DRAFT RESTORATION PLAN
for the
VERMONT ASBESTOS GROUP MINE SITE
NATURAL RESOURCE DAMAGE SETTLEMENT

Eden and Lowell, Vermont

Prepared by:

United States Fish and Wildlife Service
and
State of Vermont Agency of Natural Resources
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EXECUTIVE SUMMARY
The Vermont Asbestos Group mine site (VAG site) is comprised of approximately 1,550 acres on Belvidere Mountain within the towns of Eden and Lowell, Vermont. The State of Vermont Agency of Natural Resources (ANR) and the Department of the Interior (DOI) jointly received a monetary settlement totaling $850,000 in natural resource damages. These settlement funds are to be expended for natural resource restoration to compensate the public for injuries to natural resources caused by the release of hazardous substances into the environment from the VAG site.

ANR, represented by the Vermont Department of Environmental Conservation (VT DEC) and DOI, represented by the U.S. Fish and Wildlife Service (Service), are responsible for using these settlement funds to implement restoration projects that will restore, replace, rehabilitate or acquire equivalent natural resources or services to those that were injured.

The two agencies are considering three alternatives for using the joint settlement. All three alternatives are evaluated in this document:

| Alternative 1 (Preferred) | Eden – Replacement of Knowles Flat Road Double Culvert (#13-1 and #13-2)  
Eden – Replacement of Square Road Culvert (#812-23)  
Eden – Replacement of Square Road Culvert (#812-22)  
Eden – Lake Wise Best Management Practices Program  
Lowell – Replacement of Irish Hill Road Upper Culvert  
Lowell – Replacement of Irish Hill Road Lower Culvert  
Lowell – Road Erosion Projects |
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</thead>
<tbody>
<tr>
<td>Alternative 2</td>
<td>Wetland Protection Project on Hutchins Brook</td>
</tr>
<tr>
<td>Alternative 3</td>
<td>No Action – No restoration projects implemented</td>
</tr>
</tbody>
</table>

This Draft Restoration Plan is open for public comment until Friday, August 17, 2018. Copies of the plan can be downloaded at [http://dec.vermont.gov/waste-management/contaminated-sites](http://dec.vermont.gov/waste-management/contaminated-sites) or [https://www.fws.gov/newengland/](https://www.fws.gov/newengland/) or requested by mail at the address below. Comments can be submitted via e-mail or by mail to:

**Address:** Lauren Bennett  
**U.S. Fish and Wildlife Service,**  
**4R Fundy Road, Falmouth, ME 04105**

**E-mail:** lauren_bennett@fws.gov
1. INTRODUCTION
The Vermont Asbestos Group mine site (VAG site) is comprised of approximately 1,550 acres on Belvidere Mountain within the towns of Eden and Lowell, Vermont. Currently, the VAG site consists of a network of 11 mine and mill buildings and structures and several tailing and waste rock piles containing asbestos. The two largest tailings piles are estimated at 30 million tons (Eden Pile and Lowell Pile). The aerial extent of quarry, tailings, and infrastructure of the mine is approximately 650 acres. The erosion of the tailing and waste rock piles has substantially impaired downstream wetlands and streams. This impairment is a violation of Vermont Water Quality Standards. A major contributor to this impairment is likely habitat destruction due to the quantity of sediment discharging from the mine tailings and waste rock into downstream wetlands and streams. This sediment contains substantial amounts of hazardous materials, including asbestos, chromium and nickel (Eisler 1986 and 1998).

In September 2009, DOI and the State of Vermont (State) jointly reached a settlement with G-I Holdings Inc., et al., successors to a former owner and operator of the mine, for $850,000 to compensate the public for natural resource injuries caused by the VAG site. Payment was received over a 9-year period.

The State and DOI negotiated this settlement under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended (42 U.S.C. § 9601 et seq.). CERCLA authorizes Federal agencies, States and American Indian tribes to act on behalf of the public as Trustees of natural resources that are injured by the release of hazardous substances into the environment. The Natural Resource Trustees for the VAG site are the Secretary of the Interior, represented by the Service and the Secretary of ANR, represented by VT DEC (collectively, the Trustees).

<table>
<thead>
<tr>
<th>Natural Resource Trustee</th>
<th>Representative Agency</th>
<th>Trustee Representatives</th>
</tr>
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<tbody>
<tr>
<td>Secretary, Vermont</td>
<td>Department of Environmental Conservation (VT DEC)</td>
<td>John Schmeltzer (Primary)</td>
</tr>
<tr>
<td>Agency of Natural Resources</td>
<td></td>
<td>Linda Elliott (Alternate)</td>
</tr>
<tr>
<td>Secretary of the Interior</td>
<td>U.S. Fish and Wildlife Service, Region 5</td>
<td>Molly Sperduto (Primary)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lauren Bennett (Alternate)</td>
</tr>
</tbody>
</table>

CERCLA requires that any natural resource damage settlements received must be used “to restore, replace, or acquire the equivalent of such natural resources,” (42 U.S.C. § 9607 (f)(1)) in accordance with a restoration plan developed by the designated Natural Resource Trustees (42 U.S.C. § 9611(i)). The DOI CERCLA Natural Resource Damage Assessment (NRDA) regulations (43 C.F.R. Part 11) contain additional requirements regarding the contents of a restoration plan. Thus, the VAG site settlement must be used to fund development and implementation of a restoration plan (this document) that identifies projects that will specifically restore ecological resources (stream, floodplain, and wetland habitats along with the species that rely upon these habitats). The remaining balance of settlement funds not used to implement projects will be used by the Trustees to oversee implementation and monitoring of the restoration projects that are ultimately selected. Due to Federal law, these funds cannot be used to conduct
or support remediation efforts at the VAG site or compensate other parties who may have been negatively impacted by the VAG site.

The VT DEC and the Service, acting in their capacity as Natural Resource Trustees on behalf of the public, prepared this Draft Restoration Plan that:

- provides background on the VAG site and the NRDA settlement and explains what restoration alternatives were considered.

