction and closure phase workers access to emergency and medical services.				
Without mitigation, there may be a change in the demand for municipal and provincial community resources during construction, operation and closure. This is due to site preparation activities for the construction and operation of mine site infrastructure, the mine access road and the transmission line, which may change the demand for municipal and provincial community resources from local service providers.	•	•	•	Implement preferential hiring of employees from the local municipalities during all phases to provide local employment and labour income and to reduce potential in-migration and potential additional demands on infrastructure and services.	With the proposed design and mitigation measures, a residual effect due to change in the demand for municipal and provincial community resources are not predicted and therefore a determination of significance is not required.	Not applicable	Not applicable	High
	•	•	-	Maintain communications with relevant agencies and organizations during construction and operations to facilitate management of Project-related implications for services and infrastructure.				
	•	-	•	Develop cooperative protocols with responsible parties to provide temporary construction and closure phase workers access to emergency and medical services.				
	•	•	•	Implement a Health and Wellness Strategy for Project employees which will, in part, contribute to management of demands on infrastructure and services in the municipalities and Indigenous communities. The Health and Wellness Strategy priorities are to: <ul style="list-style-type: none"> Establish and promote a workplace culture of positive employee health and well-being; Invest in meaningful and proactive employee health and wellness initiatives; Participate with health service providers towards addressing the major health & wellness challenges facing northern and Indigenous peoples; and Encourage and support employees to develop and maintain healthy lifestyles and habits, including related to mental health and wellbeing. 				

Table 15-19: Local and Regional Infrastructure and Services - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Co	Op	Cl		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
<p>Without mitigation, there may be a change in the demand on transportation networks during construction, operation and closure.</p> <p>This is due to site preparation activities for the construction and operation of mine site infrastructure, the mine access road and the transmission line, which may change the demand on transportation networks in local communities.</p>	•	•	-	Provide onsite accommodations for the Project workforce during construction and operations phases to minimize daily commuting from local communities.	<p>The residual effect on the demand on transportation due to increased road traffic will be within available capacities.</p> <p>With the implementation of mitigation measures, the residual effect will be low, localized, and will occur continuously during construction, operation and active closure. It will be fully reversible at closure.</p>	<p>Magnitude: Level I Geographic Extent: Level I Duration: Level II Frequency: Level III Reversibility: Level I</p>	<p>Not Significant</p>	<p>High</p>
	•	•	-	Construct and operate the Project with a rotational workforce which reduces the need for Project workers to move to the local communities for employment as well as potential impacts on roads from daily commuting.				
	•	•	•	Provide bus transportation to the worksite for the employees from a centralized location(s) to reduce traffic and minimize daily commuting.				
	•	•	•	Construct a helipad on site to support emergency transportation of personnel and to support field investigations. A small airstrip will be constructed to transport personnel on an infrequent basis. These would reduce road traffic to the Project Development Area.				
	•	•	-	Communicate schedule for major equipment delivery and removal with relevant local communities to manage impacts on municipal traffic.				

Notes:

1 Con = Construction phase; Op = Operations phase; and Cl = Closure phase

2 Bolded text indicates a key mitigation measure.

3 Level I is indicative of a negligible or low potential to contribute to an overall significant environmental effect, and Level III is indicative of a high potential to contribute to an overall significant environmental effect. Level II represents an intermediate condition.

