



U.S. DEPARTMENT OF AGRICULTURE

Natural Resources Conservation Service

EAXX-005-53-042-1407463611

September 2026

# Environmental Assessment Rehabilitation of Flood Retarding Structure PA-464 (Goose Pond Dam) of the Brodhead Creek Watershed



**For More Information Contact:**

USDA NRCS

359 East Park Drive, Suite 105

Harrisburg, PA 17111

Mark.buckwalter@usda.gov

717-237-2245

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## PROPOSAL INFORMATION

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### General Information

**Proposal Name:** Environmental Assessment Rehabilitation of Flood Retarding Structure PA-464 (Goose Pond Dam) of the Brodhead Creek Watershed

**Proposal Tracking #:** EAXX-005-53-042-1407463611

**Proposal Initiation Date:** 2/28/2024

**Proponent Name:** Monroe County Conservation District and the Monroe County Commissioners

**Signing Authority:** PA State Conservationist

**Responsible Official:** Denise Coleman

**Unit:** Pennsylvania NRCS State Office

**Anticipated Implementation of Proposal:** March 2030

**Proposal Record Location:** Harrisburg State Office

**GIS Info:** Harrisburg State Office

**Proposal Webpage:** <https://www.nrcs.usda.gov/programs-initiatives/watershed-protection-and-flood-prevention-operations-program/pennsylvania>

**General Location of Proposal:** The PA-464 (Goose Pond Dam) project site lies within the Upper Brodhead Creek watershed in Monroe County. It is located within the north central section of Barrett Township and provides flood protection to the town of Canadensis. It's approximately one mile to the northern side of Rt. PA-477 and generally parallels Rt. PA-390.

-Latitude: 41.20631748244634

-Longitude: -75.23746973931547

-HUC12: 02401040903.

### Purpose and Need

The purpose of the proposed action is to rehabilitate PA-464 (Goose Pond Dam) to address identified dam safety deficiencies and reduce risks to human life, property, and infrastructure associated with potential dam failure. While also continuing to provide flood prevention benefits to the watershed, which was the original authorized purpose of the watershed dam.

The need for the proposed action is based on identified hydraulic and structural deficiencies that prevent PA-464 from meeting current NRCS and Pennsylvania Department of Environmental Protection (PADEP) dam safety and performance criteria.

The dam is classified as a High Hazard Potential structure, indicating that failure would likely result in loss of human life. Under current conditions, continued deterioration of

the principal spillway, auxiliary spillway, and embankment, along with inadequate spillway capacity, increases the risk of failure during large storm events.

Without corrective action, the dam would remain at risk of failure, which could result in significant adverse effects to downstream populations, structures, infrastructure, and the surrounding community. Rehabilitation is needed to address these deficiencies, restore compliance with current standards, and reduce the risk of catastrophic dam failure.

## **Proposed Action**

The preferred alternative is the structural rehabilitation of the dam to address deficiencies and to meet the NRCS Conservation Practice Standard for Dams, CPS Code 402. Rehabilitation measures consist of the installation of new toe drain system; extending the conduit and installing a new impact basin on the downstream embankment; installation of a stilling basin or apron with a cutoff wall to bedrock to address stability integrity concerns; raising the dam crest to provide required freeboard during design storm events; and making repairs to the principal spillway intake riser. A map of the preferred alternative is included in the appendices.

## **Alternatives to the Proposed Action**

As a part of the planning process, reasonable alternatives studied in detail included the No Action alternative. The No Action represents the same baseline condition in which no federal rehabilitation project is implemented at the PA-464 dam. Under this condition, the dam would remain in place and continue to operate under its current operation and maintenance plan; however, no major rehabilitation would occur to address structural or hydraulic deficiencies beyond routine maintenance and minor repairs. Structural deterioration, particularly of the principal spillway, auxiliary spillway, and embankment, would continue over time, increasing the risk of breach during a significant storm event. The dam is assumed to eventually fail due to structural deterioration, inadequate spillway capacity, or overtopping and would not be subsequently rebuilt.

A dam failure under such conditions would result in catastrophic downstream flooding, substantial property and infrastructure damage, and potential loss of life. This condition serves as the baseline against which all action alternatives are evaluated. PA-464 is classified as a High Hazard Potential dam. A breach is projected to affect approximately 109 residential structures, 28 commercial properties, and 6 institutional facilities, with a Population at Risk (PAR) of at least 618 residents. Additionally, nine bridges, over 11.12 miles of state roads, and nearly 3.4 miles of local roads fall within the predicted inundation zone.

## **Alternatives Considered but Not Analyzed in Detail**

Decommissioning the dam with a nonstructural alternative was analyzed and evaluated to meet the purpose and need. This alternative includes removal of the dam which would eliminate the threat of dam failure and eliminate the need to address any of the existing dam deficiencies. Nonstructural flood prevention measures would be implemented downstream for homes that would now be inundated as a result of the dam being removed. Nonstructural measures can include, but are not limited to,

acquisition and demolition, relocation, and flood protection of existing structures. Flood protection of downstream properties could include structure elevation raising, flood barriers, flood proofing, or protection by some other method. Flood proofing and buyouts were the only nonstructural alternatives considered due to the lack of feasibility for the typical structure in the area and typical public resistance associated with structure relocation, flood barriers, levees, and downgrading the dam hazard.

The Decommissioning with Non-Structural Alternative was eliminated from detailed study due to the cost and overall difficulty of floodproofing multiple structures and relocating residents and businesses downstream of the dam. The decommissioning with non-structural alternative eliminates the risk of a breach wave but removes the positive effects of having the flood retarding dams, and in return still have deep flood depths downstream. The decommissioning with non-structural alternative downstream would most likely have public resistance since it would require a significant amount of property to be purchased or modified. The alternative also has significant impacts on environmental, social and cultural resources. For example, the disruption to the social setting by the removal of residential properties (and associated tax base), public and institutional areas, multi-year construction impacts associated with flood proofing the transportation system (raising roads and bridges) would be significant to the population as a whole compared to the isolated construction improvements at each dam site.

## INTERDISCIPLINARY PROPOSAL SCREENING

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Given the nature of the proposal, the responsible official is requesting documentation to demonstrate compliance with the following legal and regulatory considerations in addition to NEPA:

- ☒ Endangered Species Act (ESA)
- ☒ National Historic Preservation Act (NHPA)
- ☒ Tribal Consultation (EO 13175)
- ☒ Clean Air Act (CAA)
- ☒ Clean Water Act (CWA)
- ☒ Pertinent Executive Orders

### **Special Management Areas:**

- ☐ Coastal Zone Management Areas
- ☐ Conservation Easements
- ☐ Coral Reefs
- ☐ Inventoried Roadless
- ☐ Marine Sanctuaries
- ☐ National Recreation Areas
- ☐ National Scenic & Historic Trails

☐ Research or Experimental Areas

☐ Wild & Scenic River Corridors

☐ Wilderness

☐ Other: [specify area type](#)

## Scope of Analysis

The Study Area includes PA-464, its individual upstream flood pool, and the breach inundation area of the dam site to Creek Road. A map illustrating the study area is included in the Appendices. The watershed for PA-464 is located in the north central section of Barrett Township, Monroe County, PA. As described herein, the watersheds are largely undeveloped, forested regions of the county. The Skytop community, state highway PA-390 and a small airport are examples of low impact development in the area.

PL 83-566 projects are bounded in scope by the size of the watershed area, characteristics of the benefitted area, and size of potential measures considered. The Goose Pond Dam watershed is about 4,400 acres, which is less than the maximum area of 250,000 acres. About 60 percent of the watershed land use is rural, which exceeds the minimum 20 percent of benefits provided directly related to agriculture, which includes rural communities with populations less than 50,000 people. A Watershed Project Map is included in the Appendices.

## Agencies and Persons Consulted

Given the nature of the proposal, the responsible official consulted the following agencies, organizations, tribes, and persons during development and analysis of the proposal:

### Agencies/Organizations/Businesses/Landowners

| <i>Entity</i>                                              | <i>Association</i> |
|------------------------------------------------------------|--------------------|
| Barrett Township                                           | Local              |
| Monroe County Commissioners                                | Local              |
| Monroe County Planning Commission                          | Local              |
| Monroe County Conservation District                        | Local              |
| Monroe County Office of Emergency Management               | Local              |
| Pike County Commissioners                                  | Local              |
| Landowners potentially impacted by construction or breach  | Local              |
| PA Department of Agriculture                               | State              |
| PA Department of Environmental Protection (PADEP)          | State              |
| PADEP Division of Dam Safety                               | State              |
| PADEP Federal Flood Protection Program                     | State              |
| PA Department of Conservation and Natural Resources (DCNR) | State              |

|                                                        |         |
|--------------------------------------------------------|---------|
| DCNR Bureau of Forestry, District 19-Delaware          | State   |
| DCNR Bureau of Recreation and Conservation             | State   |
| PA State Conservation Commission                       | State   |
| PA Department of Transportation                        | State   |
| PA Emergency Management Agency                         | State   |
| PA Fish and Boat Commission                            | State   |
| PA Historical and Museum Commission (SHPO)             | State   |
| PA Game Commission                                     | State   |
| State Elected Officials                                | State   |
| U.S. Department of Agriculture (USDA)                  | Federal |
| USDA Farm Service Agency                               | Federal |
| USDA Rural Development                                 | Federal |
| U.S. Army Corps of Engineers – Philadelphia District   | Federal |
| U.S. Fish and Wildlife Service                         | Federal |
| U.S. Environmental Protection Agency                   | Federal |
| U.S. Forest Service                                    | Federal |
| U.S. Geological Survey                                 | Federal |
| Federal Emergency Management Agency (FEMA)             | Federal |
| National Oceanic and Atmospheric Administration (NOAA) | Federal |
| Federal Elected Officials                              | Federal |
| Absentee Shawnee Tribe of Indians of Oklahoma          | Tribal  |
| Delaware Tribe of Indians                              | Tribal  |
| Delaware Nation                                        | Tribal  |
| Eastern Shawnee Tribe of Oklahoma                      | Tribal  |
| Onondaga Nation                                        | Tribal  |
| Seneca-Cayuga Nation                                   | Tribal  |
| Shawnee Tribe                                          | Tribal  |
| Stockbridge-Munsee Community                           | Tribal  |

## Documents

Coordination and consultation documents can be found in the Watershed Plan Appendix A.

## Substantive Issues Considered for Analysis

A summary of the resources concerns, and ecosystem services identified as relevant to the project during the scoping meeting for the Brodhead Creek Watershed dam site PA-464 is presented in Table 1. Those resource items and ecosystem services marked “Yes” fall under one of the following categories:

- a) Likely to be impacted by the alternatives evaluated in this plan.
- b) NRCS policy requires evaluation.
- c) Executive Order or Environmental Law requires evaluation.

