Environmental Assessment

Burden Lake Dam System Mitigation Enhancements Project
DR-4480-0109
Averill Park, Rensselaer County, New York

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U.S. Department of Homeland Security
Federal Emergency Management Agency Region 2
26 Federal Plaza, New York, NY 10278

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APPENDICES

ACRONYMS AND ABBREVIATIONS

AA	Action Area
AAD	Annual Average Daily Traffic
APE	Area of Potential Effects
bgs	below ground surface
BMP	Best Management Practice
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CWA	Clean Water Act
dBA	A-weighted decibels
dbh	diameter at breast height
DHS	U.S. Department of Homeland Security
DHSES	New York State Division of Homeland Security and Emergency Services
DKey	Determination Key
EA	Environmental Assessment
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FIA	Fluvaquents-Udifluvents
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
H&H	Hydrologic and Hydraulic
HMGP	Hazard Mitigation Grant Program
HoC	Hoosic gravelly sandy loam
IPaC	Information for Planning and Consultation System
MBTA	Migratory Bird Treaty Act
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NLEB	Northern Long-Eared Bat
NOAA	National Oceanic and Atmospheric Administration
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory

NYCRR	New York Codes, Rules, and Regulations
NYSDEC	New York State Department of Environmental Conservation
PM	Particulate Matter
PtB	Pittstown gravelly silt loam
RGA	Richard Grubb and Associates, Inc
SFHA	Special Flood Hazard Area
SHPO	State Historic Preservation Officer
SIP	State Improvement Plan
SPL	Sound pressure level
SPDES	State Pollution Discharge Elimination System
SSA	Sole Source Aquifer
SWPPP	Stormwater Pollution Prevention Plan
U.S.C.	United States Code
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

1.0 INTRODUCTION

Beginning on January 20, 2020, the COVID-19-related conditions within the State of New York were considered severe enough to warrant a major disaster declaration, which was issued on March 20, 2020. From January 20, 2020, to May 11, 2023, the declaration authorized the U.S. Department of Homeland Security (DHS) Federal Emergency Management Agency (FEMA) to aid the State of New York in accordance with Federal Disaster Declaration DR-4480-NY.

As a result of this declaration, funding became available through FEMA's Hazard Mitigation Grant Program (HMGP) to support eligible mitigation projects aimed at reducing future disaster risk. Burden Lake Preservation Corporation has applied for HMGP funding for the Burden Lake Dam system through the New York State Division of Homeland Security and Emergency Services (DHSES). HMGP is authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, P.L. 93-288, as amended. DHSES is the direct Recipient of the grant, and Burden Lake Preservation Corporation is the Subrecipient.

The Burden Lake Dam System Mitigation Enhancements Project (Proposed Action) aims to reduce the risk of dam system failure and associated flooding that would impact Burden Lake and downstream communities along Wynants Kill Creek by fortifying the dam system and increasing floodwater storage capacity within the existing system. The Proposed Action would involve upgrading, repairing, and replacing three components of the dam system—the dam itself, a levee, and a weir. **Appendix A**, **Figure 1** depicts an overview of the project area.

FEMA prepared this Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended, DHS Directive 023-10, DHS Instruction Manual 023-01-001-01, FEMA Directive 108-1, and FEMA Instruction 108-1-1, which require FEMA to evaluate and consider the environmental consequences of major federal actions it funds or undertakes. The purpose of the EA is to analyze the potential environmental impacts of the Proposed Action and alternatives, including a No Action alternative. FEMA will use the findings in this EA to determine whether to prepare an Environmental Impact Statement or to issue a Finding of No Significant Impact (FONSI).

2.0 PURPOSE AND NEED

FEMA's HMGP provides financial assistance to state, local, Tribal Nation, and territorial governments to implement hazard mitigation measures that reduce the risk of loss of life and property from disasters. This grant funding is made available after a presidentially declared disaster.

The purpose of the Proposed Action is to mitigate the severity of flooding and flood-related damage that endangers life, property, and critical infrastructure. The Burden Lake Dam system is

in danger of failure because of insufficient capacity and age-related wear. In the event of a dam system failure, downstream flooding would harm residents, businesses, and critical community infrastructure. The project is needed to minimize future damage to property, reduce road closures, and minimize impairment of Burden Lake's stormwater infrastructure due to dam system failure. Additional detail about the potential severity of a dam system failure is discussed in Section 3.0.

3.0 BACKGROUND

The Burden Lake Dam system is located along the northern end of Burden Lake, to the west of Burden Lake Road (County Route 51) in Averill Park, a census-designated place within the Town of Sand Lake, Rensselaer County, New York. Burden Lake is an oblong lake encompassing approximately 374 acres and is approximately 2.5 miles in length from north to south. The total shoreline of Burden Lake is approximately 8.8 miles.

The components of the Burden Lake Dam system consist of the dam, the levee, and the weir. The dam extends approximately 365 feet with an approximate 220-foot-long section of Burden Lake Road extending across the structure. Water from Burden Lake flows north to the dam, which is composed of a stone wall and earthen fill and prevents the flow of water from Burden Lake to a tributary of Wynants Kill Creek. A 28-inch inlet and outlet pipe extends from Burden Lake under the roadway and through the dam into the tributary. The dam is also connected to a diversion canal and pond that were constructed in 1865 to convey flow between Burden Lake and Wynants Kill Creek. Depending on water levels, flow can be conveyed through the diversion canal and pond into Burden Lake or discharged into Wynants Kill Creek. The levee is an embankment that begins directly north of the dam and extends approximately 950 feet northward, terminating at Wynants Kill Creek. The levee is bounded to the west by a sanitary sewer pipe and to the east by the diversion canal and pond. The levee is constructed of earthen materials and is currently vegetated with trees, low shrubs, and grasses. The levee has overtopped during previous storm events. Additionally, water from Wynants Kill Creek moves from east to northwest, flowing to the weir located to the north of the levee. The weir crosses approximately 60 feet of Wynants Kill Creek and is approximately 5 feet in height. Constructed in 1890 at the confluence of Wynants Kill Creek and the diversion canal and pond, the weir is a barrier constructed of a mixture of timber cribbing, stone, concrete, and concrete bags to control the flow of Wynants Kill Creek. Both the dam and the weir have been described as "in poor condition" with voids within the stone wall and a debris buildup on the spillway.

Burden Lake Dam was originally constructed in 1831 as a 10-foot-high stone wall with earthen fill located in the northernmost portion of Burden Lake. An additional 11-foot-high earthen embankment was subsequently added to the top of the stone wall to accommodate increased reservoir storage and the addition of a roadway across the embankment (Burden Lake Road depicted in **Appendix A, Figure 3**). In 1890, the original wooden low-level outlet was replaced

with a 3.5-foot-diameter cast-iron pipe. In 1948, the original stone wall was extended vertically, approximately 12 feet, to accommodate a superelevated modern roadway with positive drainage. In the 1980s, the gate house was damaged by ice and the cast-iron outlet pipe was subsequently capped on its downstream end. In 2009, repairs were made to the abutment/training walls, and the bridge just north of the dam was replaced. Because of safety concerns, Burden Lake Road was closed in September 2021. A hydrologic and hydraulic (H&H) assessment of the dam identified structural concerns, including deficiencies within the stone wall embankment (LaBella Associates 2024). Currently, the stone wall and earthen-fill dam embankment is 365-feet long by 22 feet-high and carries an approximate 220-foot-long section of Burden Lake Road, which remains closed.

The Burden Lake Dam system is classified as a Class B – Intermediate Hazard Dam under the New York State Department of Environmental Conservation (NYSDEC) hazard classification system; it was also assessed in May and June 2024 as part of an engineering assessment by LaBella Associates and determined to be in poor condition. A Class B dam failure meets the following criteria: (1) has the potential to damage isolated homes, main highways, and minor railroads, (2) may result in the interruption of important utilities, including water supply, sewage treatment, fuel, power, cable or telephone infrastructure, and/or (3) is otherwise likely to pose the threat of personal injury and/or substantial economic loss or substantial environmental damage. Loss of human life is not expected. During a major storm that occurred on July 14, 2021, the levee experienced overtopping but did not breach. A complete dam breach impact analysis has not been conducted for the Burden Lake Dam system; however, a breach of the system might include the overtopping of Burden Lake Road and damage to existing sanitary sewer lines, as well as damage to downgradient roadways and properties, including those along Garner Road and Thais Road (**Appendix A**, **LaBella Inundation Maps**).

4.0 ALTERNATIVES

4.1 Alternative Development (Screening Criteria)

This EA considers the No Action alternative and the reasonable alternatives that would meet the purpose and need for the Proposed Action. Reasonable alternatives must be technically and economically feasible and meet the purpose and need for the Proposed Action. To evaluate potential action alternatives for implementing the project, FEMA considered various screening criteria during the development of this EA. The screening criteria used to develop the alternatives included critical elements to achieve the purpose and need, feasibility analysis (engineering constraints), and cost and affordability, as described in greater detail below.

- Purpose and need considerations for alternatives:
  - Provide a long-term solution for structural deficiencies within the stone walls of the dam embankment and at the spillway across the Wynants Kill Creek.

- Functionally improve Burden Lake Road across the dam embankment.
- Determine an approach to abandon or repair/replace the low-level outlet pipe that is experiencing head pressure.
- Develop a spillway configuration that would accommodate the Standard Design Flood.

- Engineering and constructability feasibility considerations for alternatives:
  - Optimize the spillway operation at Burden Lake Dam.
  - Construct a weir just downstream of the bridge opening.
  - Enlarge the bridge opening through:
    - Abandonment of the levee and diversion canal
    - Construction of a new low-level outlet pipe, pump station, or syphon
    - Reconstruction or stabilization of the dam embankment and stone walls
    - Removal of the spillway across the Wynants Kill Creek

- Consider cost and affordability of alternatives that provide long-term protection of the three lakes surrounding the communities and those downstream through the Wynants Kill Creek.

The following sections describe the No Action alternative, the Proposed Action, and one alternative that was considered but dismissed. The criteria were evaluated, discussed, and applied as rationale for why the Proposed Action was selected while other alternatives were dismissed.

4.2 Alternative 1: No Action

Under the No Action alternative, federal financial assistance would not be provided to repair and upgrade the existing Burden Lake Dam system to meet current codes and standards. The concerns identified in the 2024 H&H assessment would not be addressed (LaBella Associates 2024). The dam system would continue to be at risk for failure and would threaten downstream communities. Burden Lake Road would remain closed because of safety concerns, thus limiting access for the community and emergency vehicles. This alternative would not meet the overall purpose and need.

4.3 Alternative 2: Proposed Action

The Proposed Action alternative would reduce the risk of dam system failure and any associated flooding that would impact Burden Lake and downstream communities along Wynants Kill Creek. This would be achieved by upgrading or repairing the Burden Lake Dam system by fortifying the existing infrastructure and increasing the floodwater storage capacity. The Proposed Action would include work on three distinct project components—the Burden Lake Dam, the levee, and the weir (**Appendix A, Figure 2 and Figure 3**). The maximum area of disturbance for the Proposed Action is approximately 2.13 acres.

4.3.1 Project Components

The project components are located at the following coordinates:

Burden Lake Dam (42.620335, -73.567113): A stone wall and earthen structure approximately 365 feet in length, with an approximate 220-foot-long section of Burden Lake Road extending along the top of the structure.

Levee (42.622996, -73.566164): An earthen structure located to the north of Burden Lake Dam and to the west of the diversion canal and pond. Burden Lake Road is south of the levee. The levee extends for approximately 950 feet.

Weir (42.624060, -73.566555): A mixed timber cribbing, stone, concrete, and concrete bag structure located north of the levee. The weir crosses approximately 60 feet of Wynants Kill Creek and is approximately 5 feet in height.

All components of the project can be seen in **Appendix A, Figure 2** and **Figure 3**.

Burden Lake Dam

The Burden Lake Dam upgrades would include strengthening approximately 300 feet of the exterior dam face, installing new piping (as needed), and installing protective fencing on the top of the dam. To strengthen the dam, the existing stone face would be reinforced through methods such as pointing, which is the process of reinforcing joints between masonry units. The elevation of the dam would remain unchanged. The area impacted for this project component would encompass approximately 0.19 acres. The old 28-inch pipe is currently capped and would need to be evaluated by NYSDEC to determine whether the pipe would need to be removed, replaced, or abandoned (NYSDEC 2025c). If replacing or removing of the pipe is deemed necessary, a cofferdam would be temporarily installed. Additionally, located within the dam structure, and 8 feet from the top of the dam, is a municipal gravity sanitary sewer pipe. As part of the dam upgrade, protective fencing for public safety would be installed on top of the dam along with roadway guide rails. To complete the work described, vegetation clearing, including the removal of vegetation and a few larger trees, may be required.

Levee

The proposed improvements to the earthen levee would involve increasing its height by 2 feet above its current height along the approximate 950-foot stretch of the existing levee. Approximately 1,200 cubic yards of soil fill would be placed in the approximate 0.60 acre levee footprint. Additionally, a new access road would be constructed parallel to the levee for approximately 1,000 feet starting at Burden Lake Road up to Wynants Kill Creek. All trees and brush would be cleared from the project area for a total of up to 300 trees. The levee project area

would be reseeded with a conservation blend of native grasses, and a tree planting plan would be developed and implemented by a licensed landscape architect with the objective of replanting an equal or greater number of trees within the disturbed area.

Weir

The existing weir would be removed and replaced with a new concrete weir, set to match the height of the existing weir. The new weir would be reconstructed to the same crest elevation, length, and width as the old weir to preserve historical water flows within the Wynants Kill Creek and Burden Lake. The two abutments on either side of the weir would be enlarged and strengthened. Furthermore, the new weir would include a fish ladder to allow fish to travel upstream for spawning. To access the area during construction, a temporary cofferdam would be placed upstream of the existing weir to redirect stream flows into the diversion canal and pond and through a proposed diversion channel. The proposed diversion channel would be constructed approximately 45 feet south of the weir and direct stream flows around the weir construction area to reconnect back into Wynants Kill Creek. A steel sheet pile curtain wall would be installed on the upstream (east) side of the diversion channel where the feature would connect to the existing diversion canal and pond. The temporary cofferdam would be removed after construction is completed while the proposed diversion channel and steel sheet pile would remain in place permanently as an emergency overflow. The construction area for the improved weir is approximately 0.03 acres.

4.3.2 Equipment, Access, and Staging

The Proposed Action would involve the use of standard construction vehicles and heavy equipment typical for this type of project, including excavators, bulldozers, backhoes, road graders, and crew vehicles. A new permanent access road would be built on the west side of the earthen levee for equipment to access the project components during construction. The access road would originate just north of the dam, extending westward from Burden Lake Road before crossing the existing earthen levee and turning north toward the weir (**Appendix A, Figure 2** and **Figure 3**). Additionally, a permanent staging area would be located midway along the new road between the dam and the weir. The access road would be approximately 1,000 feet long by 16 feet wide, consisting of rock fill laid on top of the existing soil. A temporary 45-foot long by 32-foot wide access bridge would be constructed across the proposed diversion channel. Vegetation removal would be necessary to grade and construct the access road and staging area. Rock for the access road and staging area would consist of approximately 545 cubic yards of 6-inch rock for the surface and 1,090 cubic yards of 12-inch rock as a base layer. The total area of disturbance for the access road and staging area would be approximately 0.70 acres. Disturbance from the construction of the road and staging area would be permanent because of the placement of gravel and, as such, vegetation would not be replanted. The temporary bridge would be removed after construction is completed (**Appendix A, Figure 2**).

4.4 Additional Action Alternative that was Considered and Dismissed

The Subrecipient considered one additional alternative to the Proposed Action—repair of the weir. Repairs would include stabilizing the top of the granite blocks, removing damaged wood elements, and replacing the elements with hardened surfaces. This alternative does not address most of the critical dam system elements identified for the purpose and need, and it would not optimize spillway configuration to address increased water levels from more frequent severe storm events and prevent overtopping during Standard Design Flood. Additionally, this alternative is not practical or cost-effective because of technical challenges with implementation due to the existing condition of the weir structure, and it would not be comprehensive enough to achieve the project purpose. This alternative was dismissed because it does not meet the screening criteria described in Section 4.1.

4.5 Summary of Alternatives

Of the three alternatives considered, one was dismissed because it did not meet the purpose and need of the project. Two alternatives were carried forward for detailed evaluation of the Burden Lake Dam System Mitigation Project:

1) No Action alternative
2) Proposed Action

The following sections discuss the potential environmental impacts and proposed mitigation measures associated with the No Action alternative and the Proposed Action.

5.0 AFFECTED ENVIRONMENT, POTENTIAL IMPACTS, AND MITIGATION

This section discusses the potential impacts of the No Action alternative and the Proposed Action on environmental resources. The potential, reasonably foreseeable environmental impacts are also discussed in Section 5.15. When possible, FEMA considers quantitative information to establish potential impacts; the potential qualitative impacts are evaluated based on the criteria listed in **Table 5.1**. Impacts throughout Section 5 are negative unless noted otherwise.

The study area generally includes the project, access, and staging areas needed for the alternatives. If the study area for a particular resource category is different from the project area, then the appropriate subsection will provide descriptions of the differences.

Table 5.1 Evaluation Criteria for Potential Impacts

Impact Scale	Criteria
No Impact	The resource area would not be affected and there would be no impact.
Negligible	Changes would either be non-detectable or, if detected, would have impacts that would be slight and local. Impacts would be well below regulatory standards, as applicable.
Minor	Changes to the resource would be measurable, but the changes would be small and localized. Impacts would be within or below regulatory standards, as applicable. Mitigation measures would reduce any potential impacts.
Moderate	Changes to the resource would be measurable and have either localized or regional-scale impacts. Impacts would be within or below regulatory standards, but historical conditions would be altered on a short-term basis. Mitigation measures would be necessary to reduce any potential impacts.
Major	Changes would be readily measurable and would have substantial consequences on a local or regional level. Impacts would exceed regulatory standards. Mitigation measures to offset the adverse effects would be required to reduce impacts, though long-term changes to the resource would be expected.

The resources listed in **Table 5.2** were removed from further evaluation in this EA. Neither the No Action alternative nor the Proposed Action would affect the following resources because they do not exist within the project area, or the alternatives would have no effect on the resource. These resources have been removed from further consideration in this EA.

Table 5.2 Resources Eliminated from Further Consideration

Resource Topic	Criteria
Wild and Scenic Rivers Act	According to the National Wild and Scenic River System database (U.S. Forest Service 2025), the closest National Wild and Scenic River is the Delaware Wild and Scenic River, which is approximately 46 miles southwest of the proposed project area. Thus, the alternatives would have no effect on wild and scenic rivers.
Coastal Resources	The project is not within or near a coastal barrier resource system or otherwise protected area; therefore, the alternatives would have no impact on Coastal Barrier Resource Act areas. The project is not within the coastal zone designated by the state (New York State Department of State n.d.). Therefore, the alternatives would have no impact on the coastal zone.

Resource Topic	Criteria
Visual/Aesthetic Resources	The project area is not within an area of particular scenic value, such as a scenic byway or national scenic site. Thus, the alternatives would not change the visual character of the environment and would have no impact on visual resources.
Hazardous Materials	No hazardous waste facilities, such as Superfund sites, toxic release inventory sites, or industrial water dischargers, exist within the vicinity or upgradient of the proposed project area (U.S. Environmental Protection Agency [EPA] 2025d). Therefore, there are no known hazardous materials concerns that could affect or be affected by the alternatives.

5.1 Geology, Topography, and Soils

This section discusses the geologic, topographic, and soil conditions of the project area as well as the potential impacts on these resources. The New York State Museum maps geology across the state. The U.S. Geological Survey (USGS) maps seismic risk using the National Seismic Hazard Model and maps topographical information. These sources were used to identify the geology, seismic risk, and topography within the project vicinity. The U.S. Department of Agriculture (USDA) Web Soil Survey was used to identify soil conditions, including compliance with the Farmland Protection Policy Act (FPPA), which requires federal agencies to minimize the unnecessary conversion of farmland into nonagricultural uses. The FPPA applies to land defined as prime farmland, unique farmland, or farmland of statewide or local importance.

5.1.1 Existing Conditions

The geology within the project area consists of underlying mixed lithic bedrock, which can result from complex geological process such as tectonic activity, erosion, and deposition over time (New York State Museum 2024). The depth-to-bedrock within the project area is greater than 6.5 feet and project activities would not reach that depth (New York State Museum 2024). The project area is in a zone of low seismic potential and low liquefaction potential (USGS 2024). FEMA's National Risk Index identifies a very low risk of earthquakes and a relatively moderate risk of landslides within the project area (FEMA 2025). The project would not impact geologic processes, and seismic risk within the project area is low. Therefore, none of the alternatives would have an impact on geology or seismic risk, or be affected by geology or seismic risks, and these resources are not discussed further.

The region surrounding Burden Lake is characterized by rolling hills and valleys, with a gradual rise into mountains from northeast to southwest. Burden Lake sits at an elevation of approximately 630 feet (USGS 2025a). The project area is generally flat and the lowest point of surrounding topography ranges in elevation from approximately 620 to 624 feet (USGS 2025a). To the

immediate east of the project area, the elevation climbs to approximately 660 feet, and to the immediate west of the project area, the elevation climbs to 630 feet (USGS 2025a).

Soils within the project area consist of Hoosic gravelly sandy loam (HoC), Pittstown gravelly silt loam (PtB), and Fluvaquents-Udifluvents complex (FIA) at the northern end of the project area near the weir (USDA 2025). The Hoosic gravelly sandy loam and Pittstown gravelly silt loam drain well to moderately, respectively. In contrast, FIA complex is often saturated or waterlogged and drains poorly. **Appendix A, Figure 4** shows soil types.

The project area is considered an Urban Area by the U.S. Census Bureau; therefore, the FPPA does not apply. In addition, the project area contains soils that do not meet the criteria for prime farmland (USDA 2025). Therefore, there would be no impact on farmland soils from any of the alternatives and farmland soils are not discussed further.

5.1.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action alternative, there would be no construction-related short-term impacts on topography or soils.

In the long-term, the risk of flooding and subsequent soil erosion would not be reduced. Floodwaters would continue to erode and degrade soils but would not be expected to meaningfully affect topography, except in occurrences of atypical soil deposition or erosion. Erosion and potential degradation of soils associated with flooding would be small and localized. Therefore, there would be a negligible long-term impact on topography from potential atypical deposition and erosion, and a minor long-term impact on soils from erosion and potential degradation associated with flooding.

Alternative 2: Proposed Action

Construction for the Proposed Action would require excavation to a maximum depth of 18 inches to create the proposed diversion channel and 6 inches to grade and construct the access road and staging area. The minor excavation and grading would not meaningfully alter the topography but would disturb soils and could erode soils. A total of 2.13 acres of ground disturbance would occur. Any suitable excess soils would be disposed of on the Subrecipient's property, and any unsuitable excess soils would be disposed of at an off-site location approved by NYSDEC. Soil erosion associated with construction would be minimized by adhering to all conditions and best management practices (BMPs) in state permits and approvals. Therefore, the Proposed Action would have a negligible short-term impact on topography, and a minor short-term impact on soils, from excavation and other ground-disturbing activities.

In the long-term, the topography of the project area would be permanently altered by constructing the proposed diversion channel and grading the access road and staging area. Excavating a new diversion channel would permanently lower the ground surface elevation, and the access road and staging area would remain at the post-construction elevation. However, the proposed diversion channel, access road, and staging area would not meaningfully alter the topography of the project area or surrounding topography. Changes in topography would be slight and localized. As such, the Proposed Action would have a negligible long-term impact on topography.

The Subrecipient would be required to develop a Soil Erosion and Sediment Control Plan in accordance with the New York State Standards and Specifications for Erosion and Sediment Control. The Subrecipient must implement all conditions and BMPs identified in the Soil Erosion and Sediment Control Plan.

5.2 Air Quality

The Clean Air Act of 1970 (42 U.S.C. 7401 et seq.) is a comprehensive federal law that regulates air emissions from area, stationary, and mobile sources. The act authorized the EPA to establish National Ambient Air Quality Standards (NAAQS) to protect public health and the environment. The NAAQS include standards for six criteria air pollutants: lead, nitrogen dioxide, ozone, carbon monoxide, sulfur dioxide, and particulate matter (including both particulate matter less than 10 micrometers in diameter [PM_{10}], and fine particulate matter less than 2.5 micrometers in diameter [$PM_{2.5}$]). Areas where the monitored concentration of a criteria pollutant exceeds the applicable NAAQS are designated as being in non-attainment of the standards; while areas where the monitored concentration of a criteria pollutant is below the standard are classified as being in attainment. Areas previously designated as a nonattainment area for one or more pollutants, pursuant to the Clean Air Act Amendments of 1990, and subsequently redesignated as an attainment area, are subject to the requirement to develop a maintenance plan under Section 175A of the Clean Air Act, as amended.

Federally funded actions in nonattainment and maintenance areas are subject to EPA conformity regulations (40 CFR Parts 51 and 93), which ensure that emissions of air pollutants from planned federally funded activities would not affect the state's ability to meet the NAAQS. Section 176(c) of the Clean Air Act (CAA) requires that federally funded projects conform to the purpose of the State Implementation Plan (SIP), meaning that federally funded activities would not cause any violations of the NAAQS, increase the frequency or severity of NAAQS violations, or delay timely attainment of the NAAQS or any interim milestone.

The conformity requirements of the CAA and its regulations limit the ability of federal agencies to assist, fund, permit, and approve projects that do not conform to the applicable SIP. Under this regulation, the federal agency is responsible for demonstrating conformity for its Proposed Action. Conformity determinations for federal actions—other than those related to transportation plans,

programs, and projects that are developed, funded, or approved under Title 23 USC or the Federal Transit Act (49 USC Chapter 53)—must be made according to the federal general conformity regulations (40 CFR 93 Subpart B). Certain actions and activities are exempted from general conformity review, including the following:

- Stationary source emissions regulated under major or minor New Source Review (air permitting) programs
- Alteration and additions of existing structures as specifically required by new or existing applicable environmental legislation
- Actions where the emissions are not reasonably foreseeable
- Actions that have been defined by the federal agency or by the state as "presumed to conform"
- Activities with total direct or indirect emissions (not including stationary source emissions regulated under New Source Review programs) below de minimis levels (emissions from construction activities are subject to air conformity review, unless they are shown to be below the applicable de minimis levels)

5.2.1 Existing Conditions

EPA's Green Book provides detailed information about NAAQS designations, classifications, and nonattainment statuses for counties. According to the Green Book (updated June 30, 2025), Rensselaer County is currently in attainment for all criteria pollutants, as shown in **Appendix B** (EPA 2025a). Thus, no SIP applies to the project area.

5.2.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action alternative, there would be no construction-related short-term impacts on air quality.

In the long-term, the dam system would not be repaired or upgraded, and the risk of flooding would not be reduced. Periodic flood events could result in additional road closures, causing diversion of vehicles away from the flooded areas and increasing travel distances and vehicles emissions. Emissions from construction equipment used for flood-related repairs and additional vehicle emissions generated by flood-related road detours (i.e., longer trips result in more emissions) could result in negligible emissions of criteria pollutants within this attainment area. These emissions would be temporary, localized, and unlikely to result in a NAAQS exceedance. Therefore, the No Action alternative would have a negligible long-term impact on air quality from emissions resulting from equipment used for periodic flood-related repairs and additional vehicle emissions generated by flood-related road detours.

Alternative 2: Proposed Action

During construction of the Proposed Action, on-site construction equipment and off-site construction-related hauling, delivery, and worker commute vehicles would produce emissions that could increase the levels of some pollutants in the short-term, including carbon monoxide, volatile organic compounds, nitrogen dioxide, ozone, and PM. Most on-site construction equipment and off-site hauling and delivery vehicles would be diesel-fueled, while most worker commute vehicles would be gasoline-fueled. EPA mandates the use of ultra-low sulfur diesel fuel for all highway and nonroad diesel engines; thus, sulfur dioxide emitted from the Proposed Action's construction activities would be negligible (40 CFR Part 80). Gasoline engines produce relatively high levels of carbon monoxide compared to other combustion sources. In addition to the minor equipment and vehicle emissions, on-site earth-moving, excavation, demolition, grading, and other ground-disturbing activities would generate dust and would be the primary construction-related sources of PM.

Construction of the Proposed Action would take up to 20 months; therefore, vehicle and equipment use, as well as ground-disturbing activities within the project area, would be temporary and localized. BMPs from EPA's Construction Emission Control Checklist (included in **Appendix B**), such as establishing and enforcing an anti-idling policy and fugitive dust controls, would be implemented to mitigate air quality impacts. Because of the temporary nature of air quality impacts and implementation of BMPs, the potential emissions of criteria pollutants from implementation of the Proposed Action would have minor short-term impacts on air quality. Because the project area is within an attainment area, the Proposed Action would not be subject to the General Conformity Rule and would not require a conformity determination.

Implementation of the Proposed Action would not include a source of long-term permanent emissions because there would be no change in vehicular traffic. Therefore, there would be no long-term impact on air quality.

5.3 Water Quality

Congress enacted the Federal Water Pollution Control Act in 1948, which was later reorganized and expanded in 1972 and became known as the Clean Water Act (CWA) (33 U.S.C. 1251 et seq.) in 1977. The CWA regulates discharge of pollutants into water with sections falling under the jurisdiction of the U.S. Army Corps of Engineers (USACE) and the EPA. Section 404 of the CWA establishes the USACE permit requirements for discharging dredged or fill materials into waters of the United States and traditional navigable waterways. USACE regulation of activities within navigable waters is also authorized under the 1899 Rivers and Harbors Act. Under the National Pollution Discharge Elimination System (NPDES), the EPA regulates both point and non-point pollutant sources, including stormwater and stormwater runoff. Activities that disturb 1 acre of ground or more are required to apply for an NPDES permit, called a State Pollution Discharge

Elimination System (SPDES), through the NYSDEC, as authorized by the EPA (NYSDEC 2025a, NYSDEC 2025d, NYSDEC 2025i).

Section 1424(e) of the Safe Drinking Water Act of 1974 [Public Law 93–523] authorizes the EPA to designate an aquifer for special protection under the sole source aquifer (SSA) program if the aquifer is the sole or principal drinking water resource for an area and if its contamination would create a significant hazard to public health. The sole or principal source is defined as supplying 50 percent or more of the drinking water for a particular area. No commitment for federal financial assistance may be provided for any project that EPA determines may contaminate an SSA such that a significant hazard to public health is created.

Relevant state regulations include the following:

- New York Codes, Rules, and Regulations (NYCRR) Classifications and Standards of Quality and Purity (Title 6, Chapter 10, Article 2, Parts 700–706)
- NYCRR SPDES (Title 6, Chapter 10, Article 3, Part 750)
- NYCRR Use and Protection of Waters (Title 6, Chapter 5, Subchapter E, Part 608.9)
- NYCRR Lower Hudson River Drainage Basin Series (Title 6, Chapter 10, Article 10, Parts 858 and 863)
- New York Division of Water Technical and Operational Guidance Series (1.1.1, 1.1.3–1.1.5, 1.4.2)
- New York Water Quality Antidegradation Policy (Organization and Delegation Memorandum No. 85-40)
- New York State Standards and Specifications for Erosion and Sediment Control

These regulations maintain the quality of groundwater and surface water by defining quality standards, restricting the discharge of pollution and waste, and requiring implementation of BMPs.

5.3.1 Existing Conditions

The project is located within the Wynants Kill watershed (HUC 020200060301) in the Middle Hudson River Basin (Rensselaer County 2023). Surface waters include lakes, streams, and wetlands. The lakes, rivers, and streams that occur within and near the project area are depicted in **Appendix A, Figure 5.** Wetlands are discussed in Section 5.4 and are depicted in **Appendix A, Figure 6**. Wynants Kill Creek originates at Glass Lake near Taborton Mountain and flows approximately 2 miles to the east towards Burden Lake. At the north end of Burden Lake, it continues flowing northeast approximately 10 miles to the City of Troy emptying into the Hudson River. EPA has designated the location of the Proposed Action within the Wynants Kill watershed

as an impaired catchment assessment unit. As of 2022, Burden Lake is considered a New York 303(d)-listed impaired waterbody because of low levels of dissolved oxygen (EPA 2025b). However, the low levels of dissolved oxygen are attributed to the morphology and other natural conditions of Burden Lake rather than human-caused sources.

Groundwater and freshwater aquifers are abundant in New York State (New York State 2025). A study on wells in Averill Park reported that two wells within 0.5 mile of the project area had water depths between 60 and 70 feet below ground surface (bgs) (Randall and Finch 2008). The closest SSA is the Schenectady-Niskayuna SSA, located approximately 12 miles to the northeast of the project site (EPA 2025c). Due to the distance of the SSA from the project site, there would be no impact on this resource.

5.3.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action alternative, there would be no short-term impacts on water quality associated with construction.