Table 15-20: Traditional Land and Resource Use - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	C		Description	Characterization ²	Significance of Residual Adverse Effect	Prediction Confidence
Traditional Land and Resource Use Valued Component (Section 6.21) <ul style="list-style-type: none"> Area of Federal Jurisdiction: Indigenous people Linkage from other VCs: Air Quality (Section 6.2); Noise and Vibration (Section 6.3); Surface Water Systems (Section 6.6 to 6.9); Fish and Fish Habitat (Section 6.10); Vegetation Communities and Wetlands (Section 6.11); Wildlife and Wildlife Habitat (Section 6.12); and Species at Risk (Section 6.13 to 6.16). Linkage to other VCs: Archaeology (Section 6.22); Built Heritage Resources and Cultural Heritage Landscapes (Section 6.23); and Human and Ecological Health (Section 6.24) 								
Without mitigation, there may be a change in availability, access to and experience related to traditional terrestrial wildlife harvesting (hunting and trapping) during construction, operation and closure. This could occur due to site preparation activities for the construction and operation of mine site infrastructure, the mine access road and the transmission line, and during final reclamation activities. These activities could affect the availability of resources used for traditional wildlife harvesting, access to areas used for traditional wildlife harvesting, and the experience associated with traditional wildlife harvesting due to sensory disturbances from Project-related noise, lighting and viewscapes.	•	-	-	Development of a compact mine site to limit the extent of disturbance including a mine footprint of 867 ha including minimizing the open pit mining area to 6% of Springpole Lake	The habitat for species harvesting for hunting and trapping are common throughout the local and regional study area, and the removal of habitat in the Project Development Area is unlikely to affect the availability of traditional wildlife harvesting opportunities. With the implementation of mitigation measures, the residual effect on traditional wildlife harvesting is a minor and localized loss of 3 hectare of habitat for furbearers and overprinting of 478 hectare of habitat for large mammals in the Project Development Area. The residual effect is constrained to the Project Development Area, occurs once during construction and is expected to be partially reversible at post-closure as some areas of the Project Development Area will not be revegetated (i.e., co-disposal facility embankments).	Ecological and Social Context: Level II Magnitude: Level I Geographic Extent: Level I Duration: Level III Frequency: Level I Reversibility: Level II	Not Significant	Moderate
	•	•	•	Maintain Project designs such that no new public access points are developed on Springpole Lake				
	•	•	•	Maintain treed buffers between Project infrastructure and waterbodies to reduce visual disturbance				
	•	•	-	Building dimensions, layout and orientation will be designed to shield noise sources, where possible				
	•	•	•	Implement the mitigation measures for: Air quality including for dust (Section 6.2.4); Noise and vibration (Section 6.3.4); Vegetation communities and wetlands (Section 6.11.4); and Wildlife and wildlife habitat (Section 6.12.4).				
	•	•	•	Engage Indigenous environmental monitors from local communities in the implementation of mitigation and monitoring measures.				
	•	•	•	Prior to construction, establish Environmental Committee(s) to: <ul style="list-style-type: none"> Facilitate communications and meaningful engagement during construction, operation and closure of the Project; Facilitate the use of Traditional knowledge in Project-related activities during construction, operation and closure of the Project; and Share and evaluate environmental information, review Project approvals and environmental management and monitoring plans, participate in adaptive management and identify mitigation measures, address emerging issues and areas of interest identified by communities. 				
	•	-	-	Local Indigenous communities and identified points of reception will be advised ahead of transmission line construction work periods and as the construction work proceeds.				
	•	-	-	Work with local Indigenous communities to coordinate construction activities related to the transmission line to minimize overlap with the timing of traditional land use activities (e.g., fall moose hunt) and other sensitive periods.				
	•	•	•	Support the development and delivery of Indigenous led ceremonies on site to pay respect to the land air, and water prior to construction and at other key Project milestones.				
•	•	•	Facilitate the development and implementation of community-based monitoring programs to supplement (not duplicate) regulatory monitoring requirements.					
•	•	•	Support community land-based cultural activities.					

Table 15-20: Traditional Land and Resource Use - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	Cl		Description	Characterization ²	Significance of Residual Adverse Effect	Prediction Confidence
	•	•	•	Support reasonable requests and work schedule flexibility for Indigenous employees for time off to pursue traditional land use activities.				
	•	•	•	Prior to construction, develop an access management strategy with local Indigenous communities to manage access along the mine access road with the purpose of supporting Traditional land and resource use access and minimizing new public access.				
	-	•	•	Maintain regular communication with trapline holders SL197 and SL 200 regarding activities and opportunities to facilitate their land use activities.				
	•	•	•	Prior to construction, establish the alternate navigation route identified to maintain access between Springpole Lake and Birch Lake, and maintain the alternate route until post-closure when the existing portage has been re-established.				
	•	•	•	Hunting and fishing at the Project will be prohibited by employees and contractors while at site, during all phases.				
	•	•	-	Undertake revegetation in the mine site area, where practical, and include input from Indigenous communities and traditional land and resource use planning documents.				
	-	-	•	Continue to participate in the Environmental Committee(s) at a rate commensurate with activity in the Project Development Area.				
	•	•	•	Support reasonable community-based engagement and cultural activities.				
	•	•	-	Work with MNR and trapline license holders to determine alternative options for trapline losses during construction and operation phases.				
	•	•	•	Achieve overall benefit requirements for Caribou (Section 6.13.4).				
Without mitigation, there may be a change in the availability, access to and experience related to traditional aquatic wildlife harvesting (fishing) during construction, operation and closure.	•	-	-	Development of a compact mine site to limit the extent of disturbance including a mine footprint of 867 hectare including minimizing the open pit mining area to 6% of Springpole Lake.	The reduction of fish habitat is 6% of the surface area of Springpole Lake and the harvested fish species are common elsewhere in Springpole Lake and elsewhere in the local and regional study area and removal of fish habitat from within the Project Development Area is unlikely to affect the availability of fish harvesting areas. With the implementation of mitigation measures, the residual effect on traditional fish harvesting is a localized loss of 156 hectare of fish habitat, totaling 6% of the surface area of Springpole Lake in the Project Development Area. The residual effect is constrained to the Project Development Area, occurs once during construction and is expected to be reversible at closure.	Ecological and Social Context: Level II Magnitude: Level I Geographic Extent: Level I Duration: Level III Frequency: Level I Reversibility: Level I	Not Significant	Moderate
This could occur due to site preparation activities for the construction of the dike, controlled dewatering of the open pit basin, the operation of mine site infrastructure, and during final reclamation activities, including the refilling of the open pit basin. These activities could affect the availability of resources used for traditional aquatic (fish) harvesting, access to areas used for traditional aquatic (fish) harvesting, and the experience associated with traditional aquatic (fish) harvesting due to sensory disturbances from Project-related noise, lighting and views.	•	•	•	Maintain Project designs such that no new public access points are developed on Springpole Lake.				
	•	•	•	Maintain treed buffers between Project infrastructure and waterbodies to reduce visual disturbance.				
	•	•	•	Implement the mitigation measures for: Noise and vibration (Section 6.3.4); Surface water (Section 6.6.4, Section 6.7.4 and Section 6.8.4); and Fish and fish habitat (Section 6.10.4).				
	•	•	•	Prior to construction, establish Environment Committee(s) and offer opportunities to participate to members of proximate Indigenous communities during the construction, operation and closure of the Project. The environment committee(s) aims to: <ul style="list-style-type: none"> Facilitate communications and meaningful engagement during construction, operation and closure of the Project; Facilitate the use of Traditional knowledge in Project-related activities during construction, operation and closure of the Project; and Share and evaluate environmental information, review Project approvals and environmental management and monitoring plans, participate in adaptive management and identify mitigation measures, address emerging issues and areas of interest identified by communities. 				
•	•	•	Support community land-based traditional cultural activities.					