Section 1 describes the history of the VAG site and the natural resource damage settlement, as well as the procedures for coordinating with the public and for evaluating restoration projects. It also identifies the wide range of restoration project ideas that the Trustees received and explored, and provides a detailed explanation of why the Trustees chose not to evaluate certain restoration projects.

- evaluates natural resource restoration project alternatives and proposes a preferred alternative to compensate the public for the natural resource injuries caused by releases of hazardous substances from the VAG site.

Section 2 is the Service’s and VT DEC’s proposal for how to utilize the VAG site natural resource damage settlement. This section proposes three natural resource restoration project alternatives. The Trustees’ preferred alternative is a suite of restoration activities in Lowell and Eden that the Trustees believe will best compensate the public for the injuries to natural resources caused by the VAG site.

- ensures that restoration project selection and implementation complies with Federal, State and local environmental laws and policies.

Section 3 (Compliance with Federal, State and Local Laws) of this document addresses the proposed restoration projects’ compliance with a variety of state and federal environmental laws, policies and regulations. This document complies with CERCLA and the DOI CERCLA NRDA regulations. For some of the specific restoration projects proposed, additional consultation, compliance and permitting under laws, such as the Endangered Species Act and the Clean Water Act, may be required once a restoration project alternative is selected in the Final Restoration Plan and specific project engineering and design plans are developed. An explanation for how all laws will be complied with can be found in Table 2.

- involves the public in the restoration planning process.

Public comments on this document, along with participation in public meetings, is the formal vehicle through which stakeholders and the public can participate in the restoration project selection process and provide their recommendations on how settlement funds are used.

Comments on this document will be accepted until Friday, August 17, 2018 and can be submitted via e-mail or by mail.

Address: Lauren Bennett, U.S. Fish and Wildlife Service,
1.1 History of the VAG site
The VAG site has a long and complex history. It is an inactive asbestos mine located at the headwaters of the Lamoille and Missisquoi watersheds on the eastern side of Belvidere Mountain. The VAG site is comprised of approximately 1,550 acres on Belvidere Mountain within the towns of Eden and Lowell, Vermont. Currently, the VAG site consists of a network of 11 mine and mill buildings and structures and several tailing and waste rock piles containing asbestos. The two largest tailings piles are estimated at 30 million tons (Eden Pile and Lowell Pile). The aerial extent of quarry, tailings, and infrastructure of the mine is approximately 650 acres (Figure 1).

The asbestos ore was mined from open quarries producing 3-4 percent chrysotile “white” asbestos. The blasted ore from the quarries went through multiple crushers. The crushed ore was then dried in rotary kilns. The dried ore was then processed through the multi-storied mill...
building where the fibers where separated from the ore and packaged for shipment. In the 1950s, this mine was the largest U.S. producer of chrysotile asbestos. Primary markets for the fiber included vehicle brake linings, shingles, siding, cement, pipe covering, and fireproof suits and doors. Ruberoid began mining at the VAG site at the Eden Mill in 1936 and later at the Lowell Mill (opened between 1948 and 1950). In 1967, Ruberoid merged with General Aniline & Film (GAF). In 1975, GAF sold the mine to the employees, which created the Vermont Asbestos Group (VAG), which is the current owner. VAG continued operating the mine until its closure in 1993.

Erosion of the tailings and waste rock on the VAG site led to runoff of metals- and asbestos-containing sediment - into streams and wetlands surrounding the VAG site. On the southwest side of the VAG site, tailings eroded into Hutchins Brook and its associated wetlands, located in Eden in the Lamoille River watershed. On the northeast side of the VAG site, tailings eroded into Burgess Branch and its associated wetlands, located in Lowell in the Missisquoi River watershed.

In 2006, ANR issued a notice of alleged violation to VAG and requested VAG mitigate the mine tailings and develop a human health assessment. From 2005 to 2007, ANR collected soil, tailings, waste rock, surface water, sediment, benthic and fish samples to assess the effects from tailings discharging in downstream waters and wetlands. During this period, the United States Geological Survey (USGS) provided support in collecting tailing, waste rock, and water samples. In the fall of 2007, the U.S. Environmental Protection Agency (EPA) initiated a Time-Critical Removal Action at the VAG site. Work activities included creating sediment basins, regrading roads, and constructing berms and diversion channels to reduce the discharge of asbestos tailings and waste rock into downstream waters. In 2008, EPA continued the erosion prevention and sediment control activities while also starting reconnaissance and sampling for the Combined Preliminary Assessment/Site Investigation.
Since 2008, VAG has been maintaining the erosion prevention and sediment controls features constructed by the EPA. At this time, there are no current plans to implement a long-term remedy at the VAG site given the lack of financial resources.

1.2 Natural resource damage assessment and settlement
G-I Holdings Inc., et al., are successors in interest to GAF, which was a previous owner and operator of the mine. In 2001 G-I Holdings, Inc., et al., filed for relief under Chapter 11 in New Jersey’s bankruptcy court, and began the bankruptcy process. The Trustees assessed injuries caused by the release of hazardous substances from the VAG site; these included impacts to streams, wetlands and forested uplands, as well as adverse effects to the fish and wildlife inhabiting these areas. In December 2008, the Trustees submitted a single, joint Natural Resource Damage Assessment and Restoration claim in the G-I Holdings, Inc., et al., bankruptcy, which estimated the costs to restore the natural resources impacted from contamination associated with the VAG site. These estimates included costs to develop, implement, monitor and oversee a restoration effort, as well as the cost of assessing the damages.

The Trustees formally reached a settlement with G-I Holdings Inc., et al., in 2009 for $850,000 to compensate for natural resource damages from the VAG site and for past costs. Under the settlement, G-I Holdings Inc., et al., were required to pay out the $850,000 incrementally over 9 years. The Trustees received the final settlement payment in early 2018.

1.3 Coordination and public participation
Public participation and involvement are a critical element of the restoration planning process, as is coordinating with the communities of Lowell and Eden and the variety of State, local and Federal agencies and non-governmental organizations that steward and manage natural resources in the Lamoille and Upper Missisquoi River watersheds.