In the long-term, the impacts on water quality associated with flood events would not be substantially reduced under the No Action alternative. Over time, periodic flood events could degrade water quality in Burden Lake and connected waterways by introducing debris and contaminants, such as oil and grease from roadways, into the system. In the event of a dam breach or complete dam system failure, high flood flows could convey a large volume of water, fine sediment, soil, rock, trees, and pieces of the dam downstream. This would negatively impact water quality in connected waters by increasing turbidity and introducing debris and contaminants. Therefore, the No Action alternative would have minor to moderate long-term impacts on water quality within the project area from debris and contaminants spread via floodwaters, depending on the frequency and scale of flooding.

Floodwaters from a dam system failure event could also impact groundwater quality through infiltration of contaminants at recharge sites; however, because groundwater is generally found 60 to 70 feet bgs, the potential for this impact would be negligible (Randall and Finch 2008).

Alternative 2: Proposed Action

Under the Proposed Action, construction activities would have potential minor short-term impacts on water quality within Burden Lake and connected waters. Erosion of soils and fine sediments could occur during excavation and other earth-moving construction activities, which could impact water quality by causing turbidity. Inadvertent leaks and spills from the use of heavy machinery, such as oil and grease, could also affect water quality by introducing contaminants into surface waters. Contaminants could also impact groundwater if leaks or spills percolate through the soil in

areas with exposed, shallow, or fractured bedrock; however, because groundwater is generally found 60 to 70 feet bgs, the potential for this impact would be negligible (Randall and Finch 2008). In addition, the implementation of BMPs would avoid or mitigate the potential leaks and spills of hazardous materials.

The Proposed Action would require in-water work, which would have a higher potential to impact water quality than land-based construction activities. Prior to in-water work, the Subrecipient would install a temporary cofferdam upstream of the weir construction site in Wynants Kill Creek to dewater the area during work activities. The total area of Wynants Kill Creek that would be dewatered is 0.14 acre. Additionally, during the dam reconstruction, a temporary cofferdam would be installed to inspect the inlet and outlet pipe and to complete replacement, removal, or closure of the pipe. Installation and removal of the cofferdams would temporarily increase turbidity within Wynants Kill Creek and Burden Lake during these activities. However, once cofferdams are in place, the potential for construction activities and equipment to adversely impact water quality would be minimized because work would occur in the controlled dewatered areas behind the cofferdams.

The cofferdam in Wynants Kill Creek would also convey water between Wynants Kill Creek and the diversion canal and pond via the proposed diversion channel that would cut through the levee peninsula, approximately 45 feet south of the weir (**Appendix A, Figure 2**). The proposed diversion channel would be lined with 12-inch riprap and the opening fixed with a steel sheet pile curtain wall that could be opened or closed, depending on flow conditions. The proposed diversion channel will be designed to alleviate floodwaters during high-flow events following completion of construction activities. Water redirected into the proposed diversion channel when the channel is first used would likely lead to a flush of increased turbidity and erosion in connecting waterways. This flush would occur only during the first use as any loose soils, fine sediments, or construction-related materials are mobilized and transported downstream. However, once materials settle, this impact would subside and would have no long-term effects.

The timing of in-water construction activities would occur during Wynants Kill Creek's low-flow season, which is typically August through October. This timing would minimize the amount of drawdown and water diversion that would need to occur to access the dam and weir during construction, which would reduce potential water quality impacts. The Subrecipient does not plan to bring lake volumes below any historically low levels. Furthermore, the Subrecipient would comply with any conditions required by USACE and NYSDEC. Thus, the Proposed Action would have a minor short-term impact on water quality from construction activities.

In the long-term, the risk of flooding from dam system failure would be reduced. The Proposed Action would limit the risk of flooding by enhancing the dam system's capacity to store, capture, and redirect stormwater during a high-flow event. By capturing and controlling stormwater flow,

the enhanced stormwater system would reduce erosion, filter contaminants, and limit the spread of debris and contaminants into nearby surface waters and groundwater, which would improve water quality. Although the Proposed Action would not directly improve water quality within Burden Lake or connected waters, the reduced risk of flooding and release of debris and contaminants via floodwaters would have a long-term beneficial impact on water quality.

The Subrecipient must coordinate with USACE and NYSDEC to obtain any required permits, such as a Section 404 permit. Specifically, a Soil Erosion and Sediment Control Plan would be prepared in accordance with the New York State Standards and Specifications for Erosion and Sediment Control to minimize the potential mobilization of sediment. In addition, a Stormwater Pollution Prevention Plan (SWPPP) would be prepared, which would identify all potential sources of stormwater contamination on the proposed site and outline all BMPs that would be implemented to reduce contaminants in stormwater discharges (NYSDEC 2025i).

5.4 Wetlands

EO 11990 Protection of Wetlands requires federal agencies to avoid funding activities that directly or indirectly support occupancy, modification, or development of wetlands whenever there are practicable alternatives, and that the Proposed Action includes all practicable measures to minimize harm to wetlands that may result from such use. FEMA uses an 8-step decision-making process to evaluate potential effects on, and mitigate impacts to, wetlands and floodplains in compliance with EOs 11990 and 11988. NYSDEC administers and regulates wetlands in New York State under the Freshwater Wetlands Act (Article 24 of Environmental Conservation Law) and the Tidal Wetlands Act (Article 25 of Environmental Conservation Law).

5.4.1 Existing Conditions

According to a review of the U.S. Fish and Wildlife Service's (USFWS) National Wetlands Inventory (NWI), the project area supports freshwater forested/shrub wetlands (PFO1A), riverine features (R3UBH), and a freshwater pond (PUBHh) (USFWS 2025b) (**Appendix A, Figure 6**).

5.4.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action alternative, there would not be any direct construction-related impacts on the wetlands in the project area. However, the risk of flooding would not be reduced, and repeated flooding may result in impacts associated with sedimentation and pollutants. Flooding may also increase erosion of wetlands that could result in loss of wetland areas. Therefore, the No Action alternative would result in minor to moderate long-term impacts on wetlands.

Alternative 2: Proposed Action

Portions of the proposed access road, weir work area, staging area, and work area between the proposed access road and earthen levee are within freshwater forested/shrub wetlands, as mapped in the NWI (USFWS 2025b). The total downgradient wetland system includes up to approximately 12 acres of adjoining freshwater forested/shrub wetlands. Construction of the proposed elements would directly impact approximately 0.78 acres of mapped forested/shrub wetlands through vegetation removal and/or the placement of fill (**Appendix A, Figure 6**).

In the short-term, construction of the proposed diversion channel and reconstruction of the weir and dam have the potential to temporarily impair water quality and increase turbidity in wetlands (Section 5.3.2 details potential water quality impacts). Increased turbidity from the release of suspended sediments can decrease the ability of any present submerged aquatic plants to photosynthesize by decreasing light penetration, thus reducing dissolved oxygen within the wetland system. If suspended sediments absorb any pollutants, these pollutants may settle in the wetland system (EPA 2021). However, with the use of cofferdams and construction BMPs, and compliance with permit conditions, impacts on wetlands would be minimized. Additionally, some wetland work areas would be replanted and restored to the greatest extent possible following construction. Therefore, the Proposed Action would result in minor short-term impacts on wetlands from vegetation removal and temporary water quality impacts.

In the long-term, approximately 0.49 acres of wetlands would be permanently impacted through vegetation removal and the placement of fill within wetlands for the construction of the levee, access road and staging area, diversion channel, and bridge. Approximately 545 cubic yards of 6-inch rock and 1,090 cubic yards of 12-inch rock would be used to build the access road and staging area, permanently impacting approximately 0.42 acres of wetlands through the placement of fill. Additionally, approximately 0.07 acres of wetlands would be permanently impacted by the raising of the levee and less than 0.01 acres of wetlands would be permanently impacted by the construction of the diversion channel. These wetlands are a part of a greater freshwater forested/shrub system, and permanent impacts would affect less than 1 acre.

The Proposed Action would comply with federal, state, and local wetlands regulations, which may include mitigation requirements for permanent loss of wetlands. Therefore, because the net loss of wetlands would be a small portion of the larger wetland system and regulatory standards would be followed, the Proposed Action would have a minor long-term impact on wetlands within the area.

Additionally, FEMA conducted the 8-step decision making process for the Proposed Action (**Appendix D**). Through this process, FEMA considered the natural environment, social concerns, and economic features of the Proposed Action and concluded that it is the only practicable alternative, and that the scope of work is functionally tied to its location relative to wetlands.

5.5 Floodplains

EO 11988, Floodplain Management, requires that a federal agency avoid direct or indirect support of development within the floodplain whenever there is a practicable alternative. FEMA uses Flood Insurance Rate Maps (FIRM) to identify the floodplains for the National Flood Insurance Program (NFIP). Federal actions within the 100-year floodplain require the federal agency to conduct the 8-step decision making process contained in 44 CFR Part 9.

Construction within designated floodplain areas is also regulated by Chapter 122: Flood Damage Prevention of the Sand Lake Town Code. This ordinance mandates that any development in a Special Flood Hazard Area (SFHA) must obtain a floodplain development permit to ensure compliance with state and federal floodplain standards.

According to New York State regulations, 6 NYCRR Part 673, any work on existing dams or construction of new dams within the floodplain requires NYSDEC Dam Safety Section approval to ensure changes do not increase flood risk or impair floodplain function. Dams must be designed and maintained to safely pass a designated flood event (e.g., 100-year or Probable Maximum Flood), thus preserving downstream floodplain stability.

5.5.1 Existing Conditions

Averill Park is subject to the NFIP because the Town of Sand Lake is a NFIP-participating community. NFIP regulations (44 CFR 60.3) and the New York State Building and Residential Codes require that any development within SFHAs be built to certain standards. Additionally, construction within designated floodplain areas is also regulated by Chapter 122: Flood Damage Prevention of the Sand Lake Town Code.

According to FEMA FIRM Panel Number 3611670007A (dated May 15, 1980), the project area is in Zone A, an area subject to inundation by the 1-percent-annual-chance flood. **Appendix A, Figure 7** shows flood zones within the project area.

5.5.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action alternative, construction activities would not occur, resulting in no short-term impacts on the floodplain.

In the long-term, the risk of flooding would not be reduced because the dam system would not be updated or repaired. Without the proposed improvements, the amount of land subject to flooding in and around the project area would likely increase in future years, based on weather pattern trends related to storm severity and frequency. Additionally, the potential for dam system failure would

become more likely as the dam continues to age, putting the project area and surrounding communities at increased risk of experiencing a major flood event. More frequent and severe flood events could impact the natural functions of floodplains by transporting debris and pollutants, which would impact water quality functions (Section 5.3.2) and by inundating vegetation, which would impact wildlife habitat functions (Section 5.7.2).

However, the No Action alternative would not impact the natural floodplain function of storing floodwaters. Property within the project area and vicinity would continue to be at risk for damage during future storm events, such as damage to sewer lines, as presented in Section 3.0. Based on the potential for dam system failure to increase over time, the No Action alternative would have a moderate long-term impact on both people and property within the project area and vicinity.

Alternative 2: Proposed Action

The Proposed Action would result in approximately 1.45 acres of disturbance within the floodplain, including 0.22 acres of temporary disturbance and 1.23 acres of permanent disturbance from elevating the levee as well as constructing the access road and staging area, which would be permanently covered with gravel, diversion channel, and weir.

In the short-term, construction activities within and near the floodplain may have the potential to degrade water quality (Section 5.3.2). Construction activities would disturb the soil and remove vegetation, potentially leading to a temporary reduction in floodplain functions and localized erosion or sedimentation if not properly managed. By following permit conditions, impacts on the floodplain would be minimized and short-term impacts would be negligible.

In the long-term, the Proposed Action would impact 1.23 acres of floodplain by using fill to elevate the levee as well as construction of the access road, staging area, diversion channel, and weir. Long-term impacts on floodplain functions, such as wildlife habitat, would be minimized by replanting as much as feasible (Section 5.6.2), which would also minimize long-term water quality impacts (Section 5.3.2). The Proposed Action would comply with federal, state, and local floodplain laws and regulations, which would avoid or minimize potential impacts on the natural function of floodwater storage.

The Proposed Action would reduce the risk of flooding to property, reduce road closures, and minimize impairment of Burden Lake's stormwater infrastructure over the long-term by improving the conditions of the dam system. Fortifying the dam system, raising the levee, and reconstructing the weir would enhance protections to downgradient communities. The proposed diversion channel would prevent the weir from being overtopped during emergency events. The Proposed Action would increase resiliency of the dam system, which would minimize the risk of significantly disrupting floodplain functions in the event of a system failure. Additionally, the Proposed Action would reduce the risk of flooding for the communities around Burden Lake as

well as those downstream. Therefore, the Proposed Action would have a long-term benefit on communities because it would reduce the risk of harm from flooding.

Any proposed construction in the floodplain must be coordinated with the local floodplain administrator and must comply with federal, state, and local floodplain laws and regulations. The Subrecipient would coordinate with their local floodplain administrator regarding any necessary permits to conduct activities within the floodplain, including the use of fill within the floodplain.

Additionally, FEMA conducted an 8-step decision-making process for the Proposed Action (**Appendix D**). Through this process, FEMA considered the natural environment, social concerns, and economic features of the Proposed Action and concluded that it is the only practicable alternative, and no practicable alternative has been identified outside of the SFHA.

5.6 Vegetation

Executive Order 13112 Invasive Species requires federal agencies, to the extent practicable, to prevent the introduction of invasive species and provide for their control, and to minimize the economic, ecological, and human health impacts that invasive species cause. Invasive species prefer disturbed habitats and generally possess high dispersal abilities, enabling them to out-compete native species.

The project area is in the Northeastern Highlands Ecoregion (Level III), within the Taconic Foothills Ecoregion (Level IV) (Bryce et al. 2010). The Northeastern Highlands Ecoregion (Level III) covers a significant portion of mountainous areas within New York. The ecoregion is characterized by hills and mountains with vast spans of forest cover. Many of the lakes and streams in the region are sensitive to acid deposition originating from industrial sources in the west and southwest. In Rensselaer County, the ecoregion begins to transition from Appalachian oak-hickory forest in the south to northern hardwood forests. The Appalachian oak-hickory forests are dominated by white oaks (*Quercus alba*) and black oaks (*Quercus velutina*) along with pignut hickory (*Carya glabra*) and American chestnut (*Castanea dentata*). The northern hardwood forests are characterized by birch (*Betula* spp.), sugar maple (*Acer saccharum*), and American beech (*Fagus grandifolia*) (Bryce et al. 2010). Prior to the mid-19th century, most natural areas in this region were cleared for agricultural land use. At the end of the 19th century, large segments of farmland were abandoned and began developing into early-stage successional forests. These young forests generally consist of red maple (*Acer rubrum*), eastern white pine (*Pinus strobus*), and sugar maple (Zorach and Epiphan 2025).

5.6.1 Existing Conditions

The project area is surrounded primarily by forest interspersed with residential development. Because the project area includes wetlands (Section 5.4), species richness may be higher than

expected in non-wetland areas (USGS 1996). Typical herbaceous wetland plants that have been documented near or in the project area include cinnamon ferns (*Osmundastrum cinnamomeum*), water forget-me-not (*Myosotis scorpioides*), and jewelweed (*Impatiens capensis*) (iNaturalist 2025; Edinger et al. 2014; The Nature Conservancy 2018). Common woody species found in nearby forested wetlands include shrubs such as blueberries (*Vaccinium* spp.), swamp rose (*Rosa palustris*), and elderberry (*Sambucus canadensis*), and trees such as green ash (*Fraxinus pennsylvanica*), silver maple (*Acer saccharinum*), and river birch (*Betula nigra*). Upland herbaceous species commonly observed near the project area include garlic mustard (*Alliaria petiolata*), wild carrot (*Daucus carota*), and pokeweed (*Phytolacca americana*). Woody upland species known to occur in the area include buckthorn (*Rhamnus cathartica*), witch hazel (*Hamamelis virginiana*), eastern white pine (*Pinus strobus*), red oak (*Quercus rubra*), and shagbark hickory (*Carya ovata*) (iNaturalist 2025; USACE 2022). Submerged aquatic vegetation in Burden Lake likely consists of species such as naiads (*Najas* spp.), and water milfoil (*Myriophyllum* spp.) (iNaturalist 2025). Floating aquatic vegetation in Burden Lake consists of species such as waterlily (*Nymphaea* spp.).

Invasive Species

Invasive species that could be found near the project area include purple loosestrife (*Lythrum salicaria*), common reed (*Phragmites australis*), common and glossy buckthorn (*Rhamnus* spp.), garlic mustard (*Alliaria petiolate*), multiflora rose (*Rosa multiflora*) (typically adjacent to wetlands), barberry (*Berberis* spp.), and reed canary grass (*Phalaris arundinacea*) (University of Georgia Center for Invasive Species and Ecosystem Health 2008).

5.6.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action alternative, no construction activity would occur and there would not be any removal of vegetation; therefore, there would be no short-term impact on vegetation.

In the long-term, the risk of flooding and erosion within the project area would not be reduced and periodic flood events would result in varying degrees of erosion or sediment deposition within vegetated areas along existing watercourses. Therefore, the No Action alternative would have long-term negligible impacts on vegetation within the project area.

Alternative 2: Proposed Action

In the short-term under the Proposed Action, approximately 2.13 acres would be disturbed, which would include approximately 1.17 acres of upland vegetation removal, approximately 0.78 acres of wetland vegetation removal, and approximately 0.18 acres of potential submerged aquatic vegetation removal associated with in-water work areas. All herbaceous vegetation, shrubs, and

trees would be removed for the exterior dam access face upgrades, access road, staging area, levee footprint, levee work area, weir work area, and proposed diversion channel. Additionally, approximately 0.18 acres of aquatic habitat (0.04 acres in Burden Lake and 0.14 acres in Wynants Kill Creek) would be temporarily dewatered behind cofferdams. Any submerged aquatic vegetation present behind the cofferdams could dry out or get damaged during construction. For the dam project component, approximately 20 trees would be removed. Approximately 100 to 200 trees would be removed during the construction of the access road and staging area, and approximately 100 trees would be removed in the levee area. Shrubs throughout the dam area would also be removed. In total, between all project components, no more than 300 trees would be removed, most of which have a diameter at breast height (dbh) greater than 4 inches. The removal of trees and understory vegetation would disturb soils; however, the potential for invasives to colonize would be very low because the disturbed areas would either be covered in gravel or reseeded and planted with native species, as discussed below. Therefore, there would be a short-term minor impact on vegetation due to vegetation removal within the project area.

In the long-term, approximately 1.4 acres of the disturbed area would be replanted. The areas planned for replanting consist of both upland habitat and wetland habitat. The access road and staging area would not be replanted, resulting in a permanent net loss of approximately 0.73 acres of vegetation throughout the project area. The levee footprint, levee work area, and weir work area would be replanted with a conservation blend of native species, and areas of tree removal would be replanted with the objective to plant the quantity of seedlings either equal to or greater than the number of trees removed. Once the trees and native grasses have become established in the replanting areas, the species composition would likely improve the overall quality of vegetation within the project area with the removal of invasive species and planting of native species. Because measures of restoration would involve replanting, direct impacts to vegetation would be negligible in the long-term.

5.7 Wildlife and Fish

This section focuses on fish and wildlife species that occupy, breed, forage, rear, rest, hibernate, or migrate through the project area. Regulations relevant to fish and wildlife include the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703 et seq.) and the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d). Threatened and endangered fish and wildlife species are evaluated separately in Section 5.8.

The MBTA of 1918 provides a program for the conservation of migratory birds that fly through lands of the United States. The lead federal agency for implementing the MBTA is the USFWS. The law requires federal agencies to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any migratory birds or result in the destruction or adverse modification of designated critical habitat of such species. The law makes it illegal for

anyone to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird, or their parts, feathers, nests, or eggs. "Take" is defined as "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or any attempt to carry out these activities."

The Bald and Golden Eagle Protection Act (16 United States Code [U.S.C.] 668-668c), enacted in 1940, prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald and golden eagles, including their parts, nests, or eggs. Like the MBTA, the law makes it illegal for anyone to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird, or their parts, feathers, nests, or eggs. "Take" is defined as "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or any attempt to carry out these activities."

5.7.1 Existing Conditions

The project area is primarily undeveloped and supports natural vegetation communities (as described in Section 5.6). Common wildlife that may occur in wetland and forested habitats within the proposed project area include, but are not limited to, white-tailed deer (*Odocoileus virginianus*), raccoon (*Procyon lotor*), eastern mole (*Scalopus aquaticus*), muskrat (*Ondatra zibethicus*), beaver (*Castor canadensis*), big brown bat (*Eptesicus fuscus*), American bullfrog (*Lithobates catesbeianus*), painted turtle (*Chrysemys picta*), common snapping turtle (*Chelydra serpentina*), phantom midges (*Chaoboridae* spp.), and brown marmorated stink bug (*Halymorpha halys*) (iNaturalist 2025). NYSDEC conducted a fish survey within Burden Lake in July 2021. A total of 17 fish species were recorded during the survey, including American eel (*Anguilla rostrata*), northern pike (*Esox Lucius*), chain pickerel (*Esox niger*), golden shiner (*Netomigonus crysoleucas*), brown bullhead (*Ameiurus nebulosus*), banded killfish (*Fundulus diaphanous*), white perch (*Morone americana*), rock bass (*Ambloplites rupestris*), redbreast sunfish (*Lepomis auratus*), pumpkinseed (*Lepomis gibbosus*), bluegill (*Lepomis macrochirus*), smallmouth bass (*Micropeterus dolomieu*), largemouth bass (*Micropterus salmoides*), black crappie (*Pomoxis nigromaculatus)*, tessellated darter (*Etheostoma olmstedi*), yellow perch (*Perca flavescens*), and common perch (*Perca* spp.) (NYSDEC 2016).

The existing habitat within the project area has the potential to support a variety of native migratory bird species such as the blue-winged warbler (*Vermivora pinus*), Canada warbler (*Cardellina canadensis*), and rose-breasted grosbeak (*Pheucticus ludovicianus*). The nesting season for migratory birds in New York is generally March through August, depending on the species (USFWS 2025a).

Bald eagles (*Haliaeetus leucoephalus*) typically nest in forests along the shorelines of oceans, lakes, or rivers (NYSDEC 2025b). Bald eagles have been documented around the project area (Burden Lake) as recently as August 2024 (eBird 2025; iNaturalist 2025) and NYSDEC lists the bald eagle as being present around Burden Lake (NYSDEC 2025f). Additionally, Burden Lake

provides suitable foraging habitat for bald eagles, and the forests and wetlands around Burden Lake provide suitable nesting habitat. However, there are no known bald eagle nests recorded within 330 feet of the project site (NYSDEC 2025h).

5.7.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action alternative, no construction activity would occur and there would be no short-term impact on individual fish or wildlife species, including migratory birds and eagles, or their habitats.

In the long-term, the dam system would not be repaired or upgraded, and the risk of flooding would not be reduced. Periodic flood events and associated erosion could degrade habitats downstream and negatively impact water quality and vegetation (Section 5.3.2 and Section 5.6.2). Floodwaters could transport debris and pollutants into nearby waterways and have a potential impact on fish and aquatic species and their habitats. Degradation or loss of aquatic/wetland habitats could impact species, including some migratory birds and eagles, that prey on aquatic species through the loss of available prey in the immediate vicinity of the impacted area. Therefore, there would be a minor impact on fish and wildlife in the long-term.

Alternative 2: Proposed Action

The Proposed Action may require the drawdown of Burden Lake and installation of a cofferdam to isolate the work area if the pipe underneath the dam needs to be repaired or removed, as discussed in Section 4.3. In the event of lake drawdown, water levels and the surface area of Burden Lake would be decreased. Because lowering the lake level would reduce the surface area of the lake, aquatic species may be subject to adverse effects from decreased habitat availability. However, the Subrecipient does not plan to bring lake volumes below historical low levels. The timing of the drawdown would coincide with low-level flows in Wynants Kill Creek and Burden Lake, usually late August to October. Although the lower lake level would result in higher water temperatures during the summer months, the increased temperatures would be within the range of past historical levels. Installation of the cofferdam would loosen sediments on the lake bottom that have the potential to be resuspended after removal, potentially resulting in short-term changes in habitat conditions during refilling of the lake, i.e., decreased water quality from the release of sediments into the water column. Installation and removal of the cofferdam may increase turbidity within the lake; however, the cofferdam would prevent additional turbidity during construction on the dam. The risk of trapping mobile aquatic species within the dewatered area behind the cofferdam would be low because BMPs would require monitoring and relocation of wildlife to prevent entrapment.

For construction of the weir portion of the Proposed Action, an approximately 100-foot-long temporary cofferdam would be installed to divert Wynants Kill Creek around the construction area through the proposed diversion channel. This diversion would result in the dewatering of approximately 0.14 acres of Wynants Kill Creek. Dewatering of the creek would have adverse effects on aquatic and semi-aquatic wildlife species that use that portion of the creek for any portion of their life cycles. However, the potential to trap mobile aquatic species would be minimal because the cofferdam would be constructed immediately upstream of the weir, and only the area between the cofferdam and the weir would need to be mechanically dewatered. Wildlife occurring downstream of the weir during cofferdam setup would not be trapped or stranded because they could move downstream with the naturally draining waters. Wildlife occurring upstream would be able to move through the proposed diversion channel to access downstream areas and, therefore, would not be trapped or stranded. The cofferdam would be temporary and removed after the weir construction is completed.

In-water construction impacts on aquatic and semi-aquatic wildlife would also be anticipated from the installation of the steel sheet pile curtain wall on the upstream (east) end of the proposed diversion channel where the feature would connect to the existing diversion canal and pond. Although most of the proposed diversion channel would be constructed before being connected to the existing diversion canal and pond, in-water work to install the permanent steel sheet pile curtain wall could cause temporary localized decreases in water quality from increased turbidity.

Proposed construction activities could result in impaired water quality in Burden Lake, Wynants Kill Creek, and other downstream watercourses from the use of construction equipment (Section 5.2.2). Therefore, in the short-term, impacts on aquatic habitats could include harm to or mortality of aquatic species if water quality is degraded. Permit conditions would be implemented to reduce the potential for water quality impacts, as discussed in Section 5.3. Because permit conditions would minimize impacts, the Proposed Action would have a minor impact on aquatic species in the short-term.

Approximately 2.13 acres of vegetation that provide habitat for terrestrial species, including migratory birds and eagles, sub-terrestrial species, and semi-aquatic species will be impacted by the Proposed Action. With the exception of sub-terrestrial species, most of the wildlife species expected to be present within the project area are mobile and could move away from construction equipment and disturbance. However, accidental spills of hazardous materials from construction equipment could enter the soil and diminish the quality of upland, wetland, and aquatic habitats within the project area. The implementation of BMPs would avoid or mitigate the potential of accidental spills of hazardous materials. Therefore, because approximately 2.13 acres of habitat would be impacted in the short-term, the Proposed Action would have a minor impact on terrestrial and semi-aquatic wildlife, including migratory birds and eagles.

As described in Section 5.3, the Proposed Action would reduce the risk of floodwaters transporting pollutants to Wynants Kill Creek and nearby waterways protecting downstream water quality. Therefore, in the long-term, the Proposed Action would benefit aquatic species and their habitats more than the No Action alternative. Approximately 0.73 acres of the project area would be permanently replaced by new infrastructure, such as the access road, staging area, and diversion channel, or would not be replanted, while approximately 1.4 acres would be replanted by hydroseeding with a conservation blend of native grasses and tree plantings (Section 5.6). Therefore, because there would be a net loss of approximately 0.73 acres of habitat in the long-term, the Proposed Action would have a minor impact on terrestrial wildlife, including migratory birds and eagles, and semi-aquatic species.

5.8 Threatened and Endangered Species and Critical Habitat

The Endangered Species Act (ESA) of 1973 (16 U.S.C. 1531-1544) provides a program for the conservation of threatened and endangered plants and animals and the habitats in which they are found. The lead federal agencies for implementing ESA are the USFWS and the U.S. National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS). The law requires federal agencies to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species. The law also prohibits any action that results in a "take" of any listed species of endangered fish or wildlife. A "take" under ESA means actions that harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempts to conduct such actions.

5.8.1 Existing Conditions

The ESA defines the action area (AA) as "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action" (50 CFR 402.02). Therefore, the AA, where effects on listed species must be evaluated, may be larger than the project area where project activities would occur. The AA extends beyond the project area to encompass potential effects of noise generated during construction from the use of heavy equipment during sheet pile installation. Therefore, to account for potential noise impacts during construction activities, the AA includes a 1,050-foot buffer extending from the proposed steel sheet pile curtain wall as well as the weir and dam, as both these areas would require establishing temporary cofferdams that would involve sheet pile installation (**Appendix A, Figure 8**). These buffers were determined by the distance it would take for the noise from an impact or vibratory pile driver, which have peak noise levels of approximately 105 decibels, and noise from heavy equipment such as excavators and bulldozers, which have peak noise levels of approximately 87 decibels, to attenuate to background noise levels within the project vicinity.

Pile drivers would be used for installation of the steel sheet pile curtain wall and cofferdams, and heavy equipment would be used throughout the project area for other construction activities. Background noise levels for forested areas generally range from 45 to 72 decibels (Washington State Department of Transportation 2020). Therefore, the AA is approximately 151.66 acres in total and comprises approximately 11.04 acres of freshwater forested/shrub wetland, 5.27 acres of freshwater emergent wetland, 1.79 acres of freshwater pond, 10.53 acres of freshwater lake, and 2.86 acres of riverine habitat. The remainder of the AA (approximately 120.17 acres) comprises upland deciduous forest and interspersed developed residential areas around Burden Lake Road, Garner Road, and Drumlough Road.

The USFWS Information for Planning and Consultation System (IPaC) was used to identify threatened and endangered terrestrial species that potentially may occur within the AA, and the NOAA ESA Section 7 Mapper was used to identify threatened and endangered aquatic species that potentially may occur within the AA. One ESA-listed terrestrial species, the endangered Northern long-eared bat (*Myotis septentrionalis*), may occur in the AA (USFWS 2025a). There are no ESA-listed aquatic species identified in the AA (NOAA 2025). Additionally, there is no designated critical habitat for any ESA-listed species within 5 miles of the project area (USFWS 2025c).

Northern Long-Eared Bat (NLEB)

NLEB may be found roosting singly or in colonies, underneath bark, in cavities or crevices of both live and dead trees during the summer and portions of the fall and spring. The species also uses forested areas for foraging and commuting between summer and winter habitats; these areas consist of caves or mines used for hibernacula (USFWS 2022). The AA occurs within potential summer habitat range of NLEB, contains suitable forest habitat for roosting and foraging during the spring, summer, and fall, and NYSDEC has listed Rensselaer County as having NLEB occurrences as recently as 2022 (NYSDEC 2022); therefore, NLEB may potentially be present within the AA.

5.8.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action alternative, no construction activity would occur that could result in short-term impacts on ESA-listed species or their habitats.

In the long-term, the potential for flooding would not be reduced. However, periodic flooding would most likely not affect habitat for NLEB, such as larger trees, used for breeding and roosting by bats, or foraging availability. Therefore, in the long-term, the No Action alternative would have no effect on NLEB.

Alternative 2: Proposed Action

Under the Proposed Action, in the short-term, approximately 2.13 acres of vegetation would be removed, including up to 300 trees, most with a dbh of greater than 4 inches that could provide suitable summer roosting and foraging habitat for the NLEB. Vegetation removal during the active season could kill, injure, or disturb breeding, foraging, or roosting NLEBs (if present) within the AA. Additionally, noise and human disturbance from construction could disturb breeding or roosting. In the long-term, approximately 0.73 acres of area where vegetation removal would occur would be permanently developed and not be replanted. Approximately 1.40 acres of area where vegetation removal would occur would be replanted by hydroseeding the levee with a conservation blend of native grass. In addition to seeding grass, a planting plan would be developed by a licensed landscape architect with the objective of replanting equal or greater number of trees within the 1.40 acres of temporarily disturbed area. Therefore, there would be a net loss of approximately 0.73 acres of suitable summer roosting, breeding, and foraging habitat for the NLEB in the long-term.

Pursuant to Section 7 of the ESA, FEMA submitted a request for consultation to USFWS through the NLEB and Tricolored Bat Range-wide Determination Key (Dkey). DKeys are tools hosted on IPaC, which are comprised of a structured set of questions to assist a user in determining whether a proposed project qualifies for a predetermined consultation outcome based on USFWS standing analysis. The NLEB and Tricolored Bat Range-wide DKey was completed on December 15, 2025, resulting in a determination of No Effect to the NLEB (**Appendix C**). Under Section 7 of the ESA, if a federal action agency makes a No Effect determination, no consultation with the Service is required and the ESA review is concluded.

5.9 Cultural Resources

FEMA must consider the potential effects of its funded actions upon cultural resources prior to engaging in any undertaking in accordance with Section 106 of the National Historic Preservation Act (NHPA) (54 U.S.C. 300101-300318), as amended and implemented by 36 CFR Part 800. The NHPA of 1966 defines a historic property as “any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on the National Register.” Eligibility criteria for listing a property on the National Register of Historic Places (NRHP) is detailed in 36 CFR Part 60.

Pursuant to 36 CFR 800.4(a)(1), the Area of Potential Effects (APE) is defined as the geographic area(s) within which the undertaking may directly or indirectly affect cultural resources. FEMA evaluates impacts to cultural resources prior to the undertaking for both standing structures (above-ground resources) and archaeology (below-ground resources) within the APE.

