

Project Description: Gould Mine Rehabilitation Project

BACKGROUND

The Gould Copper Mine (AMIS # 07872) is a former high grade, low tonnage copper mine that operated from 1969 to 1976. The mine is situated in Gould Township, approximately 70 km east of Sault Ste. Marie and 45 km north of Thessalon, Ontario. The property is accessed via a narrow access trail west of Highway 129. The mine features two raises to surface, an adit, a crown pillar, a tailings management area, and the remnants of mine infrastructure (i.e. mill foundation, water tank, hydro substation). The location of the mine is illustrated below on Figure 1.

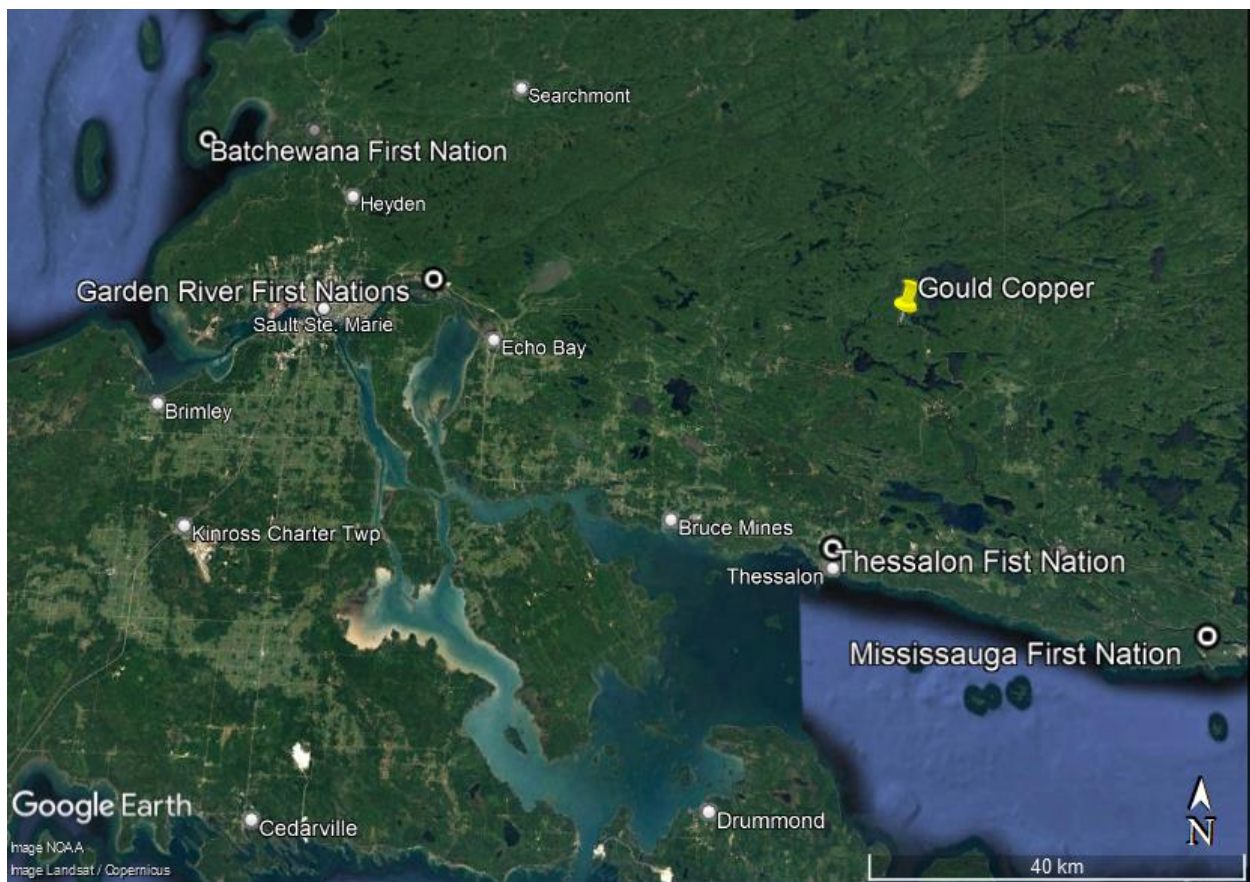


Figure 1 – Site location plan.

A bat acoustic study was completed for the Gould Copper Mine by Kilgour & Associates in 2019. The objective of the study was to confirm the presence/absence of bat species at risk and to determine if the underground workings were being used by bats as a hibernaculum. Visual and acoustic surveys were completed at each of the mine openings (i.e. two raises and one adit) over ten days in late-August. The surveys confirmed the presence of bat species at risk, with individual

bats visually observed flying in and out of the adit. Although swarming behaviour was not observed, the study concluded that the mine may be utilized by bats as a hibernaculum.