The Trustees initiated the restoration planning process by meeting with the selectboards in both Lowell and Eden in late March and early April 2017 to inform them about the restoration planning process and solicit restoration project ideas. The Trustees then held two public meetings – one in Eden and one in Lowell – at the end of June 2017 in order to discuss the natural resource damage settlement, explain what types of restoration projects are eligible for funding, and ask the public and stakeholders for ideas.

The public meetings were advertised in local papers, paper flyers were distributed in Lowell, and notice of the meetings was circulated via e-mail. Meeting attendees were asked for their ideas about potential restoration project types, as well as for information about specific projects and project locations, if available. Comments and ideas were recorded and a wide variety of potential restoration project ideas were shared, which greatly aided the Trustees in their restoration planning. Additionally, the Trustees reached out to potentially interested stakeholders – such as the Vermont Land Trust, Lamoille County Conservation District and Missisquoi Basin Watershed Association – by phone and e-mail to ask if they had ideas for restoration projects.

The public has an additional opportunity to participate in the restoration planning process by submitting written comments on this Draft Restoration Plan via mail or e-mail by Friday, August
17, 2018 (see page ii). Additionally, the Trustees are extending offers to both Lowell and Eden to present and discuss the Draft Restoration Plan at each town’s selectboard meeting.

Trustee Council (Represented by the Service and Vermont ANR)
The two Trustees have formed a Trustee Council, which uses a consensus-based approach and operates under a Memorandum of Agreement (MOA). The MOA describes how the two Trustees will make decisions, resolve disagreements, conduct administrative and accounting activities, and ensure that the settlement funds are used for their intended purpose. The Trustee Council works by consensus and is the decision-making body with regard to the use of the restoration settlement funds. The Trustee Council has a responsibility and obligation to involve the members of the public and stakeholders in the restoration planning process and has worked actively to do so.

1.4 Criteria for evaluating restoration projects
The DOI CERCLA NRDA regulations (43 C.F.R. §11.82(d)) identify the following factors to be considered in the evaluation and selection of restoration project alternatives:

- **Technical feasibility**
  
  The relationship of the expected costs of the proposed actions to the expected benefits from the restoration, rehabilitation, replacement, and/or acquisition of equivalent resources

- **Cost-effectiveness**
  
  The results of any actual or planned response actions

- **Potential for additional injury resulting from the proposed actions, including long-term and indirect impacts, to the injured resources or other resources**

- **The natural recovery period**
  
  Ability of the resources to recover with or without alternative actions

- **Potential effects of the action on human health and safety**

- **Consistency with relevant federal, state, and tribal policies**

- **Compliance with applicable federal, state, and tribal laws**

Under the DOI CERCLA NRDA regulations, the Trustees are required to evaluate restoration project alternatives based upon *all relevant considerations*, including, but not limited to, the ten factors listed above. Based on these factors, the particular requirements of this case, and the
Trustees goals for restoration, the Trustees have developed eight criteria to evaluate the proposed alternatives:

- **Location in either Lowell or Eden, VT**
- **Nexus between resources being restored and those that were injured**
- **Project feasibility**
- **Cost effectiveness**
- **Ability to leverage other funds**
- **Complementarity to local community goals**
- **Likelihood of being implemented and succeeding**
- **Magnitude of benefits to ecological resources**

The Trustees focused on exploring potential restoration projects within the two towns (Eden and Lowell) where the major natural resource injuries occurred from hazard material releases from the VAG site. It should be noted that the Trustees’ preferred restoration projects are located in tributaries that cannot be injured from any future sediment discharges from the mine site.

**1.5 Restoration project ideas received**

A wide range of restoration project ideas were considered during the scoping phase of the restoration planning process, which ran from approximately April 2017 through October 2017. Project ideas were received from stakeholder groups (including local communities), State and Federal biologists who are experts on the Missisquoi and Lamoille River watersheds, and from existing river corridor and basin management plans already completed by the State of Vermont. The list of projects received and considered included:
During the scoping period, Trustee Council members worked actively with Federal, State, and local stakeholders to understand the ecological benefit, feasibility and potential likelihood of success of proposed projects. The Trustee Council reviewed existing plans and data related to those projects that seemed most feasible and likely to be implemented.

Several projects, including installation of agricultural best management practices, logging road management, dam removal, invasive plant species removal and land conservation were not explored in-depth because either there were not clear project locations, interested landowners, or project proponents ready to implement these projects. In most cases, the most feasible projects in each town were road crossing (culvert/bridge) replacement projects. The Trustees consulted outside experts, and met onsite and offsite with project proponents to explore and discuss the potential ecological benefits of the potential road crossing projects in each town.

### 1.6 Restoration projects considered but not further evaluated

There were several road crossing (culvert/bridge) replacement projects that the Trustees explored in depth but chose not to pursue, including the

- Kempton Hill Road bridge replacement in Lowell
- Hazen Notch Road bridge replacement in Lowell
- Knowles Flat culvert #13-8 replacement in Eden
- Boy Scout Camp Road culvert replacement in Eden
- Double culvert on Mary Deuso Road replacement in Eden

In the case of the Kempton Hill Road bridge crossing over Burgess Branch in Lowell, the existing bridge was deemed hazardous in 2017 and the road was closed until the bridge could be replaced. The existing bridge, while a safety hazard, is not causing any negative ecological
impacts to Burgess Branch. Thus, replacing the bridge would not provide any clear ecological improvement to stream habitat.

With regard to the Hazen Notch Road bridge replacement in Lowell, the Trustees found that the project would be cost prohibitive and the bridge, in its current state, does allow for fish passage. Thus, the high cost of replacing the bridge would not have as great an ecological return as other projects being considered.

In Eden, the Knowles Flat Road culvert #13-8, which is failing, is in the process of being replaced by the Town of Eden. The project was scheduled to be implemented in 2017 but was held up and will now be implemented in 2018. Replacing the culvert would improve sediment transport and reduce debris jams in this area. However, the culvert is currently passable to fish and the ecological benefits of replacing this culvert are not as great as several other culvert replacement projects in Eden.