5.9.1 Existing Conditions

In a consultation letter (dated April 23, 2024) with the New York State Historic Preservation Officer (SHPO) and the New York State Office of Parks, Recreation & Historic Preservation Office (NYS OPRHP), FEMA determined that the APE for the undertaking is limited to the project area footprint, as defined below.

The APE begins in the north at the weir that spans Wynants Kill Creek. From there, it continues south along the eastern edge of the levee where it meets the diversion canal and pond south toward the sluicegate that crosses underneath Burden Lake Road at the bridge. The APE meets Burden Lake Road just south of the bridge, then traverses along the west façade of Burden Lake Dam. The APE extends to the west approximately 10 feet beyond the western edge of the access road and staging area construction footprint. The APE includes this western façade of the dam and the area of the capped pipe that cuts perpendicularly into the dam (**Appendix A**, **Figure 9**).

In advance of the undertaking, Richard Grubb and Associates, Inc. (RGA) completed a modified Phase IA cultural resources survey to assess the potential impacts of the project on these resources (Richard Grubb and Associates 2024). The modified Phase IA cultural resources survey included a soil auger survey and a historic architecture assessment. Prior to the field investigations, archaeological background research was conducted, which included a review of the NYS OPRHP's Cultural Resource Information System and the NRHP. It also included a review of the New York State National Register Master List and the National Register Determination of Eligibility List, historical aerial photographs, and topographic maps.

Archaeology

RGA completed an archaeological field survey in December 2023 (report dated March 2024). The modified Phase IA archaeological survey methods included background research, pedestrian reconnaissance survey, and 11 auger probe excavations.

The pedestrian survey did not identify any unknown sites within the APE. Subsurface auger testing revealed a mix of fill layers, fill layers overlying truncated subsoils, and natural stratigraphic profiles. No artifacts were recovered, and no features were identified. Based on this, the proposed undertaking was determined to have a low potential for encountering intact archaeological resources.

FEMA initiated Section 106 consultation with the SHPO on April 23, 2024. Based on the research and results of the modified Phase IA survey, FEMA determined the proposed undertaking would result in No Adverse Effect to Historic Properties, with conditions. On May 14, 2024, SHPO concurred with FEMA's findings with the following conditions (**Appendix C**):

- An archaeological monitor must be present during any excavation around the dam and weir.
- Tree removal must be done without removing the stumps/root balls and be cut down to necessary grade.

In addition, on April 23, 2024, FEMA consulted with the Delaware Tribe of Indians and Stockbridge-Munsee Community. No response was received from the Delaware Tribe of Indians. On May 6, 2024, the Stockbridge-Munsee Community concurred with FEMA's findings with the following conditions:

- If previously undocumented archaeological resources are encountered, contact the Tribal Historic Preservation Officer promptly and follow the Inadvertent Discovery Policy on the Stockbridge-Munsee Community website: https://www.mohican.com/mt-content/uploads/2022/09/smcinadvertent-discovery-policy.pdf.
- Give due attention to the incidental or routine movement of heavy machinery, both inside and outside the stated APE, that may cause unintended or inadvertent impacts to cultural resources.
- Should the proposed work be altered to expand beyond the current scope of work and/or APE, we ask to be notified.

Architecture

A historic architectural survey was performed by RGA in December 2023, in conjunction with the archaeological survey (RGA 2024). The historic architectural survey consisted of background research and a pedestrian reconnaissance survey. Background research included a review of resources provided by the Sand Lake Historical Society, Burden Iron Works Museum, and the Burden Lake Preservation Corporation. Additionally, the research team reviewed historical maps and newspaper articles.

The historic architectural assessment determined that there are no previously documented historic properties listed in, or determined eligible for listing in, the NRHP within the APE and that the Burden Lake Dam system had not been previously surveyed. As it is over 50 years of age, an assessment was conducted to determine eligibility of the Burden Lake Dam system for inclusion into the NRHP. As a result of the assessment, RGA recommended the Burden Lake Dam system as eligible for listing in the NRHP at the local level under Criterion A (event) in the area of industry for its association with industrialization along the Wynants Kill Creek. The presence of intact cultural features (dam, canal, and pond) associated with the Burden Lake Dam archaeological site indicates integrity and has the potential to provide significant new information important to the history of the Burden Lake Dam system and industrialization during the mid-19th century along the Wynants Kill Creek. Therefore, the Burden Lake Dam was also recommended as eligible under NRHP Criterion D (information potential).

FEMA consulted with the SHPO on April 23, 2024, regarding the NRHP eligibility of the dam system. In correspondence dated May 21, 2024, SHPO responded "*we have determined that the dam system is Not Eligible for the NRHP. The dam system alone isn't significant enough to support an argument for eligibility under Criterion A in the area of industry, since none of the mills the system once supported are extant. In addition, the mere existence of the system doesn't necessarily mean it has the potential to provide important historical information, which is the requirement for Criterion D*" (**Appendix C**). Therefore, the dam has been determined not eligible for listing in the NRHP.

5.9.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

In the short-term, the No Action alternative would have no effect on cultural resources because no undertaking would occur.

In the long-term, the No Action alternative would have moderate impacts on known archaeological resources and historic structures listed or eligible for listing in the NRHP in the vicinity of the Burden Lake Dam system from periodic flooding and associated erosion.

Alternative 2: Proposed Action

Per the cultural resources consultation with SHPO and tribal nations, the Proposed Action would result in No Adverse Effects on archaeological and historical architectural resources by following the mitigation conditions listed above (detailed in Section 5.9.1).

5.10 Noise

The Noise Control Act of 1972 (42 U.S.C. 4901-4918) required the EPA to create a set of noise criteria. In response, in 1974, EPA published *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*, which explains the impact of noise on humans. The EPA report found that keeping the maximum 24-hour day-night average sound level (Ldn) value below 70 A-weighted decibels (dBA) would protect the majority of people from hearing loss. The EPA recommends an outdoor Ldn of 55 dBA (EPA 1974). According to published lists of noise sources, sound levels, and their effects, sound causes pain starting at approximately 120 to 125 dBA and can cause immediate irreparable damage at 140 dBA. The Occupational Safety and Health Administration has adopted a standard of 140 dBA for maximum impulse noise exposure.

Sound pressure level (SPL) is used to measure the magnitude of sound and is expressed in decibels (dB or dBA), with the threshold of human hearing defined as 0 dBA. The SPL increases logarithmically, so that when the intensity of a sound is increased by a factor of 10, its SPL rises

by 10 dB, while a 100-fold increase in the intensity of a sound increases the SPL by 20 dB. Equivalent noise level (Leq) is the average of sound energy over time, so that one sound occurring for 2 minutes would have the same Leq of a sound twice as loud occurring for 1 minute. The day night noise level (Ldn) is based on the Leq and is used to measure the average sound impacts for the purpose of guidance for compatible land use. It weights the impact of sound as it is perceived at night against the impact of the same sound heard during the day. This is done by adding 10 dBA to all noise levels measured between 10:00 p.m. and 7:00 a.m. For instance, the sound of a car on a rural highway may have an SPL of 50 dBA when measured from the front porch of a house. If the measurement were taken at night, a value of 60 dBA would be recorded and incorporated into the 24-hour Ldn.

Leq and Ldn are useful measures when used to determine levels of constant or regular sounds, such as road traffic or noise from a ventilation system. However, neither represents the sound level as it is perceived during discrete events, such as fire sirens and other impulse noises. They are averages that express the equivalent SPL over a given period of time. Because the decibel scale is logarithmic, louder sounds (higher SPL) are weighted more heavily; however, loud infrequent noises such as fire sirens with short durations would not significantly increase Leq or Ldn over the course of a day.

5.10.1 Existing Conditions

Town of Sand Lake Ordinance Chapter 170, Section 170-2 establishes local regulations relating to noise that are applicable to construction of the Proposed Action.[1] The ordinance prohibits construction or demolition noises between the hours of 11:00 p.m. and 6:00 a.m., except in the event of an emergency that requires immediate construction or demolition. The ordinance also prohibits the use of internal-combustion engines without an adequate muffler designed and manufactured to suppress exhaust noises to a minimum.

Assessment of noise impacts includes consideration of the proximity of the Proposed Action to the nearest noise-sensitive land use. A noise-sensitive land use can be described as an area of frequent human use that would benefit from a lowered noise level. Typical noise-sensitive land uses include residences, schools, places of worship, hospitals, nursing homes, and libraries. The project area is primarily a rural area, with no noise-sensitive land uses within 100 feet of the project area; however, residences are present within 130 feet.

[1] Town of Sand Lake noise regulations apply to the Census-Designated Place, Averill Park.

5.10.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action alternative, temporary construction-related noise would not occur and there would be no short-term noise impacts.

In the long-term, the risk of flooding would not be reduced. Construction vehicles and equipment used for flood-related repairs would temporarily increase noise levels in the immediate vicinity. Typical equipment for flood-related repairs, including bulldozers, dump trucks, loaders, and high-pressure pumps and fans may be used, which can result in noise levels of 85 A-weighted decibels (Federal Highway Administration 2006).[2] However, equipment use would comply with the requirements of the local noise ordinance and sound would dissipate with distance. Therefore, there would be a negligible long-term impact on noise levels because of periodic flood-related repair work.

Alternative 2: Proposed Action

Under the Proposed Action, construction activities would result in temporary noise increases from the use of equipment and vehicles. The BMPs that would be implemented to reduce air pollutant emissions from construction equipment use, such as limiting equipment operating times and installing a wind fence, would also reduce noise impacts (Section 5.2.2). **Table 5.3** provides a breakdown of the estimated 8-hour construction noise level for each component of the Proposed Action, assuming the nearest sensitive noise receptor is 130 feet away. Furthermore, all construction would be conducted in compliance with local noise ordinance requirements. Adherence to these requirements would minimize sound exposure and ensure noise levels would not cause hearing impairment or permanent hearing damage to workers and individuals at noise-sensitive land uses within the project vicinity. With these measures in place, construction of the Proposed Action would have a minor short-term impact. **Appendix B** provides the detailed breakdown of noise calculations.

[2] A-weighted decibels (dBA) is a unit for measuring sound levels that incorporates the sensitivities of the human ear.

Table 5.3 Short-Term Construction Noise Levels

Project Component	Distance from Construction Activity to Nearest Receptor (feet)	8-Hour Construction Noise Level at Nearest Receptor (dBA)[1]	Daytime Unmitigated Noise Level (Construction Noise + Existing) (dBA)	Reduction From Construction BMPs (dBA)	Daytime Reduced Noise Level (Construction Noise + Existing + Reduction) (dBA)
Dam Improvements	130	79	79	3	76
Levee Improvements	130	76	76	3	73
Weir Replacement	130	76	76	3	73
Construction Access and Staging	130	76	76	3	73
Diversion Channel	130	76	76	3	73
Temporary Bridge	130	78	78	3	75
Cofferdams	130	77	77	3	74

Notes:
[1]dBA is the logarithmic unit used to measure sound levels.

In the long-term, the risk of flooding would be reduced, as would the frequency of noise created from flood-related repairs. Therefore, there would be a long-term benefit from the reduction of noise from periodic flood-related repair work.

5.11 Transportation

5.11.1 Existing Conditions

Burden Lake is approximately 2 miles west of Route 66, connecting it to the Albany, New York, metropolitan region, approximately 13 miles to the west. Burden Lake Road runs across the dam on the northern tip of Burden Lake, terminating in Averill Park to the north and the intersection of County Route 18 near the southernmost portion of Burden Lake. No public transit routes travel through the project area. As discussed in Section 3, Burden Lake Dam has been classified as a Class B – Intermediate Hazard. Because of these safety concerns, Burden Lake Road, which runs

over the dam, has been closed since August 2021. The Annual Average Daily Traffic (AADT) reported for year 2019 was 1,253, which provides a measure of how busy the roadway was prior to closure. Since the closure, the AADT shows a decline from 1,146 in 2022, 559 in 2023 and 551 in 2024 (NYSDOT 2024).

The detour presented (**Appendix A, Figure 10**) shows a distance of 4 miles and travel time up to 9 minutes for anyone attempting to travel on the affected segment of Burden Lake Road. This long-term closure has restricted access for emergency vehicles, school busses, and general traffic to the detriment of the community.

5.11.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action alternative, construction would not occur and there would be no construction-related traffic impacts or detours. Therefore, there would be no short-term impacts on transportation.

In the long-term, the dam system would not be repaired, and Burden Lake Road would likely remain closed indefinitely, continuing to create hardships for the community and delay emergency vehicles by increasing trip times. Low-lying roads in the Burden Lake area would continue to be at risk of flooding during severe storm events, restricting or completely obstructing transportation access. Access would be limited to longer routes around Burden Lake, such as County Routes 49 and 52, which would increase travel times and potentially limit access to areas near the dam. Additionally, any flood-related repairs to the roads would increase traffic levels on other roads in the area. Therefore, the No Action alternative would have a moderate long-term impact on transportation within the area from the continued risk of flooding and continued closure of Burden Lake Road.

Alternative 2: Proposed Action

Under the Proposed Action, Burden Lake Road may remain closed during construction. Construction vehicle traffic would occur on the roadways surrounding the project area, causing a slight increase in traffic on local roads. Therefore, the Proposed Action would have a minor short-term impact on transportation in the area.

Under the Proposed Action, the repaired dam system would improve stormwater management capacity and restabilize the dam, along with the portion of Burden Lake Road that crosses the dam. Additionally, the repair of the dam system would reduce the risk of flood-related road closures and repairs. Roads in the area would not be closed from flooding as frequently, thus minimizing the potential need to detour traffic. Upon completion, the Proposed Action would have a beneficial

impact on transportation because Burden Lake Road would be reopened, thereby shortening trips on the western portion of the lake.

5.12 Land Use and Planning

5.12.1 Existing Conditions

The project area consists of land owned by the Subrecipient. The project area is zoned as residential, and the current land use is identified as "underwater" (Sand Lake 2018a; Rensselaer County 2023). The project area is currently used to detain stormwater in Burden Lake and includes the existing Burden Lake dam, levee, weir, and adjacent land. Burden Lake is used as a reservoir and for recreational purposes. Land adjacent to the project area is already developed and includes residential and transportation uses (i.e., Burden Lake Road). Communities downstream of the project area include residential, commercial, recreational, and community services.

5.12.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action alternative, there would be no change to land use and, therefore, no short-term impact on land use.

In the long-term, the risk of flooding associated with dam system failure would remain, and Burden Lake Road would remain closed because of safety concerns. Flooding would limit access to downstream homes and businesses during periods of inundation and during repair and cleanup efforts. Repeat instances of loss of access and damage to homes and businesses could limit the use of land for its intended purpose or result in the abandonment of property. Failure of the dam could result in the loss of recreational opportunities provided at Burden Lake. The continued closure of Burden Lake Road would not resolve existing hardships for communities and rescue vehicles. Therefore, there could be a minor long-term impact on land use from the continued risk of dam-system-failure-related flooding and associated loss of access and damage to homes and businesses as well as continued closure of Burden Lake Road.

Alternative 2: Proposed Action

Under the Proposed Action, no deed transfer or purchase of land would be required and no changes in zoning or land use would occur. Although a gravel access road would be constructed, the project area would continue to be used for underwater purposes (i.e., stormwater detention). Burden Lake would remain open for recreation. Thus, there would be no short-term impact relative to land use.

In the long-term, the gravel access road for the project would remain after construction to facilitate future maintenance and would not change access to adjacent property. The Proposed Action would

mitigate potential flooding in the communities downstream, which include local businesses, parks, and other community services, and would allow for the reopening of Burden Lake Road, which would have a long-term beneficial impact on land use by improving access within the project area.

5.13 Public Services and Utilities

5.13.1 Existing Conditions

The project area is semi-rural, with utilities and public services provided via both overhead and underground infrastructure. Sewer services are provided by the Town of Sand Lake, and gas and electrical services are provided by New York State Electric and Gas and National Grid. The Town of Sand Lake's Department of Public Works is responsible for the maintenance of all public property within Averill Park, including roadways, and the Sewer Department is responsible for sewer infrastructure and manages the waste collection services. The Town of Sand Lake is involved in stormwater management and implemented both a stormwater management program and plan within Averill Park (Sand Lake 2021).

Public services include schools, local government, police, fire departments, and emergency and medical services. Public facilities include Averill Park and Sand Lake Fire Station, Sand Lake Ambulance Inc., a New York State Police office, the Sand Lake Town Library, as well as the Averill Park High School, West Sand Lake School, and Averill Park Pre-School.

Community facilities include parks and recreational areas such as Burden Lake, a library, community centers, and churches. Parks include the Sand Lake Veterans Memorial Park, Sand Lake Walking Trail, and the Stewart Preserve. In addition, the Sand Lake Center for the Arts, Averill Park, and Sand Lake Fire Station serve as community centers.

5.13.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action alternative, there would be no construction activity and there would be no short-term impacts on public services and utilities.

In the long-term, utilities would continue to be at risk from flooding and flood-related damage resulting in short-term interruptions in utility services. Roadways could be inundated during flood events, thus affecting access to schools and parks. Failure of the dam could result in the loss of the Burden Lake reservoir, which provides water retention and recreational services to the community. Therefore, it is anticipated that the No Action alternative would have long-term minor to moderate impacts on public services and utilities.

Alternative 2: Proposed Action

Under the Proposed Action, construction activities would have the potential to damage utilities within the project area; however, BMPs would be used to ensure utilities are marked out and appropriate buffers or temporary locations implemented to avoid conflicts during construction. Additionally, none of the public services identified within the project vicinity would be affected by the proposed activities. Therefore, the Proposed Action would have no short-term impacts on public services and utilities within the project area. Additionally, since the Proposed Action would reduce flood risks within the area, thereby mitigating the impacts of flood-related damage on public services and utilities, it would result in a long-term beneficial impact to these resources.

The Subrecipient's contractor would coordinate with the New York State Electric and Gas to avoid disrupting existing utilities during project construction.

5.14 Public Health and Safety

5.14.1 Existing Conditions

The New York State Police at 8428 NY Route 66 in Sand Lake, as well as the Rensselaer County Sheriff at 4000 Main Street in Troy, provide police services within the area (Sand Lake 2018b). The Averill Park and Sand Lake Fire Station at 35 Eastern Union Turnpike in Averill Park provides fire and emergency medical services, and Sand Lake Ambulance Inc. provides additional medical services at 3643 NY-43 in Sand Lake. The closest hospitals to the project area are Albany Medical Center and Albany Memorial, both located in Albany.

5.14.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

In the short- and long-term, Burden Lake Road would remain closed, and emergency vehicles would need to continue to detour around the current road closure via Garner Road and Sheer Road, which adds more time to their journey. Because Burden Lake Road is already closed, the No Action alternative would have no short-term impacts on public health and safety. However, a dam system failure may occur during a future storm event, which would pose a threat to both property and infrastructure in the immediate area and may cause a life and safety hazard to the community through the impediment of critical roadways. In such an event, emergency response services would potentially be cut off and forced to use alternative routes until floodwaters recede, increasing their response time. Therefore, the No Action alternative would have a moderate impact on public health and safety from periodic flooding over the long-term.

Alternative 2: Proposed Action

Under the Proposed Action, there would be construction traffic that could increase emergency response times; however, emergency vehicles are already diverted because of road closures, therefore construction would have no impact. The improvements to the dam system under the Proposed Action would enhance stormwater management, reduce flood risk, and restore traffic to Burden Lake Road. This provides benefit to public health and safety resulting from both the restoration to roadway connectivity and increasing emergency reservices response time including during future storm events. The Proposed Action would reduce the risk to public health from future storm and flood events. Therefore, there would be a long-term benefit from the reduced flooding and road stabilization.

5.15 Cumulative Impacts

After identifying the potential individual effects of the Proposed Action in the preceding subsections of Section 5, the next step is to identify other actions whose impacts on resource areas may overlap with the Proposed Action's impacts. In accordance with NEPA, this EA considers the overall cumulative impacts of known or reasonably foreseeable actions that are related in terms of time or proximity, which are within FEMA's authority. In addition, the CWA, CAA, Section 106 of the NHPA, and Section 7 of the ESA require an evaluation of cumulative effects because the alternatives apply to their respective resources.

No actions conducted in the recent past, or actions proposed for future implementation, have been identified within or near the project area. No recent notices or permit applications have been filed with NYSDEC for infrastructure projects, such as roadwork or flood mitigation measures. Therefore, no cumulative effects are anticipated in conjuncture with the Proposed Action.

6.0 PERMITS AND PROJECT CONDITIONS

The Subrecipient is responsible for obtaining all applicable federal, state, and local permits and other authorizations for project implementation prior to construction and adherence to all permit conditions. Any substantive change to the approved scope of work will require reevaluations by FEMA for compliance with NEPA and other laws and EOs. The Subrecipient must also adhere to the below conditions during project implementation:

1) Subrecipient is responsible for completing state and local environmental and land-use reviews in accordance with state and local regulations.
2) Subrecipient is responsible for ensuring that excavated material that is to be disposed or stored adjacent to the project area is not placed within the floodplain and must be stabilized to limit eroding back into Wynants Kill Creek or its tributaries.

3) Excavated soil and waste materials, including potentially hazardous wastes, must be managed and disposed of in accordance with applicable federal, state, and local regulations. In the event of discovery of soil or water contaminants exceeding reportable levels, the Subrecipient and its construction contractor(s) will follow applicable federal, state, and local protocols to report and respond to the contaminants. Solid waste haulers will be required to have an NYSDEC waste hauler permit, and all waste will need to be disposed of or processed at a permitted facility.
4) Any proposed construction in the floodplain must be coordinated with the local floodplain administrator and must comply with federal, state, and local floodplain laws and regulations.
5) Subrecipient will prepare a SWPPP and adhere to the conditions of SPDES General Permit for Stormwater Discharges, which are required on project sites where the soil disturbance would be greater than or equal to 1 acre.
6) Subrecipient and its contractors are required to use appropriate BMPs for construction—not limited to sedimentation and erosion control measures, dust control, noise abatement, and restriction of work areas—to limit vegetation removal and habitat impacts.
7) Work may be authorized by USACE permits. The Subrecipient is responsible for obtaining all necessary permits and complying with all conditions of the permit including, but not limited to, notification and signature requirements to ensure validation of permits.
8) Obtain NYSDEC Protection of Waters Permit and comply with all permit conditions.
9) Comply with permits and BMPs discussed in Surface Water and Water Quality.
10) Revegetate disturbed areas with a conservation blend of native grass.
11) Tree removal must be done without removing the stumps/root balls, and they must be cut down to necessary grade.
12) An archaeological monitor must be present during any excavation around the dam and weir.
13) In the event that unmarked graves, burials, human remains, or archaeological deposits are uncovered, the Subrecipient and its contractors will immediately halt construction activities within the vicinity of the discovery, secure the site, and take reasonable measures to avoid or minimize harm to the discovery. The Subrecipient will immediately inform DHSES and FEMA. Work in sensitive areas may not resume until consultations are completed or until an archaeologist who meets the Secretary of the Interior's Professional Qualification Standards determines the extent and historic significance of the discovery.
14) Subrecipient and its contractor(s) will give due attention to the incidental or routine movement of heavy machinery, both inside and outside the stated APE, that may cause unintended or inadvertent impacts to cultural resources.
15) Subrecipient and its contractor(s) will coordinate with the New York State Electric and Gas to avoid disrupting existing utilities during project construction.

7.0 AGENCY COORDINATION AND PUBLIC INVOLVEMENT

This section provides a summary of the agency coordination efforts and public involvement process for the proposed flood mitigation and green infrastructure project.

7.1 Agency Coordination

On December 16, 2025, FEMA initiated an informal consultation with USFWS using the NLEB and Tricolored Bat Range-wide DKey. Through the DKey, FEMA determined that the Proposed Action would have No Effect to the NLEB or its habitat (**Appendix C**). Since the DKey outcome is No Effect, no further consultation with the Service is required and the ESA review is concluded.

FEMA submitted a request for consultation with the SHPO on April 23, 2024. Based on the research and a modified Phase IA survey, FEMA determined the proposed undertaking would result in No Adverse Effect to Historic Properties, with conditions. SHPO concurred with these findings on May 18, 2024 (**Appendix C**).

In addition, on April 23, 2024, FEMA consulted with the Delaware Tribe of Indians and the Stockbridge-Munsee Community. No response was received from the Delaware Tribe of Indians. On May 6, 2024, the Stockbridge-Munsee Community concurred with FEMA and provided three standard conditions to be applied to the project.

Agency coordination correspondence is provided in **Appendix C**.

7.2 Public Participation

In accordance with FEMA's NEPA procedures, FEMA is releasing this draft EA to the public and resource agencies for a 30-day public review and comment period. Comments on this draft EA will be incorporated into the final EA, as appropriate. This draft EA reflects the evaluation and assessment of the federal government, the decision-maker for the federal action; however, FEMA will take into consideration any substantive comments received during the public review period to inform the final decision regarding grant approval and project implementation. If no substantive comments are received from the public and/or agency reviewers, this draft EA will be assumed to be final, and a FONSI will be issued by FEMA.

The Burden Lake Preservation Corporation will make the draft EA available on the following websites:

- Town of Sand Lake, New York: https://www.townofsandlake.us/
- Town of Nassau, New York: https://townnassau.digitaltowpath.org:10091/content
- The Burden Lake Conservation Association: https://www.theblca.org/

- The Burden Lake Association: https://burdenlakeassociat.wixsite.com/website

Hard copies of the draft EA will be made available for review at the following locations:

Sand Lake Town Library
8428 Miller Hill Rd
Averill Park, NY 12018

Nassau Free Library
18 Church St
Nassau, NY 12123

The comment period for the draft EA will start when the public notice of EA availability is published and will extend for 30 days. Comments regarding the draft EA may be submitted to FEMAR2COMMENT@fema.dhs.gov (include "Burden Lake Dam System Mitigation Enhancements Project" in the subject line). Comments also may be submitted via mail to:

Federal Emergency Management Agency Region 2
Environmental Planning and Historic Preservation
26 Federal Plaza, Suite 1802
New York, NY 10278

Attn: Burden Lake Dam System Mitigation Enhancements Project EA Comments

8.0 LIST OF PREPARERS

The following is a list of preparers who contributed to the development of the EA for FEMA. The individuals listed below had principal roles in the preparation of this document.

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Reviewers	Experience and Expertise	Role in Preparation
Anthony, Alexander	Historic Preservation Specialist	Project Specialist
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Brown, Michael	Historic Preservation Specialist	Project Review
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Langer, Elaine	Environmental Protection Specialist	Project Review
McKee, John	Regional Environmental Officer	Project Review
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CDM Smith

Preparers	Experience and Expertise	Role in Preparation
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Dovale, Carly	Environmental Scientist	NEPA Documentation
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Giordano, Brock	Senior Cultural Resources Specialist	NEPA Documentation/ Project Technical Lead
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CDM Smith prepared this document under Contract No.: 70FA6020D00000002, Task Order 70FA6022F00000060.

9.0 SUMMARY OF IMPACTS

Table 9.1 Summary of Impacts and Mitigation

Resource	No Action	Proposed Action Impacts	BMPs /Mitigation
Geology, Topography, Soils	No short-term impact on geology, seismic risk, or farmlands soils. Negligible long-term impact on topography. Minor long-term impact on soils.	No impact on geology, seismic risk, or farmlands soils. Negligible short-term and long-term impact on topography. Minor short-term impact on soils.	• Erosion control BMPs, including silt fencing. • Development of a Soil Erosion and Sediment Control Plan in accordance with New York State Standards and Specifications for Erosion and Sediment Control.
Air Quality	No short-term impact. Negligible long-term impact.	Minor short-term impact. No long-term impact.	• Operation of construction equipment to follow local, state, and federal regulations. • Operation of construction equipment to follow EPA's Construction Emission Control Checklist.
Water Quality	No short-term impact. Minor to moderate long-term impact.	Minor short-term impact. Long-term benefit.	• Comply with New York State Standards and Specifications for Erosion and Sediment Control; SPDES Stormwater Construction Permit; construction BMPs; and CWA Section 404 Permit. • Prepare and comply with specifications of a SWPPP.
Wetlands	No short-term impact. Minor to moderate long-term impact.	Minor short-term and long-term impact.	Comply with permits and BMPs discussed in Water Quality.
Floodplains	No short-term impact. Moderate long-term impact on people and property in the floodplain.	Negligible short-term impact. Long-term benefit.	• Comply with permits and BMPs discussed in Water Quality. • Coordinate any proposed construction in the floodplain with the local

Resource	No Action	Proposed Action Impacts	BMPs /Mitigation
			floodplain administrator and comply with federal, state, and local floodplain laws and regulations.
Vegetation	No short-term impact. Negligible long-term impact.	Short-term minor impact. Long-term negligible impact.	Revegetation remediation proposed as part of mitigation.
Fish and Wildlife	No short-term impact. Minor long-term impact.	Minor short-term impact on terrestrial, semi-aquatic, and aquatic species. Long-term benefit on aquatic species. Minor long-term impact on terrestrial and semi-aquatic species.	• Erosion control BMPs would be installed to prevent sediments from entering downstream water bodies. • Comply with permits and BMPs discussed in Water Quality. • Vegetation removal to take place between November 1 and March 14, outside of the active migratory bird nesting season. • Revegetate with a conservation blend of native grass.
Threatened and Endangered Species	No effect on NLEB.	No Effect on NLEB.	N/A
Cultural Resources	No effect on archaeological resources in the short-term. Moderate long-term impact on archaeological resources. No effect on historic architectural resources.	No adverse effects on archaeological and historical architectural resources with conditions.	• Archaeological monitoring during excavation. • All tree removal would leave the stumps and root balls in situ.