REHABILITATION ACTIVITIES

The purpose of the project is to rehabilitate the mine hazards at the Gould Copper Mine property to eliminate the risk to the public and the environment. To assist with determining the preferred rehabilitation strategy, a geotechnical drilling investigation was completed by WSP Canada Inc. in 2022 to determine the long-term stability of the crown pillars and conditions of the openings to surface remaining at the site. A crown pillar is defined as the rock mass that remains between the underground workings and the ground surface. Rock mass quality parameters and stability estimates collected as part of the geotechnical investigation concluded that the crown pillar associated with the adit zone is not long-term stable and progressive failure of the adit brow and crown pillar have occurred. As a result, bat-friendly rehabilitation measures (i.e., stainless steel gate) are not feasible as it would not address the long-term stability of the adit crown pillar zone. The proposed rehabilitation approach for the adit is to backfill a minimum of 10 m of the adit from the brow to support the crown pillar and prevent it from unravelling. The backfill will also be used as the rehabilitation measure to permanently prevent access to the adit.

Other mine hazards to be addressed as part of the rehabilitation work includes two raises to surface and the remnants of various mine infrastructure. The location of all mine hazards on the property are illustrated below on Figure 2. The preferred rehabilitation strategy for the two raises is to backfill using a combination of cemented and uncemented material to maintain long-term stability. Mine infrastructure to be decommissioned as part of the rehabilitation work includes a hydro substation, mill site foundations, a water tank, and two steel barrels. Disturbed areas will be backfilled and landscaped, as required, and allowed to revegetate naturally to match surrounding habitat.



Figure 2 – Location of mine hazards at Gould Copper Mine property. The boundary of the project area is defined by the mine access road and area surrounding the mine hazards.

Some access improvements have been completed as part of previous investigation work along the main access road and to the adit. It is anticipated that only minor vegetation clearing, and grading of existing mine roads will be needed to facilitate the access of heavy equipment to the the adit, west raise and remaining infrastructure. The east raise is currently inaccessible by heavy equipment and additional improvements will be needed to allow the execution of the rehabilitation work. The boundary of the project area is defined by the mine access road and area surrounding the mine hazards.

CLASS EA SCREENING

The proposed rehabilitation activities are subject to The Ministry of Mines Class Environmental Assessment (EA) Process. Considering that the rehabilitation work will negatively impact habitat of bat species at risk, the undertaking has been screened as a Category C in accordance with the requirements of the *Class Environmental Assessment for Activities of the Ministry of Northern Development and Mines under the Mining Act* (amended 2018).

ENVIRONMENTAL EFFECTS AND PROPOSED MITIGATION MEASURES

The Ministry of Mines is seeking input on the undertaking and proposed mitigation measures. Several environmental effects associated with the undertaking have been identified during the

Class EA screening process. A summary of negative environmental effects and proposed mitigation measures are provided below in Table 1.

Environmental Effect	Description	Proposed Mitigation Measure
Terrestrial Species or Habitat	<p>The mine property is situated in a remote area, surrounded by deciduous and coniferous tree species. The removal of trees/vegetation will be required to facilitate the access of construction vehicles and equipment.</p> <p>The forested areas surrounding the mine is expected to provide habitat to several terrestrial species. Wildlife may be temporarily displaced due to increased noise levels, vibrations and vehicular traffic associated with the rehabilitation work.</p> <p>Wildlife-vehicle collisions may cause injury/mortality to individual animals. Domestic waste generated may unintentionally attract wildlife to the work area.</p> <p>The NHIC Map and The Ontario Reptile Amphibian Atlas identifies a previous occurrence of Midland Painted Turtle (<i>Chrysemys picta marginata</i>) and Snapping Turtle (<i>Chelydra serpentina</i>) adjacent to the mine. Turtles and other wildlife may be encountered during the rehabilitation work. It is possible that turtles may utilize the property for nesting where suitable substrate is available.</p>	<p>Tree removal will be kept to a minimum and, where required, will be completed outside of the migratory bird active period, which is from approximately mid-April to late-August.</p> <p>Any disturbances to wildlife will be temporary and limited to the footprint of the mine. Disturbed areas will be rehabilitated to match surrounding landscapes to facilitate the recolonization of terrestrial wildlife.</p> <p>The risk of mortality and injury to wildlife will be reduced by enforcing speed limits on access roads. The work area will remain free of litter and all waste disposed of in accordance O.Reg 347.</p> <p>Exclusionary fencing will be utilized as needed to deter turtles and other wildlife from entering the work area. The fencing installation and types will be in accordance with the Ministry of Natural Resources and Forestry (MNRF) <i>Best Management Practices for Reptile and Amphibian Exclusion Fencing</i>.</p>
Endangered Species / Species at risk or habitat	<p>Bat acoustics studies completed in 2019 confirmed the presence of bat species at risk. It is assumed that the underground workings are utilized by bats as a winter hibernaculum. Due to the stability of the adit crown pillar, bat friendly rehabilitation measures are not feasible. The proposed rehabilitation activities will negatively affect the ability for bats to access the underground workings.</p>	<p>The Ministry of Environment, Conservation and Parks will be consulted to confirm permitting requirements under the <i>Endangered Species Act</i> (ESA 2007). All permits will be obtained prior to mobilizing equipment and personnel to the mine.</p> <p>Mitigation measures for turtles are provided above in <i>Terrestrial Species or Habitat</i>.</p> <p>A Species at Risk (SAR) Survey will be completed to confirm the presence of other protected species and/or their</p>