Table 15-20: Traditional Land and Resource Use - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	Cl		Description	Characterization ²	Significance of Residual Adverse Effect	Prediction Confidence
	•	•	•	Support reasonable requests and work schedule flexibility for Indigenous employees for time off to pursue traditional land use activities.				
	•	-	-	Where there is interest, provide opportunities to local Indigenous communities and traditional land users to harvest plants and aquatic resources within the Project Development Area prior to construction.				
				Support the development and delivery of Indigenous led ceremonies on site to pay respect to the land air, and water prior to construction and at other key Project milestones.				
				Facilitate the development and implementation of community-based monitoring programs to supplement (not duplicate) regulatory monitoring requirements.				
	•	•	•	Prior to construction, develop an access management strategy with local Indigenous communities to manage access along the mine access road, during construction, operation and closure phases of the Project, with the purpose of supporting traditional land and resource use access and minimizing new public access.				
				Prohibit fishing and hunting within the controlled access portion of the Project Development Area by Project personnel while working or residing on site.				
	-	-	•	Continue to participate in the Environment Committee(s) at a rate commensurate with activity in the Project Development Area.				
	-	•	-	Prior to closure, develop and implement a Lake Sturgeon reintroduction and restoration program harmonizing with the interest of local Indigenous communities and MNR.				
	•	•	•	Achieve fish habitat offsetting objectives (Appendix F).				
Without mitigation, there may be a change in availability, access to and experience related to traditional terrestrial traditional plant (food and medicinal) during construction, operation and closure. This could occur due to site preparation activities for the construction and operation of mine site infrastructure, the mine access road and the transmission line, and during final reclamation activities. These activities could affect the availability of resources used for traditional plant harvesting, access to areas used for traditional plant harvesting, and the experience associated with traditional plant harvesting due to sensory disturbances from Project-related noise, lighting and viewscapes.	•	-	-	Development of a compact mine site to limit the extent of disturbance including a mine footprint of 867 hectare including minimizing the open pit mining area to 6% of Springpole Lake.	The plants species harvested are common throughout the local and regional study areas, and therefore, removal in the Project Development Area is unlikely to affect the availability of traditional plant harvesting opportunities. With the implementation of mitigation measures, the residual effect on traditional plant harvesting is a loss of 1,358 ha of vegetation communities and a loss of 352 ha of wetland communities in the Project Development Area. The residual effect is constrained to the Project Development Area, occurs once during construction	Ecological and Social Context: Level II Magnitude: Level I Geographic Extent: Level I Duration: Level III Frequency: Level I Reversibility: Level II	Not Significant	Moderate
•	•	•	Implement the mitigation measures for: Air quality including for dust (Section 6.2.4); Noise and vibration (Section 6.3.4); Surface water (Section 6.6.4); and Vegetation communities and wetlands (Section 6.11.4).					
•	•	•	Engage Indigenous environmental monitors from local communities in the implementation of mitigation and monitoring measures.					
•	•	•	Prior to construction, establish Environment Committee(s) and offer opportunities to participate to members of proximate Indigenous communities during the construction, operation and closure of the Project. The environment committee(s) aims to: <ul style="list-style-type: none"> Facilitate communications and meaningful engagement during construction, operation and closure of the Project; Facilitate the use of Traditional knowledge in Project-related activities during construction, operation and closure of the Project; and Share and evaluate environmental information, review Project approvals and environmental management and monitoring plans, participate in adaptive management and identify mitigation measures, address emerging issues and areas of interest identified by communities. 					