With regard to the Boy Scout Camp Road culvert in Eden, the Trustees, along with State and Federal biologists, concluded that it would make the most sense for this culvert to be re-engineered and replaced in conjunction with the replacement of the nearby Route 100 state road crossing. Given that the State has no imminent plans to address the Route 100 road crossing in this location, the Trustees decided not to pursue the Boy Scout Road culvert replacement project.

Finally, the Trustees decided not to pursue the double culvert replacement on Mary Deuso Road in Eden, primarily because the project appeared to be cost prohibitive. This road crossing washes out during storm events and the culverts will likely need to be replaced by a bridge. Given that no other sources of funding for this bridge installation are currently identified, the Trustees concluded that this project is not as feasible as other projects being considered in Eden.

2. PROPOSED RESTORATION ALTERNATIVES
After taking into account key evaluation criteria (Section 1.4) such as technical feasibility, likelihood of success, benefits to the ecosystem, connection to the injured natural resources, cost effectiveness, and ability to leverage additional funds, the Trustee Council determined that it would explore and analyze in detail three alternatives in the Draft Restoration Plan:

Table 1. List of proposed restoration alternatives

<table>
<thead>
<tr>
<th>Alternative 1 (Preferred)</th>
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<tbody>
<tr>
<td>Eden – Replacement of Knowles Flat Road Double Culvert (#13-1)</td>
</tr>
<tr>
<td>Eden – Replacement of Square Road Culvert (#812-23)</td>
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<tr>
<td>Eden – Replacement of Square Road Culvert (#812-22)</td>
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<tr>
<td>Eden – Lake Wise Best Management Practices Program</td>
</tr>
<tr>
<td>Lowell – Replacement of Irish Hill Road Upper Culvert</td>
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<tr>
<td>Lowell – Replacement of Irish Hill Road Lower Culvert</td>
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<tr>
<td>Lowell – Road Erosion Projects</td>
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<th>Alternative 2</th>
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<tr>
<td>Wetland Protection Project on Hutchins Brook</td>
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<table>
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<tr>
<th>Alternative 3</th>
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<tbody>
<tr>
<td>No Action – No restoration projects implemented</td>
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</table>


2.1 Alternative 1 (Preferred Alternative)

Under Alternative 1, the Trustees will partner with the towns of Lowell and Eden and focus on replacing culverts in each town in order to improve fish passage, flood resilience, sediment transport, and water quality. These culverts are all located in stream reaches not affected by tailings runoff from the VAG site, and there is no risk that these projects could be negatively impacted by future runoff from the VAG site. Additional partners on these projects may include the Lamoille County Conservation District (LCCD), Lamoille County Planning Commission, Northern Vermont Economic Development Council, the Service Lake Champlain Fish and Wildlife Conservation Office, VT DEC, the Vermont Fish and Wildlife Department, the Great Lakes Fisheries Commission, and the Vermont Agency of Transportation (VTrans).

Because the culvert replacement projects proposed in each town may also be supported by other Federal, State, and local funding sources, the Trustees propose to use the VAG site natural resource damage settlement to leverage additional funds and potentially accomplish multiple projects in each town. At this point in time, the Trustees expect that at least two culvert replacement projects, both of which are in the planning phase, can be completed in Eden, and at least one culvert replacement project can be completed in Lowell.

In addition to the culvert replacement projects, the Trustees have identified an additional project in each town that will be implemented should funds remain once the preferred culvert projects have been implemented.

The restoration projects for each town are described below in the priority order that the Trustees propose to implement them. The Trustees propose to split the natural resource damage settlement funds evenly between the two towns, up to $375,000 toward implementing preferred restoration projects in Eden and up to $375,000 toward implementing preferred restoration projects in Lowell. Any unused administrative oversight funds may be used to help complete projects in either town.

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>TOTAL ESTIMATED COST</th>
<th>TRUSTEE CONTRIBUTION</th>
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<tbody>
<tr>
<td>Eden – Replacement of Knowles Flat Road Double Culvert (#13-1 and #13-2)</td>
<td>$1,200,000</td>
<td>~$60,000</td>
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<tr>
<td>Eden – Replacement of Square Road Culvert (#812-23)</td>
<td>$315,000</td>
<td>~$315,000</td>
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<tr>
<td>Eden – Replacement of Square Road Culvert (#812-22)</td>
<td>~$300,000</td>
<td>Remaining funds</td>
</tr>
<tr>
<td>Eden – Lake Wise Best Management Practices Program</td>
<td>$10,000</td>
<td>Remaining funds</td>
</tr>
<tr>
<td>Lowell – Replacement of Irish Hill Road Upper Culvert</td>
<td>$250,000 to $400,000</td>
<td>~$225,000</td>
</tr>
<tr>
<td>Lowell – Replacement of Irish Hill Road Lower Culvert</td>
<td>$250,000 to $400,000</td>
<td>~$150,000</td>
</tr>
<tr>
<td>Lowell – Road Erosion Projects</td>
<td>varies by project</td>
<td>Remaining funds</td>
</tr>
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</table>

Cost estimates for culvert replacement projects frequently change as projects go through the design process and site conditions become better understood. Should cost estimates for these
projects change, the Trustees will consider shifting funds between preferred projects that are in the same town.

2.1.1 Eden – Replacement of Knowles Flat Road Double Culvert
The Trustees’ highest priority in the Town of Eden is to partner with the Town to replace the twin culverts on Knowles Flat Road (culverts #13-1 and #13-2). The culverts were both failing and impeding fish passage and sediment transport in the Gihon River. The culverts eventually collapsed in 2017 and had to be removed, thus closing the road. This is a State capital project and thus the town will receive partial funding from VTrans. The twin culverts need to be replaced with an appropriately sized bridge that will allow for fish passage and more natural movement of sediment and debris through the river system. The project is scheduled to be implemented in 2019 or 2020.