	<p>The NHIC Map identifies a previous occurrence of Midland Painted Turtle and Yellow-banded Bumble Bee (<i>Bombus terricola</i>) adjacent to the mine. Similarly, the Ontario Reptile and Amphibian Atlas identifies a previous occurrence of Snapping Turtles. The reptile and insect species are currently listed as Special Concern under the <i>Endangered Species Act</i> (ESA 2007). Project activities are not expected to impact the abovementioned species.</p>	<p>habitat prior to the proposed work. The report will be reviewed by all workers assigned to this project to ensure they are aware of potential SAR that may be encountered and how to identify the species.</p> <p>If any SAR are encountered, work will immediately stop and the MECP consulted as to how to proceed. Applicable regulatory requirements will be adhered to, and mitigation measures implemented to avoid impacting SAR.</p>
<p>Migratory bird species and migratory bird habitat</p>	<p>The mine is surrounded by a mix of deciduous and coniferous tree species that is likely to provide habitat to migratory birds. Removal of trees/vegetation will be required to facilitate the access of vehicles and equipment.</p>	<p>Vegetation clearing will be completed outside of the migratory bird period. If work is completed during the breeding bird season, vegetation proposed for removal will be surveyed by a qualified individual to confirm the presence/absence of migratory birds or nests. If avian nests are identified, work around the nest will cease and a setback buffer established. All work inside the buffer avoided until the young have fledged and left the area.</p>
<p>Surface water quality/quantity and Soils - contaminants, sedimentation, erosion.</p>	<p>The nearest surface water feature is Huston Lake located approximately 80 m south of the property. Forested land separates Huston Lake from the mine.</p> <p>There is the potential to negatively impact surrounding water features and soil quality through sills and sedimentation.</p>	<p>The vegetated buffer will be maintained between the mine property and waterbody during the rehabilitation work.</p> <p>An emergency spill kit will be readily available during rehabilitation activities and all workers trained on proper use. Should a spill occur, regardless of its severity, the Ministry of Environment, Conservation and Parks will be immediately notified through the Ontario Spill Action Centre (1-800-268-6060).</p>
<p>Air Quality</p>	<p>Standard construction equipment will be utilized, and the emissions associated with this equipment is expected to be minimal.</p> <p>There is the potential for increased fugitive dust to occur along the mine access road due to the movement of equipment and vehicles. The dust will be minimal and limited to the footprint of the road and rehabilitation work area.</p>	<p>Speed limits will be enforced along the mine access roads to minimize dust emissions. If required, water or an approved dust suppressant will be utilized as needed.</p>

Designated Substances, Hazardous Materials and Waste	Workers and/or the environment may be exposed to designated substances and/or hazardous materials during the decommissioning of mine infrastructure and other rehabilitation work.	A designated substance survey will be completed to confirm the presence of eleven designated substances as defined by O.Reg 490/09.
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NEXT STEPS

The Ministry of Mines will consult with the Ministry of Environment, Conservation and Parks (MECP) Species at Risk Branch to confirm permitting requirements under the ESA (2007). All permits and/or approvals will be obtained prior to initiating the rehabilitation work.

Site access improvements will be completed in September 2023, outside of the migratory bird active period. It is anticipated that the rehabilitation of the adit and two raises will be completed over a three-week period in early October 2023, when bats are not expected to be actively hibernating within the mine. A designated substance survey (DSS) is needed prior to the decommissioning of mine infrastructure to confirm the presence of eleven designated substance as identified in the Occupational Health and Safety Act, as well as other hazardous materials that may require special handling or management during the proposed rehabilitation work. It is anticipated that the DSS will be completed by November 2023 and the decommissioning of remaining mine hazards completed by May 2024.