Resource	No Action	Proposed Action Impacts	BMPs /Mitigation
Noise	No short-term impact. Negligible long-term impact.	Minor short-term impact. Long-term benefit.	• Noise-producing equipment use would occur during daytime hours (6 a.m. to 11 p.m.). • Operation of construction equipment would follow EPA's Construction Emission Control Checklist.
Transportation	No short-term impact. Moderate long-term impact.	Minor short-term impact. Long-term benefit.	Traffic management plan outlines detours, lane closures, and traffic control measures.
Land Use	No short-term impact. Minor long-term impact.	No short-term impact. Long-term benefit.	N/A
Public Services and Utilities	No short-term impact. Minor to moderate long-term impact.	No short-term impact. Long-term benefit.	N/A
Public Health and Safety	No short-term impact. Moderate long-term impact.	No short-term impact. Long-term benefit.	N/A

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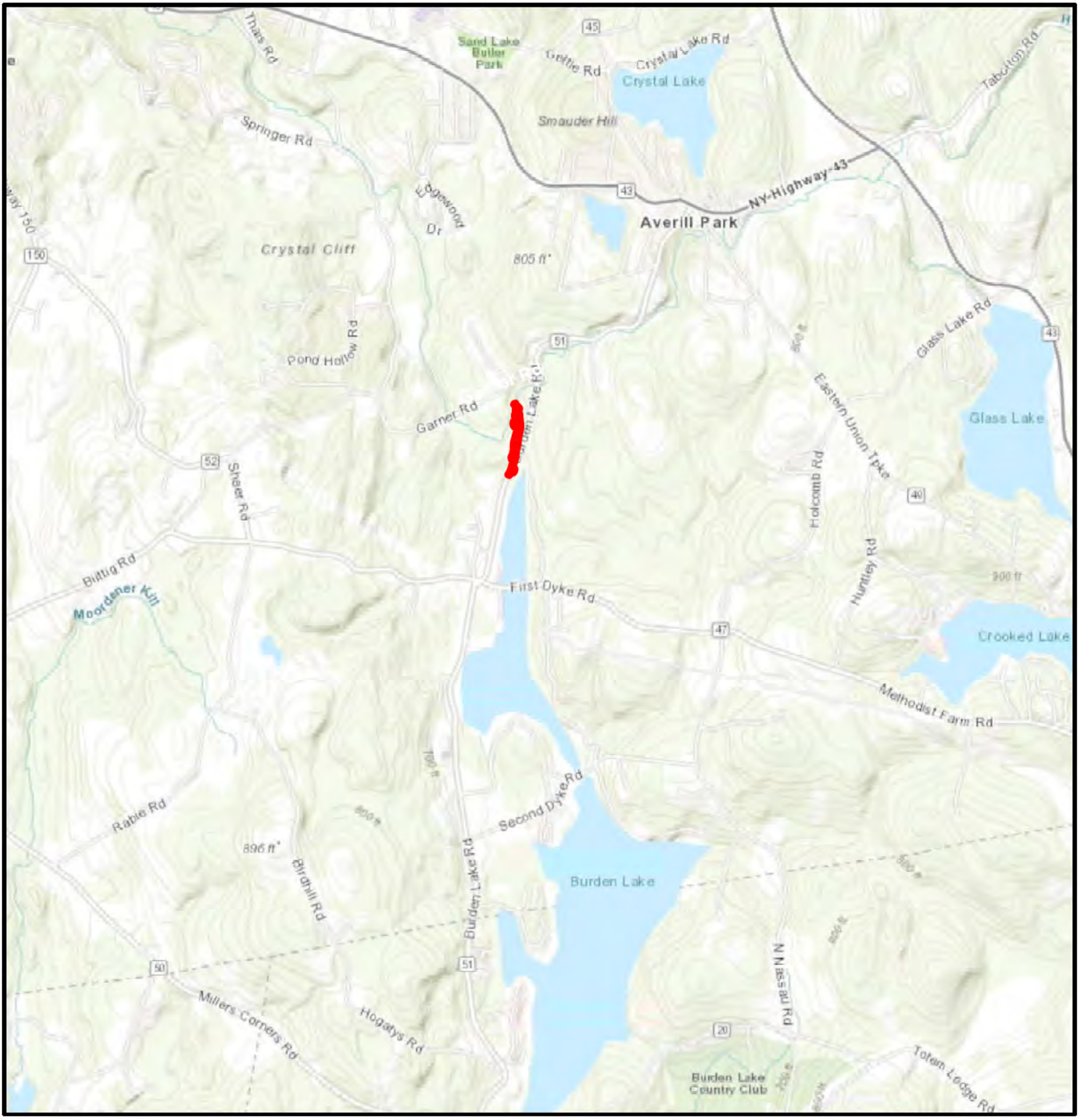
Appendix A:
Figures



Burden Lake Dam System Mitigation Enhancements Project

Project Vicinity

HMGP DR-4480-109-NY

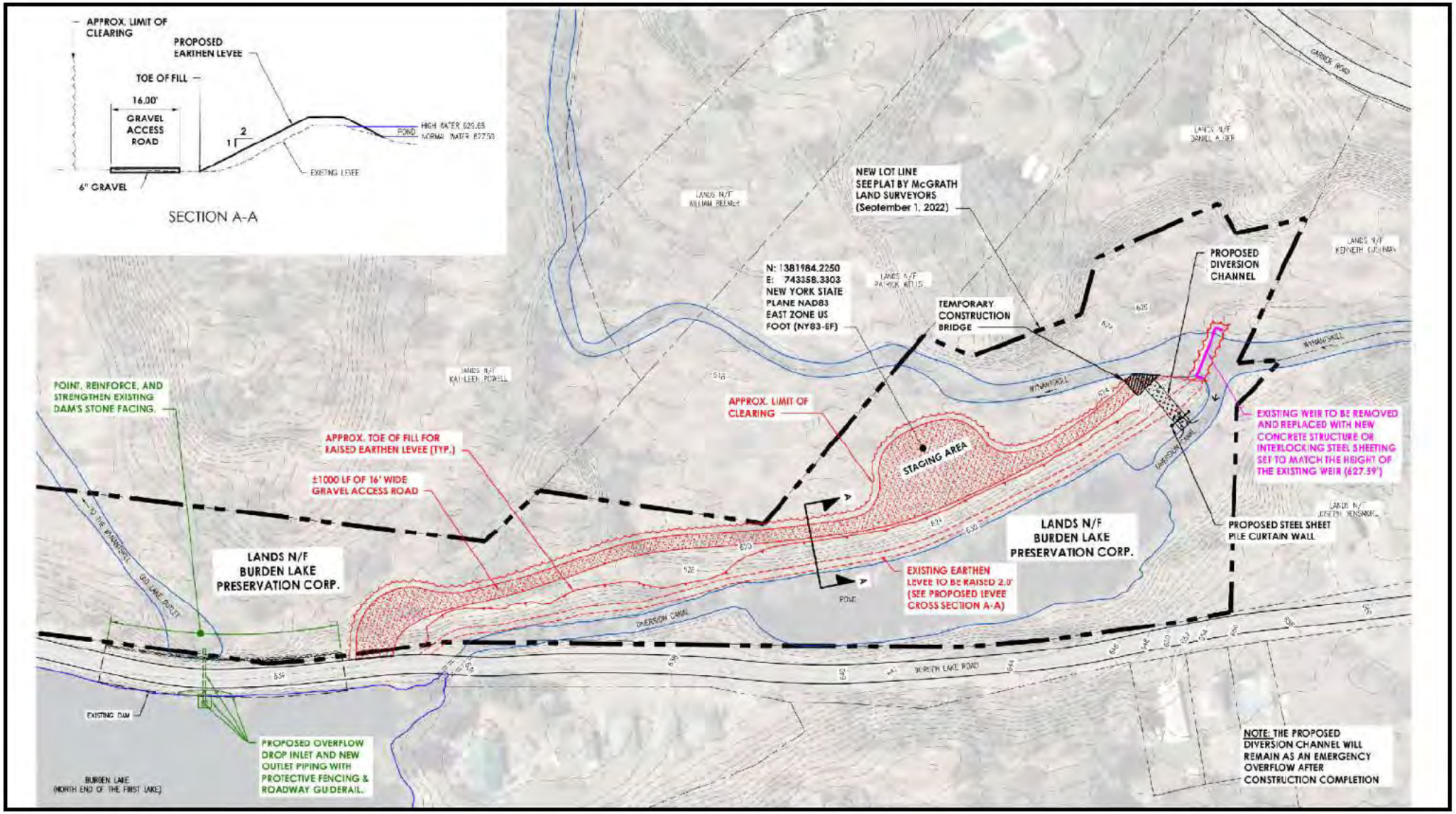
Legend

Project Location

N
W E
S

0 0.25 0.5 1 Miles

Sources: Wetlands: USFWS National Wetland Inventory, 2024; Basemap: Esri World Imagery

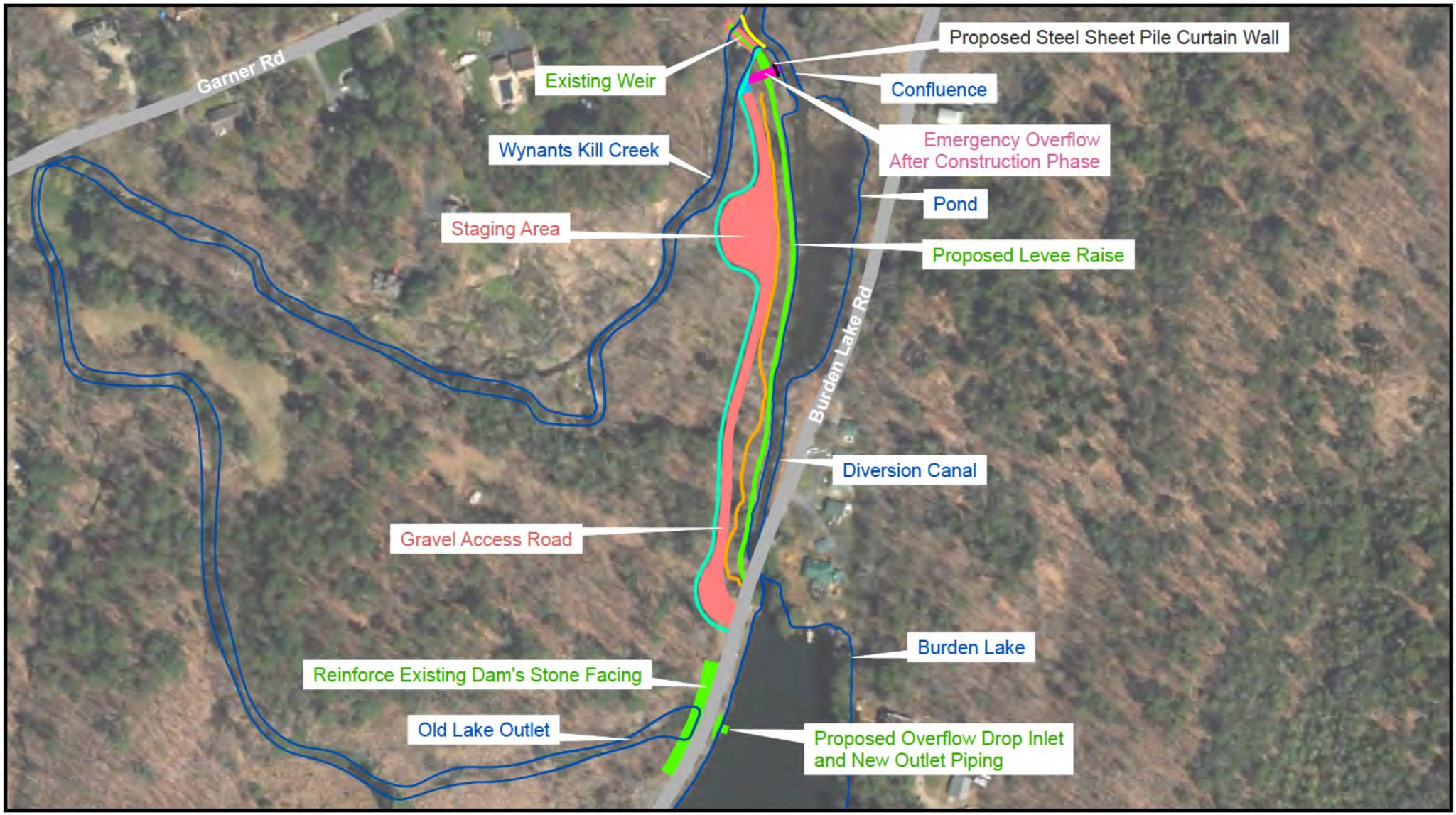


Burden Lake Dam System Mitigation Enhancements Project
Conceptual Plan
HMGP DR-4480-109-NY

0 100 200 300 Feet

Note: Scale is approximate.

Sources: Conceptual Plan: 4615 -0169 Burden Lake Dam Project Subapplication



Burden Lake Dam System Mitigation Enhancements Project

Site Features

HMGP DR-4480-109-NY

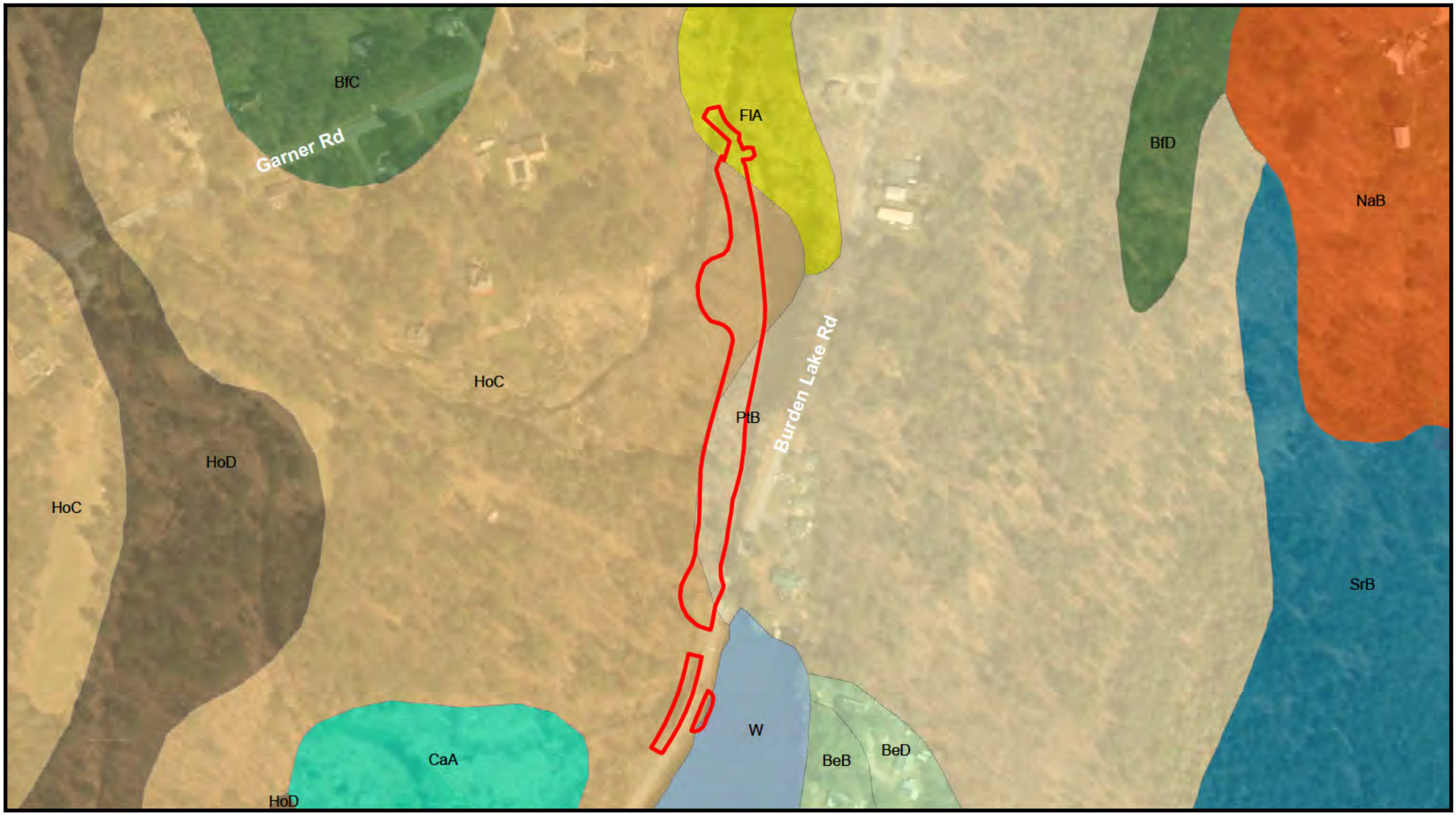
Legend

- Proposed Coffer Dam
- Proposed Curtain Wall
- Natural Watercourse
- Limit of Clearing
- Max Extent of Fill for Proposed Levee Raise
- Temporary Construction Bridge
- Proposed Upgrade Feature
- Proposed Temporary Diversion Channel
- Construction/Disturbance Area

N
W E
S

0 125 250 500 Feet

Sources: Basemap: Esri World Imagery



Burden Lake Dam System Mitigation Enhancements Project

Soils

HMGP DR-4480-109-NY

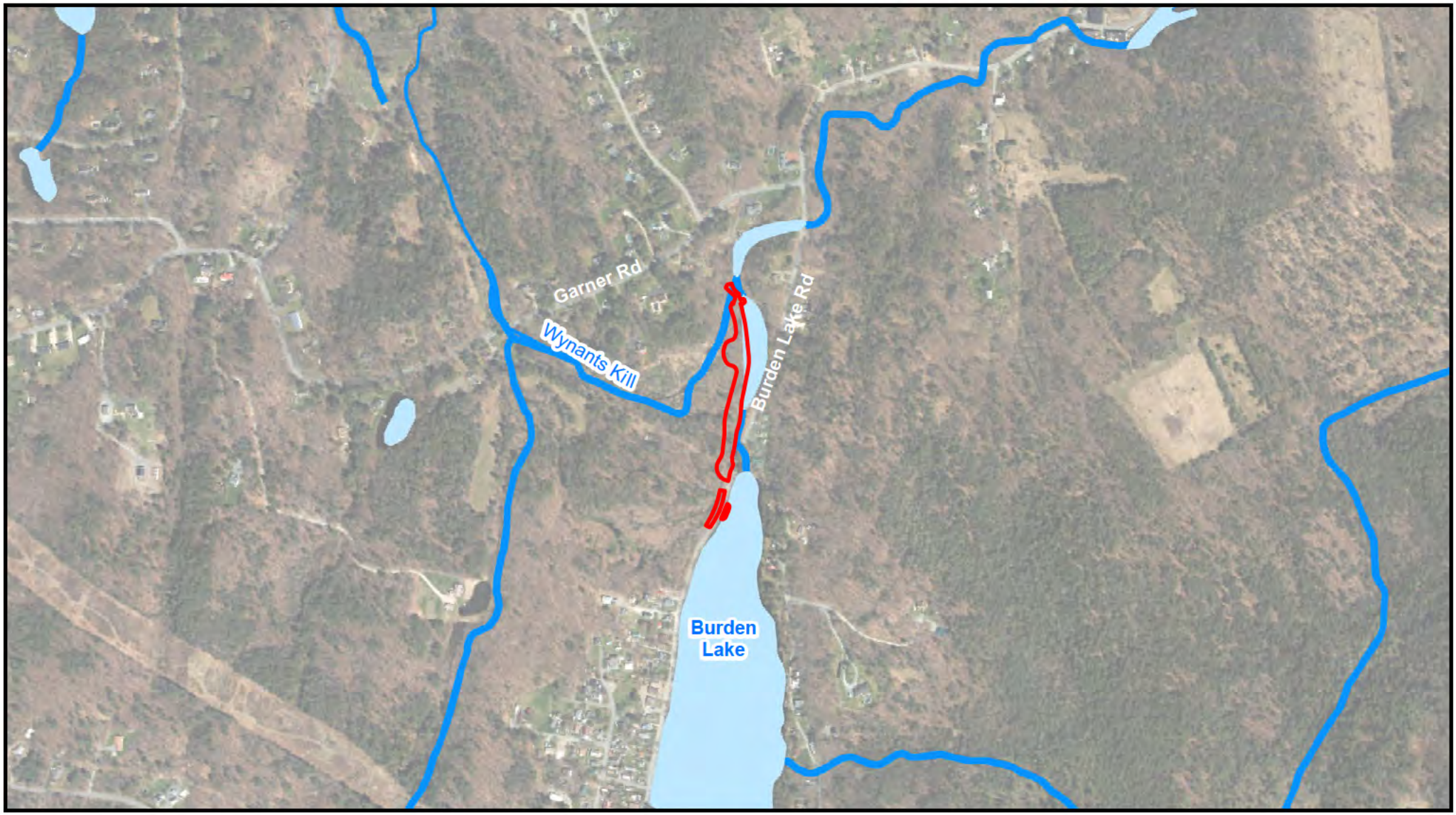
Legend

- Project Area
- Bernardston gravelly silt loam, BeB/BeD
- Bernardston very stony silt loam, BfC/BfD
- Catden muck, CaA
- Fluvaquents-Udifluvents complex, FlA
- Hoosic gravelly sandy loam, rolling, HoC
- Hoosic gravelly sandy loam, hilly, HoD
- Nassau-Manlius complex, undulating, NaB
- Pittstown gravelly silt loam, PtB
- Scriba silt loam, SrB
- Water, W

N W E S

0 125 250 500 Feet

Sources: Soil: USDA Natural Resrouces Conservation Service, Web Soil Survey; Basemap: Esri World Imagery



Burden Lake Dam System Mitigation Enhancements Project
Surface Waters
HMGP DR-4480-109-NY

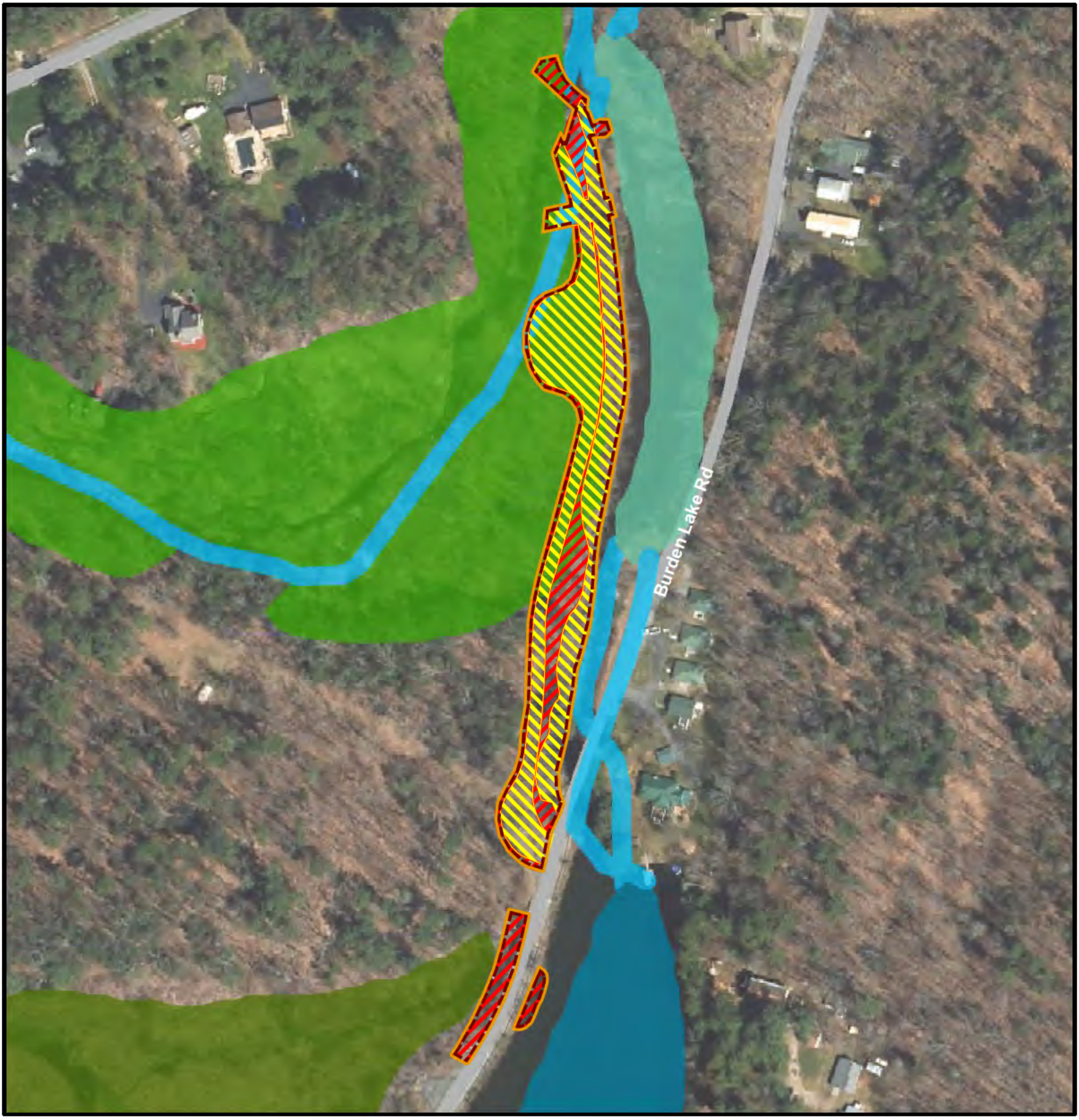
Legend

- Project Area
- Lakes / Ponds
- Streams

N
W E
S

0 0.125 0.25 0.5 Miles

Sources: Surface Waters: USGS National Hydrography Dataset, 2023; Basemap: Esri World Imagery



Burden Lake Dam System Mitigation Enhancements Project
NWI Wetlands
HMGP DR-4480-109-NY

0 75 150 300 Feet

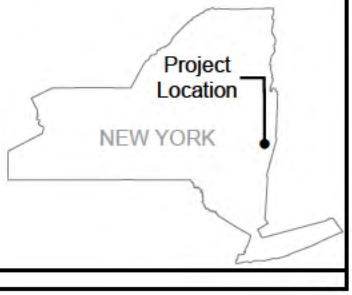
N
W E
S

Legend

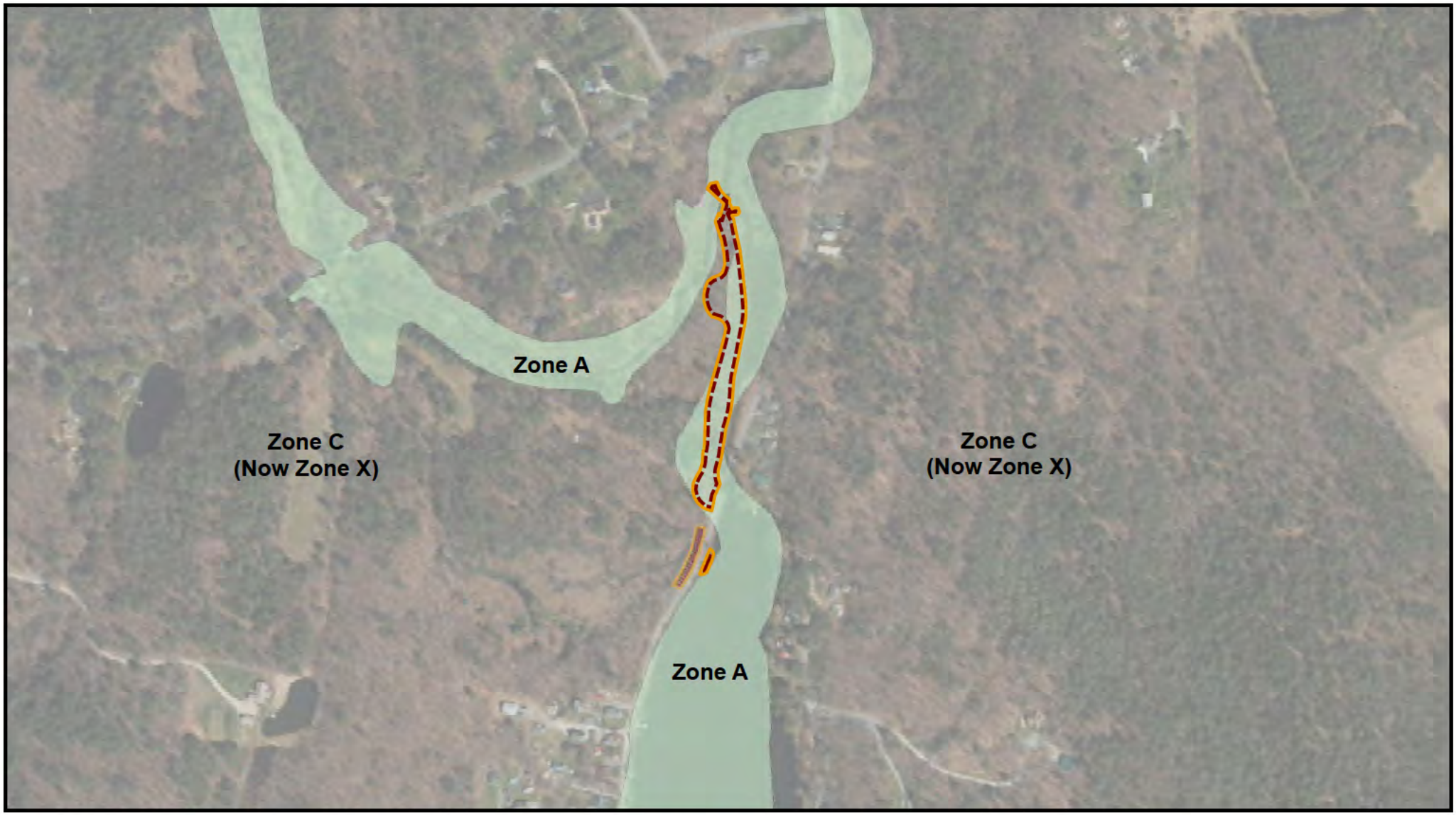
- Project Area
- Permanent Disturbance
- Temporary Disturbance

Wetland Type

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine



Sources: Wetlands: USFWS National Wetland Inventory, 2024; Basemap: Esri World Imagery



Burden Lake Dam System Mitigation Enhancements Project
FEMA Flood Zones
HMGP DR-4480-109-NY

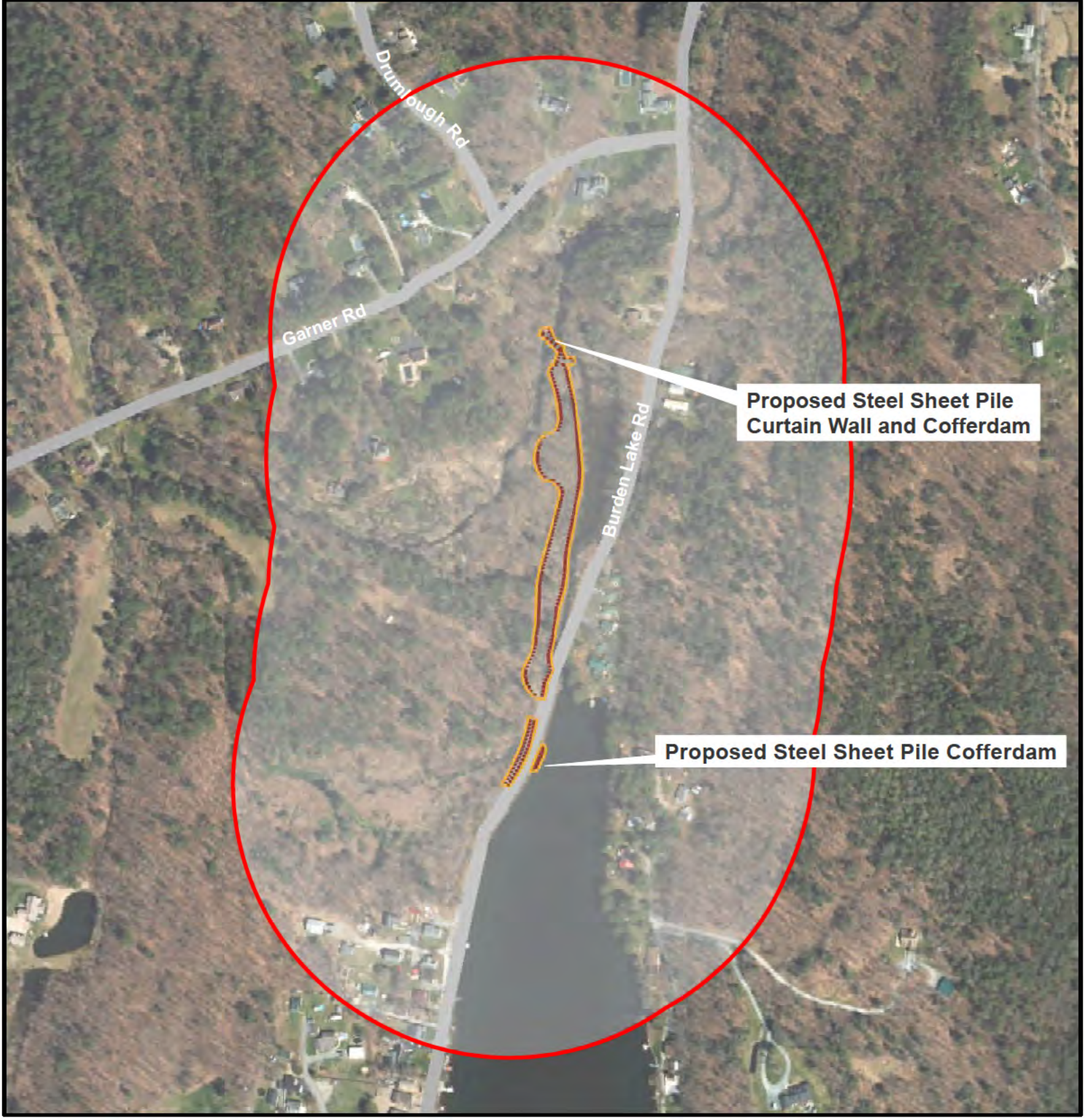
Legend

Project Area | Zone A (100-year Floodplain) | Zone C (Area of Minimal Flood Hazard)

N
W E
S

0 200 400 800
Feet

Sources: Basemap: Esri World Imagery; Floodplains: FEMA



Burden Lake Dam System Mitigation Enhancements Project
Action Area
HMGP DR-4480-109-NY

Legend

- Action Area
- Project Area

N
W E
S

0 250 500 1,000 Feet

Sources: Basemap: Esri World Imagery

Burden Lake Dam System Mitigation Enhancements Project
Area of Potential Effect
HMGP DR-4480-109-NY

Legend

Area of Potential Effect

Natural Watercourse

N
W E
S

0 100 200 400 Feet

Sources: Basemap: Esri World Imagery

Burden Lake Dam System Mitigation Enhancements Project
Burden Lake Road Detour

HMGP DR-4490-109-NY

Legend

- Detour
- Project Location

N
W E
S

0 0.25 0.5 1 Miles

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

LaBella Inundation Maps

Creator: VWR Reviewer: SE

Path: R:\GLOBAL\Projects\Siemens Smart Infrastructure\2240499 - Burden Lake Dam Assessment\06_Drawings\DIG\Burden Lake Inundation Maps\Burden Lake Inundation Maps.aprx

Tibbs Rd

Wave Arrival Time: 5 min
0.34 miles
WSE: 612.2 ft

Close Garner Rd
(Road)

Wave Arrival Time: 5 min
0.32 miles
WSE: 612.3 ft

Wynats

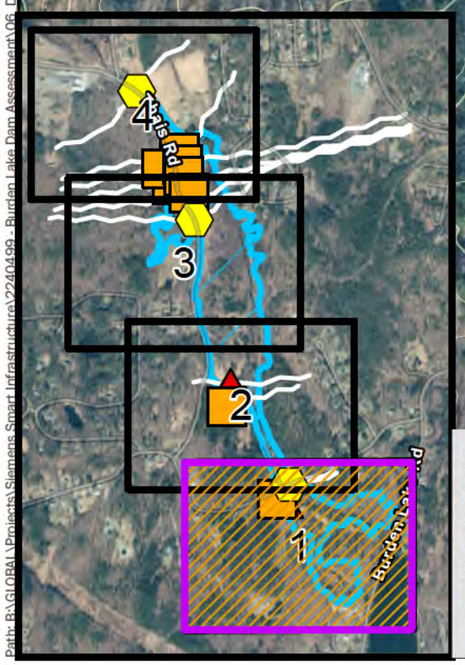
Garner Rd

Evacuate 210-212 Garner Rd
(Workshop)

Evacuate 212 Garner Rd
(Building)

Burden Lake Rd

Burden Lake



HEC-RAS Model Assumptions:
- Debris jams and ice were not taken into account for the modeling.
- The SDF and piping breach have similarly shaped hydrographs, with their peaks differing by a factor of 3.
- Erosive forces were not accounted for. Neither were scouring, changes in channel bed, or changes in channel direction over time or over the course of the flood.
- Infiltration during the flood was not accounted for.
- The terrain has channel baseflow embedded in it, and any results can be assumed to be in addition to baseflow.