Table 1. Resource Categories of Concern and Ecosystem Services Identified during Scoping

| <i>Item / Concern</i>                                                 | <i>Relevant to Proposed Action</i> | <i>Rationale</i>                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------------------------------------------------------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Soil-Related Concerns</b>                                          |                                    |                                                                                                                                                                                                                                                                                                                                                                                                             |
| Soil Resources                                                        | Yes                                | These soils are present within the Affected Environment. There is the potential for some alternatives to impact these types of soils. Additionally, if fill for rehabilitation is required, it will be necessary to identify impacts, if any, to these soils.                                                                                                                                               |
| Prime & Unique Farmland and Farmland of Statewide or Local Importance | Yes                                | These soils are present within the Affected Environment. There is the potential for some alternatives to impact these types of soil. Additionally, if fill for rehabilitation is required, it will be necessary to identify impacts, if any, to these soils.                                                                                                                                                |
| Erosion & Sedimentation                                               | Yes                                | PA-464 does not contain significant submerged or aerated sediment accumulation and dredging of the sediment pool is not required to achieve the required design life. However, some of the alternatives considered have the potential to cause erosion through the pool area if the dam were removed, as well as increase erosion and sedimentation downstream.                                             |
| <b>Water-Related Concerns</b>                                         |                                    |                                                                                                                                                                                                                                                                                                                                                                                                             |
| Surface Water & Surface Water Quality                                 | Yes                                | No waterbodies within the Affected Environment are listed as impaired. However, some alternatives may have an impact on water quality, including temperature and sediment.                                                                                                                                                                                                                                  |
| Sole Source Aquifer                                                   | No                                 | There are no designated Sole Source Aquifers within the project area or affected environment. This determination was made based on review of the U.S. Environmental Protection Agency (EPA) Sole Source Aquifer mapping and the U.S. Geological Survey (USGS) Sole Source Aquifer geographic data for Pennsylvania. The project area is not located within or adjacent to a designated Sole Source Aquifer. |
| Groundwater & Ground Water Quality                                    | Yes                                | The dam contributes to local groundwater recharge. Approximately 15 Public Water System groundwater wells were identified within a one-mile radius of the Affected Environment. There are no known contaminants to groundwater quality.                                                                                                                                                                     |
| Floodplain Management                                                 | Yes                                | Existing floodplain areas may be affected by some alternatives.                                                                                                                                                                                                                                                                                                                                             |
| Coastal Zone Management Areas                                         | No                                 | The watershed is not located in a Coastal Zone Management Area as defined on the PA DEP Coastal Zone map.                                                                                                                                                                                                                                                                                                   |

|                                                       |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Waters of the U.S., Wetlands, & Special Aquatic Sites | Yes | The retarding pools, surrounding wetlands, and associated streams within the Affected Environment are considered Waters of the U.S. Wetlands are present at and around the dam and retarding pools for each dam site. Each alternative will have temporary and permanent impacts on wetlands within the Affected Environments. There are no special aquatic sites present. The US Army Corps of Engineers (USACE) was consulted regarding the Proposed Action on 09/30/2024 (Watershed Plan Appendix A).                                                                                                                                                                                                                                                                      |
| Coral Reefs                                           | No  | This resource is not present in the watershed or Affected Environment.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Regional Water Resource Plans                         | Yes | <p>The 2002 Brodhead Watershed Conservation Plan includes the tributaries of Brodhead Creek, which prioritizes maintaining and improving water quality, managing natural habitat to promote biodiversity and to maintain, protect, and enhance natural systems &amp; ensure that the historic resources of the Brodhead watershed are preserved.</p> <p>The 2004 Water Resources Plan for the Delaware River Basin includes the Brodhead Creek Watershed. This plan prioritizes the prevention and minimization of flood-induced loss of life and property, and protects floodplain ecology, enhancing water-based recreation in the river and its tributaries and protecting, conserving and enhancing healthy and biologically diverse riparian and aquatic ecosystems.</p> |
| Wild & Scenic Rivers                                  | No  | Brodhead Creek and its tributaries are not listed as part of any wild or scenic rivers.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Plant and Animal-Related Concerns</b>              |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Endangered & Threatened Species                       | Yes | Consultation with the USFWS and review of the official IPaC species list identified three federally listed bat species, the endangered northern long-eared bat and Indiana bat, and the proposed endangered tricolored bat, as potentially present within the broader project area, including downstream floodplains and the breach inundation zone. While no threatened or endangered species or suitable habitats were observed at the dam site itself during field surveys, areas downstream were not field-verified and may contain habitat suitable for these species. There are no state-listed endangered or threatened species currently known within the Affected Environment.                                                                                       |

|                                    |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------------------|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Migratory Bird Treaty Act          | Yes | The Brodhead Creek Watershed and dam sites attract a variety of migratory bird species. Thirteen migratory bird species, including bald eagle, have been identified by USFWS as having potential to occur in the project area, and others are likely to be present as well. The dams Affected Environment area are not located in any Audubon Important Bird Areas (IBA). Temporary impacts may be caused on migratory birds from construction activities, and permanent impacts to birds may result from tree cutting for staging areas and/or excess material disposal areas. |
| Bald and Golden Eagles             | Yes | A preliminary review of the USFWS IPaC database indicated the presence of the bald eagle and golden eagle in the watershed. Temporary impacts may occur to eagle habitat from construction activities.                                                                                                                                                                                                                                                                                                                                                                          |
| Essential Fish Habitat             | No  | No EFH was identified within the project watershed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Ecologically Critical Areas        | No  | There are no critical habitats, including IBAs, within the Affected Environment.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Invasive Species                   | Yes | The reconnaissance survey for the dam sites identified no invasive species. However, the Town indicated the species observed include multiflora rose, Japanese barberry, autumn olive, and garlic mustard. Construction activities have the potential to introduce or spread invasive species.                                                                                                                                                                                                                                                                                  |
| Fish, Wildlife & Aquatic Resources | Yes | The forested tracts along Brodhead Creek and its tributaries provide travel corridors for wildlife. The waters within the Affected Environment are notable for brook trout and other mixed species of trout, including each dam site. Construction activities may cause temporary minor effects upon aquatic resources.                                                                                                                                                                                                                                                         |
| Natural Areas                      | No  | There are no natural areas within the Affected Environment area at the dam site.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Riparian Areas                     | Yes | Riparian areas are present in the vicinity of Affected Environment. These are located along the edge of the retarding pool of PA-464 dam as well as along the streams entering and exiting the pools and downstream of the dam. These areas may be impacted in the short term by construction activities, but mitigation measures will be incorporated to re-establish the areas.                                                                                                                                                                                               |
| Forest Resources                   | Yes | Plant condition within the project area is healthy; no degraded plant conditions were observed. Herbaceous and woody plants                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

|                                            |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------------------------|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                            |     | within the Affected Environment may be disturbed by construction activities.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Human Use-Related Concerns</b>          |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Cultural Resources and Tribal Consultation | Yes | <p>In accordance with Section 106 of the National Historic Preservation Act (36 CFR Part 800), the Natural Resources Conservation Service (NRCS), as the lead Federal agency, initiated consultation early in the project planning process with the Pennsylvania State Historic Preservation Office (PA SHPO) and federally recognized Tribes with ancestral ties to the project area. NRCS defined the Area of Potential Effects (APE), identified historic properties within the APE, and made a determination of effect for the undertaking in accordance with 36 CFR §§ 800.3 and 800.4.</p> <p>Federally recognized Tribes contacted included the Absentee Shawnee Tribe of Indians of Oklahoma, Delaware Nation, Delaware Tribe of Indians, Eastern Shawnee Tribe of Oklahoma, Onondaga Nation, Seneca-Cayuga Nation, Shawnee Tribe, and the Stockbridge-Munsee Community. The Tribes were provided with project information and afforded the opportunity to review and comment on the proposed undertaking and NRCS' determination of effect.</p> <p>The Eastern Shawnee Tribe, Shawnee Tribe, and the Stockbridge-Munsee Community responded and indicated that the proposed project would have no effect on historic properties of religious or cultural significance to their Tribes. No responses were received from the remaining Tribes contacted.</p> <p>The PA SHPO reviewed the project information and concurred with NRCS' determination of No Effect on Historic Properties. Documentation of consultation, including letters and correspondence, is provided in Appendix A of the Watershed Plan.</p> |
| Social Issues                              | No  | Potential alternatives will not have impacts on social issues.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Local, Regional & National Economy         | Yes | Project alternatives may impact the local, regional, and national economy. Local and regional economic effects may include changes in construction employment, local spending associated with construction activities, and avoided damages to residential, commercial, and public infrastructure. At the national level, the project has been evaluated in accordance with the Principles, Requirements, and Guidelines (PR&G) for water resources projects, which assess contributions to the National Economic                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

|                                  |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------------------------|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                  |     | Development (NED) account through avoided flood damage, infrastructure protection, and project costs. The economic analysis tables included in this document present the estimated costs and benefits associated with the alternatives and their contribution to the national economy.                                                                                                                                                                                                                                                                                            |
| Public Health & Safety           | Yes | PA-464 provides flood protection for residents, motorists, and other people within the downstream breach zones. A breach of PA-464 would cause catastrophic property damage and loss of life in the downstream area.                                                                                                                                                                                                                                                                                                                                                              |
| Scenic Beauty                    | No  | There are no formally designated areas of scenic beauty within the Affected Environment. PA-464 is not significantly visible outside of the Dam area. PA-464 is privately owned and not accessible to the public.                                                                                                                                                                                                                                                                                                                                                                 |
| Parklands                        | No  | The PA-464 dam has no adjacent public recreational facilities, nor would any impact be expected.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Significant Scientific Resources | No  | Significant scientific resources include research natural areas, unique geologic or hydrologic features, ecological research sites, or other areas recognized as having scientific value as defined in 190 NCHP 601.70. A review of available resource mapping, agency coordination, and project scoping did not identify any designated research natural areas, unique geologic features, or recognized scientific study sites within the project area or Area of Potential Effects. Therefore, the proposed project is not expected to affect significant scientific resources. |
| Land Use & Land Cover            | Yes | Some alternatives may impact land use or land cover types within the Affected Environment.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Other Concerns</b>            |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Transportation                   | Yes | Temporary impacts may occur due to construction vehicle ingress and egress to the dam sites, which will be managed by requiring the contractor to implement a proper Traffic Control Plan. Some alternatives may result in increased flood impacts on existing transportation infrastructure.                                                                                                                                                                                                                                                                                     |
| Maintenance and Management       | Yes | Some alternatives may encourage or discourage unauthorized recreational uses within the Dam site. Additionally, some alternatives may impact management requirements.                                                                                                                                                                                                                                                                                                                                                                                                             |

## ENVIRONMENTAL REVIEW & CONSULTATION

The following documents compliance with the National Environmental Policy Act (NEPA) and other relevant environmental laws, executive orders, and regulations.

### NEPA: Consideration of Reasonably Foreseeable Impacts

#### Potentially Affected Environment

##### *Soil Resources*

Based on a custom soil resource report generated by the NRCS Web Soil Survey on January 3, 2024, the primary soil types at each dam site were identified, along with those within the downstream area modeled without the dams in place. These soils are detailed in Table 2 and Table 3, and a soil map is provided in Appendix C of the Watershed Plan.

Additionally, according to the PA DEP Environmental Search Tool, it was confirmed that there are no permitted activities, known contamination, or documented violations of environmental laws administered by PA DEP within the Affected Environment.

Table 2. Soils at PA-464, Dam Site and Flood Pool

| MUSYM                              | Map Unit Name                                                            | Acres | %    |
|------------------------------------|--------------------------------------------------------------------------|-------|------|
| As                                 | Alluvial land                                                            | 17.5  | 17.1 |
| BP                                 | Borrow pit                                                               | 30.3  | 29.6 |
| LbC                                | Lackawanna channery loam, 8 to 25 percent slopes, rubbly                 | 16.1  | 15.8 |
| LbE                                | Lackawanna and Bath soils, steep, rubbly                                 | 5.8   | 5.7  |
| LyE                                | Lordstown and Oquaga channery loams, 25 to 70 percent slopes, very stony | 2.4   | 2.4  |
| MoB                                | Morris channery silt loam, 0 to 8 percent slopes, very stony             | 1.3   | 1.3  |
| OxC                                | Oquaga-Lackawanna complex, 8 to 25 percent slopes, very stony            | 3.5   | 3.4  |
| W                                  | Water                                                                    | 3.9   | 3.8  |
| WpB                                | Wellsboro channery loam, 0 to 8 percent slopes, very stony               | 18    | 17.6 |
| WpC                                | Wellsboro channery loam, 8 to 25 percent slopes, very stony              | 3.5   | 3.4  |
| PA-464 Dam Site & Flood Pool Total |                                                                          | 102.3 | 100  |

Source: Web Soil Survey, 2024, United States Department of Agriculture Natural Resource Conservation Service

Table 3. Soils in the Decommissioned PA-464 Downstream 100-Year Floodplain

| MUSYM                                           | Map Unit Name                                                            | Acres | %    |
|-------------------------------------------------|--------------------------------------------------------------------------|-------|------|
| As                                              | Alluvial land                                                            | 10.7  | 16.9 |
| BP                                              | Borrow pit                                                               | 0.7   | 1.1  |
| Hy                                              | Holly silt loam                                                          | 3.5   | 5.5  |
| LbC                                             | Lackawanna channery loam, 8 to 25 percent slopes, rubbly                 | 0.4   | 0.7  |
| LyE                                             | Lordstown and Oquaga channery loams, 25 to 70 percent slopes, very stony | 0.1   | 0.2  |
| MoB                                             | Morris channery silt loam, 0 to 8 percent slopes, very stony             | 4.1   | 6.5  |
| OxC                                             | Oquaga-Lackawanna complex, 8 to 25 percent slopes, very stony            | 1     | 1.6  |
| Ph                                              | Philo silt loam                                                          | 32.1  | 50.7 |
| Po                                              | Pope silt loam                                                           | 6.5   | 10.2 |
| Pp                                              | Pope silt loam, high bottom                                              | 4     | 6.3  |
| W                                               | Water                                                                    | 0.3   | 0.5  |
| PA-464 100-Year Decommissioned Floodplain Total |                                                                          | 63.4  | 100  |

Source: Web Soil Survey, 2024, United States Department of Agriculture Natural Resource Conservation Service

### ***Prime and Unique Farmland***

Prime Farmland and Farmland of Statewide Importance that are present within the Affected Environment are summarized in Table 4. There are no soils classified as prime farmland or farmland of statewide importance in the PA-464 dam site, but in the dam's downstream 100-year floodplain there are 3.5 acres of statewide prime farmland and 42.6 acres of prime farmland. Total prime farmland and farmland of statewide importance within the project's overall Affected Environment is 61.7 acres. Prime and Unique Farmland maps are located in Appendix C of the Watershed Plan.

