HULL RUST MAHONING MINE (HIBBING TACONITE) IN-PIT SHORELAND DEVELOPMENT INNOVATION GRANT PROJECT

PURPOSE
To use ongoing mining activity, specifically the relocating of stockpiled mine overburden at Hibbing Taconite, to shape post-mining era aquatic, shoreline, and upland areas as a demonstration to recreate the historical terrain and vegetation of the Laurentian Divide.

PROJECT OBJECTIVES

- Create landforms and vegetation regimes that mimic those typical of the pre-mining / pre-settlement era.
- Maximize amount of functional shoreline (upland and littoral) area.
- Create upland areas capable of supporting functional forests that can sustain productive management and harvesting.
- Take fullest advantage of current mining activities to shape future landscape.
- Provide locations for ongoing research into site development.

Project Partners
City of Hibbing • Cliffs Natural Resources • Minnesota Department of Natural Resources • Laurentian Vision Partnership
This project was funded with an Innovation Grant from Iron Range Resources & Rehabilitation Board.
**Project Overview**

**Figure 1**

Project Location within Minnesota and the Iron Range
Project is located in the Hull Rust Mahoning Mine within the City of Hibbing on Minnesota’s Mesabi Iron Range.

**Figure 2**

Project Site Location within Hull-Rust-Mahoning Mine
Project site is situated on the north rim of the Hull Rust Mahoning mine complex operated as Hibbing Taconite (HibTac). The 121-acre property is Minnesota School Trust Land owned by the state. Royalties paid by the mining company boosted the School Trust Fund, which provides perpetual financial support for schools across the state. Figure 2 shows the site after it was mined down to essentially bare bedrock.

**Figure 3**

Site Condition after Dumping of Material
Roughly one million cubic yards of unusable overburden (soil and rock) was dumped by mining trucks onto the site. This facilitated mining in another part of the mine and provided the material for shaping the site.

**Figure 4**

Site Zones
Site was divided into three general ecological zones: Upland (79 acres) including a small wetland; Shorland and Littoral (10 acres) roughly half of which will eventually be in the active aquatic growth zone of less than 30 feet deep; and Mine Pit/Lake Bottom (26 acres) all of which will ultimately be underwater.

**Figure 5**

Land Shaping Plan
This shows how the unusable overburden material was shaped to create a landscape of small ridges, slopes, and a wetland with a drainage route to the future pit lake.

**Figure 6**

Future Site Vegetation
The shaped site will be planted with grasses, shrubs and trees to develop a landscape similar to what may have originally existed along the Laurentian Divide before mining. The scheme includes several types of upland forest including a relatively uncommon type of mixed forest found on ridges and a wetland.

**Figures 7-9**

Perspective of Future Site
Once all mining activity in the pit complex has ceased and ground water pumps are shut off, large bodies of water will form. This may happen 50-100 years in the future. Mature forests on the project site will be managed for timber. Future visitors to the Mine View platform will see what is envisioned in Figure 7. Figures 8 and 9 show a closer view of the site’s transformation.
Figure 3

Pit Lake Littoral Zone and Associated Uplands - Stock Pile 5036
Innovation Grant - Hibbing Taconite Hibbing, MN
Figure 4

Pit Lake Littoral Zone and Associated Uplands - Stock Pile 5036
Innovation Grant - Hibbing Taconite Hibbing, MN

FIGURE 4
FIGURE 8.
PROJECT SITE POST DUMPING BEFORE SITE SHAPING AND VEGETATING

FIGURE 9.
ILLUSTRATIVE VIEW OF PROJECT SITE 75-100 YEARS IN THE FUTURE