LaBella
Powered by partnership

BURDEN LAKE DAM ASSESSMENT

N

0 100 200 Feet

Legend

Impacted Structures

Structure Type | Piping Breach Impact

- Building | Flooded
- Building | Inaccessible during flood, but NOT flooded
- Road | Flooded

5ft Contours

- Major
- Minor

- Critical Cross-Sections
- Max Piping Inundation Boundary

Sources:
1. Impacted Structures: Project specific. Based on flood extent and aerial imagery (November, 2024).
2. 5ft Contours: DEM tiles from NYS GIS Clearinghouse (November, 2024).
3. Critical Cross-Sections: 1D HEC-RAS Model (June, 2024).
4. Spillway Design Flood Max Extent: 1D HEC-RAS Model (June, 2024).
5. Basemap: ESRI Imagery Basemap

Note: This map series depicts potential inundation areas and flooding conditions that could result from a dam breach occurring during dry weather when the reservoir is at normal pool elevation.

The flooding information and inundation areas shown on this map are approximate and should be used only as a guide for establishing evacuation zones. Actual flooding conditions may differ from those depicted on the map. However, the displayed limits are the result of detailed modeling. The theoretical peak water surface elevation is displayed at each cross-section, as well as the flood wave arrival time from the time when the breach is fully formed. LaBella Associates is not to be held responsible if the actual conditions differ from the theoretical limits shown.

LaBella Project No: 2240499
Date: NOVEMBER, 2024

Piping Breach Inundation Map

FIGURE: 1B

Print Time: 12/13/2024 4:55 PM

Creator: VWR Reviewer: SE

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Pond Hollow Rd

Thais Rd

Drumlough Rd

Evacuate 40 Thais Rd (Barn)

Wave Arrival Time: 15 min
0.61 miles
WSE: 598.4 ft

Wave Arrival Time: 15 min
0.57 miles
WSE: 601.8 ft

Evacuate 40 Thais Rd (Building)

Thais Rd

Thias Rd

Close Garner Rd (Road)

Wave Arrival Time: 5 min
0.34 miles
WSE: 612.2 ft

HEC-RAS Model Assumptions:
- Debris jams and ice were not taken into account for the modeling.
- The SDF and piping breach have similarly shaped hydrographs, with their peaks differing by a factor of 3.
- Erosive forces were not accounted for. Neither were scouring, changes in channel bed, or changes in channel direction over time or over the course of the flood.
- Infiltration during the flood was not accounted for.
- The terrain has channel baseflow embedded in it, and any results can be assumed to be in addition to baseflow.

LaBella
Powered by partnership

BURDEN LAKE DAM ASSESSMENT

N

0 100 200 Feet

Legend

Impacted Structures

Structure Type | Piping Breach Impact

- Building | Flooded
- Building | Inaccessible during flood, but NOT flooded
- Road | Flooded

5ft Contours

- Major
- Minor

- Critical Cross-Sections
- Max Piping Inundation Boundary

Sources:
1. Impacted Structures: Project specific. Based on flood extent and aerial imagery (November, 2024).
2. 5ft Contours: DEM tiles from NYS GIS Clearinghouse (November, 2024).
3. Critical Cross-Sections: 1D HEC-RAS Model (June, 2024).
4. Spillway Design Flood Max Extent: 1D HEC-RAS Model (June, 2024).
5. Basemap: ESRI Imagery Basemap

Note: This map series depicts potential inundation areas and flooding conditions that could result from a dam breach occurring during dry weather when the reservoir is at normal pool elevation.

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LaBella Project No: 2240499
Date: NOVEMBER, 2024

Piping Breach Inundation Map

FIGURE: 2B

Print Time: 12/13/2024 4:55 PM

Creator: VWR Reviewer: SE

Path: R:\GLOBAL\Projects\Siemens Smart Infrastructure\2240499 - Burden Lake Dam Assessment\06_Drawings\DIG\Burden Lake Inundation Maps\Burden Lake Inundation Maps.aprx

Evacuate 141 Thais Rd (Building)

Evacuate 138 Thais Rd (Building)

Thais Rd

Wave Arrival Time: 25 min
1.14 miles
WSE: 586.4 ft

Wave Arrival Time: 25 min
1.11 miles
WSE: 586.6 ft

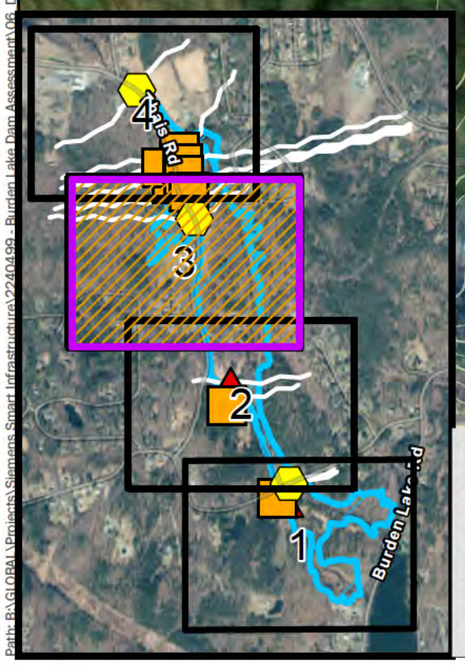
Edgewood Dr

Close Thais Rd (Road)

Thais Rd

Wynants Kill

Delma Ln



HEC-RAS Model Assumptions:
- Debris jams and ice were not taken into account for the modeling.
- The SDF and piping breach have similarly shaped hydrographs, with their peaks differing by a factor of 3.
- Erosive forces were not accounted for. Neither were scouring, changes in channel bed, or changes in channel direction over time or over the course of the flood.
- Infiltration during the flood was not accounted for.
- The terrain has channel baseflow embedded in it, and any results can be assumed to be in addition to baseflow.

LaBella
Powered by partnership.

BURDEN LAKE DAM ASSESSMENT

N

0 100 200 Feet

Legend

Impacted Structures

Structure Type | Piping Breach Impact

- Building | Flooded
- Building | Inaccessible during flood, but NOT flooded
- Road | Flooded

5ft Contours

- Major
- Minor

- Critical Cross-Sections
- Max Piping Inundation Boundary

Sources:
1. Impacted Structures: Project specific. Based on flood extent and aerial imagery (November, 2024).
2. 5ft Contours: DEM tiles from NYS GIS Clearinghouse (November, 2024).
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4. Spillway Design Flood Max Extent: 1D HEC-RAS Model (June, 2024).
5. Basemap: ESRI Imagery Basemap

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LaBella Project No: 2240499
Date: NOVEMBER, 2024

Piping Breach Inundation Map

FIGURE: 3B

Print Time: 12/13/2024 4:55 PM

Creator: VWR Reviewer: SE

Path: R:\GLOBAL\Projects\Siemens Smart Infrastructure\2240499 - Burden Lake Dam Assessment\06_Drawings\DIG\Burden Lake Inundation Maps\Burden Lake Inundation Maps.aprx

Wynantskill

Springer Rd

Springer Rd

Close Thais Rd
(Road)

Wave Arrival Time: 45 min
1.54 miles
WSE: 580.9 ft

Wynantskill

Thais Rd

Overlook Dr

Edgewood Dr

Wave Arrival Time: 25 min
1.22 miles
WSE: 585.5 ft

Evacuate 158 Thais Rd
(Building)

Wave Arrival Time: 25 min
1.31 miles
WSE: 584.1 ft

Evacuate 154 Thais Rd
(Building)

Wynantskill

Wave Arrival Time: 25 min
1.18 miles
WSE: 586.3 ft

Evacuate 151 Thais Rd
(Building)

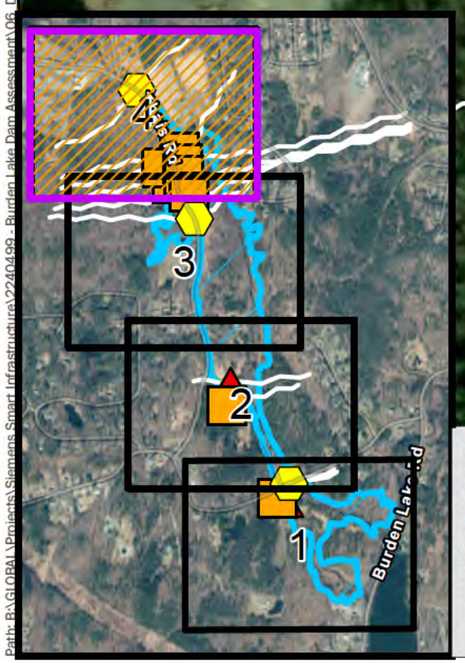
Evacuate 144 Thais Rd
(Building)

Evacuate 141 Thais Rd
(Building)

Evacuate 138 Thais Rd
(Building)

Wave Arrival Time: 25 min
1.14 miles
WSE: 586.4 ft

Thais Rd



HEC-RAS Model Assumptions:
- Debris jams and ice were not taken into account for the modeling.
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- Erosive forces were not accounted for. Neither were scouring, changes in channel bed, or changes in channel direction over time or over the course of the flood.
- Infiltration during the flood was not accounted for.
- The terrain has channel baseflow embedded in it, and any results can be assumed to be in addition to baseflow.

LaBella
Powered by partnership

BURDEN LAKE DAM ASSESSMENT

N

0 100 200 Feet

Legend

Impacted Structures

Structure Type | Piping Breach Impact

- Building | Flooded
- Building | Inaccessible during flood, but NOT flooded
- Road | Flooded

5ft Contours

- Major
- Minor

Critical Cross-Sections

Max Piping Inundation Boundary

Sources:
1. Impacted Structures: Project specific. Based on flood extent and aerial imagery (November, 2024).
2. 5ft Contours: DEM tiles from NYS GIS Clearinghouse (November, 2024).
3. Critical Cross-Sections: 1D HEC-RAS Model (June, 2024).
4. Spillway Design Flood Max Extent: 1D HEC-RAS Model (June, 2024).
5. Basemap: ESRI Imagery Basemap

Note: This map series depicts potential inundation areas and flooding conditions that could result from a dam breach occurring during dry weather when the reservoir is at normal pool elevation.

The flooding information and inundation areas shown on this map are approximate and should be used only as a guide for establishing evacuation zones. Actual flooding conditions may differ from those depicted on the map. However, the displayed limits are the result of detailed modeling. The theoretical peak water surface elevation is displayed at each cross-section, as well as the flood wave arrival time from the time when the breach is fully formed. LaBella Associates is not to be held responsible if the actual conditions differ from the theoretical limits shown.

LaBella Project No: 2240499
Date: NOVEMBER, 2024

Piping Breach Inundation Map

FIGURE: 4B

Print Time: 12/13/2024 4:55 PM

Wave Arrival Time: 5 min
0.34 miles
WSE: 618.4 ft

Close Garner Rd
(Road)

Wave Arrival Time: 5 min
0.32 miles
WSE: 618.5 ft

Tibbs Rd

Wynats Kill

Garner Rd

Evacuate 210-212 Garner Rd
(Workshop)

Evacuate 212 Garner Rd
(Building)

Burden Lake Rd

Burden Lake

Note that all callouts in the SDF Inundation Map series indicate which structures should be evacuated during the SDF, not during the 100-yr flood. The 100-yr flood and SDF are both depicted in this series for comparison purposes.

HEC-RAS Model Assumptions:
- Debris jams and ice were not taken into account for the modeling.
- The SDF and piping breach have similarly shaped hydrographs, with their peaks differing by a factor of 3.
- Erosive forces were not accounted for. Neither were scouring, changes in channel bed, or changes in channel direction over time or over the course of the flood.
- Infiltration during the flood was not accounted for.
- The terrain has channel baseflow embedded in it, and any results can be assumed to be in addition to baseflow.

LaBella
Powered by partnership

BURDEN LAKE DAM ASSESSMENT

N

0 100 200 Feet

Legend

Impacted Structures

Structure Type | SDF Impact

- Building | Flooded
- Building | Inaccessible during flood, but NOT flooded
- Road | Flooded

5ft Contours

- Major
- Minor

- Critical Cross-Sections
- Max SDF Inundation Boundary
- Rainy Day Flood - No Dam Breach

Sources:
1. Impacted Structures: Project specific. Based on flood extent and aerial imagery (November, 2024).
2. 5ft Contours: DEM tiles from NYS GIS Clearinghouse (November, 2024).
3. Critical Cross-Sections: 1D HEC-RAS Model (June, 2024).
4. Spillway Design Flood Max Extent: 1D HEC-RAS Model (June, 2024).
5. Rainy Day Flood - No Dam Breach: FEMA Flood Map Service Center (1980).
6. Basemap: ESRI Imagery Basemap

Note: This map series depicts potential inundation areas and flooding conditions that could result from a dam breach occurring during a storm-day when the spillway is in use. This depicted flood event is for a dam breach on a storm-day when 150% of the 100-yr 24-hr storm falls.

Also note that the 100-yr flood ("rainy day" flood) is depicted in green, though the callouts and critical cross-sections are for the SDF

The flooding information and inundation areas shown on this map are approximate and should be used only as a guide for establishing evacuation zones. Actual flooding conditions may differ from those depicted on the map.

LaBella Project No: 2240499
Date: NOVEMBER, 2024

SDF Inundation Map

FIGURE: 1A

Print Time: 12/13/2024 4:56 PM

Path: R:\GLOBAL\Projects\Siemens Smart Infrastructure\2240499 - Burden Lake Dam Assessment\06_Drawings\DIG\Burden Lake Inundation Maps\Burden Lake Inundation Maps.aprx
Creator: VWR Reviewer: SE

Creator: VWR Reviewer: SE

Path: R:\GLOBAL\Projects\Siemens Smart Infrastructure\2240499 - Burden Lake Dam Assessment\06 Drawings\DIG\Burden Lake Inundation Maps\Burden Lake Inundation Maps.aprx

Pond Hollow Rd

Thais Rd

Drumlough Rd

Evacuate 40 Thais Rd (Barn)

Evacuate 40 Thais Rd (Building)

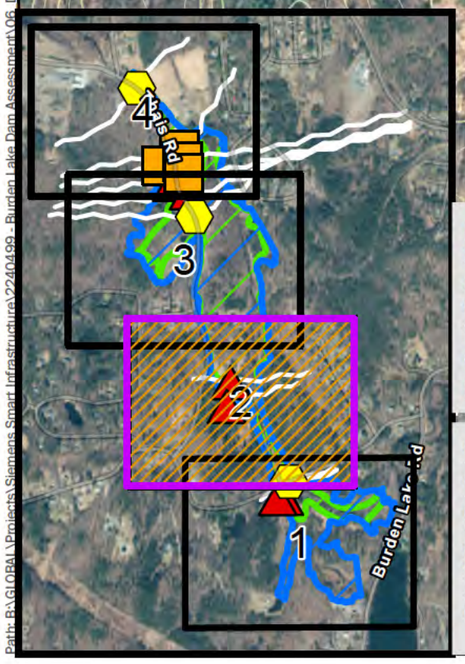
Wave Arrival Time: 15 min
0.61 miles
WSE: 602 ft

Wave Arrival Time: 15 min
0.57 miles
WSE: 606.5 ft

Close Garner Rd (Road)

Wave Arrival Time: 5 min
0.34 miles
WSE: 618.4 ft

Wave Arrival Time: 5 min
0.32 miles
WSE: 618.5 ft



Note that all callouts in the SDF Inundation Map series indicate which structures should be evacuated during the SDF, not during the 100-yr flood. The 100-yr flood and SDF are both depicted in this series for comparison purposes.

HEC-RAS Model Assumptions:
- Debris jams and ice were not taken into account for the modeling.
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- Erosive forces were not accounted for. Neither were scouring, changes in channel bed, or changes in channel direction over time or over the course of the flood.
- Infiltration during the flood was not accounted for.
- The terrain has channel baseflow embedded in it, and any results can be assumed to be in addition to baseflow.

LaBella
Powered by partnership.

BURDEN LAKE DAM ASSESSMENT

N

0 100 200 Feet

Legend

Impacted Structures

Structure Type | SDF Impact

- Building | Flooded
- Building | Inaccessible during flood, but NOT flooded
- Road | Flooded

5ft Contours

- Major
- Minor

- Critical Cross-Sections
- Max SDF Inundation Boundary
- Rainy Day Flood - No Dam Breach

Sources:
1. Impacted Structures: Project specific. Based on flood extent and aerial imagery (November, 2024).
2. 5ft Contours: DEM tiles from NYS GIS Clearinghouse (November, 2024).
3. Critical Cross-Sections: 1D HEC-RAS Model (June, 2024).
4. Spillway Design Flood Max Extent: 1D HEC-RAS Model (June, 2024).
5. Rainy Day Flood - No Dam Breach: FEMA Flood Map Service Center (1980).
6. Basemap: ESRI Imagery Basemap

Note: This map series depicts potential inundation areas and flooding conditions that could result from a dam breach occurring during a storm-day when the spillway is in use. This depicted flood event is for a dam breach on a storm-day when 150% of the 100-yr 24-hr storm falls.

Also note that the 100-yr flood ("rainy day" flood) is depicted in green, though the callouts and critical cross-sections are for the SDF

The flooding information and inundation areas shown on this map are approximate and should be used only as a guide for establishing evacuation zones. Actual flooding conditions may differ from those depicted on the map.

LaBella Project No: 2240499
Date: NOVEMBER, 2024

SDF Inundation Map

FIGURE: 2A

Print Time: 12/13/2024 4:56 PM

Evacuate 141 Thais Rd (Building)

Evacuate 138 Thais Rd (Building)

Wave Arrival Time: 25 min
1.11 miles
WSE: 591.3 ft

Close Thais Rd (Road)

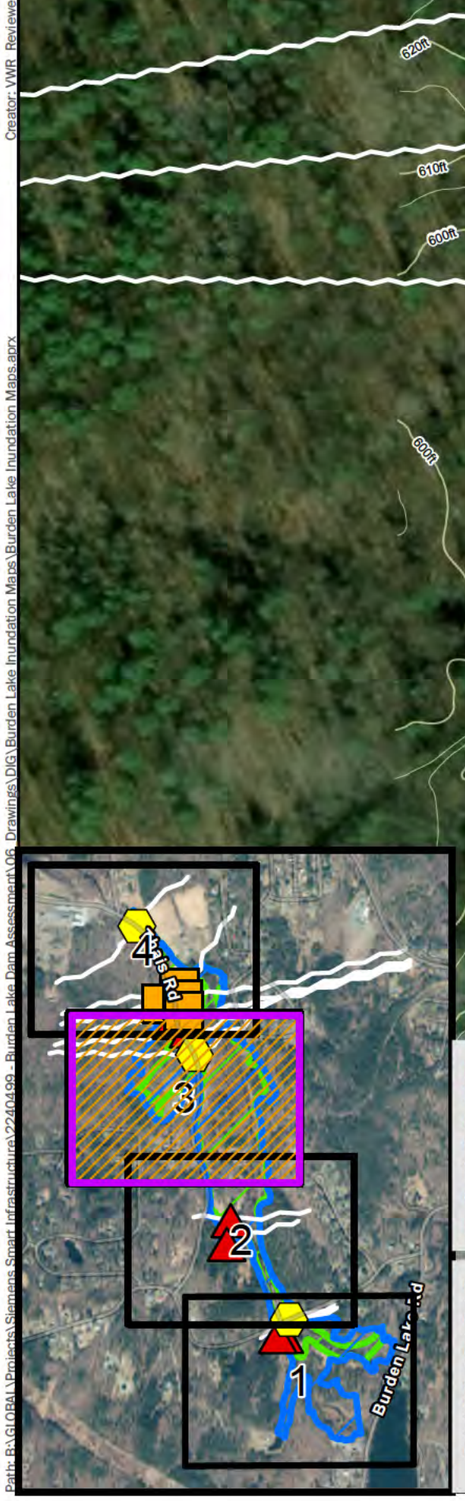
Thais Rd

Edgewood Dr

Wynants Kill

Delma Ln

Burden Lake



Note that all callouts in the SDF Inundation Map series indicate which structures should be evacuated during the SDF, not during the 100-yr flood. The 100-yr flood and SDF are both depicted in this series for comparison purposes.

HEC-RAS Model Assumptions:
- Debris jams and ice were not taken into account for the modeling.
- The SDF and piping breach have similarly shaped hydrographs, with their peaks differing by a factor of 3.
- Erosive forces were not accounted for. Neither were scouring, changes in channel bed, or changes in channel direction over time or over the course of the flood.
- Infiltration during the flood was not accounted for.
- The terrain has channel baseflow embedded in it, and any results can be assumed to be in addition to baseflow.

LaBella
Powered by partnership

BURDEN LAKE DAM ASSESSMENT

N

0 100 200 Feet

Legend

Impacted Structures

Structure Type | SDF Impact

- Building | Flooded
- Building | Inaccessible during flood, but NOT flooded
- Road | Flooded

5ft Contours

- Major
- Minor

- Critical Cross-Sections
- Max SDF Inundation Boundary
- Rainy Day Flood - No Dam Breach

Sources:
1. Impacted Structures: Project specific. Based on flood extent and aerial imagery (November, 2024).
2. 5ft Contours: DEM tiles from NYS GIS Clearinghouse (November, 2024).
3. Critical Cross-Sections: 1D HEC-RAS Model (June, 2024).
4. Spillway Design Flood Max Extent: 1D HEC-RAS Model (June, 2024).
5. Rainy Day Flood - No Dam Breach: FEMA Flood Map Service Center (1980).
6. Basemap: ESRI Imagery Basemap

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Also note that the 100-yr flood ("rainy day" flood) is depicted in green, though the callouts and critical cross-sections are for the SDF

The flooding information and inundation areas shown on this map are approximate and should be used only as a guide for establishing evacuation zones. Actual flooding conditions may differ from those depicted on the map.

LaBella Project No: 2240499
Date: NOVEMBER, 2024

SDF Inundation Map

FIGURE: 3A

Print Time: 12/13/2024 4:57 PM

Creator: VWR Reviewer: SE

Path: R:\GIS\BAI\Projects\Siemens Smart Infrastructure\2240499 - Burden Lake Dam Assessment\06_Drawings\DIG\Burden Lake Inundation Maps\Burden Lake Inundation Maps.aprx

Creator: VWR Reviewer: SE

Path: R:\GLOBAL\Projects\Siemens Smart Infrastructure\2240499 - Burden Lake Dam Assessment\06_Drawings\DIG\Burden Lake Inundation Maps\Burden Lake Inundation Maps.aprx

Wynants Kill

Springer Rd

Springer Rd

Close Thais Rd
(Road)

Wynants Kill

Thais Rd

Overlook Dr

Edgewood Dr

Wave Arrival Time: 35 min
1.54 miles
WSE: 585.5 ft

Wave Arrival Time: 25 min
1.31 miles
WSE: 589 ft

Wave Arrival Time: 25 min
1.22 miles
WSE: 590.6 ft

Wave Arrival Time: 25 min
1.18 miles
WSE: 591 ft

Wave Arrival Time: 25 min
1.14 miles
WSE: 591.2 ft

Wave Arrival Time: 25 min
1.11 miles
WSE: 591.3 ft

Evacuate 158 Thais Rd
(Building)

Evacuate 154 Thais Rd
(Building)

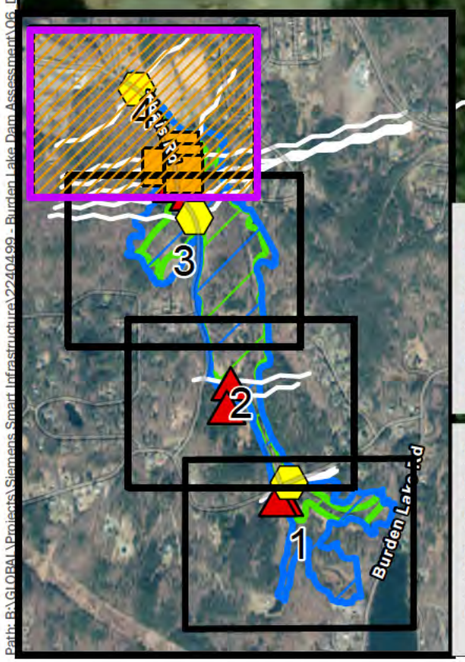
Evacuate 151 Thais Rd
(Building)

Evacuate 144 Thais Rd
(Building)

Evacuate 138 Thais Rd
(Building)

Evacuate 141 Thais Rd
(Building)

580ft 590ft 600ft 610ft 620ft 630ft 640ft 650ft 660ft 670ft



Note that all callouts in the SDF Inundation Map series indicate which structures should be evacuated during the SDF, not during the 100-yr flood. The 100-yr flood and SDF are both depicted in this series for comparison purposes.

HEC-RAS Model Assumptions:
- Debris jams and ice were not taken into account for the modeling.
- The SDF and piping breach have similarly shaped hydrographs, with their peaks differing by a factor of 3.
- Erosive forces were not accounted for. Neither were scouring, changes in channel bed, or changes in channel direction over time or over the course of the flood.
- Infiltration during the flood was not accounted for.
- The terrain has channel baseflow embedded in it, and any results can be assumed to be in addition to baseflow.

LaBella
Powered by partnership

BURDEN LAKE DAM ASSESSMENT

N

0 100 200 Feet

Legend

Impacted Structures

Structure Type | SDF Impact

- Building | Flooded
- Building | Inaccessible during flood, but NOT flooded
- Road | Flooded

5ft Contours

- Major
- Minor

- Critical Cross-Sections
- Max SDF Inundation Boundary
- Rainy Day Flood - No Dam Breach

Sources:
1. Impacted Structures: Project specific. Based on flood extent and aerial imagery (November, 2024).
2. 5ft Contours: DEM tiles from NYS GIS Clearinghouse (November, 2024).
3. Critical Cross-Sections: 1D HEC-RAS Model (June, 2024).
4. Spillway Design Flood Max Extent: 1D HEC-RAS Model (June, 2024).
5. Rainy Day Flood - No Dam Breach: FEMA Flood Map Service Center (1980).
6. Basemap: ESRI Imagery Basemap

Note: This map series depicts potential inundation areas and flooding conditions that could result from a dam breach occurring during a storm-day when the spillway is in use. This depicted flood event is for a dam breach on a storm-day when 150% of the 100-yr 24-hr storm falls.

Also note that the 100-yr flood ("rainy day" flood) is depicted in green, though the callouts and critical cross-sections are for the SDF

The flooding information and inundation areas shown on this map are approximate and should be used only as a guide for establishing evacuation zones. Actual flooding conditions may differ from those depicted on the map.

LaBella Project No: 2240499
Date: NOVEMBER, 2024

SDF Inundation Map

FIGURE: 4A

Print Time: 12/13/2024 4:57 PM

Appendix B:

Construction Emission Checklist and Noise Calculations

U.S. Environmental Protection Agency
Construction Emission Control Checklist

Diesel emissions and fugitive dust from project construction may pose environmental and human health risks and should be minimized. In 2002, EPA classified diesel emissions as a likely human carcinogen, and in 2012 the International Agency for Research on Cancer concluded that diesel exhaust is carcinogenic to humans. Acute exposures can lead to other health problems, such as eye and nose irritation, headaches, nausea, asthma, and other respiratory system issues. Longer term exposure may worsen heart and lung disease.[13] EPA recommends FEMA consider the following protective measures and commit to applicable measures in the FONSI.

Mobile and Stationary Source Diesel Controls

Purchase or solicit bids that require the use of vehicles that are equipped with zero-emission technologies or the most advanced emission control systems available. Commit to the best available emissions control technologies for project equipment in order to meet the following standards.

- On-Highway Vehicles: On-highway vehicles should meet, or exceed, the EPA exhaust emissions standards for model year 2010 and newer heavy-duty, on-highway compression-ignition engines (e.g., long-haul trucks, refuse haulers, shuttle buses, etc.).[14]
- Non-road Vehicles and Equipment: Non-road vehicles and equipment should meet, or exceed, the EPA Tier 4 exhaust emissions standards for heavy-duty, non-road compression-ignition engines (e.g., construction equipment, non-road trucks, etc.).[15]
- Low Emission Equipment Exemptions: The equipment specifications outlined above should be met unless: 1) a piece of specialized equipment is not available for purchase or lease within the United States; or 2) the relevant project contractor has been awarded funds to retrofit existing equipment, or purchase/lease new equipment, but the funds are not yet available.

Consider requiring the following best practices through the construction contracting or oversight process:

- Establish and enforce a clear anti-idling policy for the construction site.
- Use onsite renewable electricity generation and/or grid-based electricity rather than diesel-powered generators or other equipment.
- Use electric starting aids such as block heaters with older vehicles to warm the engine.
- Regularly maintain diesel engines to keep exhaust emissions low. Follow the manufacturer's recommended maintenance schedule and procedures. Smoke color can signal the need for maintenance (e.g., blue/black smoke indicates that an engine requires servicing or tuning).
- Where possible, retrofit older-tier or Tier 0 nonroad engines with an exhaust filtration device before it enters the construction site to capture diesel particulate matter.
- Replace the engines of older vehicles and/or equipment with diesel- or alternatively-fueled engines certified to meet newer, more stringent emissions standards (e.g., plug-in hybrid-electric vehicles, battery-electric vehicles, fuel cell electric vehicles, advanced technology

[13] Benbrahim-Tallaa, L, Baan, RA, Grosse, Y, Lauby-Secretan, B, El Ghissassi, F, Bouvard, V, Guha, N, Loomis, D, Straif, K & International Agency for Research on Cancer Monograph Working Group (2012). Carcinogenicity of diesel-engine and gasoline-engine exhausts and some nitroarenes. The Lancet. Oncology, vol. 13, no. 7, pp. 663-4. Accessed online from: https://kclpure.kcl.ac.uk/portal/files/6492297/coverBenbrahim_Tallaa_2012_Lancet_Oncology.pdf

[14] https://www.epa.gov/emission-standards-reference-guide/epa-emission-standards-heavy-duty-highway-engines-and-vehicles

[15] https://www.epa.gov/emission-standards-reference-guide/epa-emission-standards-nonroad-engines-and-vehicles

locomotives, etc.), or with zero emissions electric systems. Retire older vehicles, given the significant contribution of vehicle emissions to the poor air quality conditions. Implement programs to encourage the voluntary removal from use and the marketplace of pre-2010 model year on-highway vehicles (e.g., scrappage rebates) and replace them with newer vehicles that meet or exceed the latest EPA exhaust emissions standards, or with zero emissions electric vehicles and/or equipment.

Fugitive Dust Source Controls

- Stabilize open storage piles and disturbed areas by covering and/or applying water or chemical/organic dust palliative, where appropriate. This applies to both inactive and active sites, during workdays, weekends, holidays, and windy conditions.
- Install wind fencing and phase grading operations where appropriate and operate water trucks for stabilization of surfaces under windy conditions.
- When hauling material and operating non-earthmoving equipment, prevent spillage and limit speeds to 15 miles per hour (mph). Limit speed of earth-moving equipment to 10 mph.

Occupational Health

- Reduce exposure through work practices and training, such as maintaining filtration devices and training diesel-equipment operators to perform routine inspections.
- Position the exhaust pipe so that diesel fumes are directed away from the operator and nearby workers, reducing the fume concentration to which personnel are exposed.
- Use enclosed, climate-controlled cabs pressurized and equipped with high-efficiency particulate air (HEPA) filters to reduce the operators' exposure to diesel fumes. Pressurization ensures that air moves from inside to outside. HEPA filters ensure that any incoming air is filtered first.
- Use respirators, which are only an interim measure to control exposure to diesel emissions. In most cases, an N95 respirator is adequate. Workers must be trained and fit-tested before they wear respirators. Depending on the type of work being conducted, and if oil is present, concentrations of particulates present will determine the efficiency and type of mask and respirator. Personnel familiar with the selection, care, and use of respirators must perform the fit testing. Respirators must bear a National Institute for Occupational Safety and Health approval number.