Table 4. Soils Classification at PA-464 &amp; Downstream 100-year Floodplain

| Prime Farmland or Farmland of Statewide Importance in PA-464 Dam Site and Flood pool |               |                |       |
|--------------------------------------------------------------------------------------|---------------|----------------|-------|
| MUSYM                                                                                | Map Unit Name | Farmland Class | Acres |

|                                                                                                    |                                                                               |                                  |              |
|----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|----------------------------------|--------------|
| BP                                                                                                 | Borrow pit                                                                    | Not prime farmland               | 30.3         |
| WpB                                                                                                | Wellsboro channery loam, 0 to 8 percent slopes, extremely stony               | Not prime farmland               | 18           |
| As                                                                                                 | Alluvial land                                                                 | Not prime farmland               | 17.5         |
| LbC                                                                                                | Lackawanna channery loam, 8 to 25 percent slopes, rubbly                      | Not prime farmland               | 16.1         |
| LBE                                                                                                | Lackawanna and Bath soils, steep, rubbly                                      | Not prime farmland               | 5.8          |
| W                                                                                                  | Water                                                                         | Not prime farmland               | 3.9          |
| OxC                                                                                                | Oquaga-Lackawanna complex, 8 to 25 percent slopes, very stony                 | Not prime farmland               | 3.5          |
| WpC                                                                                                | Wellsboro channery loam, 8 to 25 percent slopes, very stony                   | Not prime farmland               | 3.5          |
| LyE                                                                                                | Lordstown and Oquaga channery loams, 25 to 70 percent slopes, very stony      | Not prime farmland               | 2.4          |
| MoB                                                                                                | Morris channery silt loam, 0 to 8 percent slopes, very stony                  | Not prime farmland               | 1.3          |
| PA-464 Dam Site & Flood Pool Total                                                                 |                                                                               |                                  | 102.3        |
| <b>Prime Farmland or Farmland of Statewide Importance in PA-464 Downstream 100-year Floodplain</b> |                                                                               |                                  |              |
| <b>MUSYM</b>                                                                                       | <b>Map Unit Name</b>                                                          | <b>Farmland Class</b>            | <b>Acres</b> |
| As                                                                                                 | Alluvial land                                                                 | Not prime farmland               | 10.7         |
| BP                                                                                                 | Borrow pit                                                                    | Not prime farmland               | 0.7          |
| Hy                                                                                                 | Holly silt loam                                                               | Farmland of statewide importance | 3.5          |
| LbC                                                                                                | Lackawanna channery loam, 8 to 25 percent slopes, rubbly                      | Not prime farmland               | 0.4          |
| LyE                                                                                                | Lordstown and Oquaga channery loams, 25 to 70 percent slopes, extremely stony | Not prime farmland               | 0.1          |

|                                             |                                                                    |                    |      |
|---------------------------------------------|--------------------------------------------------------------------|--------------------|------|
| MoB                                         | Morris channery silt loam, 0 to 8 percent slopes, extremely stony  | Not prime farmland | 4.1  |
| OxC                                         | Oquaga-Lackawanna complex, 8 to 25 percent slopes, extremely stony | Not prime farmland | 1    |
| Ph                                          | Philo silt loam                                                    | Prime farmland     | 32.1 |
| Po                                          | Pope silt loam                                                     | Prime farmland     | 6.5  |
| Pp                                          | Pope silt loam, high bottom                                        | Prime farmland     | 4    |
| W                                           | Water                                                              | Not prime farmland | 0.3  |
| PA-464 100-year Downstream Floodplain Total |                                                                    |                    | 63.4 |

Source: Web Soil Survey, 2024, United States Department of Agriculture Natural Resource Conservation Service

### ***Erosion & Sedimentation***

Goose Pond Dam (PA-464) provides limited sediment retention due to the configuration of the outlet structure, which allows continuous baseflow discharge. Most sediment deposition occurs during high-flow events when a pool temporarily forms behind the dam. Based on the sedimentation survey conducted in 2022 and 2023, the historical rate of sediment deposition at PA-464 is estimated to be 0.042 acre-feet per year. This modest rate reflects both the hydrologic characteristics of the contributing watershed and the dam's limited capacity to trap sediment under normal flow conditions.

### ***Water Resources***

PA-464 is located along Goose Pond Run, approximately 1-mile upstream from the confluence with Brodhead Creek. The normal pool covers an area of approximately 3.6 acres and an average water depth of 6.4 feet with a drainage area of 6.85 sq. mi.

### ***Water Quantity***

There have been 6 FEMA disaster declarations related to flooding for Monroe County from 1955-2024 (FEMA, 2024). According to the Monroe County Hazard Mitigation Plan (2021) the risk factor for flooding and levee failure is "low." In Canadensis, this is largely due to the presence of the existing dam system. PA-464 was constructed in response to severe flooding and damage from a weather event in August 1955.

### ***Water Quality, including Surface and Ground Water***

According to the 2024 Integrated Water Quality report, Goose Pond Run is not included in the 2022 report of Section 303(d) listed impaired waters. The surface waters are usable for crop production and recreation.

Based on information available through the Pennsylvania DEP eMap PA GIS platform, there are fifteen Public Water Systems located within a one-mile radius of PA-464. The

groundwater source supplying the public water systems may be from a shallow aquifer located within the unconsolidated soils near the site or from a deeper bedrock aquifer originating in fractured rock beneath the project area. The systems are likely regulated as Transient Non-Community Water Systems and include uses such as camps, lodges, churches and restaurants.

### ***Floodplain Management***

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), Panels 42089C0109E and 42089C0128E (effective May 2, 2013, the area surrounding PA-464 and the majority of the downstream Affected Environment are designated as areas of minimal flooding, Zone X. Additionally, a relatively small portion of the project study area to the south of PA-464 is designated as Zone AE, referred to as high-risk areas (Watershed Plan Appendix C).

Development within the 100-year floodplain is regulated under Section 265 of Barrett Township's Code of regulations (adopted in 2013). Within the Affected Environment only a portion of the floodplain is mapped, primarily in and around Canadensis. New development is allowed within the FEMA mapped floodplain provided that it is elevated to at least one foot above base flood elevation if elevations are available. In areas where no flood elevations are available, there are provisions for determining appropriate building heights. New construction is prohibited in the floodway.

### ***Waters of the U.S., Wetlands & Special Aquatic Sites***

Waters of the United States include the waters of intermittent and permanent streams, ponds and lakes, below their ordinary high-water elevations, as well as most wetlands. At PA-464, the retarding pool, all intermittent and permanent streams, and all wetlands, as shown on the Wetland and Waterbody Focus Area Maps (Watershed Plan Appendix C), are considered Waters of the United States. These waters are subject to Section 10 and Section 404 of the Clean Water Act.

### ***Wetlands***

A wetland and waterway site investigation were performed on June 6 and 7, 2022 at PA-464. A total of three wetland areas were identified and located in the field. Wetlands identified and located in the field are summarized in Table 5 and shown in Figure 1 below and illustrated in Appendix C of the Watershed Plan. Additional wetland descriptions, including dominant vegetation and primary functions are provided, following Table 5.

Table 5. PA-464 Wetland Classification

| Wetland ID                              | NWI Classification | Acreage |
|-----------------------------------------|--------------------|---------|
| <b>PA-464 (Goose Pond Run Dam Site)</b> |                    |         |
| A                                       | PFO                | 0.58    |
| B                                       | PEM                | 2.14    |

|   |         |     |
|---|---------|-----|
| C | PEM/PSS | 0.4 |
|---|---------|-----|

<sup>1</sup> NWI wetland classifications are as follows: PEM: Palustrine Emergent; PSS: Palustrine Scrub-Shrub; PFO: Palustrine Forested

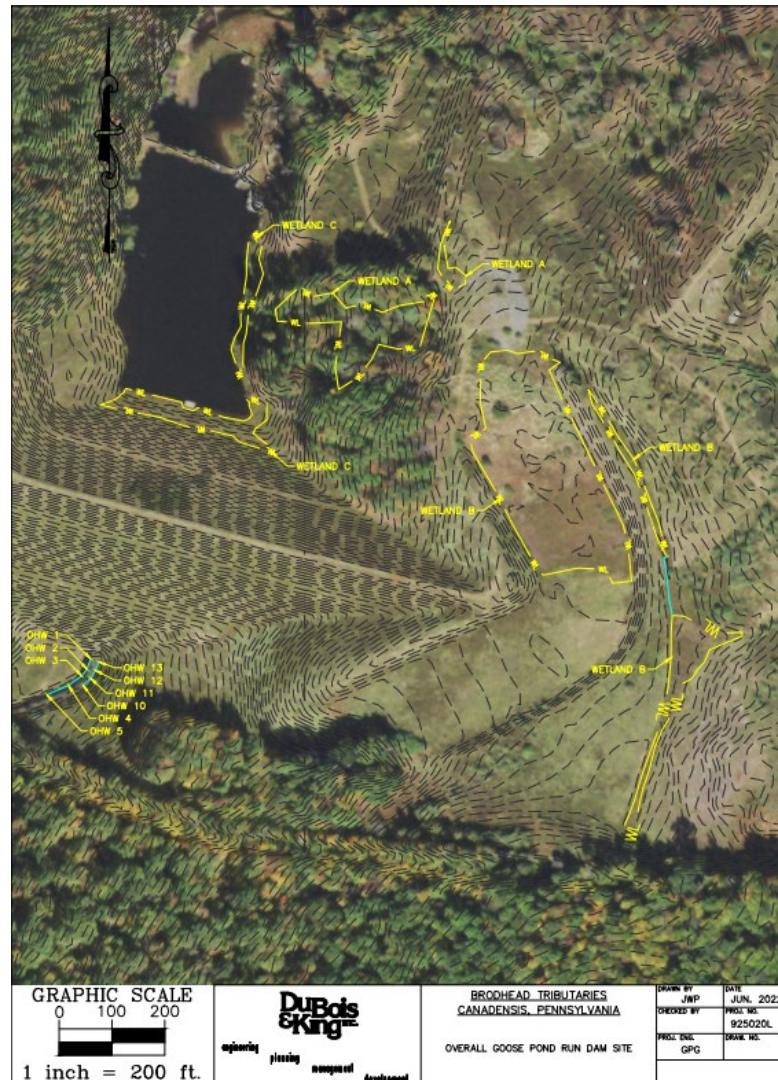


Figure 1. PA-464 Wetlands Map

Three wetlands were identified within the Goose Pond Run Dam site. The existence of the dam and its pool area are fundamental to the presents of these wetlands. The wetlands provide good natural diversity and provide high functioning and positive effects to plants and wildlife. Much of the mowed area in the vicinity of the dam is dominated by sheep sorrel (*Rumex acetosella*), multiflora rose, autumn olive (*Eleagnus umbellata*), oriental bittersweet (*Celastrus orbiculatus*), Japanese barberry, milkweed (*Ascelpias sp.*), tower mustard (*Turritis glabra*), bushy bluestem (*Andropogon glomeratus*), and bird's-foot trefoil (*Lotus corniculatus*). A brief summary of each wetland is as follows:

Wetland A is located northeast of the dam and consists of two areas separated by a grassy wood's road. The wetland is predominantly PFO and is dominated by red maple, jewelweed, forget-me-not (*Myosotis sp.*), sensitive fern, multiflora rose, and poison ivy (*Toxicodendron radicans*). It appears to be fed by a combination of groundwater seepage and surface water, and may be hydrologically connected to Wetland B. The wetland coalesces into an intermittent stream channel that flows west into the reservoir. The principal function of this wetland is groundwater recharge.

