CULTURAL RESOURCES VOL 2
IMPACT INDICATORS AND METHODS

TWIN METALS MINNESOTA PROJECT
Environmental Review Support Document

Prepared for Twin Metals Minnesota, LLC
Prepared by

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REVISION RECORD

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REVISION NARRATIVE

DISCLAIMER

This document is a working document. This document may change over time because of new information, or further analysis or deliberation.

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LIST OF ABBREVIATIONS, ACRONYMS, AND SYMBOLS

TMM	Twin Metals Minnesota, LLC

1.0 INTRODUCTION

The Twin Metals Minnesota, LLC (TMM) Project (Project) is focused on designing, permitting, constructing, and operating an underground copper, nickel, cobalt, platinum, palladium, gold, and silver mining project. Located approximately nine miles (14 kilometers [km]) southeast of Ely, Minnesota, and 11 miles (18 km) northeast of Babbitt, Minnesota, the Project targets valuable state, federal, and private minerals within the Maturi deposit, which is a part of the Duluth Complex geologic formation.

All potential Project infrastructure locations presented herein are considered preliminary and are undergoing further design and engineering evaluations which will dictate final design and locations. Further information about TMM and the Project is located at http://www.twin-metals.com/.

The purpose of this document is to provide necessary information for the environmental review and permitting process. TMM retained [insert Consultant name] (insert abbreviated Consultant name) to complete [insert text].

2.0 SUMMARY

- Provide a high level summary of what is presented within this report.
- Describes rationale for approach and methods.
- Describes rationale for selection of indicators based on features, phase, and activities.
- Describes rationale for area of assessment / APE.
- Describe how this report volume relates to the other volumes.
    - Indicate regulatory framework and proposed action and alternatives are defined in the other volumes of the *Cultural Resources Data Package*.
- Reference relevant sections of the FSDD, SEAW, and / or federal documents to remind the reader there is a defined scope that is being followed.

3.0 IMPACT ASSESSMENT CRITERIA

3.1 Impact Assessment Indicators and Methods

Indicators and methods for assessing direct and indirect impacts will be described within this section including the following:

- Changes or physical disturbances to historic or cultural properties;
- Changes to the integrity of cultural resources due to visual and audible elements;
- Methods for evaluating impacts to religious values;

- Methods for evaluating impacts to treaty rights resources likely including;
  - Wild rice;
  - Medicinal plants;
  - Maple trees (sugarbushes); and
  - Wildlife (moose).
- Methods for evaluating impacts to loss of access to land for exercising treaty rights; and
- Timeline for analysis will be determined by the individual data sources, and would likely be all of the construction and operations phase and some of the closure phase.

3.2 Area of Potential Effects

A discussion will be provided to describe the following:

- Establishment of an APE for cultural resources.
- Agency process for the following:
  - Methods of identification and treatment of cultural resources by BLM and SHPO.
  - Section 106 compliance for cultural resources within the APE.
- Area of analysis for the direct effects APE is the construction limits for the Project features including: plant site, tailings management site, non-contact water diversion area, water intake corridor, access road corridor, ventilation raise sites, access road and the transmission corridor.
- Area of analysis for the indirect effects APE will be as follows:
  - Air quality – indirect effects APE will coincide with a boundary representing the point at which air quality standards are met which will be determined with the *Air Quality Data Package*.
  - Fugitive dust – indirect effects APE will coincide with fugitive dust deposition boundary which will be determined with the *Air Quality Data Package.*
  - Groundwater and Surface Water quality – indirect effects APE will coincide with a boundary representing the point at which groundwater quality standards will be met which will be determined by the *Water Resources Data Package*.
  - Drawdown area – indirect effects APE will be determined by the *Water Resources Data Package*.
  - Visual – indirect effects APE will coincide with the area where visual impacts have the potential to occur described in the *Water Resources Data Package.*
  - Noise and Vibration – indirect effects APE will coincide with area where noise and vibration impacts have the potential to occur described in the *Noise and Vibration Data Package.*

4.0 REFERENCES

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FIGURES

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APPENDIX [#A, B, C, D]

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[Insert page break for each additional appendix.]