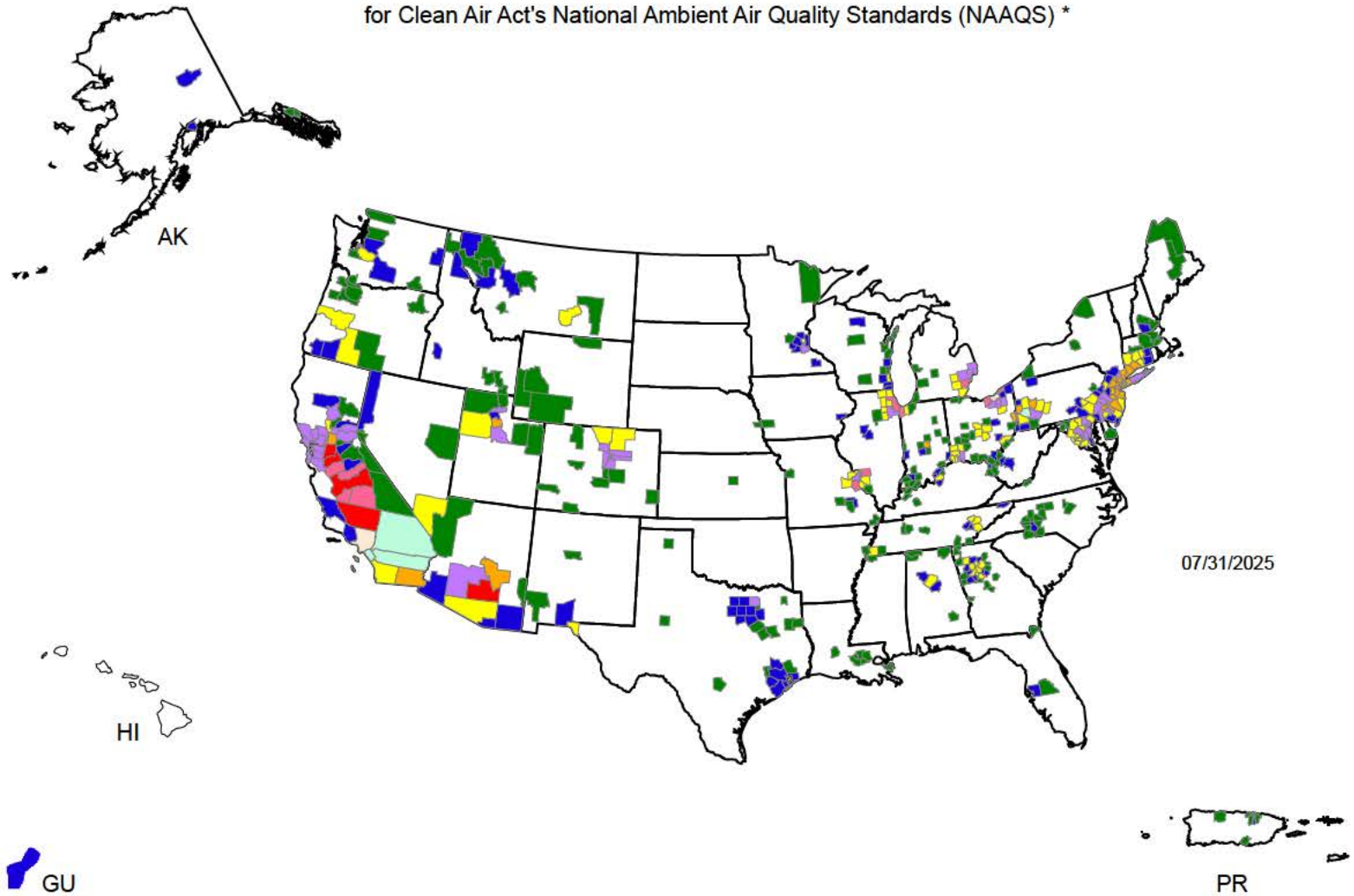
NEPA Documentation

- Per Executive Order 13045 on Children's Health,[16] EPA recommends the lead agency and project proponent pay particular attention to worksite proximity to places where children live, learn, and play, such as homes, schools, and playgrounds. Construction emission reduction measures should be strictly implemented near these locations in order to be protective of children's health.
- Specify how impacts to sensitive receptors, such as children, elderly, and the infirm will be minimized. For example, locate construction equipment and staging zones away from sensitive receptors and fresh air intakes to buildings and air conditioners.

[16] Children may be more highly exposed to contaminants because they generally eat more food, drink more water, and have higher inhalation rates relative to their size. Also, children's normal activities, such as putting their hands in their mouths or playing on the ground, can result in higher exposures to contaminants as compared with adults. Children may be more vulnerable to the toxic effects of contaminants because their bodies and systems are not fully developed, and their growing organs are more easily harmed. EPA views childhood as a sequence of life stages, from conception through fetal development, infancy, and adolescence.

Counties Designated "Nonattainment" or "Maintenance"

for Clean Air Act's National Ambient Air Quality Standards (NAAQS) *



Legend **

- County Designated Nonattainment or Maintenance for 9 NAAQS Pollutants
- County Designated Nonattainment or Maintenance for 8 NAAQS Pollutants
- County Designated Nonattainment or Maintenance for 7 NAAQS Pollutants
- County Designated Nonattainment or Maintenance for 6 NAAQS Pollutants
- County Designated Nonattainment or Maintenance for 5 NAAQS Pollutants
- County Designated Nonattainment or Maintenance for 4 NAAQS Pollutants
- County Designated Nonattainment or Maintenance for 3 NAAQS Pollutants
- County Designated Nonattainment or Maintenance for 2 NAAQS Pollutants
- County Designated Nonattainment or Maintenance for 1 NAAQS Pollutants

* The National Ambient Air Quality Standards (NAAQS) are health standards for Carbon Monoxide, Lead (1978 and 2008), Nitrogen Dioxide, 8-hour Ozone (2008), Particulate Matter (PM-10 and PM-2.5 (1997, 2006 and 2012), and Sulfur Dioxide.(1971 and 2010)

** Included in the counts are counties designated for NAAQS and revised NAAQS pollutants. Revoked 1-hour (1979) and 8-hour Ozone (1997) are excluded. Partial counties, those with part of the county designated nonattainment and part attainment, are shown as full counties on the map.

8-Hour Construction Noise Level Summary at the Receptor (dBA) during Dam Improvements

Noise-Sensitive Use	Distance from Loudest Construction Activity to a Receptor (ft)	8-Hour Construction Noise Level at the Receptor (dBA)	Daytime Unmitigated Leq (Construction Noise + Existing) (dBA)	Daytime Increase Over Existing (dBA)	Reduction from Construction BMPs (dBA)	Daytime Mitigated Leq (Construction Noise + Existing + Mitigation) (dBA)
Rural Residential	130	79	79	39	3	76

8-Hour Construction Noise Level Summary at the Receptor (dBA) during Levee Improvements

Noise-Sensitive Use	Distance from Loudest Construction Activity to a Receptor (ft)	8-Hour Construction Noise Level at the Receptor (dBA)	Daytime Unmitigated Leq (Construction Noise + Existing) (dBA)	Daytime Increase Over Existing (dBA)	Reduction from Construction BMPs (dBA)	Daytime Mitigated Leq (Construction Noise + Existing + Mitigation) (dBA)
Rural Residential	130	76	76	36	3	73

8-Hour Construction Noise Level Summary at the Receptor (dBA) during Weir Replacement

Noise-Sensitive Use	Distance from Loudest Construction Activity to a Receptor (ft)	8-Hour Construction Noise Level at the Receptor (dBA)	Daytime Unmitigated Leq (Construction Noise + Existing) (dBA)	Daytime Increase Over Existing (dBA)	Reduction from Construction BMPs (dBA)	Daytime Mitigated Leq (Construction Noise + Existing + Mitigation) (dBA)
Rural Residential	130	76	76	36	3	73

8-Hour Construction Noise Level Summary at the Receptor (dBA) during Construction Access and Staging

Noise-Sensitive Use	Distance from Loudest Construction Activity to a Receptor (ft)	8-Hour Construction Noise Level at the Receptor (dBA)	Daytime Unmitigated Leq (Construction Noise + Existing) (dBA)	Daytime Increase Over Existing (dBA)	Reduction from Construction BMPs (dBA)	Daytime Mitigated Leq (Construction Noise + Existing + Mitigation) (dBA)
Rural Residential	130	76	76	36	3	73

8-Hour Construction Noise Level Summary at the Receptor (dBA) during Temporary Diversion Channel Construction

Noise-Sensitive Use	Distance from Loudest Construction Activity to a Receptor (ft)	8-Hour Construction Noise Level at the Receptor (dBA)	Daytime Unmitigated Leq (Construction Noise + Existing) (dBA)	Daytime Increase Over Existing (dBA)	Reduction from Construction BMPs (dBA)	Daytime Mitigated Leq (Construction Noise + Existing + Mitigation) (dBA)
Rural Residential	130	76	76	36	3	73

8-Hour Construction Noise Level Summary at the Receptor (dBA) during Temporary Bridge Construction

Noise-Sensitive Use	Distance from Loudest Construction Activity to a Receptor (ft)	8-Hour Construction Noise Level at the Receptor (dBA)	Daytime Unmitigated Leq (Construction Noise + Existing) (dBA)	Daytime Increase Over Existing (dBA)	Reduction from Construction BMPs (dBA)	Daytime Mitigated Leq (Construction Noise + Existing + Mitigation) (dBA)
Rural Residential	130	78	78	38	3	75

8-Hour Construction Noise Level Summary at the Receptor (dBA) during Cofferdam

Noise-Sensitive Use	Distance from Loudest Construction Activity to a Receptor (ft)	8-Hour Construction Noise Level at the Receptor (dBA)	Daytime Unmitigated Leq (Construction Noise + Existing) (dBA)	Daytime Increase Over Existing (dBA)	Reduction from Construction BMPs (dBA)	Daytime Mitigated Leq (Construction Noise + Existing + Mitigation) (dBA)
Rural Residential	130	77	77	37	3	74

Note: With the application of EPA's Construction Control Checklist, dust mitigation windfencing will serve as the noise barrier to break the line-of-sight between the noise source and the receptor.

8-Hour Construction Noise Level during Dam Improvements at the Receptor (dBA) - Residential

Parameter	Data
Distance from Construction Activity to a Receptor (ft)	130
8-Hour Construction Noise Level at 50 ft (dBA)	88
Distance Divergence (dBA)	8.3
Atmospheric Attenuation (dBA)	0.08
8-Hour Construction Noise Level at the Receptor (dBA)	79
Daytime Unmitigated Leq (Construction Noise + Existing) (dBA)	79
Daytime Increase Over Existing (dBA)	39

Existing Noise Levels

Land Use Type	Rural Residential
Background Noise (dBA)	40

8-Hour Construction Noise Level during Levee Improvements at the Receptor (dBA) - Residential

Parameter	Data
Distance from Construction Activity to a Receptor (ft)	130
8-Hour Construction Noise Level at 50 ft (dBA)	84
Distance Divergence (dBA)	8.3
Atmospheric Attenuation (dBA)	0.08
8-Hour Construction Noise Level at the Receptor (dBA)	76
Daytime Unmitigated Leq (Construction Noise + Existing) (dBA)	76
Daytime Increase Over Existing (dBA)	36

Existing Noise Levels

Land Use Type	Rural Residential
Background Noise (dBA)	40

8-Hour Construction Noise Level during Weir Replacement at the Receptor (dBA) - Residential

Parameter	Data
Distance from Construction Activity to a Receptor (ft)	130
8-Hour Construction Noise Level at 50 ft (dBA)	84
Distance Divergence (dBA)	8.3
Atmospheric Attenuation (dBA)	0.08
8-Hour Construction Noise Level at the Receptor (dBA)	76
Daytime Unmitigated Leq (Construction Noise + Existing) (dBA)	76
Daytime Increase Over Existing (dBA)	36

Existing Noise Levels

Land Use Type	Rural Residential
Background Noise (dBA)	40

8-Hour Construction Noise Level during Construction Access and Staging at the Receptor (dBA) - Residential

Parameter	Data
Distance from Construction Activity to a Receptor (ft)	130
8-Hour Construction Noise Level at 50 ft (dBA)	84
Distance Divergence (dBA)	8.3
Atmospheric Attenuation (dBA)	0.08
8-Hour Construction Noise Level at the Receptor (dBA)	76
Daytime Unmitigated Leq (Construction Noise + Existing) (dBA)	76
Daytime Increase Over Existing (dBA)	36

Existing Noise Levels

Land Use Type	Rural Residential
Background Noise (dBA)	40

8-Hour Construction Noise Level during Temporary Diversion Channel Construction at the Receptor (dBA) - Residential

Parameter	Data
Distance from Construction Activity to a Receptor (ft)	130
8-Hour Construction Noise Level at 50 ft (dBA)	84
Distance Divergence (dBA)	8.3
Atmospheric Attenuation (dBA)	0.08
8-Hour Construction Noise Level at the Receptor (dBA)	76
Daytime Unmitigated Leq (Construction Noise + Existing) (dBA)	76
Daytime Increase Over Existing (dBA)	36

Existing Noise Levels

Land Use Type	Rural Residential
Background Noise (dBA)	40

8-Hour Construction Noise Level during Temporary Bridge Construction at the Receptor (dBA) - Residential

Parameter	Data
Distance from Construction Activity to a Receptor (ft)	130
8-Hour Construction Noise Level at 50 ft (dBA)	86
Distance Divergence (dBA)	8.3
Atmospheric Attenuation (dBA)	0.08
8-Hour Construction Noise Level at the Receptor (dBA)	78
Daytime Unmitigated Leq (Construction Noise + Existing) (dBA)	78
Daytime Increase Over Existing (dBA)	38

Existing Noise Levels

Land Use Type	Rural Residential
Background Noise (dBA)	40

8-Hour Construction Noise Level during Cofferdam at the Receptor (dBA) - Residential

Parameter	Data
Distance from Construction Activity to a Receptor (ft)	130
8-Hour Construction Noise Level at 50 ft (dBA)	85
Distance Divergence (dBA)	8.3
Atmospheric Attenuation (dBA)	0.08
8-Hour Construction Noise Level at the Receptor (dBA)	77
Daytime Unmitigated Leq (Construction Noise + Existing) (dBA)	77
Daytime Increase Over Existing (dBA)	37

Existing Noise Levels

Land Use Type	Rural Residential
Background Noise (dBA)	40

Construction - Equipment Noise

8-Hour Construction Noise Level during Dam Improvements at 50 Feet (dBA)

Equipment Description	RCNM Equipment Types	Usage Factor	Equipment Lmax @ 50'	Equipment Leq(h) @ 50'	Number of Equipment	Add to Single Source Level (dBA)	Total Lmax @ 50'	Total Leq(h) @ 50'
Vendor Asphalt/Concrete Truck	Concrete Mixer Truck	40%	79	75	2	3	82	78
Heavy Duty Dump Truck	Dump Truck	40%	76	72	1	0	76	72
Graders	Grader	40%	85	81	2	3	88	84
Tractors/Loaders/Backhoes	Front End Loader	40%	79	75	3	5	84	80
Rubber Tired Dozers	Dozer	40%	82	78	1	0	82	78
Pavers	Paver	50%	77	74	1	0	77	74
Cement and Mortar Mixers	Drum Mixer	50%	80	77	1	0	80	77
Rollers	Roller	20%	80	73	1	0	80	73
						Total	**92**	**88**

8-Hour Construction Noise Level during Levee Improvements at 50 Feet (dBA)

Equipment Description	RCNM Equipment Types	Usage Factor	Equipment Lmax @ 50'	Equipment Leq(h) @ 50'	Number of Equipment	Add to Single Source Level (dBA)	Total Lmax @ 50'	Total Leq(h) @ 50'
Vendor Asphalt/Concrete Truck	Concrete Mixer Truck	40%	79	75	2	3	82	78
Heavy Duty Dump Truck	Dump Truck	40%	76	72	1	0	76	72
Graders	Grader	40%	85	81	2	3	88	84
Scraper	Scraper	40%	84	80	1	0	84	80
Tractors/Loaders/Backhoes	Front End Loader	40%	79	75	3	5	84	80
Rubber Tired Dozers	Dozer	40%	82	78	1	0	82	78
						Max	**88**	**84**

8-Hour Construction Noise Level during Weir Replacement at 50 Feet (dBA)

Equipment Description	RCNM Equipment Types	Usage Factor	Equipment Lmax @ 50'	Equipment Leq(h) @ 50'	Number of Equipment	Add to Single Source Level (dBA)	Total Lmax @ 50'	Total Leq(h) @ 50'
Vendor Asphalt/Concrete Truck	Concrete Mixer Truck	40%	79	75	2	3	82	78
Heavy Duty Dump Truck	Dump Truck	40%	76	72	1	0	76	72
Graders	Grader	40%	85	81	2	3	88	84
Tractors/Loaders/Backhoes	Front End Loader	40%	79	75	2	3	82	78
Rubber Tired Dozers	Dozer	40%	82	78	1	0	82	78
						Max	**88**	**84**

8-Hour Construction Noise Level during Construction Access and Staging at 50 Feet (dBA)

Equipment Description	RCNM Equipment Types	Usage Factor	Equipment Lmax @ 50'	Equipment Leq(h) @ 50'	Number of Equipment	Add to Single Source Level (dBA)	Total Lmax @ 50'	Total Leq(h) @ 50'
Vendor Asphalt/Concrete Truck	Concrete Mixer Truck	40%	79	75	2	3	82	78
Heavy Duty Dump Truck	Dump Truck	40%	76	72	1	0	76	72
Graders	Grader	40%	85	81	2	3	88	84
Tractors/Loaders/Backhoes	Front End Loader	40%	79	75	2	3	82	78
Rubber Tired Dozers	Dozer	40%	82	78	1	0	82	78
						Max	**88**	**84**

Construction - Equipment Noise

8-Hour Construction Noise Level during Temporary Diversion Channel at 50 Feet (dBA)

Equipment Description	RCNM Equipment Types	Usage Factor	Equipment Lmax @ 50'	Equipment Leq(h) @ 50'	Number of Equipment	Add to Single Source Level (dBA)	Total Lmax @ 50'	Total Leq(h) @ 50'
Vendor Asphalt/Concrete Truck	Concrete Mixer Truck	40%	79	75	2	3	82	78
Heavy Duty Dump Truck	Dump Truck	40%	76	72	1	0	76	72
Graders	Grader	40%	85	81	2	3	88	84
Tractors/Loaders/Backhoes	Front End Loader	40%	79	75	2	3	82	78
Rubber Tired Dozers	Dozer	40%	82	78	1	0	82	78
						Max	**88**	**84**

8-Hour Construction Noise Level during Temporary Bridge Construction at 50 Feet (dBA)

Equipment Description	RCNM Equipment Types	Usage Factor	Equipment Lmax @ 50'	Equipment Leq(h) @ 50'	Number of Equipment	Add to Single Source Level (dBA)	Total Lmax @ 50'	Total Leq(h) @ 50'
Vendor Asphalt/Concrete Truck	Concrete Mixer Truck	40%	79	75	2	3	82	78
Heavy Duty Dump Truck	Dump Truck	40%	76	72	1	0	76	72
Crawler Tractors	Tractor	40%	84	80	2	3	87	83
Excavators	Excavator	40%	81	77	4	6	87	83
Cranes	Crane	16%	81	73	1	0	81	73
Graders	Grader	40%	85	81	2	3	88	84
Rollers	Roller	20%	80	73	3	5	85	78
Rubber Tire Loaders	Front End Loader	40%	79	75	3	5	84	80
Scrapers	Scraper	40%	84	80	4	6	90	86
Tractors/Loaders/Backhoes	Front End Loader	40%	79	75	2	3	82	78
Air Compressors	Compressor (air)	40%	78	74	1	0	78	74
Generator Sets	Generator	50%	81	78	1	0	81	78
Plate Compactors	Compactor (ground)	20%	83	76	1	0	83	76
Pumps	Pumps	50%	81	78	1	0	81	78
Rough Terrain Forklifts	All Other Equipment > 5 hp	50%	85	82	1	0	85	82
Pavers	Paver	50%	77	74	1	0	77	74
Paving Equipment	Paver	50%	77	74	1	0	77	74
						Max	**90**	**86**

8-Hour Construction Noise Level during Cofferdam at 50 Feet (dBA)

Equipment Description	RCNM Equipment Types	Usage Factor	Equipment Lmax @ 50'	Equipment Leq(h) @ 50'	Number of Equipment	Add to Single Source Level (dBA)	Total Lmax @ 50'	Total Leq(h) @ 50'
Vendor Asphalt/Concrete Truck	Concrete Mixer Truck	40%	79	75	2	3	82	78
Heavy Duty Dump Truck	Dump Truck	40%	76	72	1	0	76	72
Rough Terrain Forklifts	All Other Equipment > 5 hp	50%	85	82	2	3	88	85
Cranes	Crane	16%	81	73	2	3	84	76
						Max	**88**	**85**

Construction - Distance to Receptors

Receptor	Distance (ft.) [A]
Rural Residential	130

Note(s):
A. Receptor distance of 130 ft. was estimated from the beginning of the gravel access road to the nearest noise sensitive land use identified in the Town of Sand Lake code chapter regarding noise (residence).

Atmospheric Attenuation

Assumptions	Rensselaer, New York
Ambient pressure (kPa)	101.3
Temperature (F)	50
Relative humidity (%)	70
Frequency of noise source (Hz)	500
Air Attenuation Coefficient (α, dB/km)	1.9
Air Attenuation Coefficient (α, dB/ft)	0.0006

$A_{air} = \alpha d$

Note: Human ears are most sensitive to noise at 500 Hz or higher and A-weighting removes all frequencies below 500 Hz. Therefore, 500 Hz was selected as the frequency at which the average person would hear noise.

Air Attenuation Coefficient by Frequency (Hz), dB/km, for an Ambient Pressure of 101.3 kPa

(One Standard Sea-Level Atmosphere) for Sound Propogation in Open Air

Temperature (°F)	Relative Humidity, %	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz
86	10	0.96	1.8	3.4	8.7	29	96
86	20	0.73	1.9	3.4	6.0	15	47
86	30	0.54	1.7	3.7	6.2	12	33
86	50	0.36	1.3	3.6	7.0	12	25
86	70	0.26	0.96	3.1	7.4	13	23
86	90	0.20	0.78	2.7	7.3	14	24
68	10	0.78	1.6	4.3	14	45	109
68	20	0.71	1.4	2.6	6.5	22	74
68	30	0.62	1.4	2.5	5.0	14	49
68	50	0.45	1.3	2.7	4.7	9.9	29
68	70	0.34	1.1	2.8	5.0	9.0	23
68	90	0.27	0.97	2.7	5.3	9.1	20
50	10	0.79	2.3	7.5	22	42	57
50	20	0.58	1.2	3.3	11	36	92
50	30	0.55	1.1	2.3	6.8	24	77
50	50	0.49	1.1	1.9	4.3	13	47
50	70	0.41	1.0	1.9	3.7	9.7	33
50	90	0.35	1.0	2.0	3.5	8.1	26
32	10	1.3	4.0	9.3	14	17	19
32	20	0.61	1.9	6.2	18	35	47
32	30	0.47	1.2	3.7	13	36	69
32	50	0.41	0.82	2.1	6.8	24	71
32	70	0.39	0.76	1.6	4.6	16	56
32	90	0.38	0.76	1.5	3.7	12	43

Source(s):

Harris, Cyril M. 1998. Handbook of Acoustical Measurements and Noise Control. 3rd ed. - Chapter 3 Calculation of Attenuation

Weather in Rensselaer, New York

Variable	Temperature	Unit
Average temperature	49.2	°F
Average relative humidity	68.9	%

Source(s):
Climate-data.org. 2025. Weather by Month, Rensselaer. Accessed February 12, 2025, https://en.climate-data.org/north-america/united-states-of-america/new-york/rensselaer-140386/#climate-table.
Note: Rensselaer was used as a surrogate location to represent Burden Lake weather as it is approximately 10 miles northwest of Burden Lake.

WEATHER BY MONTH // WEATHER AVERAGES RENSSELAER

< >

	January	February	March	April	May	June	July	August	September	October	November	December
Avg. Temperature °C (°F)	-4.4 °C (24.1) °F	-2.9 °C (26.8) °F	1.4 °C (34.5) °F	8.4 °C (47.1) °F	14.7 °C (58.5) °F	19.5 °C (67.1) °F	22.6 °C (72.7) °F	21.9 °C (71.4) °F	18 °C (64.5) °F	11.1 °C (52) °F	4.9 °C (40.8) °F	-0.8 °C (30.6) °F
Min. Temperature °C (°F)	-8.2 °C (17.3) °F	-6.9 °C (19.5) °F	-2.9 °C (26.8) °F	3.7 °C (38.6) °F	10 °C (50) °F	15 °C (59) °F	18 °C (64.4) °F	17.4 °C (63.4) °F	13.8 °C (56.9) °F	7.5 °C (45.5) °F	1.7 °C (35.1) °F	-3.7 °C (25.3) °F
Max. Temperature °C (°F)	0.3 °C (32.5) °F	2.2 °C (35.9) °F	6.9 °C (44.4) °F	14.3 °C (57.7) °F	20.3 °C (68.5) °F	24.6 °C (76.3) °F	27.8 °C (82) °F	26.9 °C (80.4) °F	23 °C (73.4) °F	15.6 °C (60.1) °F	9.1 °C (48.4) °F	3 °C (37.4) °F
Precipitation / Rainfall mm (in)	83 (3)	74 (2)	98 (3)	100 (3)	102 (4)	113 (4)	101 (3)	96 (3)	103 (4)	116 (4)	87 (3)	102 (4)
Humidity(%)	68%	64%	64%	63%	68%	72%	68%	69%	72%	74%	74%	71%
Rainy days (d)	8	7	8	9	9	9	9	8	7	8	7	8
avg. Sun hours (hours)	5.0	5.8	6.8	8.1	9.0	10.0	10.8	9.5	7.6	6.1	5.3	4.4

Data: 1991 - 2021 Min. Temperature °C (°F), Max. Temperature °C (°F), Precipitation / Rainfall mm (in), Humidity, Rainy days. Data: 1999 - 2019: avg. Sun hours

Equipment noise emissions and acoustical usage factors database

Equipment Description	Impact Device?	Acoustical Use Factor [A]	Spec 721.560 Lmax @ 50ft (dBA, slow)	Actual Measured Lmax @ 50 ft (dBA, slow)
All Other Equipment > 5 hp	No	50%	85	N/A
Auger Drill Rig	No	20%	85	84
Backhoe	No	40%	80	78
Bar Bender	No	20%	80	N/A
Blasting	Yes	1%	94	N/A
Boring Jack Power Unit	No	50%	80	83
Chain Saw	No	20%	85	84
Clam Shovel (dropping)	Yes	20%	93	87
Compactor (ground)	No	20%	80	83
Compressor (air)	No	40%	80	78
Concrete Batch Plant	No	15%	83	N/A
Concrete Mixer Truck	No	40%	85	79
Concrete Pump Truck	No	20%	82	81
Concrete Saw	No	20%	90	90
Crane	No	16%	85	81
Dozer	No	40%	85	82
Drill Rig Truck	No	20%	84	79
Drum Mixer	No	50%	80	80
Dump Truck	No	40%	84	76
Excavator	No	40%	85	81
Flat Bed Truck	No	40%	84	74
Front End Loader	No	40%	80	79
Generator	No	50%	82	81
Generator (<25KVA, VMS signs)	No	50%	70	73
Gradall	No	40%	85	83
Grader	No	40%	85	N/A
Grapple (on backhoe)	No	40%	85	87
Horizontal Boring Hydr. Jack	No	25%	80	82
Hydra Break Ram	Yes	10%	90	N/A
Impact Pile Driver	Yes	20%	95	101
Jackhammer	Yes	20%	85	89
Man Lift	No	20%	85	75
Mounted Impact Hammer (hoe ram)	Yes	20%	90	90
Pavement Scarifier	No	20%	85	90
Paver	No	50%	85	77
Pickup Truck	No	40%	55	75
Pneumatic Tools	No	50%	85	85
Pumps	No	50%	77	81
Refrigerator Unit	No	100%	82	73
Rivit Buster/Chipping Gun	Yes	20%	85	79
Rock Drill	No	20%	85	81
Roller	No	20%	85	80
Sand Blasting (Single Nozzle)	No	20%	85	96
Scraper	No	40%	85	84
Shears (on backhoe)	No	40%	85	96
Slurry Plant	No	100%	78	78
Slurry Trenching Machine	No	50%	82	80
Soil Mix Drill Rig	No	50%	80	N/A
Tractor	No	40%	84	N/A
Vacuum Excavator (vac-truck)	No	40%	85	85
Vacuum Street Sweeper	No	10%	80	82
Ventilation Fan	No	100%	85	79
Vibrating Hopper	No	50%	85	87
Vibratory Concrete Mixer	No	20%	80	80
Vibratory Pile Driver	No	20%	95	101
Warning Horn	No	5%	85	83
Welder/Torch	No	40%	73	74

Note(s):

A. Usage factor is the percentage of time during a construction noise operation that a piece of construction equipment is operating at full power. In case of construction blasting, the equipment gives a very short duration blast and can be quantified by using a 1% usage factor in the RCNM to allow for some prediction.

Source(s):

Federal Highway Administration. 2006. Roadway Construction Noise Model User's Guide. Table 1: CA/T equipment noise emissions and acoustical usage factors database. Accessed February 22, 2024, https://www.fhwa.dot.gov/environment/noise/construction_noise/rcnm/rcnm.pdf.

Average Ambient Noise Levels for Various Land Uses

Land Use Description	Average Ldn (dBA)	Daytime Leq (dBA)	Nighttime Leq (dBA)
Wilderness	35	35	25
Rural Residential	40	40	30
Quiet Suburban Residential	50	50	40
Normal Suburban Residential	55	55	45
Urban Residential	60	60	50
Noisy Urban Residential	65	65	55
Very Noisy Urban Residential	70	70	60

Source(s):

U.S. Environmental Protection Agency. 1974. *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety* . 550/9-74-004. Washington, DC: U.S. Environmental Protection Agency, Office of Noise Abatement and Control.

U.S. Department of Agriculture, Forest Service. 1975. *Guidelines for Roadless Area Campsite Spacing to Minimize Impact of Human-Related Noises* . General Technical Report PNW-35. Portland, Oregon: Pacific Northwest Forest and Range Experiment Station.

Noise Reductions from Mitigation Measures

Mitigation Type	Reduction (dBA)
Noise barrier or other obstruction just barely breaks the line-of-sight between the noise source and the receptor	3
Noise source completely shielded by a building	15
Noise source completely enclosed or completely shielded with solid barrier located close to the source	8
Enclosure and/or barrier with some gaps	5
Noise source completely enclosed and completely shielded with a solid barrier located close to the source	10
Noise source enclosed or shielded with heavy vinyl noise curtain material	5

Source(s):

Federal Highway Administration. 2006. Roadway Construction Noise Model User's Guide. Appendix A: Best Practices for Calculating Estimated Shielding for Use in the RCNM. Accessed February 22, 2024, https://www.fhwa.dot.gov/environment/noise/construction_noise/rcnm/rcnm.pdf

Appendix C:
Agency Correspondence

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
Phone: (607) 753-9334 Fax: (607) 753-9699
Email Address: fw5es_nyfo@fws.gov

In Reply Refer To: 04/03/2025 13:03:03 UTC
Project code: 2024-0074441
Project Name: 4480-0109 Burden Lake Dam

Federal Nexus: yes
Federal Action Agency (if applicable): Federal Emergency Management Agency

Subject: Federal agency coordination under the Endangered Species Act, Section 7 for '4480-0109 Burden Lake Dam'

Dear Mindy Yang:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on April 03, 2025, for '4480-0109 Burden Lake Dam' (here forward, Project). This project has been assigned Project Code 2024-0074441 and all future correspondence should clearly reference this number. **Please carefully review this letter. Your Endangered Species Act (Act) requirements may not be complete.**

Ensuring Accurate Determinations When Using IPaC

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into IPaC must accurately represent the full scope and details of the Project.

Failure to accurately represent or implement the Project as detailed in IPaC or the Northern Long-eared Bat and Tricolored Bat Range-wide Determination Key (DKey), invalidates this letter. ***Answers to certain questions in the DKey commit the project proponent to implementation of conservation measures that must be followed for the ESA determination to remain valid. Note that conservation measures for northern long-eared bat and tricolored bat may differ. If both bat species are present in the action area and the key suggests more conservative measures for one of the species for your Project, the Project may need to apply the most conservative measures in order to avoid adverse effects. If unsure which conservation measures should be applied, please contact the appropriate Ecological Services Field Office.***

Determination for the Northern Long-Eared Bat and Tricolored Bat

Based on your IPaC submission and a standing analysis completed by the Service, you determined the proposed Project will have the following effect determinations:

Species	Listing Status	Determination
Northern Long-eared Bat (*Myotis septentrionalis*)	Endangered	NLAA
Tricolored Bat (*Perimyotis subflavus*)	Proposed Endangered	NLAA

Federal agencies must consult with U.S. Fish and Wildlife Service under section 7(a)(2) of the Endangered Species Act (ESA) when an action *may affect* a listed species. Tricolored bat is proposed for listing as endangered under the ESA, but not yet listed. For actions that may affect a proposed species, agencies cannot consult, but they can *confer* under the authority of section 7(a)(4) of the ESA. Such conferences can follow the procedures for a consultation and be adopted as such if and when the proposed species is listed. Should the tricolored bat be listed, agencies must review projects that are not yet complete, or projects with ongoing effects within the tricolored bat range that previously received a NE or NLAA determination from the key to confirm that the determination is still accurate.