A public meeting has been held to discuss the project in Eden and design of the project is moving forward. The total cost of the project is estimated to be $1,200,000 and the Trustees propose to provide $60,000 to the Town to assist with this project. The Trustees’ contribution reflects the estimated funding shortfall for this project. The Trustees reserve the right to adjust the amount allocated for this project, depending upon the final cost estimates.

2.1.2 Eden – Replacement of Square Road Culvert (#812-23)
The Trustees propose to partner with the Town of Eden and the LCCD to complete a project to replace culvert #812-23 on Square Road in Eden. The culvert is located in the headwaters of the Wild Branch of the Lamoille River and is perched above the water surface on its downstream end and there is frequently not enough water inside the culvert to allow fish to swim through. Thus, it is a significant barrier to fish passage. Access into cold headwaters is essential for Eastern brook trout spawning and replacing this culvert will allow native Eastern brook trout to access 9.2 miles of critical spawning habitat.
In 2016, the LCCD, in partnership with the Service’s Lake Champlain Fish and Wildlife Conservation Office (which provided $10,000 in funding), assessed the stream channel and existing structure, and completed engineering design options and recommendations to improve fish passage and aquatic connectivity. Based on this analysis, the LCCD secured an engineer to provide a final design, permitting and regulatory requirements, and construction scope of work and cost estimate for a new culvert. Based upon construction estimates from the engineer, the Trustees estimate the remaining cost of implementing this project to be $200,000 to $315,000. The Trustees propose to work with the VT DEC, the Lake Champlain Fish and Wildlife Conservation Office, the Town of Eden, the LCCD and potentially other partners to finish the design, engineering and permitting for the project and implement it.

### 2.1.3 Eden – Replacement of Square Road Culvert (#812-22)

There is a second culvert (#812-22) on Square Road just downstream of culvert #812-23. The downstream culvert is located on Wild Branch; it is not a fish passage barrier but is undersized and poorly aligned. Thus, the culvert constricts flows and causes streambank erosion, negatively affecting water quality in Wild Branch.
Replacing both culverts would improve sediment transport and water quality, and benefit the aquatic ecosystem of the entire watershed. The Lake Champlain Fish and Wildlife Conservation Office is interested in pursuing additional funds to replace this culvert, given the high quality aquatic habitat present in Wild Branch. The high ecological value of Wild Branch suggests that this project would likely be competitive for additional fish passage restoration funds. Should funds from the VAG settlement be available after the replacement of the double culverts on Knowles Flat Road and culvert #812-23 on Square Road, the Trustees propose to invest in replacing this culvert.

2.1.4 Eden – Lake Wise Best Management Practices Program
Should funds remain after the implementation of the preferred culvert projects in Eden, the Trustees propose to partner with the LCCD to initiate a Lake Wise Best Management Practices (BMP) program at Lake Eden. The Trustees would provide any remaining funds to the LCCD to implement this program. Implementation would involve developing a Lake Assessment that would identify locations on private and/or public lands where BMPs could be installed in order to improve water quality in the lake. These BMPs could include installing vegetation along the lake edge to reduce erosion, or installing stormwater bioretention systems (e.g., rain gardens) in order to reduce stormwater runoff into the lake. As part of the initial effort, the LCCD plans to implement a BMP on a private property to model the Lake Wise Initiative. This model property could serve as a demonstration site for a Lake Wise Workshop and act as a catalyst for LCCD to provide education and outreach to additional lakeshore property owners. Should there be additional excess funds, the Trustees could support additional installation of BMPs around Lake Eden.

2.1.5 Lowell – Replacement of Irish Hill Road Upper Culvert
VTrans has identified a culvert on upper Irish Hill Road (TH 29 Lowell) for replacement. The culvert is located on Trulland Brook and is perched, thus obstructing fish passage. Trulland Brook is a known Eastern brook trout stream. VTrans has completed a hydraulic study of this culvert and is recommending installation of a new box culvert. Because this culvert has been identified as needing replacement by VTrans, this project would likely qualify for grant assistance from VTrans. For these types of projects, towns are frequently eligible to apply for and receive grants of upwards of $175,000 to put toward culvert replacement.
The Trustees propose to work with the Town of Lowell, VTrans, and potentially the Orleans Soil and Water Conservation District, to replace this culvert. No engineering has been done for this project yet. The Trustees estimate that the cost of this project could be anywhere from $250,000 to $400,000. The Trustees are proposing to work with the Town of Lowell to apply for a grant (estimated at $175,000) from VTrans to support implementation of this project, with the remainder of the funding ($225,000) coming from the VAG site natural resource damage settlement. Additional partners may be involved to assist the Town with implementation.

2.1.6 Lowell – Replacement of Irish Hill Road Lower Culvert
VTrans has also identified another culvert at the bottom of Irish Hill Road in Lowell, near its intersection with Route 100, which needs to be replaced. This culvert is located on an unnamed tributary of the East Branch Missisquoi River and is a partial barrier to fish passage. The culvert is at grade with the stream, but is undersized and there is no substrate (stream bottom) within the culvert, which is a disincentive to fish and also increases water velocities within the culvert (making it more difficult for fish to swim through during high flows). This tributary supports a warm water fish community.

This project may also be eligible for VTrans funding. Should there be sufficient funds remaining after the replacement of the culvert on upper Irish Hill Road to allow for the replacement of this additional culvert, the Trustees may use remaining funds to support this project. However, if remaining funds are not sufficient to complete this project, the Trustees may use the remaining funds to implement road erosion projects, described next.
2.1.7 Lowell – Road Erosion Projects
A road erosion study is currently being completed for the Town of Lowell, funded by the VTrans Better Roads Program. This assessment will identify those stretches of road in the Town that are most in need of erosion control. Erosion management systems are frequently needed on dirt roads, which can erode easily and introduce large volumes of sediment into waterways during storm events. Too much sediment entering waterways during storm events over time degrades water quality for fish and other aquatic organisms. The sediment can reduce light penetration into waterways, thus reducing the growth of phytoplankton, which rely upon photosynthesis and which support the aquatic food chain. Large suspended sediment loads, as they settle out, can smother rocky stream and river beds in which benthic macroinvertebrates live and in which many fish lay eggs. Sediment from roads is also a source of phosphorus, which is impairing water quality in the Lake Champlain Basin. Road erosion projects frequently involve the installation of more effective stormwater management systems, including adequately sized, sloped, and lined drainage channels (to slow water and capture sediment) that run parallel to roadways, culvert replacements, and other projects.

