

### Introduction

On September 13, 2002, the United States Environmental Protection Agency (EPA) placed the Ely Mine on the National Priorities List (NPL) (known as the "Superfund List"). Adding a site to the Superfund National Priorities List ensures that EPA will oversee and manage cleanup of the site, and makes federal funds available when private financing is unavailable. EPA has been working to complete the investigation of the contamination at the Ely Mine Site since 2002. This fact sheet summarizes the activities that have been implemented since the 2002 Community Update and provides an overview of the Superfund activities planned for the Ely Mine Superfund Site during 2006 and 2007.

### Site Investigation Program:

#### Ecological assessment of Schoolhouse Brook, Ompompanoosuc River, and Ely Brook:

One of the major objectives of the investigation program at the Ely Mine is to assess the impacts, from the release of contamination, on the aquatic resources (fish and other ecological receptors) in the three surface water bodies: Schoolhouse Brook, Ompompanoosuc River, and Ely Brook.

Sampling by EPA and Vermont ANR over the past decade has revealed that the portions of Ely Brook below the waste piles and Schoolhouse Brook below the confluence with Ely Brook have been severely impacted by the release of contamination from the Ely Mine. EPA collected surface water, sediment and fish tissue samples from these water bodies in 2001. An assessment of the fish community and benthic macro-invertebrate community was also performed in 2001.

The benthic macro-invertebrate community consists of bottom dwelling organisms that are a critical component of the food chain.

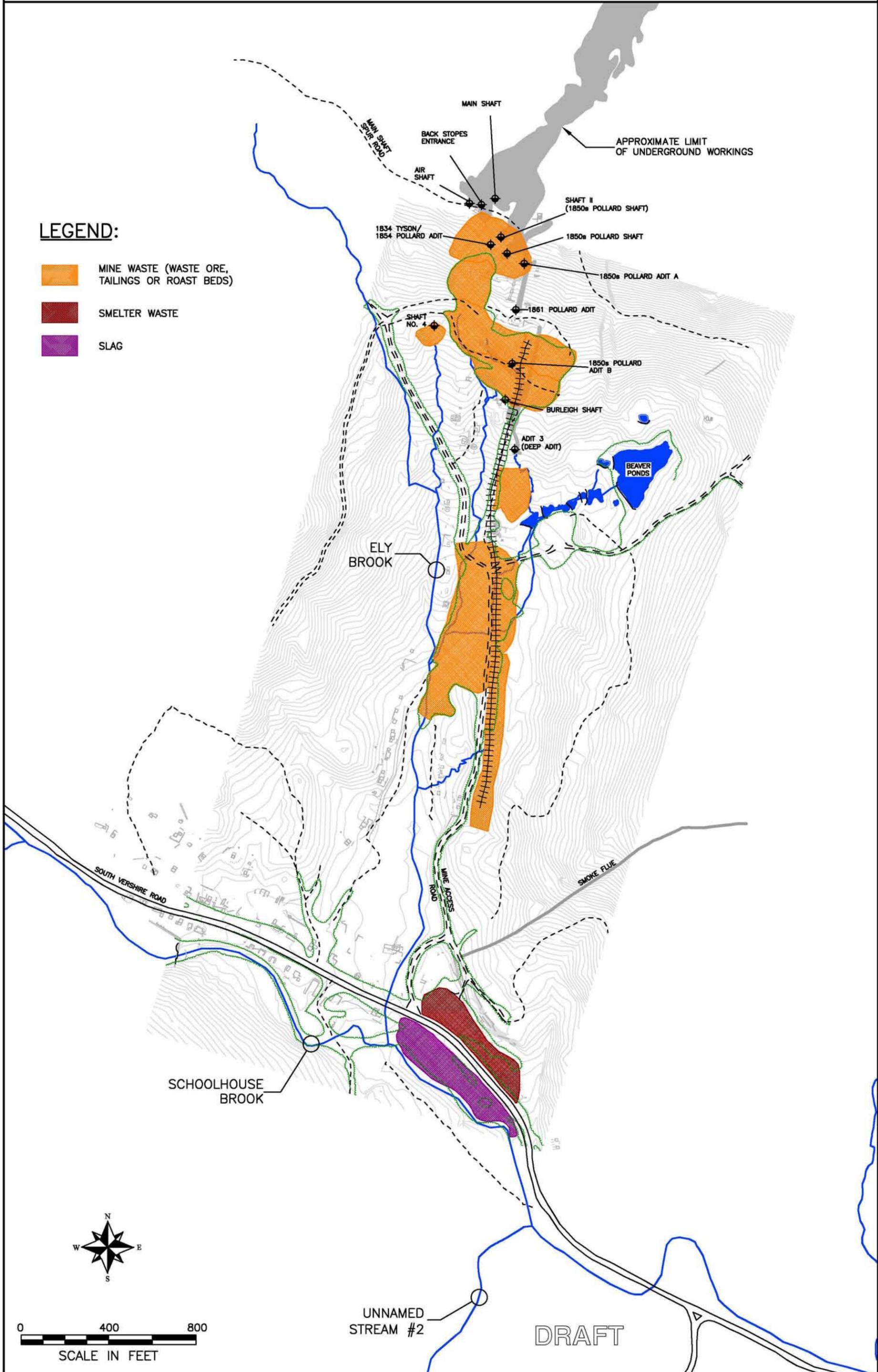
Changes in the abundance or types of benthic invertebrates can be a good indicator of pollution.