Unless the Service advises you within 15 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that consultation on the Action is complete for northern long-eared bat and/or tricolored bat and no further action is necessary unless either of the following occurs:

- new information reveals effects of the action that may affect the northern long-eared bat or tricolored bat in a manner or to an extent not previously considered; or,
- the identified action is subsequently modified in a manner that causes an effect to the northern long-eared bat or tricolored bat that was not considered when completing the determination key.

15-Day Review Period

As indicated above, the Service will notify you within 15 calendar days if we determine that this proposed Action does not meet the criteria for a “may affect, not likely to adversely affect” (NLAA) determination for the northern long-eared bat and/or tricolored bat. If we do not notify you within that timeframe, you may proceed with the Action under the terms of the NLAA concurrence provided here. This verification period allows the identified Ecological Services Field Office to apply local knowledge to evaluation of the Action, as we may identify a small subset of actions having impacts that we did not anticipate when developing the key. In such cases, the identified Ecological Services Field Office may request additional information to verify the effects determination reached through the Northern Long-eared Bat and Tricolored Bat DKey.

Other Species and Critical Habitat that May be Present in the Action Area

The IPaC-assisted determination key for the northern long-eared bat and tricolored bat does not apply to the following ESA-protected species and/or critical habitat that also may occur in your Action area:

- Monarch Butterfly *Danaus plexippus* Proposed Threatened

You may coordinate with our Office to determine whether the Action may affect the species and/or critical habitat listed above. Note that reinitiation of consultation would be necessary if a new species is listed or critical habitat designated that may be affected by the identified action before it is complete.

If you have any questions regarding this letter or need further assistance, please contact the New York Ecological Services Field Office and reference Project Code 2024-0074441 associated with this Project.

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

4480-0109 Burden Lake Dam

2. Description

The following description was provided for the project '4480-0109 Burden Lake Dam':

> The proposed project is to renovate the existing Dam located as a part of the Burden Lake Dam system. This consists of several parts including reconstructing the existing stone dam wall that has heavily eroded located adjacent to Burden Lake County Road. The Burden Lake County Road is currently closed due to the instability of the Dam. Additionally, replace the existing 28-inch pipe located at the bottom of the dam. The existing levee (berm) will need to be re-enforced as it has been deteriorated, this includes the removal of existing vegetation and trees (approximately 100 trees) and raise a 2' earthen berm along the western embankment. The existing weir located along Wynantskill will be replaced and a stronger weir and fish ladder will be installed. The fish ladder will allow fish to travel upstream for spawning. A staging area will be located along the west back, along with a proposed gravel lined road. Additionally, approximately 100 to 200 trees will be removed in the area of the proposed gravel lined road.

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@42.6218699,-73.5667803353784,14z

DETERMINATION KEY RESULT

Based on the answers provided, the proposed Action is consistent with a determination of “may affect, but not likely to adversely affect” for a least one species covered by this determination key.

QUALIFICATION INTERVIEW

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of listed bats or any other listed species?

   Note: Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

   No

2. Is the action area wholly within Zone 2 of the year-round active area for northern long-eared bat and/or tricolored bat?

   Automatically answered
   No

3. Does the action area intersect Zone 1 of the year-round active area for northern long-eared bat and/or tricolored bat?

   Automatically answered
   No

4. Does any component of the action involve leasing, construction or operation of wind turbines? Answer 'yes' if the activities considered are conducted with the intention of gathering survey information to inform the leasing, construction, or operation of wind turbines.

   Note: For federal actions, answer ‘yes’ if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.).

   No

5. Is the proposed action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

   Yes

6. Is the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), or Federal Transit Administration (FTA) funding or authorizing the proposed action, in whole or in part?

   No

7. Are you an employee of the federal action agency or have you been officially designated in writing by the agency as its designated non-federal representative for the purposes of Endangered Species Act Section 7 informal consultation per 50 CFR § 402.08?

   Note: This key may be used for federal actions and for non-federal actions to facilitate section 7 consultation and to help determine whether an incidental take permit may be needed, respectively. This question is for information purposes only.

   Yes

8. Is the lead federal action agency the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC)? Is the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC) funding or authorizing the proposed action, in whole or in part?

   No

9. Is the lead federal action agency the Federal Energy Regulatory Commission (FERC)?

   No

10. Have you contacted the appropriate agency to determine if your action is near any known northern long-eared bat or tricolored bat **hibernacula**?

    Note: A document with links to Natural Heritage Inventory databases and other state-specific sources of information on the locations of northern long-eared bat and tricolored bat hibernacula is available here. Location information for northern long-eared bat and tricolored bat hibernacula is generally kept in state natural heritage inventory databases – the availability of this data varies by state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited.

    Yes

11. Is any portion of the action area within 0.5-mile radius of any known bat **hibernacula**?

    If unsure, contact your local Ecological Services Field Office.

    No

12. Have you contacted the appropriate agency to determine if your action is near any known occupied culverts?

    Note: A document with links to Natural Heritage Inventory databases and other state-specific sources of information on the locations of northern long-eared bat and tricolored bat hibernacula is available here. Location information for northern long-eared bat and tricolored bat hibernacula is generally kept in state natural heritage inventory databases – the availability of this data varies by state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited.

    Yes

13. Is any portion of the action area within a 0.25-mile radius of any known bat occupied culvert? If unsure, contact your local Ecological Services Field Office.

    No

14. Does the action area contain any winter roosts or caves (or associated sinkholes, fissures, or other karst features), mines, rocky outcroppings, or tunnels that could provide habitat for hibernating bats?

    No

15. Will the action cause effects to a bridge?

    Note: Covered bridges should be considered as bridges in this question.

    No

16. Will the action result in effects to a culvert or tunnel at any time of year?

    No

17. Are trees present within 1000 feet of the action area?

    Note: If there are trees within the action area that are of a sufficient size to be potential roosts for bats answer "Yes". If unsure, additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    Yes

18. Does the action include the intentional exclusion of bats from a building or structure?

    Note: Exclusion is conducted to deny bats' entry or reentry into a building. To be effective and to avoid harming bats, it should be done according to established standards. If your action includes bat exclusion and you are unsure whether northern long-eared bats or tricolored bats are present, answer "Yes." Answer "No" if there are no signs of bat use in the building/structure. If unsure, contact your local Ecological Services Field Office to help assess whether northern long-eared bats or tricolored bats may be present. Contact a Nuisance Wildlife Control Operator (NWCO) for help in how to exclude bats from a structure safely without causing harm to the bats (to find a NWCO certified in bat standards, search the Internet using the search term "National Wildlife Control Operators Association bats"). Also see the White-Nose Syndrome Response Team's guide for bat control in structures.

    No

19. Does the action involve removal, modification, or maintenance of a human-made structure (barn, house, or other building) **known or suspected to contain roosting bats?**

    No

20. Will the action cause construction of one or more new roads open to the public?

    For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

    No

21. Will the action include or cause any construction or other activity that is reasonably certain to increase average daily traffic permanently or temporarily on one or more existing roads?

    Note: For federal actions, answer ‘yes’ when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.). .

    No

22. Will the action include or cause any construction or other activity that is reasonably certain to increase the number of travel lanes on an existing thoroughfare?

    For federal actions, answer ‘yes’ when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

    No

23. Will the proposed Action involve the creation of a new water-borne contaminant source (e.g., leachate pond, pits containing chemicals that are not NSF/ANSI 60 compliant)?

    Note: For information regarding NSF/ANSI 60 please visit https://www.nsf.org/knowledge-library/nsf-ansi-standard-60-drinking-water-treatment-chemicals-health-effects

    No

24. Will the proposed action involve the creation of a new point source discharge from a facility other than a water treatment plant or storm water system?

    No

25. Will the proposed action involve blasting or drilling?

    No

26. Will the action involve military training (e.g., smoke operations, obscurant operations, exploding munitions, artillery fire, range use, helicopter or fixed wing aircraft use)?

    No

27. Will the proposed action involve the use of herbicides or other pesticides other than herbicides (e.g., fungicides, insecticides, or rodenticides)?

    No

28. Will the action include or cause activities that are reasonably certain to cause chronic or intense nighttime noise (above current levels of ambient noise in the area) in suitable summer habitat for the northern long-eared bat or tricolored bat during the active season?

    Chronic noise is noise that is continuous or occurs repeatedly again and again for a long time. Sources of chronic or intense noise that could cause adverse effects to bats may include, but are not limited to: road traffic; trains; aircraft; industrial activities; gas compressor stations; loud music; crowds; oil and gas extraction; construction; and mining.

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    No

29. Does the action include, or is it reasonably certain to cause, the use of permanent or temporary artificial lighting within 1000 feet of suitable northern long-eared bat or tricolored bat roosting habitat?

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    No

30. Will the action include tree cutting or other means of knocking down or bringing down trees, tree topping, or tree trimming?

    Yes

31. Will the proposed action occur exclusively in an already established and currently maintained utility right-of-way?

    No

32. Does the action include emergency cutting or trimming of hazard trees in order to remove an imminent threat to human safety or property? See hazard tree note at the bottom of the key for text that will be added to response letters

    Note: A "hazard tree" is a tree that is an immediate threat to lives, public health and safety, or improved property.

    No

33. Does the project intersect with the 0- 9.9% forest density category?

    Automatically answered
    No

34. Does the project intersect with the 10.0- 19.9% forest density category map?

    Automatically answered
    No

35. Does the project intersect with the 20.0- 29.9% forest density category map?

    Automatically answered
    No

36. Does the project intersect with the 30.0- 100% forest density category map?

    Automatically answered
    Yes

37. Will the action cause trees to be cut, knocked down, or otherwise brought down across an area greater than 100 acres in total extent?

    No

38. Will the proposed action result in the use of prescribed fire?

    Note: If the prescribed fire action includes other activities than application of fire (e.g., tree cutting, fire line preparation) please consider impacts from those activities within the previous representative questions in the key. This set of questions only considers impacts from flame and smoke.

    No

39. Does the action area intersect the northern long-eared bat species list area?

    Automatically answered
    Yes

40. [Semantic] Is the action area located within 0.25 miles of a culvert that is known to be occupied by northern long-eared or tricolored bats?

    Automatically answered
    No

41. Have you contacted the appropriate agency to determine if your action is within 150 feet of any documented northern long-eared bat roosts?

    Note: A document with links to Natural Heritage Inventory databases and other state-specific sources of information on the locations of northern long-eared bat roosts is available here. Location information for northern long-eared bat roosts is generally kept in state natural heritage inventory databases – the availability of this data varies by state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited.

    Yes

42. Is any portion of the action area within 150 feet of any known northern long-eared bat roosts? If unsure, contact your local Ecological Services Field Office.

    No

43. Is suitable summer habitat for the northern long-eared bat present within 1000 feet of project activities?
If unsure, answer "Yes."

Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

Yes

44. Have you contacted the appropriate agency to determine if the action area overlaps with a known northern long-eared bat habitat buffer? Summer habitat buffers include the following: (1) 3-mile buffer around northern long-eared bat captures or acoustic detections; (2)1.5-mile buffer around known roosts). The Spring Staging/Fall Swarming buffer includes 5-mile buffer around the entrance of known hibernacula)?

Note: A web page with links to state Natural Heritage Inventory databases and other sources of information on the locations of northern long-eared bat roost trees can be found here. Location information for northern long-eared bat maternity roost trees and swarming areas is generally kept in state natural heritage inventory databases – the availability of this data varies state-by-state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited.

Yes

45. Does the action area overlap with a known northern long-eared bat spring staging/fall swarming buffer (within 5 miles of known hibernacula)?

No

46. Does the action area overlap with a known northern long-eared bat summer buffer (3-mile buffer around northern long-eared bat captures or acoustic detections; 1.5-mile buffer around known roost trees)?

No

47. Has a presence/probable absence summer bat survey targeting the northern long-eared bat following the Service's Range-wide Indiana Bat and Northern Long-Eared Bat Survey Guidelines been conducted within the project area?

No

48. Are any of the trees proposed for cutting or other means of knocking down, bringing down, topping, or trimming suitable for northern long-eared bat roosting (i.e., live trees and/or snags ≥3 inches dbh that have exfoliating bark, cracks, crevices, and/or cavities)?

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    Yes

49. Will any tree cutting/trimming or other knocking or bringing down of trees occur during the **Summer Occupancy season** for northern long-eared bats in the action area?

    Note: Bat activity periods for your state can be found in Appendix L of the Service's Range-wide Indiana Bat and Northern long-eared Bat Survey Guidelines.

    No

50. Does the action area intersect the tricolored bat species list area?

    Automatically answered
    Yes

51. [Semantic] Is the action area located within 0.25 miles of a culvert that is known to be occupied by northern long-eared or tricolored bats?

    Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

    Automatically answered
    No

52. Have you contacted the appropriate agency to determine if your action is within 150 feet of any documented tricolored bat roosts?

    Note: A document with links to Natural Heritage Inventory databases and other state-specific sources of information on the locations of tricolored bat roosts is available here. Location information for tricolored bat roosts is generally kept in state natural heritage inventory databases – the availability of this data varies by state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited.

    Yes

53. Is any portion of the action area within 150 feet of any documented tricolored bat roosts? If unsure, contact your local Ecological Services Field Office.

    No

54. Have you contacted the appropriate agency to determine if the action area overlaps with a known tricolored bat habitat buffer? Summer habitat buffers include the following: (1) 3-mile buffer around tricolored bat captures or acoustic detections; (2)1.5-mile buffer around known roosts). The Spring Staging/Fall Swarming buffer includes a 3-mile buffer around the entrance of known hibernacula)?

    Note: A web page with links to state Natural Heritage Inventory databases and other sources of information on the locations of tricolored bat roost trees can be found here. Location information for tricolored bat maternity roost trees and swarming areas is generally kept in state natural heritage inventory databases – the availability of this data varies state-by-state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited. If you'd like to assume presence of tricolored bats, answer "No".

    Yes

55. Does the action area intersect a known Spring Staging/Fall Swarming tricolored bat buffer (within 3 miles of known hibernacula)?

    No

56. Does the action area intersect a known tricolored bat summer buffer (3-mile buffer around tricolored bat captures or detections; 1.5-mile buffer around known roost trees)?

    No

57. Has a presence/probable absence bat survey targeting the tricolored bat and following the Service's Range-wide Indiana Bat and Northern Long-Eared Bat Survey Guidelines been conducted within the project area?

    No

58. Is suitable summer habitat for the tricolored bat present within 1000 feet of project activities?
    (If unsure, answer ""Yes."")

    Note: If there are trees within the action area that may provide potential roosts for tricolored bats (e.g., clusters of leaves in live and dead deciduous trees, Spanish moss (Tillandsia usneoides), clusters of dead pine needles of large live pines) answer ""Yes."" For a complete definition of suitable summer habitat for the tricolored bat, please see Appendix A in the Service's Range-wide Indiana Bat and Northern long-eared Bat Survey Guidelines.

    Yes

59. Do any of the trees proposed for cutting or other means of knocking down, bringing down, topping, or trimming provide potential roosts for tricolored bats (e.g., clusters of leaves in live and dead deciduous trees, Spanish moss (*Tillandsia usneoides*), clusters of dead pine needles of large live pine trees)?

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    Yes

60. Will any tree cutting/trimming or other knocking or bringing down of trees be conducted during the Pup Season for tricolored bat?

    Note: Bat activity periods for your state can be found in Appendix L of the Service's Range-wide Indiana Bat and Northern long-eared Bat Survey Guidelines.

    No

61. Do you have any documents that you want to include with this submission?

    No

PROJECT QUESTIONNAIRE

Enter the extent of the action area (in acres) from which trees will be removed - round up to the nearest tenth of an acre. For this question, include the entire area where tree removal will take place, even if some live or dead trees will be left standing.

3

IPAC USER CONTACT INFORMATION

Agency: Federal Emergency Management Agency
Name: Mindy Yang
Address: 285 Fulton St, New York, NY 10007
City: New York
State: NY
Zip: 10007
Email mindy.yang@fema.dhs.gov
Phone: 2026157258

U.S. Department of Homeland Security
Federal Emergency Management Agency
One World Trade Center
285 Fulton Street
New York, New York 10007

April 23, 2024

Mr. R. Daniel Mackay
Deputy Commissioner, State Historic Preservation Office
NY State Parks, Recreation & Historic Preservation
Peebles Island State Park
P.O. Box 189
Waterford, NY 12188-0189

Re: **Initiation of Section 106 Consultation**
Disaster Number: FEMA-4480-DR-NY
Project Name and Number: Burden Lake Dam System Mitigation Enhancements, HMGP #4480-0109 (0169)
Location: Averill Park, Town of Sand Lake, Rensselaer County, NY (42.6207, -73.5667)
Determination: No Adverse Effect to Historic Properties

Dear Mr. Mackay:

The Federal Emergency Management Agency (FEMA) is proposing to provide Hazard Mitigation Grant Program (HMGP) funds to the Burden Lake Preservation Corporation (Subapplicant) for mitigation enhancements to the Burden Lake Dam system in Averill Park, New York. The dam and associated components are located at the north end of Burden Lake alongside County Route 51 (Figure 1). In 2020, a Presidential Disaster (4480-DR) was declared due to emergency conditions resulting from the Coronavirus Disease 2019 (COVID-19) pandemic, which made HMGP funding available to the State of New York. HMGP funding allows state, local, tribal and territorial governments to develop hazard mitigation plans and rebuild in a way that reduces, or mitigates, future disaster losses in their communities. FEMA is initiating Section 106 consultation for the proposed undertaking in accordance with Stipulation II.D, Standard Project Review, of FEMA's New York Statewide Programmatic Agreement executed on November 26, 2019 (Programmatic Agreement).

Undertaking

The Subapplicant is proposing to implement the following mitigation enhancements to the Burden Lake Dam system:

1. Burden Lake Dam (located under Burden Lake Road/County Road 51): Point, reinforce, and strengthen the existing dam's stone facing. Install a proposed overflow drop inlet and new outlet piping (bottom center of dam) with protective fencing and roadway guiderails (atop dam).
2. Levee (berm) which helps form a canal leading to and from Burden Lake to the Wynantskill Creek: Trees & vegetation will be removed from the levee and the earth will be excavated down to solid ground and built up new to a level 24" higher than the original.
3. Weir Structure (originally called a diversion dam, located in the Wynantskill Creek): Existing weir to be removed and replaced with new concrete weir structure set to match the height of the existing weir (627.59').

4. New Access Road: Construct a 1000' road that extends from Burden Lake Road along the Levee (berm) all the way to the Weir.

Ground disturbance will be approximately 1,000' x 16' x 6" deep (82,000 square feet [sf]). An access road/staging area will be constructed on the forest floor consisting of 6" gravel. There will be a small amount of excavation under the weir (about 80') consisting mostly of fill that will be added to construct the road and staging area. Approximately 200-300 trees will be removed. See Attachments A and B for more details.

The proposed work does not meet any allowances under the Programmatic Agreement and is the subject of this consultation.

Area of Potential Effects (APE)

Pursuant to 36 CFR 800.4(a) (1), the Area of Potential Effects (APE) is defined as the geographic area(s) within which the Undertaking may directly or indirectly affect historic resources. Based on the proposed scope of work, FEMA has determined that the APE for this Undertaking is limited to the project area footprint (Figure 2).

Identification and Evaluation

Architecture

A review of the New York State Office of Parks, Recreation and Historic Preservation's (NYS OPRHP's) Cultural Resource Information System (CRIS) and the National Register of Historic Places (NRHP) database revealed that there are no listed or eligible historic resources within or proximate (within 0.5-mile) to the APE.

In advance of the Undertaking, Richard Grubb & Associates, Inc. (RGA) completed a modified Phase IA cultural resources survey associated with the proposed mitigation enhancements to the Burden Lake Dam system. The modified Phase IA cultural resources survey included soil augers and a historic architecture assessment. The historic architecture assessment identified one previously unsurveyed historic architectural resource more than 50 years of age within the APE: the Burden Lake Dam System. This linear system consists of four main components: a circa-1890 concrete weir dam, a circa-1865 earthen levee and canal, a circa-2009 concrete spillway, and a circa-1865/1890 earth-and-stone dam that retains Burden Lake. As a result of the historic architectural assessment, the Burden Lake Dam System is recommended Eligible for listing in the NRHP at the local level under Criteria A and D. See Attachment C for more details.

Archaeology

A review of the CRIS database and the RGA report identified one archaeological site, the Burden Lake Dam (A08311.000011), within the APE. This site consists of a 19th century dam and diversion canal. Nine archaeological sites were identified within one mile of the APE (Attachment C - Table 2). Eight of the identified sites were 19th century industrial sites along Wynants Kill that used the watercourse for powering the mills, factories, and tanneries. The remaining site, The Troy & New England RR (A08311.000010) was a late 19th to early 20th century railroad.

The pedestrian survey in the modified Phase IA did not identify any additional historic sites within the APE. Subsurface auger testing revealed a mix of fill layers, fill layers overlying truncated subsoils and natural stratigraphic profiles which consisted of an A horizon or an A horizon overlying a B horizon (Attachment C – Appendix C). No artifacts were recovered, and no features were identified. Soils documented by RGA and the USDA Web Soil Survey (Attachment C –

Table 1) are either too wet/poorly drained or too slopped for pre-contact occupation. In addition, non-truncated subsoil horizons were encountered at an average depth of 1.36 feet (41.5cm) which is greater than the 6 inches of disturbance proposed for the accessed road.

Based on this review and the conclusions of the RGA modified Phase IA survey, the proposed Undertaking has a low potential for encountering intact archaeological resources.

Assessment of Effects

The proposed Undertaking will consist of improvements to the face of the Burden Lake Dam, replacement of the 28-inch pipe at the base of the dam with a larger diameter pipe, removal and replacement of the existing earthen levee with a new levee, replacement of the existing weir, and establishment of an access/construction road and staging area.

The Burden Lake Dam System is considered Eligible at the local level at under Criterion A in the area of industry for its association with industrialization along the Wynants Kill. Due to the presence of intact cultural features (dam, canal, and pond) associated with the Burden Lake Dam archaeological site (A08311.000011), the subject property has the potential to provide new information important to the history of the Burden Lake Dam System and industrialization during the mid-nineteenth century along the Wynantskill, such as construction techniques and prior improvements and expansion of the dam system. Therefore, the Burden Lake Dam System is also recommended eligible under NRHP Criterion D.

Although the proposed Undertaking will result in several modifications to the Burden Lake Dam system, the resource overall will retain sufficient integrity to convey significance. In addition, given the presence of poorly drained soils and previous extensive earth moving activities, any remaining natural soils are unlikely to contain intact pre-Contact archaeological resources. The RGA subsurface survey did not identify archaeological deposits relating to the Burden Lake Dam archaeological site (A08311.000011) and the pedestrian survey did not identify any additional historic archaeological resources.

Thus, based on the research and information presented above and in greater detail in Attachment C, FEMA has determined the proposed undertaking will result in ***No Adverse Effect to Historic Properties*** with the following conditions:

1. Improvements to the face of the Burden Lake Dam shall preserve remaining portions of the dam's 19th century, dry-stacked, cut stone walls to the greatest extent possible. Repairs to the cut stone walls shall match the old in design, color, texture, and other visual qualities and, where possible, materials.
2. An archaeological monitor shall be present during any excavation around the dam and weir.
3. Tree removal shall be done without removing the stumps/root balls and be cut down to necessary grade.

FEMA is submitting this Undertaking for your review and comment. FEMA requests your comments within thirty (30) days. Should you have any questions or need additional information regarding this Undertaking, please contact Tom Wilson, Historic Preservation Specialist, at thomas.wilson4@fema.dhs.gov / (202) 340-3689 or Michael C. Brown, Archaeologist, at michael.brown@fema.dhs.gov / (202) 394-3429.

Sincerely,

Michael Audin, RPA
Deputy Regional Environmental Officer
FEMA Region 2

Enc:
Attachment A: Concept Plan – Dam, Levee, & Weir Repair
Attachment B: Concept Plan – Donated Lands
Attachment C: Modified Phase 1A Cultural Resources Survey Report

CC:
President Shannon Holsey, Stockbridge-Munsee Community
Chief Brad KillsCrow, Delaware Tribe of Indians

Figure 1: Project Location Map

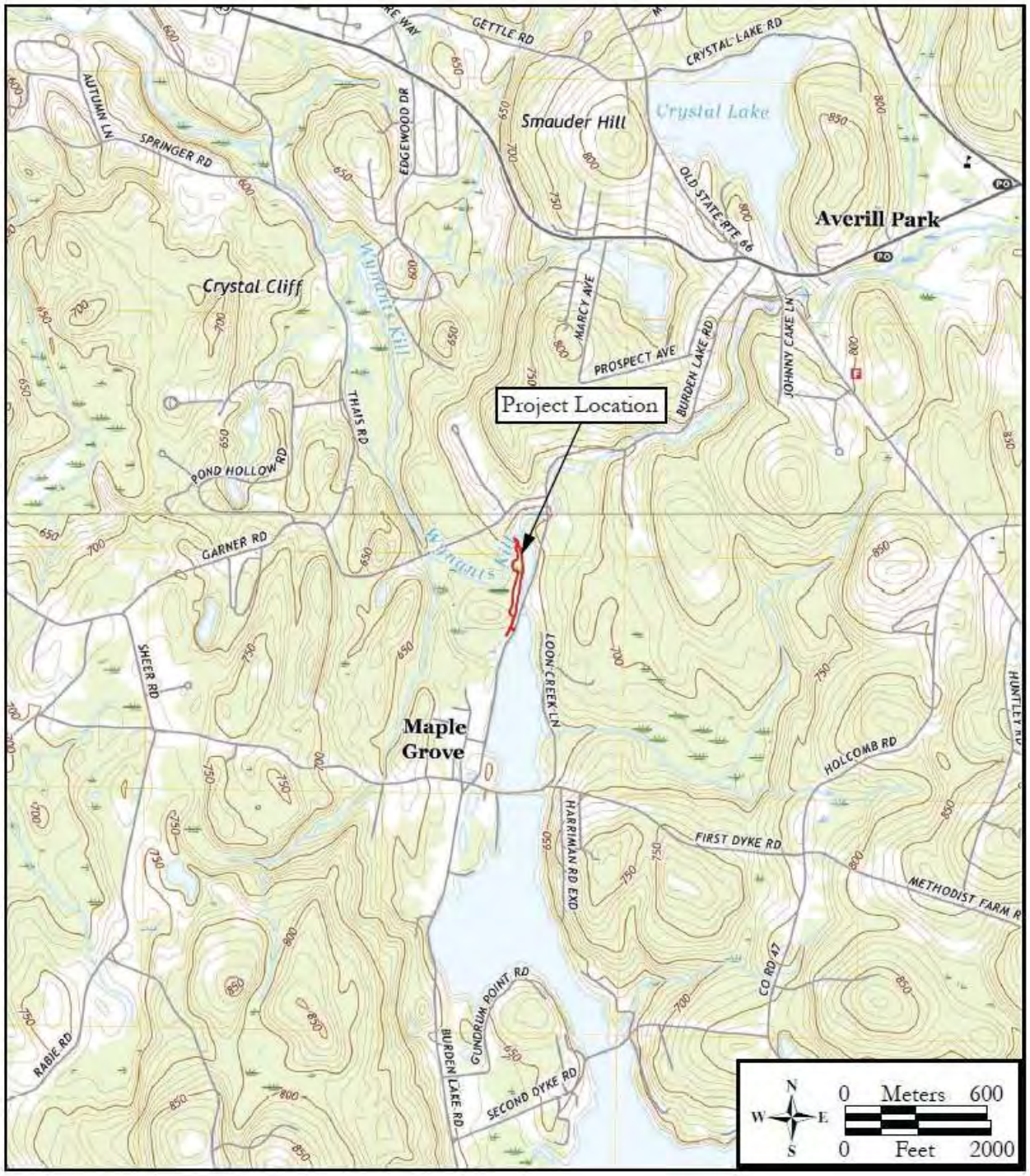


Figure 1. Project Location (red outline), Burden Lake Dam System Mitigation Enhancements, HMGP #4480-0109 (0169). Averill Park, Town of Sand Lake, Rensselaer County, NY (42.6207, -73.5667). Image courtesy RGA.

Figure 2: Area of Potential Effects (APE) Map

Figure 2. APE (red outline), Burden Lake Dam System Mitigation Enhancements, HMGP #4480-0109 (0169). Averill Park, Town of Sand Lake, Rensselaer County, NY (42.6207, -73.5667). Image courtesy RGA.

Attachment A:
Concept Plan – Dam, Levee, & Weir Repair

Attachment B:
Concept Plan – Donated Lands

Attachment C:
Modified Phase 1A Cultural Resources Survey Report

New York State
Parks, Recreation and
Historic Preservation

KATHY HOCHUL
Governor

ERIK KULLESEID
Commissioner

May 14, 2024

Thomas Wilson
Historic Preservation Specialist
FEMA
285 Fulton St
53rd Fl
New York, NY 10025

Re: FEMA
Burden Lake Dam System Mitigation Enhancements
Town of Sand Lake, Rensselaer County, NY
24PR03479
HMGP #4480-0109 (0169)

Dear Thomas Wilson:

Thank you for requesting the comments of the New York State Historic Preservation Office (SHPO). We have reviewed the provided documentation in accordance with Section 106 of the National Historic Preservation Act of 1966. These comments are those of the SHPO and relate only to Historic/Cultural resources. They do not include other environmental impacts to New York State Parkland that may be involved in or near your project.

The Archaeology Unit has reviewed the *Modified Phase IA Cultural Resources Survey* report prepared for this project (March 1, 2024; 24SR00224). We concur with FEMA that an archaeological monitor should be present during any excavation around the dam and weir, and that tree removal should be done without removing the stumps/root balls.

If you have any questions, I can be reached at Jessica.Schreyer@parks.ny.gov.

Sincerely,

Jessica E. Schreyer

Jessica Schreyer
Archaeology Unit Program Coordinator

From: O"Connell, Tabitha (PARKS)
To: Wilson, Thomas
Subject: Burden Lake Dam System Mitigation Enhancements
Date: Tuesday, May 21, 2024 10:45:17 AM

CAUTION: This email originated from outside of DHS. DO NOT click links or open attachments unless you recognize and/or trust the sender. Please select the Phish Alert Report button on the top right of your screen to report this email if it is unsolicited or suspicious in nature.

Hi Thomas,

I'm going to be signing off on the Burden Lake Dam System Mitigation Enhancements project in CRIS shortly. I appreciated the detailed Cultural Resources Survey prepared by Richard Grubb & Associates—it was very helpful in providing background information on the dam system and its current state. In the end, however, we have determined that the dam system is Not Eligible for the National Register of Historic Places. The dam system alone isn't significant enough to support an argument for eligibility under Criterion A in the area of industry, since none of the mills the system once supported are extant. In addition, the mere existence of the system doesn't necessarily mean it has the potential to provide important historical information, which is the requirement for Criterion D.

Anyway, just wanted to explain why we're ultimately not concurring with the consultant's eligibility finding. Please let me know if you have any questions!

Best,

Tabitha O'Connell (she/her or they/them)
Historic Preservation Specialist

NYS Office of Parks, Recreation and Historic Preservation
Peebles Island State Park, P.O. Box 189, Waterford, NY 12188
518-268-2465
www.parks.ny.gov

U.S. Department of Homeland Security
Federal Emergency Management Agency
One World Trade Center
285 Fulton Street
New York, New York 10007

April 23, 2024

Chief Brad KillsCrow
Delaware Tribe of Indians
Delaware Tribal Headquarters
5100 Tuxedo Blvd
Bartlesville, OK 74006

Re: **Initiation of Section 106 Consultation**
Disaster Number: FEMA-4480-DR-NY
Project Name and Number: Burden Lake Dam System Mitigation Enhancements, HMGP #4480-0109 (0169)
Location: Averill Park, Town of Sand Lake, Rensselaer County, NY (42.6207, -73.5667)
Determination: No Adverse Effect to Historic Properties

Dear Chief KillsCrow:

The Federal Emergency Management Agency (FEMA) is proposing to provide Hazard Mitigation Grant Program (HMGP) funds to the Burden Lake Preservation Corporation (Subapplicant) for mitigation enhancements to the Burden Lake Dam system in Averill Park, New York. The dam and associated components are located at the north end of Burden Lake alongside County Route 51 (Figure 1). In 2020, a Presidential Disaster (4480-DR) was declared due to emergency conditions resulting from the Coronavirus Disease 2019 (COVID-19) pandemic, which made HMGP funding available to the State of New York. HMGP funding allows state, local, tribal and territorial governments to develop hazard mitigation plans and rebuild in a way that reduces, or mitigates, future disaster losses in their communities. FEMA is initiating Section 106 consultation for the proposed undertaking in accordance with Stipulation II.D, Standard Project Review, of FEMA's New York Statewide Programmatic Agreement executed on November 26, 2019 (Programmatic Agreement).