These projects vary in scale, scope, and cost, depending upon location. Projects vary in cost, depending upon their scope and size, but frequently are in the range of $10,000 to $30,000. Should funds remain after implementing the proposed culvert replacement projects, the Trustees propose to work with the Town of Lowell and other potential partners, including the Northern Vermont Economic Development District, to implement high priority road erosion projects that are identified in the road erosion study currently underway for Lowell. The Trustees expect that partial funding for high priority road erosion projects could come from the VTrans Better Roads Grant Program, and that remaining VAG settlement funds could be used by the Town of Lowell as matching funds for this grant program.
2.2 Alternative 2: Wetland Protection Project on Hutchins Brook

Downstream of the VAG site in Eden, a Class II approximately 50-acre palustrine wetland complex associated with Hutchins Brook was heavily impacted by metal- and asbestos-laden tailings. More than 12 acres of this wetland complex has been entirely filled in with tailings. However, the western and southern portion of this wetland complex currently remains unimpacted.

Hutchins Brook wetland complex in Eden that was impacted by asbestos-laden mine tailings (tailings appear light gray); aerial photo taken in 2015.

A restoration project was proposed to hydrologically disconnect the unimpacted portion of this wetland (western and southern area) from the impacted portion. The goal of this project would be to prevent future injury to the unimpacted portion of the wetland should additional tailings run off of the VAG site, which is not actively being remediated. As part of this project, a berm would likely be constructed along the western side of the impacted area in order to bisect and hydrologically separate the western and eastern sides of the wetland.

Given that road access to the VAG site is from the eastern side of the wetland, construction equipment would likely need to move through the asbestos tailings, likely requiring additional safety measures to limit the spread of asbestos material offsite. The cost of this project is unclear, as it is uncertain how long a berm would need to be and whether the berm could be constructed using material on-site. The Trustees believe that, due to the unusual nature of this project and the difficulty in accessing the VAG site, this project would be expensive and likely
require the bulk of the $850,000 settlement. The feasibility and long-term effectiveness of this project are also uncertain.

2.3 Alternative 3: No Action
The CERCLA NRDA regulations require that a No Action alternative be considered in the restoration alternatives analysis. This alternative serves as a baseline against which the other (action) alternatives are compared. Under the No Action alternative, the settlement funds would not be utilized to implement restoration of the natural resources that were injured by the release of hazardous materials at the VAG site.

2.4 Evaluation of restoration alternatives
The Trustees considered and evaluated the three proposed restoration alternatives within the context of each of the eight evaluation criteria (Section 1.4) developed by the Trustee Council.

Alternative 1 (Preferred) – Culvert Replacements, Lake Wise and Road Erosion Projects
Location in either Lowell or Eden, VT: Under this alternative, proposed projects are located in both Lowell and Eden, with an equal amount of settlement funding being spent in each town.

Connection between resources being restored and those that were injured: There is a strong connection between those resources being restored and those injured. The proposed projects would improve water quality in streams and also improve habitat for fish, benthic macroinvertebrates, and invertebrates by replacing improperly sized/placed culverts and reducing erosion of sediment into streams and lakes. These benefits would cascade up the food chain to migratory birds, herpetofauna (e.g., salamanders and turtles), and mammals. Additionally, the proposed projects would greatly increase the ability of migratory fish such as Eastern brook trout to reach previously inaccessible high quality spawning habitat, thus bolstering populations of this ecologically and recreationally important species. Tailings runoff from the VAG site filled in sections of streams and wetlands, thus there is strong justification for the Trustees to implement projects that would improve stream habitat for fish and wildlife.

Project feasibility: The projects proposed under Alternative 1 are feasible and likely to be implemented. Planning for the culvert projects is already underway and being supported by other interested partners. VT DEC is currently funding the road erosion study in Lowell that will allow projects identified therein to be competitive for state funds, in addition to VAG site funds. Additionally, the projects proposed under Alternative 1 all rely upon standard, proven restoration practices routinely used by State and Federal agencies.

Cost effectiveness: The proposed projects under Alternative 1 are all cost effective and estimated costs reflect standard costs routinely associated with these types of projects.

Ability to leverage other funds: The proposed projects under Alternative 1 leverage VTrans funding. Given the strong interest of State and Federal agencies in funding projects that address road infrastructure concerns, flood resiliency of communities, and fish passage, additional sources of funding for these projects could emerge.
Complementary to local community goals: All of the projects proposed under this alternative complement local community goals by helping both communities improve their flood resiliency and address road infrastructure concerns. These culvert replacement projects represent a win-win both for stream habitat, which was significantly injured by runoff of metal- and asbestos-laden -tailings from the VAG site, and for the local communities in Lowell and Eden.

Likelihood of being implemented and succeeding: The proposed projects under Alternative 1 have support from both Lowell and Eden, as well as VTrans, the Service, VT DEC, and other partners, indicating a strong likelihood that these projects will be implemented. Because the proposed projects utilize common and accepted techniques for replacing culverts and reducing erosion, and because the towns have significant experience implementing these types of projects, the likelihood that these projects will succeed is high.

Magnitude of benefits to ecological resources: The Trustees expect the projects proposed under Alternative 1 to have significant benefits to stream habitat and to multiple aquatic species. The culvert replacement projects would open up miles of fish passage, allow for improved sediment transport (which is crucial to providing the instream habitat that aquatic organisms need), reduce erosion problems and the excessive turbidity they cause, and also provide a public safety benefit to the local communities by assisting them with important flood resiliency infrastructure projects. For this and other reasons described above, the Trustees have identified Alternative 1 as their preferred alternative.