Table 15-20: Traditional Land and Resource Use - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	Cl		Description	Characterization ²	Significance of Residual Adverse Effect	Prediction Confidence
	•	-	-	Work with local Indigenous communities to coordinate construction activities related to the transmission line to minimize overlap with the timing of traditional land use activities (e.g., fall moose hunt) and other sensitive periods.	and is expected to be partially reversible at post-closure as some areas of the Project Development Area will not be revegetated (i.e., co-disposal facility embankments).			
	•	•	•	Support community land-based traditional cultural activities.				
	•	•	•	Support reasonable requests and work schedule flexibility for Indigenous employees for time off to pursue traditional land use activities.				
	•	-	-	Where there is interest, provide opportunities to local Indigenous communities and traditional land users to the harvest plants and aquatic resources within the Project Development Area prior to construction.				
	•	•	•	Prior to construction, develop an access management strategy with local Indigenous communities to manage access along the mine access road, during construction, operation and closure phases of the Project, with the purpose of supporting Traditional land and resource use access and minimizing new public access.				
	•	•	•	Support the development and delivery of Indigenous led ceremonies on site to pay respect to the land air, and water prior to construction and at other key Project milestones.				
	•	•	-	Facilitate the development and implementation of community-based monitoring programs to supplement (not duplicate) regulatory monitoring requirements.				
	•	•	-	Undertake revegetation in the mine site area, where practical, and include input from Indigenous communities and Traditional land and resource use planning documents.				
	-	-	•	Continue to participate in the Environment Committee(s) at a rate commensurate with activity in the Project Development Area.				
Without mitigation, there may be a change in availability, access to and experience related to habitation, and use of spiritual or cultural sites during construction, operation and closure. This could occur due to site preparation activities for the construction and operation of mine site infrastructure, the mine access road and the transmission line, and during final reclamation activities. These activities could affect the availability of areas used for traditional habitation, spiritual or cultural purposes, access to these areas, and the experience associated with these traditional activities due to sensory disturbances from Project-related noise, lighting and viewscapes.	•	-	-	Development of a compact mine site to limit the extent of disturbance including a mine footprint of 867 hectare including minimizing the open pit mining area to 6% of Springpole Lake.	With the proposed design and mitigation measures, residual effects due to change in availability, access to and experience related to habitation, and use of spiritual or cultural sites are not predicted and therefore a determination of significance is not required.	Not applicable	Not applicable	Moderate
•	•	•	Maintain Project designs such that no new public access points are developed on Springpole Lake.					
•	•	•	Maintain treed buffers between Project infrastructure and waterbodies to reduce visual disturbance.					
•	•	-	Building dimensions, layout and orientation will be designed to shield noise sources, where possible.					
•	•	•	Implement the mitigation measures for: Noise and vibration (Section 6.3); Archaeology (Section 6.23); and Cultural heritage (Section 6.24).					
•	•	•	Engage Indigenous environmental monitors from local communities in the implementation of mitigation and monitoring measures.					
•	•	•	Prior to construction, establish Environment Committee(s) and offer opportunities to participate to members of proximate Indigenous communities during the construction, operation and closure of the Project. The environment committee(s) aims to: <ul style="list-style-type: none"> Facilitate communications and meaningful engagement during construction, operation and closure of the Project; 					

Table 15-20: Traditional Land and Resource Use - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	Cl		Description	Characterization ²	Significance of Residual Adverse Effect	Prediction Confidence
				<ul style="list-style-type: none"> Facilitate the use of Traditional knowledge in Project-related activities during construction, operation and closure of the Project; an Share and evaluate environmental information, review Project approvals and environmental management and monitoring plans, participate in adaptive management and identify mitigation measures, address emerging issues and areas of interest identified by communities. 				
	•	-	-	Support the development and delivery of Indigenous led ceremonies on site to pay respect to the land air, and water prior to construction and at other key Project milestones.				
	•	-	-	Local Indigenous communities and identified points of reception will be advised ahead of transmission line construction work periods and as the construction work proceeds.				
	•	-	-	Work with local Indigenous communities to coordinate construction activities related to the transmission line to minimize overlap with the timing of traditional land use activities (e.g., fall moose hunt) and other sensitive periods.				
	•	•	•	Support reasonable requests and work schedule flexibility for Indigenous employees for time off to pursue traditional land use activities.				
	•	•	•	Prior to construction, develop an access management strategy with local Indigenous communities to manage access along the mine access road, during construction, operation and closure phases of the Project, with the purpose of supporting traditional land and resource use access and minimizing new public access.				
	•	•	•	Prior to construction, establish the alternate navigation route identified to maintain access between Springpole Lake and Birch Lake, and maintain the alternate route until post closure when the existing portage has been re-established.				
	-	-	•	Continue to participate in the Environmental Committee(s) at a rate commensurate with activity in the Project Development Area.				

Notes:

1 Con = Construction phase; Op = Operations phase; and Cl = Closure phase

2 Bolded text indicates a key mitigation measure.

3 Level I is indicative of a negligible or low potential to contribute to an overall significant environmental effect, and Level III is indicative of a high potential to contribute to an overall significant environmental effect. Level II represents an intermediate condition.