Wetland B flows a narrow swale and is a PEM wetland dominated by cattails, drooping sedge, marsh fern (*Thelypteris palustris*), meadowsweet, and sensitive fern. In some areas, it extends east up the hillside, where groundwater seepage occurs. A ditch connects this area to the second portion of Wetland B, a rectangular emergent marsh located in the spillway, which is dominated by reed canary grass (*Phalaris arundinacea*), sedges, bulrushes, meadowsweet, and jewelweed. The principal function of this wetland is wildlife habitat.

Wetland C is a PEM/PSS wetland located along the edge of the reservoir. It is dominated by tussock sedge (*Carex stricta*), meadowsweet, bladder sedge (*Carex intumescens*), jewelweed, leatherleaf (*Chamaedaphne calyculata*), maleberry (*Lyonia ligustrina*), blue flag iris (*Iris versicolor*), and Sphagnum mosses (*Sphagnum sp.*). Groundwater seepage is apparent along the slope above the inlet. The principal function of this wetland is groundwater recharge and wildlife habitat.

In addition to the wetlands identified in the field, a desktop review identified wetlands and areas of open water downstream of the dam. The National Wetland Inventory includes a mapped pond at the southern end of the Goose Pond Run Affected Environment. In addition, there is the potential for wetlands to be located along the banks of Goose Pond Run.

### **Waterways**

The ordinary high-water mark (OHW) of the perennial stream at the outlet of the PA-464 dam (Goose Pond Dam) was identified and field-verified during the site investigation. Goose Pond Run is a second-order tributary to Brodhead Creek and flows for approximately 1.3 miles from the dam outlet before joining Brodhead Creek directly. This stream is part of the Delaware River Basin.

Downstream of the dam, Goose Pond Run and its associated tributaries are considered Waters of the United States (WOTUS) under Section 404 of the Clean Water Act, due to their perennial flow and surface connectivity to traditionally navigable waters. The stream is designated as a High-Quality Cold-Water Fishery (HQ-CWF) under Pennsylvania's Chapter 93 Water Quality Standards, indicating elevated ecological value and the presence of naturally reproducing trout populations. The dam does not alter the Chapter 93 designation of Goose Pond; the HQ-CWF use applies to the full stream segment as listed in PADEP's Stream Designations by Basin. According to Pennsylvania's 2024 Integrated Water Quality Monitoring and Assessment Report, Goose Pond is attaining all designated uses both above and below the dam, with no recorded impairments. Therefore, the reservoir and dam structure are not currently impacting the designated aquatic life use of the stream.

These downstream waters, along with riparian buffers and adjacent wetlands, are jurisdictional and functionally connected to the broader Brodhead aquatic system. Potential impacts to these aquatic resources are further evaluated in the Environmental Impacts section and mapped in Appendix C of the Watershed Plan. They provide regulating ecosystem services benefits by intact natural stream systems, which include aquatic vegetation, wetlands, and bivalves within these systems that filter flowing water, removing harmful contaminants, and improving habitat quality for sensitive freshwater species. Additionally, wetlands and aquatic vegetation also serve to naturally attenuate flood flows by slowing runoff and absorbing excess water.

They provide clean water for recreational fishing, boating, and swimming. The waters also contribute to the natural aesthetics of the area.

### ***Regional Water Resource Plans***

Monroe County's Hazard Mitigation Plan (2021) aims to reduce loss of life and property by addressing key risks, including flooding, one of the most frequent and costly hazards in the region. The 2021 plan update, developed with input from local officials, residents, and stakeholders, identifies flooding, flash flooding, and ice jam flooding as priority concerns. Many municipalities, particularly those along the Delaware and Lehigh Rivers, face recurring flood events that threaten infrastructure, disrupt transportation, and pose environmental risks, including hazardous material contamination.

To mitigate these impacts, Monroe County has established clear goals over the next five years, focusing on reducing flood-related damage, improving disaster response, promoting flood-resilient development, and protecting critical infrastructure. The county's commitment to hazard mitigation planning helps break the cycle of disaster damage and supports long-term community resilience.

The 2002 Brodhead Watershed Conservation Plan identifies concerns within the watershed that include (but are not limited to) the impacts of unplanned growth, stormwater runoff, development of wetlands and stream bank erosion. Goose Pond (PA-464) was identified in the Plan as one of the watershed's "special places." Goals that are directly relevant to this Environmental Assessment include the following:

- "Water Quality and Quantity: Maintain and improve water quality throughout the watershed and ensure that an adequate quantity of surface water and groundwater is maintained."
- "Fish and Wildlife Habitat – Manage natural habitat to promote biodiversity and to maintain, protect, and enhance natural systems."
- "Historic & Cultural Resources – Ensure that the historic resources of the Brodhead watershed are preserved and interpreted as educational examples of the area's heritage."

Brodhead Creek and its tributaries are part of the Delaware River Basin. The 2004 Water Resources Plan for the Delaware River Basin is a multi-state plan that outlines a unified vision for protecting, preserving and enhancing the Delaware River Basin. Plan goals that are relevant to this project include (but are not limited to):

- “Goal 2.1: Prevent or minimize flood-induced loss of life and property and protect floodplain ecology. Identifying areas and structures within a community that are at risk from flooding is the single most important step in mitigating future flood damage and loss. Community planning to reduce flood damage is critical, and guidance is available from federal and state agencies to help communities in this effort. In addition, flood forecasting and warning, maintenance of flood control structures, and stormwater management are all essential elements of controlling future flood damage.”
- “Goal 2.2: Enhance water-based recreation in the river and its tributaries. The Basin’s National Wild and Scenic Rivers, the Appalachian Trail, and numerous game lands, parks and forests can be linked to optimize recreational experiences.”
- “Goal 2.3: Protect, conserve and restore healthy and biologically diverse riparian and aquatic ecosystems. The health of plant and animal communities requires that flows in rivers and streams exhibit the natural range of variation in the flow regime, especially seasonally. Other physical and chemical parameters are also critical to the health of ecosystems. Understanding the range of needs for the diverse native aquatic and riparian populations within the Basin is a major challenge.”

### ***Endangered and Threatened Species***

A review of potential endangered and threatened species within the PA-464 Affected Environment was conducted using the U.S. Fish and Wildlife Service (USFWS) IPaC system and the Pennsylvania Natural Diversity Inventory (PNDI). The IPaC review identified two federally endangered bat species northern long-eared bat (*Myotis septentrionalis*) and Indiana bat (*Myotis sodalis*) as well as the proposed endangered tricolored bat (*Perimyotis subflavus*). It also listed the monarch butterfly (*Danaus plexippus*) as a candidate species, and the northeastern bulrush (*Scirpus ancistrochaetus*) as a federally endangered plant species (See Watershed Plan Appendix A). However, no critical habitat is mapped at the PA-464 dam site.

Importantly, no federally listed or proposed species or suitable habitats were observed during field surveys conducted at the dam site. The site is dominated by frequently mowed grass and non-forested land, and no identified bat roost trees or rare plants were identified within the immediate area of disturbance.

The downstream breach zone and associated floodplain were not included in field verification efforts. These areas extend through riparian corridors connected to Brodhead Creek and encompass a range of habitat types that may support federally or state-listed species. Due to the increased habitat diversity in these zones, the potential for species presence exists.

A Pennsylvania Natural Diversity Inventory (PNDI) review of the approximate Affected Environment was conducted on June 14, 2024. This was supplemented with a desktop review using the Pennsylvania Natural Heritage Program (PNHP) Conservation Explorer tool. Results from the PNDI review and desktop analysis are outlined below and contained in Appendix A of the Watershed Plan.

- PA Game Commission - lists no Threatened or Endangered Species or Species of Special Concern.
- PA Fish & Boat Commission - indicates no Threatened and Endangered Species. The PNDI search results indicate the project may be located in the occupied range of the timber rattlesnake (*Crotalus horridus*) and provides recommendations for avoiding disturbance of critical habitat and minimizing risks during construction. However, based on the PA Conservation Explorer, the timber rattlesnake Dutch Hill habitat is located west of the Affected Environment.
- PA DCNR - indicates the presence of a threatened plant, white twisted-stalk (*Streptopus amplexifolius*). However, based on the PA Conservation Explorer, it appears the plant is located outside of the Affected Environment.
- USFWS - Federally listed and proposed species identified through the USFWS IPaC system are documented in Watershed Plan Appendix A – Consultations and summarized in Table 6 below.

No rare, threatened, or endangered species or significant natural communities were observed during field surveys. No potential bat roost trees were observed. PA-464 is not mapped as core habitat, dominated by frequently mowed land.

Table 6. Species and Resources potentially impacted by activities in the Brodhead Creek Watershed

| Species/Habitat                                           | Ranking                   |                     | Present in Affected Environment/ Breach Area |
|-----------------------------------------------------------|---------------------------|---------------------|----------------------------------------------|
|                                                           | State                     | Federal             |                                              |
| <b>State (DCNR) Species</b>                               |                           |                     |                                              |
| White twisted-stalk ( <i>Streptopus amplexifolius</i> )   | Critically Imperiled (S1) | N/A                 | No but present in watershed                  |
| <b>USFWS Species</b>                                      |                           |                     |                                              |
| Indiana bat ( <i>Myotis sodalis</i> )                     | Endangered                | Endangered          | Potentially                                  |
| Northern long-eared bat ( <i>Myotis septentrionalis</i> ) | Endangered                | Endangered          | Potentially                                  |
| Tricolored bat ( <i>Perimyotis subflavus</i> )            | Endangered                | Proposed Endangered | Potentially                                  |
| Monarch butterfly ( <i>Danaus</i>                         | N/A                       | Candidate           | Potentially                                  |

|                                                         |            |            |             |
|---------------------------------------------------------|------------|------------|-------------|
| <i>plexippus)</i>                                       |            |            |             |
| Northeastern bulrush ( <i>Scirpus ancistrochaetus</i> ) | Endangered | Endangered | Potentially |

Final PNDI dated July 9, 2024 and USFWS IPaC dated 5/29/24. State ranks: 1=Critically Imperiled; 2=Imperiled; 3=Vulnerable; 4=Apparently Secure; 5=Secure.

### **Migratory Birds**

The Affected Environment contains valuable habitat for a diversity of wildlife species. Migratory birds likely utilize the diversity of upland and wetland habitats present in the watershed, including "birds of conservation concern" (BCC) identified in the IPaC report, such as wood thrush (*Hylocichla mustelina*), black-capped chickadee (*Poecile atricapillus*), bobolink (*Dolichonyx oryzivorus*), black-billed cuckoo (*Coccyzus erythrophthalmus*), Canada warbler (*Cardellina canadensis*), cerulean warbler (*Setophaga cerulea*), prairie warbler (*Setophaga discolor*), golden-winged warbler (*Vermivora chrysoptera*), northern saw-whet owl (*Aegolius acadicus*), rusty blackbird (*Euphagus carolinus*), chimney swift (*Chaetura pelagica*), and eastern whip-poor-will (*Antrostomus vociferous*). (Watershed Plan Appendix A).