Alternative 2 – Wetland Protection Project on Hutchins Brook
Location in either Lowell or Eden, VT: This project is located in Eden. There is no direct benefit to Lowell.

Connection between resources being restored and those that were injured: There is a strong and clear connection between this wetland protection project and the injured resources. The wetland protection project being proposed under Alternative 2 would protect an unimpacted portion of the larger Hutchins Brook wetland complex that was directly affected by tailings runoff from the VAG site.

Project feasibility: The technical feasibility of the project is uncertain, given that no conceptual designs for the project have been completed as of yet and the hydrology of the site has not been fully evaluated.

Cost effectiveness: The costs associated with this project are unclear at this point in time, but they are likely to exceed the amount of funding available.

Ability to leverage other funds: No other potential sources of funding for this project have been identified as of yet.

Complementary to local community goals: As far as the Trustees know, the Town of Eden has not identified this project as a high priority in any town planning documents. Thus far, the Town of Eden has expressed a strong interest in seeing VAG site natural resource damage settlement funds go toward flood resiliency and road infrastructure projects in the Town that would also
benefit stream and wetland habitats. Alternative 2, because it occurs in Eden, does not have a clear connection to Lowell community goals. Thus, Alternative 2 is not as complementary to community goals as is Alternative 1 (preferred).

**Likelihood of being implemented and succeeding:** Without a conceptual design, it is difficult to know what permits would be required and how likely the project is to be implemented.

**Magnitude of benefits to ecological resources:** The Hutchins Brook upper wetland ecosystem was a highly ecologically valuable wetland, and protecting the functional, unimpacted portion of this wetland from further injury is a worthwhile effort. However, altering the wetland ecosystem hydrologically by constructing a berm could have potential adverse ecological effects that are difficult to assess.

Generally, the uncertainty regarding the cost and feasibility of this project, along with the Trustees’ interest in funding restoration projects in both towns where natural resource injury occurred from hazardous material releases from the VAG site, lead the Trustees to identify the Hutching Brook upper wetland protection project as a non-preferred alternative.

**Alternative 3 – No Action**

**Location in either Lowell or Eden, VT:** The no action alternative would mean that no active restoration efforts would be made in either town.

**Connection between resources being restored and those that were injured:** This criterion is not applicable as no resources would be actively restored.

**Project feasibility:** This criterion is not applicable because no restoration projects would be undertaken under this alternative.

**Cost effectiveness:** This criterion is not applicable because no restoration projects would be undertaken under this alternative.

**Ability to leverage other funds:** This criterion is not applicable because no restoration projects would be undertaken under this alternative.

**Complementary to local community goals:** This alternative is not complementary to community goals because both the towns of Lowell and Eden have expressed an interest in seeing the VAG site natural resource damage settlement funds utilized to fund restoration projects in their communities.

**Likelihood of being implemented and succeeding:** This criterion is not applicable because no restoration projects would be undertaken under this alternative.

**Magnitude of benefits to ecological resources:** The magnitude of ecological benefits under the no action alternative would be limited because no restoration projects would be implemented.
In evaluating the three proposed restoration alternatives under the CERCLA NRDA regulations, the Trustees came to the conclusion that the no action alternative must be considered non-preferred, primarily because the Trustees signed a Consent Decree agreeing to conduct natural resource restoration activities with the $850,000 settlement. Furthermore, the injuries to natural resources caused by the VAG site were substantial enough that these resources cannot recover on their own. Additional restoration actions are needed to assist in the recovery and restoration of stream and wetland habitats in the vicinity of the VAG site.

In evaluating and considering Alternative 1 (preferred) and Alternative 2, the Trustees concluded that the settlement funds should be used to implement projects in both communities, rather than in only one community. Given that this was a bankruptcy settlement, the Trustees received only a small fraction of the amount necessary to fully compensate for the natural resource injuries at the VAG site. Thus, the Trustees have a proportionally small amount of funding with which to compensate the public for the substantial injuries to natural resources in both Lowell and Eden. The Trustees believe that the most equitable way to address the injuries that occurred in both towns is to implement meaningful restoration projects in both towns.

Additionally, Alternative 1, the Trustees preferred restoration alternative, meets all of the criteria identified in the CERCLA NRDA regulations, along with the eight key criteria developed by the Trustees. Based upon this evaluation, the Trustees propose to use the VAG site natural resource damage settlement to implement their preferred restoration alternative as listed in Table 1.