Table 15-21: Archaeology - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	Cl		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
Archaeology Valued Component (Section 6.22) <ul style="list-style-type: none"> Area of Federal Jurisdiction: Indigenous people Linkage from other VCs: Traditional Land and Resource Use (Section 6.21) Linkage to other VCs: Built Heritage Resources and Cultural Heritage Landscapes (Section 6.23) 								
Without mitigation, there may be direct or indirect land disturbances or removal of archaeological resources from original context during construction, operation and closure. This could occur due to ground disturbances during site preparation activities within the Project Development Area.	•	-	-	Key construction and operation staff will be trained to recognize archaeological artifacts, such as Indigenous material culture (e.g., lithics, ground stone, ceramics, faunal remains) and Euro-Canadian cultural material (e.g., ceramics, glassware, construction debris, domesticated animal remains), in the event that chance finds are made during Project construction and operation. Staff training will also include a brief history of the potential and documented historical use and occupation of the Project Development Area and local study area.	With the proposed design and mitigation measures, residual effects on archaeology are not anticipated.	Not applicable	Not applicable	High
	•	•	•	If chance finds or deeply buried archaeological resources (including paleontological resources in organic deposits beneath lakes, marshes and peat) are encountered during the construction phase, a Chance Find Procedure (Appendix S-6) will be implemented and the site will be secured. The Ministry of Citizenship and Multiculturalism will be notified and all activities impacting the affected archaeological resources will cease immediately. A licensed archaeologist will carry out an archaeological assessment following the <i>Ontario Heritage Act</i> and the <i>Standards and Guidelines for Consultant Archaeologists</i> .				
	•	•	•	If human remains are encountered, all activities will cease immediately and the local police and coroner will be contacted. In situations where human remains are associated with archaeological resources, the Ministry of Citizenship and Multiculturalism will also be notified to help protect against the site being subject to further alterations.				
	•	•	•	Prior to construction, an Environment Committee(s) will be established and opportunities to participate offered to members of proximate Indigenous communities during the construction, operation and closure of the Project. The Environment Committee(s) will aim to: <ul style="list-style-type: none"> Facilitate communications and meaningful engagement during construction, operation and closure of the Project; Facilitate the use of Traditional knowledge in Project-related activities during construction, operation and closure of the Project; and Share and evaluate land use information, including information on archaeological resources, review Project approvals and environmental management and monitoring plans, and identify mitigation measure, if required. 				

Notes:
 1 Con = Construction phase; Op = Operations phase; and Cl = Closure phase
 2 Bolded text indicates a key mitigation measure.
 3 Level I is indicative of a negligible or low potential to contribute to an overall significant environmental effect, and Level III is indicative of a high potential to contribute to an overall significant environmental effect. Level II represents an intermediate condition.

Table 15-22: Built Heritage Resources and Cultural Heritage Landscapes - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures	Residual Adverse Effect(s)			
	Con	Op	Cl		Description	Characterization ²	Significance of Residual Adverse Effect	Prediction Confidence
Built Heritage Resources and Cultural Heritage Landscapes Valued Component (Section 6.23) <ul style="list-style-type: none"> • Area of Federal Jurisdiction: Indigenous people • Linkage from other VCs: Outdoor Recreation (Section 6.18); and Traditional Land and Resource Use (Section 6.21) • Linkage to other VCs: Archaeology (Section 6.22) 								
Without mitigation, there may be changes in the presence of buildings / landscape features over 40 years old during construction, operation and closure. This could occur due to ground disturbances during site preparation activities within the Project Development Area.	•	-	-	Potential heritage properties in the local study area will be noted on applicable Project maps to identify the heritage status of the property to Project personnel.	With the proposed design and mitigation measures, residual effects due to changes in Built Heritage Resources and Cultural Heritage Landscapes are not predicted and therefore a determination of significance is not required.	Not applicable	Not applicable	High
Without mitigation, there may be alterations or destruction of Built Heritage Resources and Cultural Heritage Landscapes during construction, operation and closure. This could occur due to ground disturbances during site preparation activities within the Project Development Area.	•	-	-	If potential heritage properties may be directly impacted, the property will be evaluated in a Cultural Heritage Evaluation Report. If that report determines that the property has cultural heritage value or interest, an Heritage Impact Assessment will be prepared to determine specific mitigation measures to be implemented, such as documentation, salvaging or applying buffer zones, as appropriate.	With the proposed design and mitigation measures, residual effects due to the alteration or destruction of Built Heritage Resources and Cultural Heritage Landscapes are not predicted, and therefore, a determination of significance is not required.	Not applicable	Not applicable	High

Notes:

1 Con = Construction phase; Op = Operations phase; and Cl = Closure phase

2 Bolded text indicates a key mitigation measure.

3 Level I is indicative of a negligible or low potential to contribute to an overall significant environmental effect, and Level III is indicative of a high potential to contribute to an overall significant environmental effect. Level II represents an intermediate condition.