The forested and shrub-scrub wetlands throughout the Affected Environment provide cover and foraging habitat for migratory birds such as common yellowthroat (*Geothlypis trichas*), ruby-crowned kinglet (*Corthylio calendula*), and yellow warbler (*Setophaga petechia*) (Smith, 2005).

### **Bald and Golden Eagles**

A review of the USFWS IPaC database (Watershed Plan Appendix A) identified the potential presence of the bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*) within the Affected Environment. Both species are protected under the Bald and Golden Eagle Protection Act (BGEPA). According to the Pennsylvania Game Commission's Bald Eagle Nest Survey, no bald eagle or golden eagle nests are located within the project footprint, including the dam, reservoir, flood pool, or breach inundation area. The nearest known bald eagle nest is located approximately 1.8 miles downstream and outside of the breach inundation zone. No nests have been documented within the vicinity that would trigger seasonal restrictions for construction or tree clearing activities.

The Affected Environment includes fragmented forest and partially developed areas that may provide potential foraging or perching habitat, but the lack of nesting sites within or adjacent to the construction or breach impact zones indicates that no direct impacts to nesting eagles are anticipated. Therefore, time-of-year restrictions related to active eagle nests are not expected to apply.

### **Invasive Species**

Non-native invasive species were not observed at the Goose Pond Dam project study area. However, during stakeholder meetings, the Monroe County Conservation

District noted that an excessive amount of autumn olive and Japanese barberry are present at PA-464, which they would like to see removed.

### ***Fish and Wildlife***

The forested tracts along Goose Pond Run provide travel corridors for mammals such as bobcat (*Lynx rufus*), American black bear (*Ursus americanus*), and white-tailed deer (*Odocoileus virginianus*).

Wildlife habitat at the sites generally includes open grassland associated with the dam, the auxiliary spillway, and varying amounts of shrub and forestland on the remainders of the areas. Aquatic habitat includes the open water of the retarding pool as well as streams entering and exiting the pool. Common species likely to occur in these habitats include beaver (*Castor canadensis*), black bear, eastern cottontail (*Sylvilagus floridanus*), coyote (*Canis latrans*), grey fox (*Urocyon cinereoargenteus*), squirrels (*Sciuridae*), raccoon (*Procyon lotor*), North American porcupine (*Erethizon dorsatum*), weasels (*Mustelidae*), striped skunk (*Mephitis mephitis*), Virginia opossum (*Didelphis virginiana*), white-tailed deer, mice (*Muridae*), voles (*Cricetidae*), and a variety of songbirds, raptors, fish including native brook trout (*Salvelinus fontinalis*), turtles and snakes.

Goose Pond Run supports a variety of fish species, including bluegill, chain pickerel, yellow perch, rock bass, striped bass, and redbreast sunfish. The stream is also recognized for its natural trout production. Tributaries of Brodhead Creek are classified as High-Quality Cold-Water Fisheries under Title 25, Chapter 93 of Pennsylvania's Water Quality Standards. This designation requires maintaining water quality levels sufficient to protect cold water fish species, including members of the family Salmonidae, such as brook trout, as well as other flora and fauna native to cold water habitats. While High Quality streams are afforded less regulatory protection in permit reviews than Exceptional Value Waters, their ecological integrity must still be preserved.

According to the Pennsylvania Natural Heritage Program Conservation Explorer, Goose Pond Run supports natural trout reproduction, further emphasizing its ecological significance.

### ***Riparian Areas***

At PA-464 (Goose Pond Dam), riparian areas are present along the margins of the existing impoundment and along the tributaries that enter from the north and northeast, as well as along Goose Pond Run downstream of the dam. Upstream and around the impoundment, riparian zones are predominantly associated with forested and emergent wetlands. These areas extend approximately 0.15 to 0.25 miles along the northern and northeastern arms of the reservoir, with widths ranging from 30 to 120 feet depending on slope position, vegetation, and surface water influence.

Along the tributaries entering and exiting the reservoir, riparian areas are concentrated along the streambanks, where periodic flooding and shallow groundwater conditions support hydrophytic vegetation and maintain floodplain function. These zones provide key regulating services including sediment retention, nutrient uptake, and thermal buffering.

A desktop GIS analysis of the Goose Pond Run downstream floodplain incorporating topographic data, mapped wetlands, and hydric soils indicates that riparian areas occur intermittently for approximately 1.8 miles downstream of the dam. These riparian segments are concentrated within broader low-lying areas and coincide with mapped wetlands and flood-prone terrain identified during field assessments.

### ***Forest Resources***

The forest resources observed at PA-464 during field investigations on June 6 and 7, 2022 include a swath of woods dominated by white oak, chestnut oak, hemlock and white pine. An access road runs east from Route 390 through upland forest dominated by white oak, chestnut oak, Norway spruce, basswood, bit-toothed aspen, and black locust, with an understory of witch hazel. N

Forests within the Affected Environment provide firewood, habitat, and recreational opportunities.

### ***Cultural Resources and Tribal Consultation***

The Area of Potential Effects (APE) for this project includes both direct and indirect effects to historic properties in accordance with 36 CFR 800.16(d). The direct effects APE includes all areas of ground disturbance associated with dam rehabilitation activities, including the dam embankment, spillways, staging areas, borrow areas, and access routes.

The indirect effects APE includes areas where historic properties may be affected by visual, hydrologic, or setting changes resulting from the project. Indirect effects considered for this project included changes to the viewshed, potential changes in upstream inundation limits due to a potential increase in embankment height, and potential changes in downstream floodplain conditions under dam breach and rehabilitation scenarios. The APE was modified from the standard 1-mile radius around the dam centroid to better reflect the actual area where indirect effects could occur due to the steep terrain and limited viewshed in the project area.

The APE for PA-464 extends downstream along Goose Pond Run, generally following the one percent (1%) annual chance flood limits under a decommissioned dam scenario for approximately one mile to the northern side of PA-447. Goose Pond Run generally parallels PA-390 and passes through the village of Canadensis. The APE also extends approximately 0.75 miles upstream of PA-464 to account for potential raising of the embankment and associated additional inundation limits.

The APE was developed in coordination with the Pennsylvania State Historic Preservation Office (PA SHPO) and consulting Tribes as part of the Section 106 consultation process. Consultation documentation is included in the Watershed Plan Appendix A. The Phase IA Cultural Resources Report, which includes maps and descriptions of the APE, is included in the Watershed Plan Appendix E. The Pennsylvania State Historic Preservation Office (PA SHPO) has reviewed the proposed action (and action alternatives, if any) and made the following determination:

Archaeological investigation revealed areas with high and moderate pre-contact probability within the PA-464 APE, but not within the anticipated boundaries of

ground disturbance. The LOD was heavily disturbed during initial dam construction efforts, and the upstream/downstream areas by floodwater inundation. If rehabilitation efforts result in the increase the top of dam (TOD) pool area, previously undisturbed areas with high archaeological potential are at risk of becoming inundated and impacted by floodwater inundation.

During the Phase 1 archaeological survey, conducted in July 2024, a total of 13 newly identified above ground National Register Eligible (NRE) resources are within the APE. The majority of these resources are potentially eligible for inclusion in the National Register of Historic Places under Criterion C. The resources are representative examples of several 20th century architectural styles including American Four Square, Craftsmen, Bungalow, Arts & Crafts, Tudor Revival, and Split-Level styles. Due to steep canyon/hill landforms and distances from the LOD, there will be no direct or indirect effect. PASHPO has concurred with this analysis. See Appendix A, and E of the Watershed Plan for greater detail.

Twenty-two resources associated with Skytop Resort were surveyed. These resources constitute a potential historic district eligible for listing on the NRHP under Criteria A and C. Of the 22 resources, seven are non-contributing. The remaining 15 resources within the potential historic district may contribute to its eligibility under Criteria A and C. Due to the nature of the topography and obstructed viewshed, none of these resources will suffer direct, indirect or transitory effects.

Excluding age, the Goose Pond Dam does not meet the criteria for listing in the National Register. The dam is constructed of unremarkable material and design, has no known associations with any people/events of local or national significance, and is unlikely to provide any substantive historic data in the future.

See Appendix A of the Watershed Plan for correspondence between NRCS, PA SHPO, and consulting Tribes regarding the Area of Potential Effects (APE), identification of historic properties and evaluation of National Register eligibility.

### ***Local, Regional and National Economy***

Barrett Township is located close to more populous areas of Monroe County. The township is home to resort communities and tourist destinations. The most prominent land uses for Barrett Township are forest land and public open space, followed by commercial (Resort/Hotel). The largest portion of the township is within the resort district. A large part of the industry base for Monroe County is in recreation and tourism, but manufacturing, logistics, electronics, and pharmaceuticals also have a significant presence. Some of the large employers in the county include Tobyhanna Army Depot, Sanofi, Lehigh Valley Hospital and Walmart distribution center

The median household income in Barrett Township as per the 2022 ACS 5-year estimate is \$84,974 (\$2022) which is 5% higher than the median household income for Monroe County. When compared to the respective state and national median household income for the same period, the median household income in Barrett Township is 16% and 13% higher than the respective figures for the Commonwealth of Pennsylvania and the United States. The median value of owner-occupied housing for Barrett Township and Monroe County is \$241,100, and \$221,100 respectively. The median value of

owner-occupied housing for Barrett Township is higher than that for the Commonwealth of Pennsylvania (\$226,200) but lower than that for the United States (\$281,900).

Barrett Township has 12.5% of people living in poverty, a number slightly higher than the average for Monroe County as well as Pennsylvania (11.3% and 11.8% respectively). The racial composition of the township is 73.1% White alone, 4.9% African American, 0.1% American Indian and Alaska native, 15.8% two or more races, 23% Hispanic and 7.3% Asian. The percentages of Hispanic, multiracial, and Asian population for Barrett Township are higher than the average respective percentages for the Commonwealth of Pennsylvania as well as for the United States.

### ***Public Health and Safety***

Construction of the PA-464 dam was completed between 1975-1976 with federal assistance provided by the NRCS. The dam was constructed for the purposes of flood control; however, the reservoir and surrounding areas also provide recreational opportunities to local residents. PA-464 is classified as High Hazard dams under USDA NRCS standards.

The primary regulating services present are due to the presence of PA-464 which provide flood mitigation benefits for downstream areas. This mitigation prevents potential damage to human use, health or safety due to extreme flooding events. In addition, reduced flooding minimizes the potential for health impacts and disease, which can increase as a result of flood events – particularly among at risk populations.

Property values are impacted by flooding. Studies have shown that typically, the market value of a house within a floodplain can be as much as 3.5 to 12.2 percent less than houses outside of the floodplain. In addition, studies have also found that homes in a higher risk flood zone see a greater decrease in sale prices than homes in a less risky flood zone (Zhang & Leonard, 2019).<sup>1</sup>

Flooding has been shown to impact human health. A study conducted in 1974-1977 following Hurricane Agnes (1972) determined that the difference in rates of Leukemia & Lymphoma between areas affected by significant flooding and those that were not flooded was significant (Janerich et al., 1981).<sup>2</sup> Disasters such as hurricanes and floods can have a significant effect on the mental health of those affected, including increasing stress, anxiety, and mental illnesses. In a study conducted in 2005, researchers found that 48% of adults in flooded households experienced moderate to severe psychological problems in the nine months following a flood, compared to only 12% of adults in non-flooded households (Reacher et al., 2004).<sup>3</sup>

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<sup>1</sup> Zhang, L., Leonard, T. Flood Hazards Impact on Neighborhood House Prices. J Real Estate Finan Econ 58, 656–674 (2019). <https://doi.org/10.1007/s11146-018-9664-1>

<sup>2</sup> Janerich DT, AD Stark, P Greenwald, et al. 1981. Increased leukemia, lymphoma, and spontaneous abortion in Western New York following a flood disaster. Public Health Reports 96(4): 350-356.