In spring 2006, EPA launched a major field program to support the ecological characterization of the aquatic systems. In June, EPA collected and tested surface water samples to identify locations where the water is toxic to aquatic life. During that same time period, the United States Geological Survey (USGS) also walked Schoolhouse Brook, Ely Brook, and portions of the Ompompanoosuc River to create a map of the stream segments that are potentially affected by the Ely Mine. The map will be used to select future sampling locations.

Beginning in late August 2006, EPA along with the USGS, will perform a comprehensive assessment of the ecological condition of Ely Brook, Schoolhouse Brook, and a portion of the Ompompanoosuc River. There will be a significant increase in activity in the area as sample teams will be collecting surface water and sediment samples from several locations in Ely Brook, Schoolhouse Brook, and the Ompompanoosuc River. A few weeks later, a second phase of the program will be implemented as EPA and USGS sample teams assess the benthic macro-invertebrate community and fish community. Fish will also be collected for analysis to determine if any contamination is accumulating in the fish. An assessment of the wetlands and beaver ponds at the Site will also be performed as part of this program.

All of this information will be used to develop a aquatic component of the baseline ecological risk assessment. The baseline ecological risk assessment provides a scientific evaluation of the potential impacts of the contamination on the ecological inhabitants of the area. The information will also help determine if contaminated surface water is the only cause of the ecological impacts or if contamination in the sediments is contributing to the ecological impacts.

FIGURE 1 – ELY MINE SITE



## Ecological Assessment of Soil Habitats:

In addition to the field program to evaluate aquatic impacts, EPA will also perform investigations to determine whether the soil invertebrates, mammals, and birds that live and feed in the area of the Ely Mine waste piles are adversely impacted by the contamination. Soil samples along with possible soil invertebrate studies will be used to perform this assessment.

## Waste Delineation and Groundwater:

Previous studies have provided significant knowledge about the geochemistry of the waste piles. However, the full extent and volume of the waste at the Ely Mine is not yet known. Beginning in 2006, EPA will also focus on field investigations to define the volume and extent of the mine waste at the Ely Mine. This information is obtained from soil samples collected using hand instruments (scoops or shovels), test pits dug by excavators, and soil borings installed by drill rigs. The soil data will be used to assess the potential for health impacts to humans who may come into contact with the mine waste.

There will also be two focus areas for groundwater investigations. One area of focus will be to define the extent of groundwater contamination associated with the waste piles. A series of groundwater monitoring wells will be installed in 2006 or 2007 to evaluate whether groundwater has been contaminated by the waste piles. The second focus area will be the underground workings of the Ely Mine. This is a much more complicated issue because the workings extend very deep into the bedrock. The underground workings are over 1000 feet deep in some locations. The investigation of the underground workings may require more time to complete than the other studies.

## Site Schedule:

EPA hopes to complete the major data collection activities during 2006 and 2007. This would allow for EPA to develop a cleanup plan for the Ely Mine during late 2007 that would be presented to the community for public comment during 2008.

## History of the Ely Mine:

The Ely Mine, located in Vershire, Vermont is one of several copper mines that operated in the Vermont copper belt. Other mines in the area include the Elizabeth Mine in South Strafford and the Pike Hill mines in Corinth. The various mine waste piles create acid rock drainage which enters Ely Brook and then flows into Schoolhouse Brook. Schoolhouse Brook flows into West Fairlee where it enters the Ompompanoosuc River about 1.5 miles from Ely Mine.