Table 15-23: Human and Ecological Health - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Co	Op	C		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
Human and Ecological Health Valued Component (Section 6.24) <ul style="list-style-type: none"> Area of Federal Jurisdiction: Indigenous people Linkage from other VCs: Air Quality (Section 6.2); Surface Water Systems (Sections 6.6 to 6.9); Fish and Fish Habitat (Section 6.10); Vegetation Communities and Wetlands (Section 6.11); and Wildlife and Wildlife Habitat (Section 6.12) Linkage to other VCs: Commercial Land and Resource Use (Section 6.17); Outdoor Recreation (Section 6.18); and Traditional Land and Resource Use (Section 6.21) 								
Without mitigation, there may be changes in human health during construction, operation and closure. This could occur due to site preparation activities that may affect air quality from the operation of Project equipment, and changes in water quality due to ground disturbances, seepage from the operation of the co-disposal facility and ore stockpiles and the discharge of treated effluent during operations.	•	•	•	Implement the mitigation measures for the potential effects on air quality (Section 6.2), including the following specific to dust: <ul style="list-style-type: none"> Dust emissions from roads and mineral stockpiles will be controlled through the application of water spray and supplemented by dust suppressants if required; Site roads will be maintained in good condition, with regular inspections and timely maintenance completed to minimize the silt loading on the roads; Vehicle speeds will be limited; and A dust management plan will be implemented to identify potential sources of fugitive dusts, outline mitigation measures that will be employed to control dust generation and detail the inspection and record keeping required to demonstrate that fugitive dusts are being effectively managed. 	With the proposed design and mitigation measures, residual effects on human health are not predicted, and therefore, a determination of significance is not required.	Not applicable	Not applicable	High
	•	•	•	Implement the mitigation measures for the potential effects on surface water (Section 6.6, 6.7, 6.8 and 6.9), including the following specific to water quality: <ul style="list-style-type: none"> An integrated water management system will be designed to collect and control all contact water from the stockpiles, co-disposal facility and plant site areas. Collected contact water that is not recycled in ore processing will be treated at the effluent treatment plant) and discharged to the southeast arm of Springpole Lake in accordance with permitting requirements; An erosion and sediment control plan will be implemented to manage runoff water around disturbed areas. The erosion and sediment control plan will be prepared prior to the construction phase with the purpose of minimizing site erosion and protecting surface water from sedimentation. The erosion and sediment control plan will provide further details on measures to minimize slope length and grade, ditching and diversion berms, contact water management ponds, use of natural vegetation buffers and runoff controls; Water collection ditches will be constructed and operated around the perimeter of infrastructure, including the co-disposal facility and stockpiles to collect overland flow and seepage and direct it to the integrated water management system. Non-contact water will be diverted away from Project components using ditches, diversion berms and other suitable measures; During operations and active closure, effluent will be discharged at a location where sufficient flow exists to reduce the potential for erosion and promote assimilation at the discharge location. A diffuser or other means could be used to encourage greater mixing and attenuation of the effluent plume at the discharge location, if required. Consistent with MECP Policy B-1-5, the mixing zone size will be minimized to the extent practical; and 				

Table 15-23: Human and Ecological Health - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	C		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
				<ul style="list-style-type: none"> During operations and active closure, the effluent treatment plant will be designed and operated to produce an effluent quality appropriate for discharge to the environment in accordance with applicable regulatory requirements, including the Metal and Diamond Mining Effluent Regulations. Best available technologies that are economical achievable will be considered for the effluent treatment plant to meet protection requirements. The effluent treatment plant will be refined with ongoing Project planning and engineering design, and as discharge criteria are finalized during the approvals process. 				
Without mitigation, there may be changes in ecological health during construction, operation and closure. This could occur due to site preparation activities that may affect air quality from the operation of Project equipment, and changes in water quality due to ground disturbances, seepage from the operation of the co-disposal facility and ore stockpiles and the discharge of treated effluent during operations.	•	•	•	Implement the mitigation measures for the potential effects on air quality (Section 6.2.4), including the following specific to dust: <ul style="list-style-type: none"> Dust emissions from roads and mineral stockpiles will be controlled through the application of water spray and supplemented by dust suppressants if required; Site roads will be maintained in good condition, with regular inspections and timely maintenance completed to minimize the silt loading on the roads; Vehicle speeds will be limited; and A dust management plan will be implemented to identify potential sources of fugitive dusts, outline mitigation measures that will be employed to control dust generation and detail the inspection and record keeping required to demonstrate that fugitive dusts are being effectively managed. 	With the proposed design and mitigation measures, residual effects on ecological health are not predicted and therefore a determination of significance is not required.	Not applicable	Not applicable	High
				•				

Table 15-23: Human and Ecological Health - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	Cl		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
				<p>assimilation at the discharge location. A diffuser or other means could be used to encourage greater mixing and attenuation of the effluent plume at the discharge location, if required. Consistent with the Ministry of the Environment, Conservation and Parks Policy B-1-5, the mixing zone size will be minimized to the extent practical; and</p> <ul style="list-style-type: none"> During operations and active closure, the effluent treatment plant will be designed and operated to produce an effluent quality appropriate for discharge to the environment in accordance with applicable regulatory requirements, including the Metal and Diamond Mining Effluent Regulations. Best available technologies that are economical achievable will be considered for the effluent treatment plant to meet protection requirements. The effluent treatment plant will be refined with ongoing Project planning and engineering design, and as discharge criteria are finalized during the approvals process. 				

Notes:

1 Con = Construction phase; Op = Operations phase; and Cl = Closure phase

2 Bolded text indicates a key mitigation measure.

3 Level I is indicative of a negligible or low potential to contribute to an overall significant environmental effect, and Level III is indicative of a high potential to contribute to an overall significant environmental effect. Level II represents an intermediate condition.