<sup>3</sup> Reacher M, K McKenzie, C Lane, T Nichols, et al. 2004. Health impacts of flooding in Lewes: a comparison of reported gastrointestinal and other illness and mental health in flooded and non-flooded households. Communicable Disease and Public Health 7(1): 39 - 46.

Since PA-464 does not meet all of the current federal and state dam safety design and performance standards, there is an increased risk of dam failure that would result in downstream flooding, which could greatly impact the lives, health, and essential public services such as infrastructure and emergency assistance.

### **Land Use**

The land use and land cover of the Affected Environments for PA-464 is summarized in Table 7.

Table 7. Land Use/Land Cover in PA-464's Affected Environment

| <b>PA 464 Land Cover Type</b> | <b>Acres</b>  | <b>%</b>       |
|-------------------------------|---------------|----------------|
| Open Water                    | 1.77          | 1.05%          |
| Developed, Open Space         | 7.56          | 4.49%          |
| Developed, Low Intensity      | 6.90          | 4.10%          |
| Developed, Medium Intensity   | 2.90          | 1.72%          |
| Deciduous Forest              | 65.16         | 38.71%         |
| Evergreen Forest              | 1.78          | 1.06%          |
| Mixed Forest                  | 27.80         | 16.52%         |
| Shrub/Scrub                   | 2.44          | 1.45%          |
| Herbaceous                    | 3.11          | 1.85%          |
| Hay/Pasture                   | 22.90         | 13.60%         |
| Woody Wetlands                | 24.46         | 14.53%         |
| Emergent Herbaceous Wetlands  | 1.55          | 0.92%          |
| <b>Totals</b>                 | <b>168.33</b> | <b>100.00%</b> |

Source: National Land Cover Database, 2021, United States Geological Survey

Land cover in the Affected Environment is dominated by tree canopy, hay/pasture and woody wetlands. The impervious surface is limited largely to buildings and roads. Within the Affected Environment 10.6% of total land area is impervious, all of which is related to village development downstream of the dam structure.

Land development patterns in the Affected Environment are consistent with communities located in the Poconos, with diffuse residential development with higher density development clustered in villages and some adjacent resort development.

Development in Barrett Township is relatively low compared to other parts of Monroe County. In 2022 there were 5 permits issued for new buildings and in 2023 there were 4.

### ***Maintenance and Management***

Several maintenance concerns were noted, including the management of invasives (although none were documented during the field survey) and the removal of logs from dam inflows following significant storm events.

### ***Transportation (Provisioning Ecosystem Service)***

Transportation infrastructure within the study area includes PA-447 (Creek Road), which runs north-south, and is classified as a state highway, running adjacent to Brodhead Creek. PA-390 (Krummel Hill Road) is also classified as a state highway, running north-south along Goose Pond Run, which is the outlet to PA-464, Goose Pond Run Dam. This intersection is noted as a “Problem Intersection” (Barrett Township Comprehensive Plan Update 2008). Average daily traffic volume (PENNDOT, 2022) on PA-390 north of Canadensis is 1,500, and south of Canadensis is 3600. Both dam sites are accessible from PA-390.

### ***Environmental Impacts***

Environmental impacts of the No Action and structural rehabilitation are summarized in following subsections. The No Action alternative is a required alternative that must be evaluated, representing the current conditions, with the identified problems left unaddressed and projected into the future, serves as a baseline for comparing the benefits and impacts of other alternatives. Structural rehabilitation is the proposed action which will address identified deficiencies, restore compliance with current standards, and reduce the risk of catastrophic dam failure.

### ***Soil Resources***

**No Action** –Under the No Action scenario, the dam would remain in operation without rehabilitation, and minor soil disturbances may continue to occur over time due to localized erosion at the auxiliary spillway and sediment deposition within the flood pool. These effects are expected to be limited in scope but may worsen if the dam’s structural deficiencies remain unaddressed. However, the eventual dam breach would trigger substantial scour and mass waste soils within the flood pool, surrounding soils, and downstream streambanks contributing to increased flooding and water quality degradation. A breach event would cause downstream aggradation of the displaced sediment. Although these impacts would be pronounced in the short term, natural river processes would eventually restore a new equilibrium over time.

*Determination: There would be negligible effects on soil resources from continued dam operation; however, a dam breach would lead to direct, adverse short-term impacts on soil stability and quality.*

**Structural Rehabilitation Alternative** – Rehabilitation construction activities would cause temporary soil disturbances through excavation, compaction, and removal of soil horizons. Best Management Practices (BMPs) in line with NRCS standards would be implemented to mitigate erosion, and all disturbed areas would be revegetated to stabilize the soils post-construction.

*Determination: The alternative would have soil disturbance from construction at the dam site associated with the described rehabilitation activity and subsequent dam operations. In the short-term, effects would be direct, adverse, minor, and localized. In the long-term, effects would be direct, adverse, negligible, and localized.*

### **Prime & Unique Farmland, Farmland of Statewide Importance**

**No Action** – Under the No Action alternative, eventual dam failure at PA-464 would result in downstream flooding, impacting an estimated 3.5 acres of farmland of statewide importance (Holly silt loam) and 42.6 acres of prime farmland (Philo silt loam, Pope silt loam, and Pope silt loam high bottom) within the 100-year floodplain. These soils are located along the lower elevation stream-adjacent corridor south of the dam and are mapped primarily within the Goose Pond Run floodplain.

Although the affected soils are currently not in agricultural production, their classification under the NRCS Land Capability Classification system as prime or of statewide importance reflects their inherent productivity potential. Conversion of these soils back into active farming use is unlikely due to current land use patterns and potential development pressures. However, their inundation and erosion during a breach event could lead to long-term degradation of soil structure, fertility, and function, reducing their future viability for agricultural or ecological use. Downstream impacts could also include the displacement and deposition of sediment from the dam breach, contributing to the aggradation of floodplain soils and altering their profile. These changes would negatively affect the long-term potential of these soils to support agricultural activities, native vegetation, or serve as functional floodplain ecosystems. These considerations are recognized in the "Monroe County Conservation District Letter of Support", which emphasizes the importance of preserving agricultural soils and downstream floodplain stability through dam maintenance and rehabilitation.

*Determination: Continued dam operation would have negligible effects on farmland; however, a breach scenario would result in direct, adverse, short-term impacts to prime and statewide important farmland, and may result in longer-term degradation of soil quality and land capability due to flooding and sediment deposition. These soils are primarily located along the floodplain corridor of Goose Pond Run, beginning approximately 800 feet downstream of PA-464 and extending to the confluence with Brodhead Creek near the community of Canadensis. NRCS-mapped soil units include Philo silt loam (prime farmland when drained) and Pope silt loam (high bottom), which occupy floodplain terraces along the east bank of Goose Pond Run.*

**Structural Rehabilitation Alternative** – The areas immediately south of the PA-464 dam, including portions of the downstream floodplain along Goose Pond Run, contain soils classified as prime farmland (e.g., Philo and Pope silt loams) and farmland of statewide importance (e.g., Holly silt loam). Under the proposed rehabilitation

alternative, these areas would not be subject to land use conversion. The project does not involve grading, excavation, or construction within these soils, nor will it result in any permanent impairment of their agricultural function. These soils lie within the lower elevation floodplain corridor but outside the construction footprint of the dam improvements.

*Determination: There would be no effect on prime or statewide important farmland as a result of the rehabilitation alternative.*

## **Water Resources**

### **Water Quantity**

**No Action** – Under the No Action (FWOP) alternative, the structural condition of PA-464 would continue to degrade over time, reducing its ability to manage water quantity effectively. A future breach would result in the loss of the reservoir's floodwater detention and flow regulation functions, leading to increased downstream peak discharges during storm events and reduced baseflow support during dry periods. This would contribute to more variable streamflow patterns in Goose Pond Run, increasing flood risk, channel instability, and potential impacts to downstream infrastructure and aquatic habitats.

*Determination: The No Action alternative would have negligible long-term effects on water quantity under normal operating conditions. However, in the event of a dam breach, the watershed would experience direct, adverse, and significant short-term impacts due to loss of storage capacity, increased downstream flow velocities, and diminished capacity for flow moderation.*

**Structural Rehabilitation Alternative** – Under the Structural Rehabilitation Alternative, the dam's ability to regulate water quantity would be maintained or enhanced. Rehabilitation would restore or improve the structure's flood attenuation function, preserving storage and controlled release of stormwater. This would sustain downstream flow regulation, reduce flood peak magnitudes, and support stable hydrologic conditions in Goose Pond Run. These benefits would extend to reduced streambank erosion, improved aquatic habitat stability, and protection of downstream land uses and infrastructure.

*Determination: The Structural Rehabilitation alternative would have beneficial long-term effects on water quantity by ensuring continued flood storage capacity, moderating extreme flows, and promoting consistent hydrologic conditions within the Goose Pond Run watershed.*

### **Water Quality, including Surface and Ground Water**

**No Action** – Under the Future Without Project Scenario, the continued presence of the PA-464 dam provides a beneficial effect on downstream sedimentation by trapping an estimated 175 cubic yards of sediment annually, based on sediment survey data from the Goose Pond reservoir. This accumulation prevents sediment from being transported into downstream reaches of Goose Pond Run and Brodhead Creek. However, the dam also contributes to adverse downstream water quality effects, including elevated temperatures and reduced dissolved oxygen levels, relative to free-flowing stream

conditions. In the event of a dam breach, this stored sediment, particularly the fine-grained fraction would likely be mobilized, resulting in short-term, significant increases in total suspended solids (TSS) and turbidity, degrading downstream water quality and aquatic habitat integrity. With respect to groundwater, the dam does not serve as a significant recharge or discharge control structure. However, a breach could result in temporary alterations to shallow groundwater-surface water interactions, especially in low-lying riparian zones. These effects would be localized and temporary, with no long-term changes in regional groundwater levels anticipated.

*Determination: The No Action alternative would have negligible long-term effects under normal conditions. However, if a dam breach occurs, there would be direct, adverse, and significant short-term impacts on surface water quality and localized, temporary impacts on groundwater-surface water interactions.*

**Structural Rehabilitation Alternative** – Rehabilitation construction activities at PA-464 would cause short-term disturbances to the embankment and auxiliary spillway footprint, including temporary soil exposure, substrate disturbance, and localized increases in turbidity during earthwork and vegetation removal. Substrate displacement and construction-related sedimentation may temporarily affect benthic macroinvertebrates and aquatic habitats within the immediate project area. These effects would be mitigated by implementing erosion and sediment control best management practices (BMPs) and seasonal construction timing to avoid sensitive aquatic periods. Post-construction, the rehabilitated structure is expected to continue trapping sediment and particulates, promoting long-term water quality stability downstream. The Goose Pond reservoir currently traps an estimated 175 cubic yards of sediment annually. This is consistent with current sedimentation dynamics and not a change from baseline conditions. Although the dam regulates flows and sediment delivery, some degree of sediment starvation downstream may persist, particularly during lower flows. However, there is no documented evidence of active channel incision or downstream instability in the current watershed conditions. Therefore, the potential for future channel incision is considered low and would likely remain minor, especially with regulated releases and proposed downstream stabilization measures. The rehabilitation design includes targeted streambank stabilization downstream of the dam outlet, which is expected to reduce total suspended solids (TSS) and turbidity over the long term by minimizing lateral erosion and improving bank vegetative cover. Vegetative buffers may be temporarily removed during construction, increasing localized surface runoff and potentially elevating near-channel water temperatures. These effects are expected to be short-lived, as reestablishment of native riparian vegetation is included in the post-construction restoration plan. Over time, restored buffers will improve shading, filter surface runoff, and enhance instream habitat conditions. Hydraulic modifications such as temporary dewatering using cofferdams may be employed during riser or conduit work, but this would be confined to the reservoir basin and controlled within the construction limits. Normal downstream flows would be maintained using bypass pumps or controlled discharge, and no long-term changes to flow patterns, pool elevation, or circulation are anticipated following project completion.