3. **COMPLIANCE WITH FEDERAL, STATE AND LOCAL LAWS AND POLICIES**

The proposed restoration projects have been evaluated for consistency with applicable Federal, state, and local laws, regulations, and programs. A brief description of the project’s compliance with these rules and regulations is provided in Table 2. All necessary compliance will be completed before project implementation.
<table>
<thead>
<tr>
<th>Law, Regulation or Program</th>
<th>Compliance Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>State of Vermont Statutes Title 10, Chapter 41 Regulation of Stream Flow</td>
<td>Proposed culvert replacement projects may require State permits under Title 10, Chapter 41. Any necessary application for stream alteration permits will be filed in compliance with State statutes and applicable State rules.</td>
</tr>
<tr>
<td>State of Vermont Statutes Title 10, Chapter 37: Wetland Protection and Water Resources Management</td>
<td>Proposed culvert replacement projects may require State permits under Title 10, Chapter 37. Any necessary application for a wetlands permit will be filed in compliance with state statutes and applicable state rules.</td>
</tr>
<tr>
<td>National Environmental Policy Act (NEPA)</td>
<td>This document has been developed in compliance with NEPA. As the Trustees’ proposed actions are not anticipated to have any significant effects on the environment, and as existing Service Categorical Exclusions under NEPA cover these proposed actions, no additional analysis under NEPA is required at this time. Formal NEPA compliance documentation will be published along with the Final Restoration Plan, in which the Trustees will make their official selection of restoration projects.</td>
</tr>
<tr>
<td>Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)</td>
<td>This Draft Restoration Plan has been developed in compliance with CERCLA</td>
</tr>
<tr>
<td>Watershed Protection and Flood Prevention Act</td>
<td>The projects proposed here are expected to assist in the reduction of erosion, floodwater and sediment damages.</td>
</tr>
<tr>
<td>Clean Water Act of 1977 (Federal Water Pollution Control Act Amendments of 1972)</td>
<td>Any necessary applications for 404 General Permits to the U.S. Army Corps of Engineers will be filed in compliance with this Act.</td>
</tr>
<tr>
<td>Endangered Species Act of 1973, as Amended (16 USC 1531 et seq.)</td>
<td>Impacts to identified State- and federally protected species will be minimized during the construction phase of the proposed projects; projects will enhance fish and wildlife habitat value. Consultation with the Service for proposed projects will be conducted in accordance with this Act.</td>
</tr>
<tr>
<td>Rivers and Harbors Act of 1899</td>
<td>Any necessary applications for General Permits to the U.S. Army Corps of Engineers will be filed in compliance with this Act.</td>
</tr>
<tr>
<td>Presidential Executive Order 12898 – Environmental Justice</td>
<td>The proposed projects will enhance safety and recreational opportunities for all residents and visitors, regardless of ethnic background. Public meetings and comments are open to the public.</td>
</tr>
<tr>
<td>Fish and Wildlife Coordination Act</td>
<td>The Service is the Lead Federal Agency for the projects proposed and has played an integral role in the development of the proposed projects and alternatives analysis.</td>
</tr>
<tr>
<td>Presidential Executive Order 11990 – Protection of Wetlands</td>
<td>The proposed projects avoid, to the extent possible, the long- and short-term adverse impacts associated with the alteration of wetlands.</td>
</tr>
<tr>
<td>Presidential Executive Order 11988 – Floodplain Management</td>
<td>The proposed projects will not encourage any human development or building within the existing mapped floodplain.</td>
</tr>
<tr>
<td>National Historic Preservation Act of 1966 as amended (16 USC 470 et seq.)</td>
<td>The Service will consult with the State Historic Preservation Office and the Advisory Council for Historic Preservation on any projects that could involve historic and/or cultural resources. Project designs may be modified based upon these consultations, if necessary.</td>
</tr>
<tr>
<td>Federal Noxious Weed Control Act and Executive Order 13112</td>
<td>The proposed projects are not expected to introduce or spread noxious weeds or non-native invasive species.</td>
</tr>
</tbody>
</table>
4. **MONITORING**

The primary projects – those that will utilize the majority of the funds – proposed by the Trustees in both Lowell and Eden are culvert replacement projects. Thus, the focus of the monitoring effort for this Draft Restoration Plan will be to ensure the proposed culverts are installed correctly. If not replaced correctly, newly installed culverts can cause additional stream channel incision and continued blockage of aquatic organism passage. Based upon existing Service recommendations (Castro 2003), the Trustees, working with their partners, will evaluate the success and/or failure of culvert replacement and removal by documenting the design process, any changes to the design during construction, and by photo-documenting the site conditions before implementation and for 3 years post-implementation. Photo points are useful for documenting significant changes to the stream, and should be taken from the road surface looking both upstream and downstream (Castro 2003). Construction and photo monitoring will be conducted by partner organizations or Trustees responsible for project implementation. The cost of this monitoring effort is minimal and has been incorporated into the project cost estimates provided in Section 2.1.

5. **CONCLUSION**

After significant and meaningful consultation with the public, local communities and other interested stakeholders, State and Federal stream and wetland restoration experts, and restoration project proponents, and after evaluating and considering the proposed restoration alternatives under the CERCLA NRDA regulations and all other relevant State and Federal laws and policies, the Trustees propose to implement their preferred restoration alternative using the VAG site natural resource damage settlement funds. The preferred alternative involves expending up to $375,000 in the Town of Lowell and up to $375,000 in the Town of Eden in order to implement the following projects in priority order for each town:

- Eden – Replacement of Knowles Flat Road Double Culvert
- Eden – Replacement of Square Road Culvert (#812-23)
- Eden – Replacement of Lower Square Road Culvert (#812-22)
- Eden – Lake Wise Best Management Practices Program
- Lowell – Replacement of Irish Hill Road Upper Culvert
- Lowell – Replacement of Irish Hill Road Lower Culvert
- Lowell – Road Erosion Projects

**REFERENCES**


LETTERS OF APPROVAL

Found on following pages
State of Vermont Agency of Natural Resources
Approval of the
Draft Restoration Plan
for the
Vermont Asbestos Group Mine Site
Towns of Eden and Lowell, Vermont

As the Secretary of the Vermont Agency of Natural Resources, I am the designated Trustee of
natural resources in the State of Vermont. By my signature below, the Draft Restoration Plan is
hereby approved. This approval does not extend to the Final Restoration Plan. The Draft
Restoration Plan shall be released for public review and comment for a minimum of 30 days.
After consideration of the public comments received, the Restoration Plan may be revised to
address such comments.

Approved:

[Signature]

Julie Moore, Secretary
Vermont Agency of Natural Resources
U.S. Department of the Interior
Approval of the
Draft Restoration Plan
for the
Vermont Asbestos Group Mine Site
Towns of Eden and Lowell, Vermont

In accordance with U.S. Department of the Interior policy regarding documentation for natural resource damage assessment and restoration projects (521 DM 3), the Authorized Official for the Department must demonstrate approval of draft and final Restoration Plans, with concurrence from the Department’s Office of the Solicitor.

The Authorized Official for the Vermont Asbestos Group Mine Site is the Regional Director for the U.S. Fish and Wildlife Service’s Northeast Region.

By the signatures below, the Draft Restoration Plan is hereby approved. This approval does not extend to the Final Restoration Plan. The Draft Restoration Plan shall be released for public review and comment for a minimum of 30 days. After consideration of the public comments received, the Restoration Plan may be revised to address such comments.

Approved:  
Wendi Weber  
Regional Director  
Northeast Region  
U.S. Fish and Wildlife Service  

Date

Concurred:  
Lisa Stevens  
Attorney  
Department of the Interior  
Office of the Solicitor  

Date