Table 15-24: Indigenous People - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	C		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
Indigenous People Valued Component (Section 6.26) <ul style="list-style-type: none"> Area of Federal Jurisdiction: Indigenous Peoples Linkage from other VCs: Commercial Land and Resource Use (Section 6.17); Outdoor Recreation (Section 6.18); Local and Regional Economy (Section 6.19); Local and Regional Infrastructure and Services (Section 6.20); Traditional Land and Resource Use (Section 6.21); Archaeology (Section 6.22); Built Heritage Resources and Cultural Heritage Landscapes (Section 6.23); and Human and Ecological Health (Section 6.24) Linkage to other VCs: None 								
Without mitigation, there may be changes in Indigenous health conditions during construction, operation and closure. This could occur due to site preparation activities that may affect air quality and sound levels from equipment, ground disturbance that may affect water quality and subsequently country foods.	•	•	-	Development of a compact mine site to limit the areal extent of disturbance including a mine footprint of 867 hectares including minimizing the open pit mining area to 6% of Springpole Lake.	With the implementation of mitigation measures, there is no residual effect due to changes in Indigenous health conditions during any phase of the Project.	Not applicable	Not applicable	Moderate
	•	•	•	Maintain Project designs such that no new public access points are developed on Springpole Lake.				
	•	-	-	Building dimensions, layout and orientation will be designed to shield noise sources, where possible.				
	•	•	•	During construction, operation and closure phases of the Project, implement the mitigation measures relevant to Indigenous health conditions for air quality (Section 6.2.4), noise and vibration (Section 6.3.4), surface water (Section 6.6.4, Section 6.7.4 and Section 6.8.4), fish and fish habitat (Section 6.10.4), vegetation communities and wetlands (Section 6.11.4), and wildlife and wildlife habitat (Section 6.12.4).				
	•	•	-	Maintain regular communication with trapline holders SL197 and SL 200 regarding activities and opportunities to facilitate their land use activities.				
	•	•	-	Prior to construction, establish an alternate portage route identified to maintain access between Springpole Lake and Birch Lake, and maintain the alternate route until post closure when the existing portage has been re-established.				
	•	-	•	Undertake revegetation in the mine site area, where practical, and include input from Indigenous communities and traditional land and resource use information planning documents.				
	•	•	•	During construction, operation and closure phases of the Project, support community land-based cultural activities.				
Without mitigation, there may be changes in Indigenous socio-economic during construction, operation and closure. This could occur due to changes in navigation and other recreational uses, commercial activities, food security, income inequity and other changes to community level socio-economic conditions from Project activities, including employment and Project expenditures.	•	•	-	Development of a compact mine site to limit the areal extent of disturbance including a mine footprint of 867 hectares including minimizing the open pit mining area to 6% of Springpole Lake.	Given the total area available for trapping, the change in area due to the Project footprint is small, and through information sharing using the Environment Committee, and the development of an access management strategy, the effects will be minimized. With the implementation of mitigation measures, the residual effect is a localized change in trapping with the local study area during all phases of the Project, which occurs once and will be partially reversed at closure.	Ecological and Social Context: Level I Magnitude: Level I Geographic Extent: Level I Duration: Level III Frequency: I Reversibility: Level II	Not Significant	Moderate
	•	•	•	During construction, operation and closure phases of the Project, implement the mitigation measures relevant for Indigenous socioeconomic conditions for air quality (Section 6.2.4), noise and vibration (Section 6.3.4), surface water (Section 6.6.4, Section 6.7.4 and Section 6.8.4), vegetation communities and wetlands (Section 6.11.4), and wildlife and wildlife habitat (Section 6.12.4).				
	•	•	•	Give preference to hiring employees for the Project to Indigenous communities and local municipalities.				
	•	•	•	Give preference to contracting for goods and services from the businesses in the Indigenous communities and local municipalities.				
	•	•	•	Establish a Health and Wellness Strategy (Appendix Q-3) focused on employee mental health and wellness to complement health and safety programs and to support local and Indigenous employees.				

Table 15-24: Indigenous People - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	C		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
	•	•	-	Provide onsite accommodations that are safe and welcoming for the Project workforce during construction and operations phases.				
	•	•	-	The construction and operation of the Project will utilize a rotational workforce to support the employment of local and regional workers.				
	•	•	•	Support reasonable requests and work schedule flexibility for Indigenous employees for time off to pursue traditional land use activities, during construction, operation and closure phases.				
Without mitigation, there may be changes in Indigenous physical and cultural heritage during construction, operation and closure. This could occur due to site preparation activities for the construction of mine site infrastructure, the mine access road and the transmission line, ongoing maintenance of the infrastructure, and the activities associated with final reclamation at closure, which may disturb, alter or remove these heritage features.	•	•	-	Development of a compact mine site to limit the areal extent of disturbance including a mine footprint of 867 hectares including minimizing the open pit mining area to 6% of Springpole Lake.	Given the total area available for trapping, the change in area due to the Project footprint is small, and through information sharing using the Environment Committee, and the development of an access management strategy, the effects will be minimized. With the implementation of mitigation measures, the residual effect on the changes in the value of physical and cultural heritage resource is low. The residual effect will be confined to the Project Development Area, occur continuously until closure, and will be partially reversible with revegetation.	Ecological and Social Context: Level I Magnitude: Level I Geographic Extent: Level I Duration: Level III Frequency: III Reversibility: Level II	Not Significant	Moderate
	•	•	-	Maintain Project designs such that no new public access points are developed on Springpole Lake.				
	•	•	-	Preserve a tree line as a buffer around the mine site to diminish the amount of the mine site that can be seen. This buffer around the Project will be maintained wide enough to withstand the loss of trees, such as those toppled by wind.				
	•	-	-	Building dimensions, layout and orientation will be designed to shield noise sources, where possible.				
	•	•	•	During construction, operation and closure phases of the Project, implement the mitigation measures for archaeology (Section 6.22.4) and cultural heritage (Section 6.23.4).				
	•	-	-	Prior to construction, provide opportunities to Indigenous communities that reported traditional land and resource use in the local study area to elaborate on site-specific information with the goal to refine mitigation measures, if required.				
	•	•	•	During construction, operation and closure phases of the Project, support community land-based cultural activities.				
	-	-	•	All buildings and facilities will be deconstructed and removed, and disturbed areas will be stabilized during closure.				
Without mitigation, there may be changes in the current use of lands and resources for traditional purposes during construction, operation and closure. This could occur due to site preparation activities for the construction of mine site infrastructure, the mine access road and the transmission line, ongoing maintenance of the infrastructure, and the activities associated with final reclamation at closure. These activities could affect the availability of resources used for traditional purposes, access to areas used for traditional purposes, and the experience associated with traditional activities due to sensory disturbances from Project-related noise, lighting and viewscapes.	•	•	-	Development of a compact mine site to limit the areal extent of disturbance including a mine footprint of 867 hectares including minimizing the open pit mining area to 6% of Springpole Lake.	Effects to traditional harvesting activities will be restricted to the immediate area around the Project footprint and minimized with the development of an access management strategy and the development of alternate navigation route. With the implementation of mitigation measures, there will be a residual effect on the current use of lands and resources for traditional purposes due to a in abundance of harvested species, changes in access and experience. The residual effect will be	Ecological and Social Context: Level I Magnitude: Level I Geographic Extent: Level I Frequency: I Duration: Level III Reversibility: Level II	Not Significant	Moderate
	•	•	-	Maintain Project designs such that no new public access points are developed on Springpole Lake.				
	•	•	-	Preserve a tree buffer around the mine site to diminish the amount of the mine site that can be seen.				
	•	-	-	Building dimensions, layout and orientation will be designed to shield noise sources, where possible.				
	•	•	•	During construction, operation and closure phases of the Project, implement the mitigation measures relevant to current use for air quality (Section 6.2.4), noise and vibration (Section 6.3.4), surface water (Section 6.6.4, Section 6.7.4 and Section 6.8.4), fish and fish habitat (Section 6.10.4), vegetation communities and wetlands (Section 6.11.4), and wildlife and wildlife habitat (Section 6.12.4).				