*Determination: Construction of the Rehabilitation Alternative would have direct, minor (short-term), and localized effects to substrates, suspended particulates and turbidity, current patterns and circulation. There would be no long-term effects to suspended particulates and turbidity, current patterns and water circulation, and normal water fluctuations.*

## **Floodplain Management**

**No Action** – No Action / FWOP – Under the No Action alternative, PA-464 would not be rehabilitated and would continue to operate in its current condition until eventual failure due to overtopping or structural deterioration. In the event of a dam breach, breach modeling predicts inundation of more than 140 downstream structures, including residential homes, commercial buildings, and public infrastructure. These breach-related impacts would be acute and short-term but severe. Under non-breach conditions, the dam currently provides flood attenuation and storage that reduces peak discharge and moderates downstream flood elevations and floodplain boundaries. Following a dam breach, the loss of flood storage would result in a permanent change in downstream hydrology and floodplain conditions. The total acreage of mapped 100-year floodplain would increase from approximately 849 acres to approximately 1,105 acres. Based on GIS analysis of structures within the 100-year floodplain, the number of structures located within the 100-year floodplain would increase from approximately 36 structures under existing non-breach conditions to approximately 71 structures under post-breach conditions. This represents an increase of approximately 97 percent in the number of structures located within the 100-year floodplain. This increase reflects an expansion in the spatial extent of inundation during a 1-percent annual chance (100-year) flood event due to the loss of flood storage provided by the dam. The dam currently attenuates peak flows and reduces downstream flood elevations; without the structure, higher peak discharges and greater overbank flooding would be expected during large storm events, resulting in increased floodplain extent and increased flood risk to downstream development.

*Determination: In the event of a dam breach, there would be significant direct, indirect, adverse, major short-term impacts from this alternative on floodplain management. Long term indirect impacts would be adverse and major.*

**Structural Rehabilitation Alternative** – Rehabilitation of PA-464 will increase downstream flood protection, resulting in no change to the existing 100-year floodplain and no change in floodplain function.

*Determination: There would be no impact from this alternative on floodplain management.*

## **Waters of the U.S., Wetlands, & Special Aquatic Sites**

**No Action** - The No Action alternative would have no new effects to Waters of the U.S. (WOTUS), wetlands, and special aquatic sites under continuing operation of the dams. Natural processes, including storm-flood events, could change these features over time. Any impacts associated with the original placement of the dams would remain unchanged. However, in the event of a dam breach, significant downstream impacts to WOTUS and wetlands could occur. The sudden release of impounded water would

likely cause streambank erosion, sediment scouring, and the physical disruption of wetland soils and vegetation within the breach inundation zone. These impacts could degrade aquatic habitat quality, alter stream morphology, and reduce the ecological function, including the functions and values, of connected wetland systems.

*Determination: There would be negligible effects on WOTUS, wetlands, and special aquatic sites associated with continued operation of the dams. However, a dam breach would have short term adverse effects on WOTUS, wetlands, and special aquatic sites.*

**Structural Rehabilitation Alternative** – Proposed improvements to PA-464 would temporarily disturb approximately 833 linear feet and 0.40 acres of jurisdictional streams and wetlands during construction activities associated with drainage improvements and work in the existing borrow area. Permanent fill associated with the proposed broad-crested weir modification would impact an additional 493 linear feet of stream and 1.78 acres of wetlands. Wetlands affected include a mix of palustrine emergent (PEM), palustrine scrub-shrub (PSS), and palustrine forested (PFO) systems, as delineated during the 2022 wetland field survey. These wetland systems provide important ecological functions such as sediment and nutrient retention, groundwater recharge, and wildlife habitat. A detailed summary of wetland classifications, acreages, and ecological functions is provided in Table 5 and Appendix D of the Watershed Plan.

Consultation with the U.S. Army Corps of Engineers (USACE) indicates that mitigation requirements for jurisdictional wetlands and streams at PA-464 will be based on the extent of permanent impacts, which includes the 1.78 acres of wetland fill and 493 linear feet of stream impacts associated with spillway modifications. These requirements will be determined during the individual permitting process. Due to the scope of disturbance, mitigation is expected to be limited and may be fulfilled through on-site enhancement or compensatory credit purchase through a Pennsylvania Department of Environmental Protection (PADEP)-approved mitigation bank. These effects were reviewed and concurred with by the USACE on 09/30/2024, as documented in Watershed Plan Appendix A (USACE Correspondence) and mapped in "Support Maps" (Watershed Plan Appendix C).

*Determination: During construction there would be minor (short-term) disturbances to a total of 833 linear feet and 0.40 acres of jurisdictional streams and wetlands.*

*Additionally, there would be minor (long-term) fill of 493 linear feet and 1.78 acres of jurisdictional streams and wetlands which will be mitigated through on-site enhancements or an approved mitigation bank as required by permitting.*

## **Regional Water Resource Plans**

**No Action** – The No Action alternative does not address the goals of the 2004 Water Resources Plan for the Delaware River Basin, including the prevention or minimization of flood-induced loss of life and property, and protection of floodplain ecology. This alternative would not address the high hazard rating of the dam site per the Monroe County Hazard Mitigation Plan.

*Determination: The No Action Alternative does not align with the goals of the 2004 Water Resources Plan for the Delaware River Basin or the Monroe County Hazard Mitigation Plan. It fails to address the dam's high hazard classification, increases*

*downstream flood risk, and does not contribute to the protection of floodplain function or public safety. As a result, this alternative would not support the objectives of regional flood management, resilience, or ecological sustainability, and may be inconsistent with future plan updates.*

**Structural Rehabilitation Alternative** – Rehabilitation of the dams would address the goals of the Water Resources Plan for the Delaware River Basin and Monroe County Hazard Mitigation Plan.

*Determination: The rehabilitation alternative aligns with and advances the goals of both regional plans by reducing flood risk, maintaining floodplain function, and addressing the dam's high hazard status. These positive outcomes may support future updates or alignment with the Water Resources Plan and Monroe County Hazard Mitigation Plan.*

### ***Endangered and Threatened Species***

**No Action** – Routine operation of the dam under the No Action alternative would not affect federally listed species. However, in the event of a dam breach, there is potential for destruction of roosting habitat for bats (e.g., northern long-eared bat and Indiana bat) and disruption to habitat supporting the endangered northeastern bulrush (*Scirpus ancistrochaetus*).

*Determination: Continued dam operations would result in no effect. A dam breach, however, could cause adverse effects to listed species and habitats.*

**Structural Rehabilitation Alternative** – Per consultation with the U.S. Fish and Wildlife Service (USFWS), the PA-464 project area is within the known range of the federally endangered northern long-eared bat (*Myotis septentrionalis*) and Indiana bat (*Myotis sodalis*), as well as the proposed endangered tricolored bat (*Perimyotis subflavus*). The project includes the removal of approximately 10.6 acres of trees to support dam safety improvements and spillway modifications. All tree clearing will occur during the bat inactive season (November 1 through March 31) to avoid impacts to roosting or maternity habitats. Approximately 9.84 acres of cleared forest will be allowed to naturally regenerate post-construction. No roosting or hibernacula habitat was identified during the site walk, and there is no known bat occurrence data within the immediate project area. Based on the seasonal restrictions and scope of proposed vegetation removal, the USFWS concurred with a "May Affect, Not Likely to Adversely Affect" (NLAA) determination for the northern long-eared bat, as documented in the August 14, 2024 concurrence letter (Watershed Plan Appendix E). The project also falls within the broader range of the northeastern bulrush (*Scirpus ancistrochaetus*), a federally endangered plant species associated with specific wetland habitats. Although the species occurs elsewhere in the Brodhead watershed, no suitable habitat or individuals were observed in the vicinity of PA-464 during the June 2022 wetlands and waterways investigation. Field staff screened for potential occurrences during the delineation effort; however, this was not a formal botanical inventory. Based on these observations and the absence of suitable peatland or saturated meadow conditions within the project footprint, adverse effects to northeastern bulrush are unlikely. As the dam will remain in place and the project will not alter downstream hydrology beyond existing conditions, impacts to listed species or habitats in the downstream floodplain are not anticipated.

*Determination: Based on agency consultation, seasonal restrictions, and habitat conditions observed during field investigations, the proposed action would have no effect on federally listed threatened or endangered species or their habitats downstream of PA-464, and is not likely to adversely affect listed bat species within the project area.*

### **Migratory Birds**

**No Action** – Under the No Action alternative, continued operation of PA-464 would maintain existing habitat conditions in the reservoir pool and surrounding riparian corridor, which currently support migratory bird use. The impoundment provides suitable foraging and nesting habitat for species that rely on open water, emergent wetlands, and forested edge habitat. According to the Pennsylvania Natural Diversity Inventory (PNDI) review, the action area is within the potential range of numerous migratory bird species protected under the Migratory Bird Treaty Act (MBTA), including riparian and wetland-associated species such as warblers, flycatchers, and waterfowl. In the event of a dam breach, the sudden draining of the reservoir would eliminate this semi-permanent waterbody and the associated aquatic and wetland habitat. This would result in loss of foraging, loafing, and potential nesting habitat for migratory birds that depend on lentic (still-water) conditions. The shift from a ponded system to a more incised and flood-prone stream channel may also reduce vegetative cover and change plant community structure, further degrading habitat suitability. These impacts would be especially pronounced in spring or early summer if a breach coincided with peak migratory or breeding seasons.

*Determination: While continued operation of the dam would maintain habitat values for migratory birds, a breach would likely result in moderate, long-term, adverse impacts on migratory bird habitat within the reservoir and adjacent riparian corridor. These impacts would be caused by the sudden loss of standing water and wetland habitat, which currently supports protected avian species identified through PNDI screening.*

**Structural Rehabilitation Alternative** –During construction, temporary disturbances such as noise, vegetation clearing, and human activity may affect migratory birds and their nesting or foraging behavior. However, these impacts are expected to be localized and short-term. Long-term habitat availability may be slightly altered but is not expected to significantly reduce the overall suitability of the area for migratory birds. USFWS suggested minimizing the risk of take to migratory birds by choosing to remove trees when birds are unlikely to be nesting (tree removal recommended between September 1 and March 31). A determination of NLAA has been received from the USFWS (Watershed Plan Appendix A).

*Determination: There would be minor long-term effects to migratory bird habitat.*

### **Bald and Golden Eagles**

**No Action** – The No Action alternative would have no effect on eagles under continuing operation and maintenance of the dams. Under the No Action alternative, continued operation and maintenance of PA-464 would not affect bald or golden eagles. The existing impoundment provides limited but potential foraging opportunities for bald eagles, which are known to utilize riparian corridors and open water features in northeastern Pennsylvania. There are no known eagle nests within the immediate

project area, and no occurrences were identified during the PNDI environmental review or field observations. However, in the event of a dam breach, the sudden loss of the Goose Pond impoundment would alter the aquatic and riparian habitat structure in the area. The resulting elimination of a still-water foraging area and possible decline in prey availability (e.g., fish and amphibians) could reduce the local habitat suitability for foraging bald eagles. These effects would be indirect and moderate in scale, given the relatively small size of the reservoir and lack of confirmed nest sites in the action area. Golden eagles are unlikely to be affected, as they are primarily observed in Pennsylvania during migration and are not known to nest or forage in the project vicinity.

*Determination: Continued dam operation would have no effect on bald or golden eagles. However, a dam breach could result in minor to moderate, long-term adverse effects on foraging habitat for bald eagles due to the loss of the impounded waterbody and associated prey base.*

**Structural Rehabilitation Alternative** – Based on the most recent information from USFWS on active eagle nest locations there are no nest in the immediate vicinity. It is unlikely that bald or golden eagles would be present in the immediate project area during construction. However, if an eagle nest is discovered during construction all activities will be halted immediately, and consultation with the USFWS and appropriate wildlife biologists will be initiated to ensure compliance with protection measures.

*Determination: There would be no long-term effect on bald or golden eagles.*

### **Invasive Species**

**No Action** – The No Action alternative would have no effect on invasive species under continuing operation of the dams. However, a dam breach would potentially spread existing invasive species to areas downstream and outside of their existing locations.