Undertaking

The Subapplicant is proposing to implement the following mitigation enhancements to the Burden Lake Dam system:

1. Burden Lake Dam (located under Burden Lake Road/County Road 51): Point, reinforce, and strengthen the existing dam's stone facing. Install a proposed overflow drop inlet and new outlet piping (bottom center of dam) with protective fencing and roadway guiderails (atop dam).
2. Levee (berm) which helps form a canal leading to and from Burden Lake to the Wynantskill Creek: Trees & vegetation will be removed from the levee and the earth will be excavated down to solid ground and built up new to a level 24" higher than the original.
3. Weir Structure (originally called a diversion dam, located in the Wynantskill Creek): Existing weir to be removed and replaced with new concrete weir structure set to match the height of the existing weir (627.59').

4. New Access Road: Construct a 1000' road that extends from Burden Lake Road along the Levee (berm) all the way to the Weir.

Ground disturbance will be approximately 1,000' x 16' x 6" deep (82,000 square feet [sf]). An access road/staging area will be constructed on the forest floor consisting of 6" gravel. There will be a small amount of excavation under the weir (about 80') consisting mostly of fill that will be added to construct the road and staging area. Approximately 200-300 trees will be removed. See Attachments A and B for more details.

The proposed work does not meet any allowances under the Programmatic Agreement and is the subject of this consultation.

Area of Potential Effects (APE)

Pursuant to 36 CFR 800.4(a) (1), the Area of Potential Effects (APE) is defined as the geographic area(s) within which the Undertaking may directly or indirectly affect historic resources. Based on the proposed scope of work, FEMA has determined that the APE for this Undertaking is limited to the project area footprint (Figure 2).

Identification and Evaluation

Architecture

A review of the New York State Office of Parks, Recreation and Historic Preservation's (NYS OPRHP's) Cultural Resource Information System (CRIS) and the National Register of Historic Places (NRHP) database revealed that there are no listed or eligible historic resources within or proximate (within 0.5-mile) to the APE.

In advance of the Undertaking, Richard Grubb & Associates, Inc. (RGA) completed a modified Phase IA cultural resources survey associated with the proposed mitigation enhancements to the Burden Lake Dam system. The modified Phase IA cultural resources survey included soil augers and a historic architecture assessment. The historic architecture assessment identified one previously unsurveyed historic architectural resource more than 50 years of age within the APE: the Burden Lake Dam System. This linear system consists of four main components: a circa-1890 concrete weir dam, a circa-1865 earthen levee and canal, a circa-2009 concrete spillway, and a circa-1865/1890 earth-and-stone dam that retains Burden Lake. As a result of the historic architectural assessment, the Burden Lake Dam System is recommended Eligible for listing in the NRHP at the local level under Criteria A and D. See Attachment C for more details.

Archaeology

A review of the CRIS database and the RGA report identified one archaeological site, the Burden Lake Dam (A08311.000011), within the APE. This site consists of a 19th century dam and diversion canal. Nine archaeological sites were identified within one mile of the APE (Attachment C - Table 2). Eight of the identified sites were 19th century industrial sites along Wynants Kill that used the watercourse for powering the mills, factories, and tanneries. The remaining site, The Troy & New England RR (A08311.000010) was a late 19th to early 20th century railroad.

The pedestrian survey in the modified Phase IA did not identify any additional historic sites within the APE. Subsurface auger testing revealed a mix of fill layers, fill layers overlying truncated subsoils and natural stratigraphic profiles which consisted of an A horizon or an A horizon overlying a B horizon (Attachment C – Appendix C). No artifacts were recovered, and no features were identified. Soils documented by RGA and the USDA Web Soil Survey (Attachment C –

Table 1) are either too wet/poorly drained or too slopped for pre-contact occupation. In addition, non-truncated subsoil horizons were encountered at an average depth of 1.36 feet (41.5cm) which is greater than the 6 inches of disturbance proposed for the accessed road.

Based on this review and the conclusions of the RGA modified Phase IA survey, the proposed Undertaking has a low potential for encountering intact archaeological resources.

Assessment of Effects

The proposed Undertaking will consist of improvements to the face of the Burden Lake Dam, replacement of the 28-inch pipe at the base of the dam with a larger diameter pipe, removal and replacement of the existing earthen levee with a new levee, replacement of the existing weir, and establishment of an access/construction road and staging area.

The Burden Lake Dam System is considered Eligible at the local level at under Criterion A in the area of industry for its association with industrialization along the Wynants Kill. Due to the presence of intact cultural features (dam, canal, and pond) associated with the Burden Lake Dam archaeological site (A08311.000011), the subject property has the potential to provide new information important to the history of the Burden Lake Dam System and industrialization during the mid-nineteenth century along the Wynantskill, such as construction techniques and prior improvements and expansion of the dam system. Therefore, the Burden Lake Dam System is also recommended eligible under NRHP Criterion D.

Although the proposed Undertaking will result in several modifications to the Burden Lake Dam system, the resource overall will retain sufficient integrity to convey significance. In addition, given the presence of poorly drained soils and previous extensive earth moving activities, any remaining natural soils are unlikely to contain intact pre-Contact archaeological resources. The RGA subsurface survey did not identify archaeological deposits relating to the Burden Lake Dam archaeological site (A08311.000011) and the pedestrian survey did not identify any additional historic archaeological resources.

Thus, based on the research and information presented above and in greater detail in Attachment C, FEMA has determined the proposed undertaking will result in ***No Adverse Effect to Historic Properties*** with the following conditions:

1. Improvements to the face of the Burden Lake Dam shall preserve remaining portions of the dam's 19th century, dry-stacked, cut stone walls to the greatest extent possible. Repairs to the cut stone walls shall match the old in design, color, texture, and other visual qualities and, where possible, materials.
2. An archaeological monitor shall be present during any excavation around the dam and weir.
3. Tree removal shall be done without removing the stumps/root balls and be cut down to necessary grade.

If you are aware of any significant prehistoric/historic archaeological resources that may be affected by this project, or have any information regarding the project area, please respond within 30 days of receipt of this letter. Please also indicate in your correspondence if there are other sources of information that should be checked, and if there are other parties, tribes, or members of the public you believe should be informed as an interested party.

Should you have any questions or need additional information regarding this Undertaking, please contact Tom Wilson, Historic Preservation Specialist, at thomas.wilson4@fema.dhs.gov / (202) 340-3689 or Michael C. Brown, Archaeologist, at michael.brown@fema.dhs.gov / (202) 394-3429.

Sincerely,

Michael Audin, RPA
Deputy Regional Environmental Officer
FEMA Region 2

Enc:
Attachment A: Concept Plan – Dam, Levee, & Weir Repair
Attachment B: Concept Plan – Donated Lands
Attachment C: Modified Phase 1A Cultural Resources Survey Report

CC:
Mr. R. Daniel Mackay, Deputy Commissioner, New York State Historic Preservation Office
President Shannon Holsey, Stockbridge-Munsee Community

Figure 1: Project Location Map

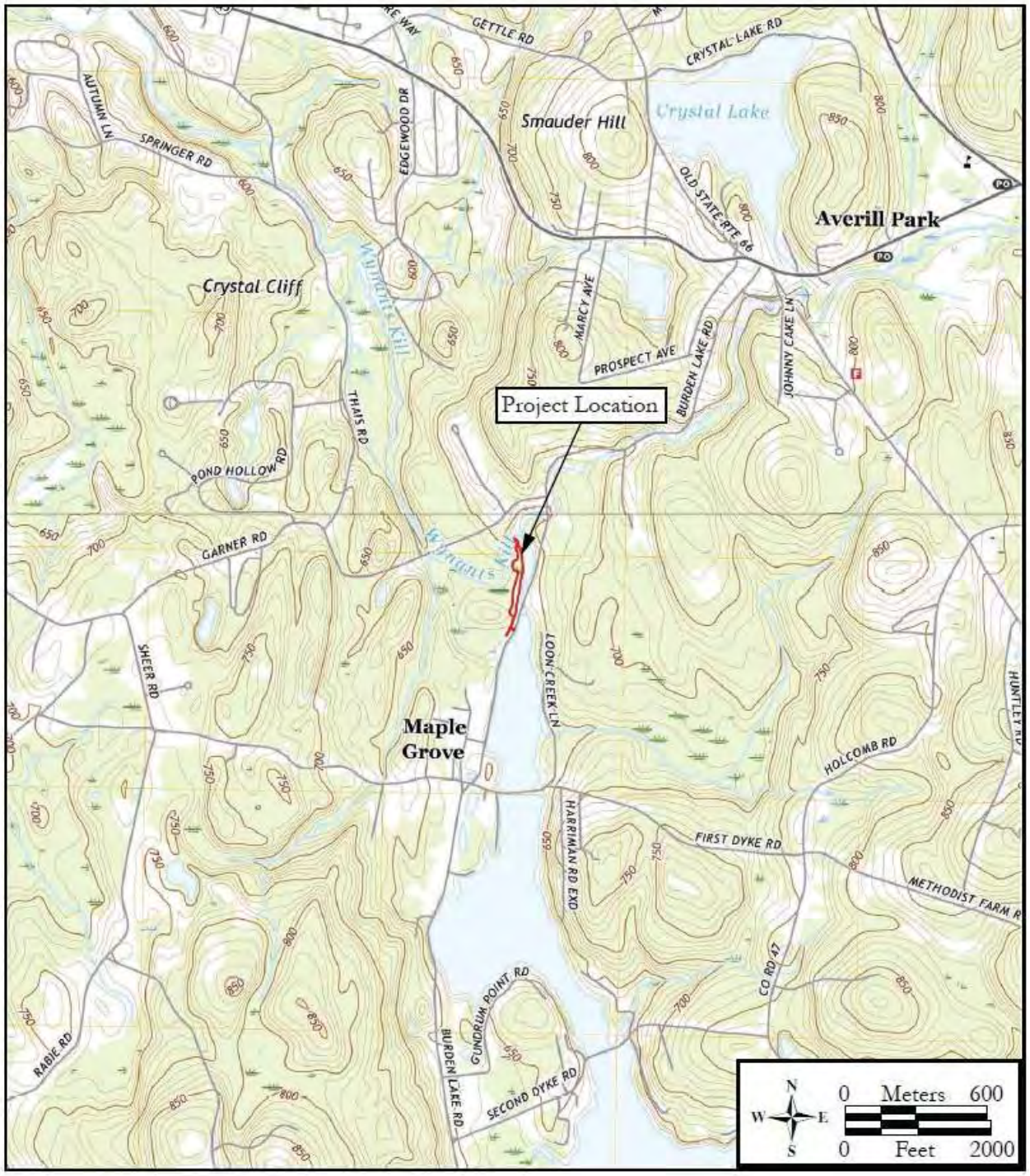


Figure 1. Project Location (red outline), Burden Lake Dam System Mitigation Enhancements, HMGP #4480-0109 (0169). Averill Park, Town of Sand Lake, Rensselaer County, NY (42.6207, -73.5667). Image courtesy RGA.

Figure 2: Area of Potential Effects (APE) Map

Figure 2. APE (red outline), Burden Lake Dam System Mitigation Enhancements, HMGP #4480-0109 (0169). Averill Park, Town of Sand Lake, Rensselaer County, NY (42.6207, -73.5667). Image courtesy RGA.

Attachment A:
Concept Plan – Dam, Levee, & Weir Repair

Attachment B:
Concept Plan – Donated Lands

Attachment C:
Modified Phase 1A Cultural Resources Survey Report

U.S. Department of Homeland Security
Federal Emergency Management Agency
One World Trade Center
285 Fulton Street
New York, New York 10007

April 23, 2024

Bonney Hartley
Tribal Historic Preservation Manager
Stockbridge-Munsee Community
37 1st Street
Troy, NY 12180

Re: **Initiation of Section 106 Consultation**
Disaster Number: FEMA-4480-DR-NY
Project Name and Number: Burden Lake Dam System Mitigation Enhancements, HMGP #4480-0109 (0169)
Location: Averill Park, Town of Sand Lake, Rensselaer County, NY (42.6207, -73.5667)
Determination: No Adverse Effect to Historic Properties

Dear Ms. Hartley:

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Based on this review and the conclusions of the RGA modified Phase IA survey, the proposed Undertaking has a low potential for encountering intact archaeological resources.

Assessment of Effects

The proposed Undertaking will consist of improvements to the face of the Burden Lake Dam, replacement of the 28-inch pipe at the base of the dam with a larger diameter pipe, removal and replacement of the existing earthen levee with a new levee, replacement of the existing weir, and establishment of an access/construction road and staging area.

The Burden Lake Dam System is considered Eligible at the local level at under Criterion A in the area of industry for its association with industrialization along the Wynants Kill. Due to the presence of intact cultural features (dam, canal, and pond) associated with the Burden Lake Dam archaeological site (A08311.000011), the subject property has the potential to provide new information important to the history of the Burden Lake Dam System and industrialization during the mid-nineteenth century along the Wynantskill, such as construction techniques and prior improvements and expansion of the dam system. Therefore, the Burden Lake Dam System is also recommended eligible under NRHP Criterion D.

Although the proposed Undertaking will result in several modifications to the Burden Lake Dam system, the resource overall will retain sufficient integrity to convey significance. In addition, given the presence of poorly drained soils and previous extensive earth moving activities, any remaining natural soils are unlikely to contain intact pre-Contact archaeological resources. The RGA subsurface survey did not identify archaeological deposits relating to the Burden Lake Dam archaeological site (A08311.000011) and the pedestrian survey did not identify any additional historic archaeological resources.

Thus, based on the research and information presented above and in greater detail in Attachment C, FEMA has determined the proposed undertaking will result in ***No Adverse Effect to Historic Properties*** with the following conditions:

1. Improvements to the face of the Burden Lake Dam shall preserve remaining portions of the dam's 19th century, dry-stacked, cut stone walls to the greatest extent possible. Repairs to the cut stone walls shall match the old in design, color, texture, and other visual qualities and, where possible, materials.
2. An archaeological monitor shall be present during any excavation around the dam and weir.
3. Tree removal shall be done without removing the stumps/root balls and be cut down to necessary grade.

If you are aware of any significant prehistoric/historic archaeological resources that may be affected by this project, or have any information regarding the project area, please respond within 30 days of receipt of this letter. Please also indicate in your correspondence if there are other sources of information that should be checked, and if there are other parties, tribes, or members of the public you believe should be informed as an interested party.

Should you have any questions or need additional information regarding this Undertaking, please contact Tom Wilson, Historic Preservation Specialist, at thomas.wilson4@fema.dhs.gov / (202) 340-3689 or Michael C. Brown, Archaeologist, at michael.brown@fema.dhs.gov / (202) 394-3429.

Sincerely,

Michael Audin, RPA
Deputy Regional Environmental Officer
FEMA Region 2

Enc:
Attachment A: Concept Plan – Dam, Levee, & Weir Repair
Attachment B: Concept Plan – Donated Lands
Attachment C: Modified Phase 1A Cultural Resources Survey Report

CC:
Mr. R. Daniel Mackay, Deputy Commissioner, New York State Historic Preservation Office
Chief Brad KillsCrow, Delaware Tribe of Indians

Figure 1: Project Location Map

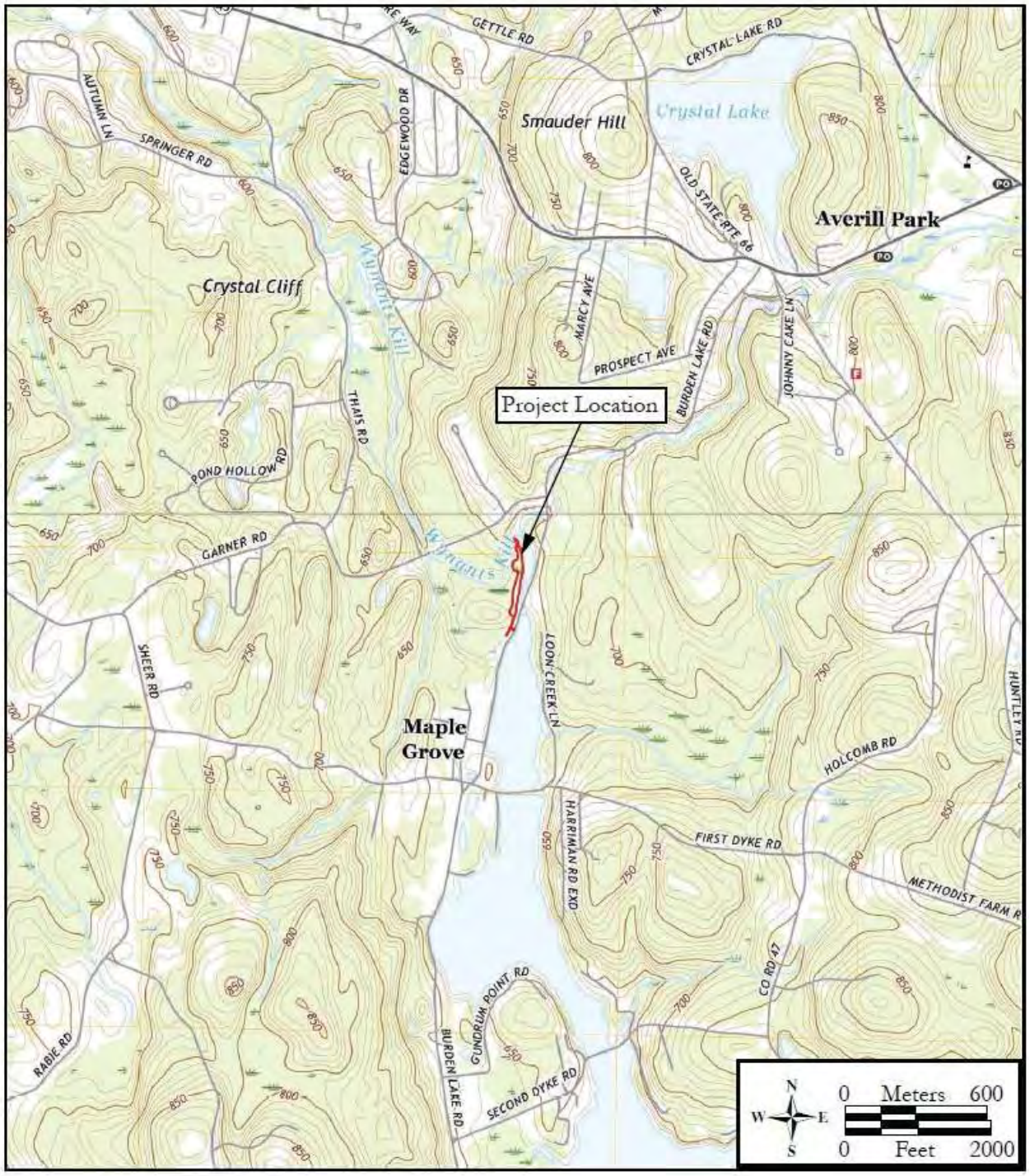

Figure 1. Project Location (red outline), Burden Lake Dam System Mitigation Enhancements, HMGP #4480-0109 (0169). Averill Park, Town of Sand Lake, Rensselaer County, NY (42.6207, -73.5667). Image courtesy RGA.

Figure 2: Area of Potential Effects (APE) Map

Figure 2. APE (red outline), Burden Lake Dam System Mitigation Enhancements, HMGP #4480-0109 (0169). Averill Park, Town of Sand Lake, Rensselaer County, NY (42.6207, -73.5667). Image courtesy RGA.

Attachment A:
Concept Plan – Dam, Levee, & Weir Repair

Attachment B:
Concept Plan – Donated Lands

Attachment C:
Modified Phase 1A Cultural Resources Survey Report

From:	thpo
To:	Wilson, Thomas
Subject:	FW: FEMA Region 2 Consultation: Burden Lake Dam System Mitigation Enhancements, HMGP #4480-0109 (0169)
Date:	Monday, May 6, 2024 4:22:23 PM
Attachments:	image001.png 20240423-Stockbridge-Munsee_Consult_0109_Burden_Lake_Dam_Project_Signed.pdf Attachment A_Concept Plan - Dam, Levee, & Weir Repair.pdf Attachment B_Concept Plan - Donated Lands.pdf Attachment C_Phase 1A Cultural Resources Survey Report.pdf

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Dear Tom,

Thank you for the notice and Phase 1 archaeological assessment regarding the proposed Burden Lake Dam System Mitigation Enhancements, Averill Park, Town of Sand Lake, Rensselaer County, NY.

The Stockbridge-Munsee Tribal Historic Preservation Office concurs with the finding of "*No Adverse Effect to Historic Properties"* and has no issue with the project moving forward with the following standard stipulations:

- If previously undocumented archaeological resources are encountered, please contact me promptly and follow the Inadvertent Discovery Policy on the Stockbridge-Munsee Community website: https://www.mohican.com/mt-content/uploads/2022/09/smc-inadvertent-discovery-policy.pdf
- Please give due attention to the incidental or routine movement of heavy machinery both inside and outside the stated area of potential effects (APE) that may cause unintended or inadvertent impacts to cultural resources.
- Should the proposed work be altered to expand beyond the current scope of work and/or APE, we ask to be notified.

Regards,
Jeff

Jeffrey C Bendremer Ph.D., RPA
Tribal Historic Preservation Officer
Stockbridge-Munsee Community
Tribal Historic Preservation Extension Office
86 Spring St.
Williamstown, MA 01267
413-884-6029 (o)
715-881-2254 (c)

www.mohican.com

From: Bonney Hartley <Bonney.Hartley@mohican-nsn.gov>
Sent: Tuesday, April 23, 2024 2:14 PM
To: thpo <thpo@mohican-nsn.gov>
Subject: FW: FEMA Region 2 Consultation: Burden Lake Dam System Mitigation Enhancements, HMGP #4480-0109 (0169)

From: Wilson, Thomas <thomas.wilson4@fema.dhs.gov>
Sent: Tuesday, April 23, 2024 2:08 PM
To: Bonney Hartley <Bonney.Hartley@mohican-nsn.gov>
Subject: FEMA Region 2 Consultation: Burden Lake Dam System Mitigation Enhancements, HMGP #4480-0109 (0169)

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Dear Ms. Hartley,

Please find attached a consultation letter and project documents for a proposed FEMA Hazard Mitigation Grant Program (HMGP) project involving mitigation enhancements to the Burden Lake Dam system in Averill Park, New York.

Feel free to contact me if you have any questions or require additional information.

Kind regards,

Tom Wilson
Historic Preservation Specialist (Structures)

FEMA Region II
Mitigation Division/EHP
Mobile: (202) 340-3689

Appendix D:
8-Step Decision Making Process

Burden Lake Dam System Mitigation Enhancements
Averill Park, Rensselaer County, New York
HMGP-4480-0109-NY

Executive Order 11988 – FLOODPLAIN MANAGEMENT
Executive Order 11990 – WETLAND PROTECTION

8-STEP PROCESS SUMMARY

Date: 12/2/2025

Prepared By: Mindy Yang, Environmental Protection Specialist

Project: The Department of Homeland Security Federal Emergency Management Agency (DHS) – Federal Emergency Management Agency (FEMA) proposes to grant federal funds to the Burden Lake Preservation Corporation (subrecipient) to upgrade a three-part dam system through Hazard Mitigation Grant Program (HMGP) funding. The purpose of HMGP is to implement sustainable, cost-effective measures designed to reduce the risk to individuals and property from future natural hazards while reducing reliance on federal funding from future disasters.

The Proposed Action entails improvements to upgrade the Burden Lake Dam system (42.620335, -73.567113) to current codes and standards and to mitigate against downstream flooding. Improvements will be implemented on all three components of the dam system, including the dam, levee, and weir. Work on the dam consists of repointing the dam face and installing a new piping, as needed, with protective fencing and roadway guiderails atop the dam. Proposed levee improvements consist of excavating the existing levee down to solid ground and building it up two feet higher the original height. Proposed weir improvements consist of replacing the existing structure and incorporating a new fish ladder to allow fish to travel upstream for spawning. Both abutments on either side of the weir will be enlarged and strengthened. To access the area during construction, a temporary cofferdam would be placed upstream of the existing weir to redirect stream flows into the diversion canal and pond through a proposed diversion channel. The proposed diversion channel would be constructed approximately 45 feet south of the weir. To complete this work, a 1,000-feet long by 16-feet wide road and staging area will be constructed, extending from Burden Lake Road adjacent to the levee to the Wynantskill Creek. Approximately 2.13 acres of ground disturbance would occur for this project. The purpose of the project is to protect the dam against failure from flooding due to its current poor condition, as the dam itself and County Road 51, which runs over the dam, has been closed since August 2011. This project would also prevent the overtopping of the levee and further deterioration of the dam and weir. Should the system fail, there is the potential to flood downstream communities along Wynantskill Creek from West Sand Lake all the way to Troy and the Hudson River.

This project must be conducted in accordance with conditions for federal actions in the floodplain and wetlands as set forth in Presidential Executive Order (EO) 11988 (Floodplain Management), EO 11990 (Protection of Wetlands), and the implementing regulations found in 44 Code of Federal Regulations (CFR) Part 9, *Floodplain Management and Protection of Wetlands*. These regulations apply to all Agency actions which have the potential to affect floodplains or wetlands or their occupants, or which are subject to potential harm by location in floodplains or wetlands.

Projects conducted with HMGP funds must be carried out in accordance with the local floodplain management plan and ordinance and shall utilize Preliminary Flood Insurance Rate Map (PFIRM) Panels (as available) or Flood Insurance Rate Map (FIRM) Panels as "best available data," as a minimum standard. Exceptions to this requirement shall be reported to FEMA Environmental and Historic Preservation and the local floodplain administrator before undertaking the action.

STEP 1 - Determine whether the proposed actions are located in a wetland and or the 100-year floodplain (500-year floodplain for critical action [44 CFR 9.4]) or whether they have the potential to affect or be affected by a floodplain or a wetland (44 CFR 9.7).

__X__ The project site is located in relation to the floodplains as mapped by:
FIRM Map: 3611670012A, effective 05/15/1980
Special Flood Hazard Area: Zone A

Brief description of work: Repointing the dam face and replacing the inlet/outlet piping, excavating the existing levee and rebuilding it to two-feet above its original height, replacing the existing weir and installing abutment upgrades and a fish ladder, and constructing an access road and staging area. Approximately 2.13 acres would be disturbed, which would include approximately 1.17 acres of upland vegetation removal, approximately 0.78 acres of wetland vegetation removal, and approximately 0.18 acres of potential submerged aquatic vegetation removal associated with in-water work areas. To access the area during construction, a temporary cofferdam would be placed upstream of the existing weir to redirect stream flows into the diversion canal and pond through a proposed diversion channel. The proposed diversion channel would be constructed approximately 45 feet south of the weir. The proposed activities will upgrade the Burden Lake Dam system.

__X__ The Project is located in the wetland as identified by:

A review of the U.S. Fish and Wildlife National Wetland Inventory Mapper, accessed on 04/09/2025 indicated that the proposed project location is located in Freshwater Pond (PUBHh), Freshwater Forested/Shrub Wetland (PFO1A), and riverine features (R3UBH)).

STEP 2 - Notify the public at the earliest possible time of the intent to carry out an action in a floodplain or wetland and involve the affected and interested public in the decision-making process (see 44 CFR 9.8).

_____ Not applicable - Project is not located in a floodplain or wetland.

__X__ Applicable - Notice will be or has been provided by:

Public notice will be provided in the public comment period for the Environmental Assessment for this project.

STEP 3 - Identify and evaluate practicable alternatives to locating the proposed action in a floodplain or wetland (including alternative sites, actions, and the "No Action" option) [see 44 CFR 9.9]. If a

practicable alternative exists outside of the floodplain or wetland, FEMA must locate the action at the alternative site.

_____ Not applicable – Project is not located in a floodplain or in a wetland.

__X__ Applicable – Alternative identified in the EA Document or as described below:

Alternative 1: No Action – The No Action alternative would leave the Burden Lake Dam vulnerable to failure, which will lead to downstream flooding. Economically and environmentally, this alternative was not determined to be the most practicable by the community. Property within the project area and vicinity would continue to be at risk for damage during future storm events, such as damage to sewer lines, as presented in Section 3.0 of the Environmental Assessment. Based on the potential for dam system failure to increase over time, the No Action alternative would have a moderate long-term impact on both people and property within the project area and vicinity. More frequent and severe flood events could impact the natural functions of floodplains by transporting debris and pollutants, which would impact water quality functions and by submersing vegetation, which could impact wildlife habitat functions. However, the No Action alternative would not impact the natural floodplain function of storing floodwaters.

Alternative 2: Proposed Action - The proposed project scope would improve the Burden Lake Dam system, reinforcing structures to minimize the possibility of dam failure. This would result in improved protection of life and property within adjacent areas. Improving the dam system has been determined to be the most practicable option considering the interests and safety of the local community, as well as economic and social feasibility.

Alternative 3: Additional Action Alternative that was Considered and Dismissed – The Subrecipient considered one additional alternative to repair, rather than replace, the weir as the only modification to the dam system. Repairs would include stabilizing the top of the granite blocks, removing damaged wood elements, and replacing the elements with hardened surfaces. This alternative does not address most of the critical dam elements identified for the purpose and need of the project, and it would not optimize spillway configuration to address increased water levels from more frequent severe storm events and prevent overtopping during Standard Design Flood. Additionally, this alternative is not practical or cost-effective due to technical challenges from the existing condition of the weir structure, and it would not be comprehensive enough to achieve the project purpose. Therefore, this alternative was considered and dismissed.

STEP 4 - Identify the full range or potential direct or indirect impacts associated with the occupancy or modification of floodplains and wetlands and the potential direct and indirect support of floodplain and wetland development that could result from the proposed action (see 44 CFR 9.10).

_____ Not applicable – Project is not located in a floodplain or in a wetland.

__X__ Applicable – Alternative identified in the EA document or as described below:

Alternative 2: Proposed Action – Improvements to the existing dam system will lower the risks of damages to adjacent and downstream communities and reduce present infrastructural vulnerabilities.

In the short-term, construction activities may lead to a temporary reduction in floodplain functions and localized erosion or sedimentation. In the long-term, the Proposed Action would reduce the risk of flooding to property and roadways and minimize impairment of Burden Lake's stormwater infrastructure by improving the conditions of the dam system. Fortifying the dam system, raising the levee, and reconstructing the weir would enhance protections to downstream communities. The proposed diversion channel would prevent the weir from being overtopped during emergency events. The Proposed Action would increase resiliency of the dam system, which would minimize the risk of significantly disrupting floodplain functions in the event of a system failure. Therefore, the Proposed Action would have a long-term benefit on communities because it would reduce the risk of harm from flooding.

A review of the natural environment, social concerns, and the economic features of the proposed project indicates that the improvements are the only practicable alternative and that no practicable alternative has been identified outside of the special flood hazard area.

STEP 5 - Minimize the potential adverse impacts and support to or within floodplains and wetlands to be identified under Step # 4, restore and preserve the natural and beneficial values served by floodplains, and preserve and enhance the natural and beneficial values served by wetlands (see 44 CFR 9.11).

_____ Not applicable – Project is not located in a floodplain or in a wetland.

__X__ Applicable – Mitigation measures identified in the EA document or as described below:

Alternative 2: Proposed Action - The Proposed Action would comply with federal, state, and local wetland regulations, which may include mitigation requirements for permanent loss of wetlands. The net loss of wetlands would be a small portion of the larger wetland system and regulatory standards would be followed. Permits will be obtained that may require mitigation measures such as the use of cofferdams and construction BMPs to minimize wetland impacts. Additionally, some wetland work areas would be replanted and restored to the extent possible following construction.

STEP 6 - Re-evaluate the proposed action to determine first, if it is still practicable in light of its exposure to flood hazards, the extent to which it will aggravate the hazards to others and its potential to disrupt floodplain and wetland values, and second, if alternatives preliminarily rejected at Step #3 are practicable in light of the information gained in Steps #4 and #5. FEMA shall not act in a floodplain or wetland unless it is the only practicable location.

_____ Not applicable – Project is not located in a floodplain or in a wetland.

__X__ Applicable – Action proposed is located in the only practicable location as described below:

Re-evaluation of the proposed action confirms that this is the only practicable location as it is functionally tied to its location relative to wetlands. Impacts to and from the floodplain and wetlands are minimal.

STEP 7 - Prepare and provide the public with a finding and public explanation of any final decision that the floodplain or wetland is the only practicable alternative (see 44 CFR 9.12).

_____ Not applicable – Project is not located in a floodplain or in a wetland.

__X__ Applicable – Finding is or will be prepared as described below:

Step 7 requires that the FEMA provide the public with an explanation of any final decisions that the Proposed Action in a floodplain and wetlands is the only practicable alternative, potential impacts of the Proposed Action on floodplains and wetlands, and associated mitigation measures. In accordance with 44 CFR 9.12, FEMA will provide this notice with the notice of availability of the draft Environmental Assessment for public review and comment.

STEP 8 - Review the implementation and post-implementation phases of the proposed action to ensure the requirements of the Order are fully implemented. Oversight responsibility shall be integrated into the existing process.

_____ Not applicable – Project is not located in a floodplain or in a wetland.

__X__ Applicable – Approval is conditioned on review of implementation and post- implementation phases to ensure compliance with the order(s).

Implementation of the project will include applicable permits and any related conditions, requirements from consultations, and those discussed in the environmental assessment as a condition of the grant.

__X__ Applicable – Oversight responsibility shall be integrated into existing processes and project completion in accordance with all applicable floodplain ordinances and codes and standards shall be verified at project completion.