Table 15-24: Indigenous People - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	C		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
	•	-	-	Where there is interest, provide opportunities to local Indigenous communities and traditional land users to harvest plants and aquatic resources within the Project Development Area prior to construction.	confined to the local study area, occur once but continue until closure when it will be partially reversible.			
	•	•	•	During construction, operation and closure phases of the Project, support community land-based cultural activities.				
	•	-	-	Support the development and delivery of Indigenous led ceremonies on site to pay respect to the land, air and water prior to construction and at other key Project milestones.				
	•	•	•	Facilitate the development and implementation of a community-based monitoring program to supplement (not duplicate) regulatory monitoring requirements.				
	•	•	•	During construction, operation and closure phases, engage Indigenous environmental monitors from local communities in the implementation of mitigation and monitoring measures.				
	•	•	•	Hunting and fishing at the Project will be prohibited by employees and contractors while at site, during all phases.				
	•	•	•	Prior to construction, provide the opportunity to establish Environment Committee(s) with interested Indigenous communities to: <ul style="list-style-type: none"> Facilitate on-going communications and meaningful engagement during construction, operation and closure of the Project; Facilitate the sharing and integration of Traditional knowledge in Project-related activities during construction, operation and closure of the Project; and Share and evaluate environmental information, review Project approvals and environmental management and monitoring plans, participate in adaptive management and identify mitigation measures, address emerging issues and areas of interest identified by communities. 				
	•	-	-	Local Indigenous communities and identified points of reception will be advised ahead of transmission line construction work periods and as the construction work proceeds.				
	•	-	-	Work with local Indigenous communities to coordinate construction activities related to the transmission line to minimize overlap with the timing of traditional land use activities (e.g., fall moose hunt) and other sensitive periods.				
	•	•	-	Support reasonable requests and work schedule flexibility for Indigenous employees for time off to pursue traditional land use activities, during construction, operation and closure phases.				
•	-	-	Prior to construction, develop an access management strategy Plan with local Indigenous communities to manage access in the along the mine access road, north of the Birch River crossing, during construction, operation and closure phases of the Project, with the purpose of supporting Traditional land and resource use access and minimizing new public access.					

Table 15-24: Indigenous People - Summary of Potential Effects, Mitigation, Residual Effects and Significance

Potential Effect(s)	Phase ¹			Proposed Mitigation Measures ²	Residual Adverse Effect(s)			
	Con	Op	Cl		Description	Characterization ³	Significance of Residual Adverse Effect	Prediction Confidence
	•	•	-	Prior to construction, establish an alternate portage route identified to maintain access between Springpole Lake and Birch Lake, and maintain the alternate route until post closure when the existing portage has been re-established.				
	-	-	•	All buildings and facilities will be deconstructed and removed, and disturbed areas will be stabilized during closure.				
	-	•	•	During the operation and closure of the Project, undertake revegetation in the mine site area, where practical, and include input from Indigenous communities and traditional land and resource use planning documents.				

Notes:

1 Con = Construction phase; Op = Operations phase; and Cl = Closure phase

2 Bolded text indicates a key mitigation measure.

3 Level I is indicative of a negligible or low potential to contribute to an overall significant environmental effect, and Level III is indicative of a high potential to contribute to an overall significant environmental effect. Level II represents an intermediate condition.