The Ely Mine orebody was discovered in 1813. The Ely Mine was a major source of copper during the 19<sup>th</sup> century and was among the top ten U.S. producers of copper between 1866 and 1881. It reached the status of the third most productive copper mine in the U.S. in 1873 and 1875. The mine was most active between the mid-1850s and about 1905. Additional activity occurred at the Site during World War II when approximately 60,000 tons of waste rock was shipped to the Elizabeth Mine.

### For More Information or Questions about the Ely Mine Superfund Site:

**Information about the Ely Mine Superfund Site is available at the EPA Ely Mine website:**

<https://www.epa.gov/ne/superfund/sites/ely>

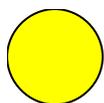
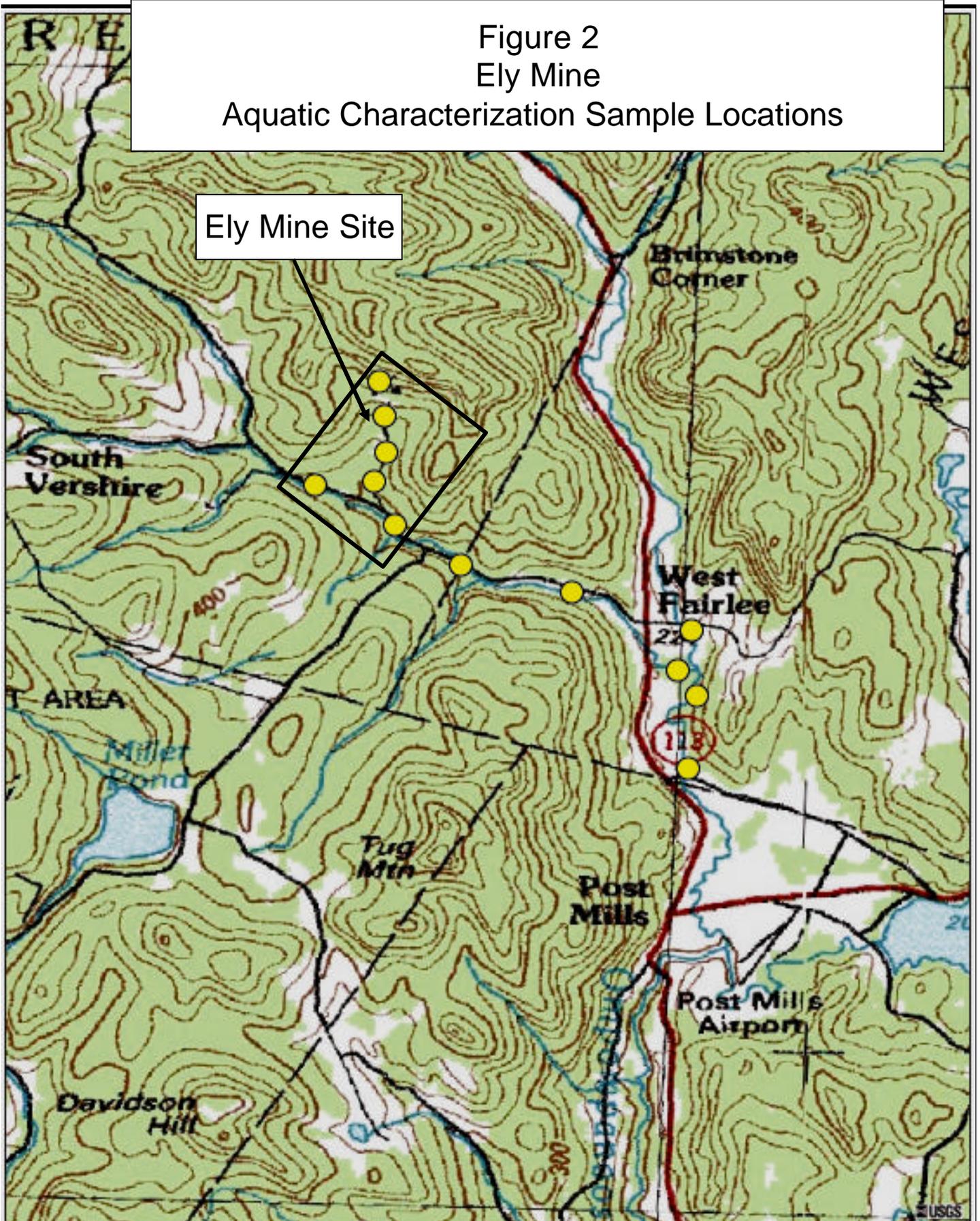
If you have any questions regarding the Ely Mine Site feel free to contact:

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Figure 2  
Ely Mine  
Aquatic Characterization Sample Locations



Locations targeted for sampling