*Determination: There would be minor long-term effects on invasive species.*

**Structural Rehabilitation Alternative** – The incorporation of BMPs into the construction documents for compliance by the contractor will provide for the control of spread of invasive species. BMPs would include: 1) use of equipment and construction / timber mats that are thoroughly cleaned prior to mobilization to the site and prior to demobilization, 2) cleaning construction equipment before moving to a new site to minimize the risk of transporting seeds or propagules, 3) proper disposal of excavated or dredged material, 4) disposal of excavated and dredged material in pre-approved, non-wetland areas, 5) provide training or personnel with knowledge of identification of invasive species; 6) applying control treatments prior to construction and monitoring during and after construction.

*Determination: There would be no long-term adverse effects on invasive species.*

### **Fish & Wildlife**

**No Action** – The alternative would have no effect on fish and wildlife under continuing operation of the dam. Terrestrial and aquatic habitats would remain relatively undisturbed. Existing fish and wildlife in these areas would likely continue to be present

under current conditions. However, if a dam breach were to occur, fish and wildlife would be affected by short term negative changes to habitat from erosion, sedimentation, and turbidity within the streams.

*Determination: There would be negligible effects from ongoing operation of the dam. If a dam breach were to occur, there would be long-term minor effects on fish and wildlife.*

**Structural Rehabilitation Alternative**—Construction activities related to rehabilitation of the dam could potentially result in the temporary displacement of wildlife species in the immediate vicinity of the project site. Construction activities could affect normal fish and wildlife behaviors, such as feeding, breeding, resting, and movement throughout their habitat. In addition, noise can stress individuals, disrupt communications and other natural sounds, or displace individuals from their habitat. During and immediately after construction, terrestrial and aquatic habitats would be disturbed from construction equipment modifications to the topography within the construction sites. Construction equipment would cause little or no direct mortality to wildlife, which can generally disperse into neighboring habitat. Construction work would last a year or two, or longer, depending on the scope of the project. Construction crews would implement BMPs, such as restricting ground-moving activities during nesting or hibernation periods of certain species, using qualified biological construction monitors to avoid vehicle strikes to the greatest extent possible, and replanting native vegetation in disturbed areas to the greatest extent possible. Rehabilitation of the dam would result in the clearing and mowing of forested habitat. This area would be removed from forested habitat and maintained as a mowed, early successional habitat area. This would reduce the availability of upland habitat for terrestrial wildlife species for the duration of the project life. However, the removal of small amounts of forest is not expected to noticeably increase resource competition or decrease habitat availability for terrestrial species outside of the normal range of habitat variation. Modifications to Goose Pond Run downstream of the dam would result in minor short-term effects to the stream habitat as a result of construction within the stream including temporary soil exposure, substrate disturbance, and localized increases in turbidity during earthwork and removal of streambank vegetation. The completed project would enhance overall stream function and consequently improve in-stream fish habitat. Following construction, there would be negligible long-term effects due to the use of BMPs during construction and stream and streambank restoration.

*Determination: There would be short term minor effects from construction activities and long term minor impacts from the removal of forested habitat due to rehabilitation of PA-464. Rehabilitation of PA-464 would result in negligible long-term impacts as the natural flow regime is restored, and riparian habitat is re-established.*

### **Riparian Areas**

**No Action**—The No Action alternative would have no new effects on riparian areas under continued operation of the dam. However, in the event of a dam breach, riparian areas—including adjacent wetlands, streambanks, and floodplains would be subject to significant short-term impacts such as erosion, sediment deposition, and destruction of established vegetation from the sudden release of impounded water. In the long term, the absence of regulated flows currently provided by the dam could lead to more

frequent and intense flood pulses, increased streambank instability, reduced sediment retention, and shifts in vegetation structure and composition. These changes could degrade riparian habitat quality and reduce the ecological function of riparian corridors over time.

*Determination: Continued operation of the dam under the No Action alternative would result in negligible effects on riparian areas. However, if a dam breach were to occur, it could cause both immediate and long-term degradation of riparian systems due to uncontrolled flooding, erosion, and unregulated flow conditions. While the full extent of long-term impacts is uncertain, they may include streambank instability, vegetation loss, and reduced ecological function within affected riparian corridors.*

**Structural Rehabilitation Alternative** – Construction at PA-464 would temporarily disturb approximately 0.04 acres of emergent wetland and riparian vegetation along Goose Pond during modifications to the principal spillway intake. This vegetation is located at the pond edge and consists primarily of herbaceous and shrub-dominated species within the wetland fringe. While this disturbance would occur during construction, the affected area would be permanently incorporated into the maintained footprint of the enlarged dam embankment and associated spillway features. Replanting with native riparian and wetland vegetation is proposed as part of site restoration, so the effect is considered short-term in functional loss, but permanent in land cover change. Additional impacts would occur to approximately 0.30 acres of riparian vegetation, which includes a mosaic of forested floodplain vegetation and adjacent upland buffer. This vegetation would be removed to accommodate embankment raising, grading, and drainage improvements east of the dam. The area does not include forested wetland; rather, it consists of floodplain forest and upland transition zones adjacent to jurisdictional wetlands, as documented in the 2022 field survey.

*Determination: The Rehabilitation Alternative would result in minor, short-term impacts to riparian vegetation during construction and minor, long-term impacts due to the permanent conversion of approximately 0.30 acres of forested floodplain and upland riparian vegetation to maintain dam infrastructure and open grass. These effects would be mitigated through native vegetation replanting and long-term stabilization measures.*

### **Forest Resources**

**No Action** –This alternative would have no immediate effects on forest resources during continued operation of the dam. However, in the event of a dam breach, downstream forested areas particularly riparian woodlands and floodplain forests could experience adverse effects from rapid inundation, erosion, sediment deposition, and debris flow. These impacts could lead to tree mortality, root exposure, and long-term degradation of vegetative structure within the breach inundation zone.

*Determination: There would be no effects to forest resources from routine operation and maintenance. However, if a breach were to occur, adverse short-term and potentially long-term effects to downstream riparian and floodplain forest resources could result.*

**Structural Rehabilitation Alternative** - Construction would remove approximately 10.6 acres of forested vegetation. This effect would begin in the short-term during construction and persist in the long-term as the area would be incorporated into the

enlarged dam and maintained grassy areas. Replanting with herbaceous native vegetation and allowing natural forest regrowth will occur on approximately 9.84 acres in disturbed areas outside of that required for dam maintenance.

*Determination: There would be minor short-term effects from construction activities at PA-464. Approximately 10.6 acres of tree clearing area would be replanted with 9.84 acres of herbaceous native vegetation and allow for natural forest re-growth. The rehabilitation of the dams would result in long term minor impacts from the removal of a total of 10.6 acres of forested vegetation.*

### **Cultural and Tribal Resources**

**No Action** - Under the No Action alternative, failure of the PA-464 dam would result in the uncontrolled release of water, with downstream inundation extending through portions of the historic village of Canadensis. Within this downstream breach zone, the Architectural Desktop Survey identified 10 individual properties potentially eligible for listing in the National Register of Historic Places (NRE). These include early 20th-century boarding houses, vernacular commercial buildings, and contributing resources near Skytop Lodge. A breach event would likely cause significant, short-term, adverse impacts to these resources due to floodwater erosion, sediment deposition, and structural destabilization. Over the long term, the expanded floodplain resulting from the loss of flood control could adversely alter the setting, integrity, and use of historic structures, constituting a major adverse effect on cultural resources. There are no known cultural or tribal resources located within the immediate PA-464 dam footprint or its upstream flood pool. The area has been previously disturbed by dam construction, maintenance access roads, and borrow activities, and exhibits no indicators of intact archaeological potential.

*Determination: While the dam site and flood pool do not contain any known or eligible cultural resources, the No Action alternative could result in major short- and long-term adverse effects to potentially eligible downstream historic properties, including direct damage and long-term impacts associated with changes in floodplain extent and frequency.*

**Structural Rehabilitation Alternative** - The proposed rehabilitation of PA-464 will involve modifications to the dam and spillway and an increase in the Top of Dam (TOD) flood pool elevation. However, no architectural or archaeological resources have been identified within the area of potential effect (APE) associated with the expanded flood pool. This conclusion is supported by both the Phase I Archaeological Investigation and the Architectural Desktop Survey, which found the area to be previously disturbed and lacking in cultural resource sensitivity. Downstream, the continued operation of PA-464 under the Rehabilitation Alternative will maintain existing flood protection, which in turn will help preserve historic properties in Canadensis by reducing the frequency and extent of damaging overbank flood events. The project will utilize existing roads and rights-of-way and will not result in significant alterations to the visual landscape or setting of historic resources.

NRCS submitted a Phase I Cultural Resources Report and requested concurrence on a "No Effect" determination for the Rehabilitation Alternative. PA SHPO formally

concurred with this determination in May 2025. Formal responses were received from the Eastern Shawnee Tribe, the Shawnee Tribe, and the Stockbridge-Munsee Community. They stated that “the project proposes No Adverse Effect or endangerment to known sites of interest” and requested notification of any inadvertent discoveries but requested continued consultation if inadvertent discoveries were found during construction. No other Tribal governments objected or responded to subsequent consultation requests, and final documentation was prepared per 36 CFR 800.3(c)(4).

*Determination: The Rehabilitation Alternative will have no effect on cultural or tribal resources at the PA-464 dam site or within the upstream flood pool. Downstream NRE resources will benefit from the preservation of flood control function and are not anticipated to experience any adverse effects. Based on the absence of identified resources, agency concurrence, and formal consultation responses from the PA SHPO and participating Tribal Historic Preservation Offices, the Rehabilitation Alternative will have no effect on upstream or downstream cultural or tribal resources.*

### **Local, Regional and National Economy**

**No Action** – Under the No Action or Future Without Project (FWOP) alternative, PA-464 (Goose Pond Dam) would continue to degrade, eventually breaching during a significant flood event. Modeling of a Freeboard Hydrograph breach indicates inundation of 109 residential buildings, 28 commercial structures, and 6 institutional facilities within the downstream floodplain. Critical infrastructure at risk includes 9 bridges, approximately 11.12 miles of state roads, and 3.4 miles of local roads, all of which provide essential access throughout Barrett Township and the greater Pocono region. The economic effects of dam failure would be particularly severe due to the region’s reliance on tourism and seasonal recreation. A breach could sever access to high-profile destinations such as Skytop Lodge, the Flying Dollar Airport, and local campgrounds, disrupting hospitality services and resulting in reduced visitor spending, job losses, and diminished property values. Small businesses serving the resort corridor and Canadensis village would face extended recovery periods due to physical damage and loss of customer access. Moreover, community institutions and emergency services would be hindered by damaged infrastructure, increasing response times and operational costs. At the regional and national scale, dam failure would likely trigger federally declared disaster response and recovery efforts, including debris removal, road and bridge reconstruction, and public assistance funding. These costs would be borne by state and federal agencies in addition to local government resources. Furthermore, the loss of ecosystem services such as sediment retention and regulated streamflow would result in degraded water quality, potentially affecting downstream recreational fisheries and water-dependent economies in the Brodhead Creek and Delaware River watersheds.

*Determination - The No Action alternative would result in significant direct, adverse, and major short-term impacts on the local and regional economy. Long-term effects would also be adverse, including reduced tourism, suppressed economic activity, increased public expenditure, and prolonged disruption to transportation and emergency services. National interests would be affected due to elevated federal disaster response costs and losses in downstream watershed resilience.*

**Structural Rehabilitation Alternative** – The Preferred Alternative involves rehabilitating PA-464 to restore dam safety and extend service life consistent with NRCS TR-60 and PADEP dam safety criteria. Major rehabilitation elements include repairs to the principal spillway intake riser, embankment stabilization, auxiliary spillway modification, and sediment removal. These actions will protect 143 structures within the downstream floodplain, preserve over 14 miles of critical roadways, and ensure continued operation of tourism-related facilities within the region. The total cost is estimated at \$17.2 million, of which approximately \$12.0 million would be federally funded through PL 83-566, with \$5.2 million in local sponsor costs. Although the formal benefit-cost ratio is less than 1.0 and net monetized benefits are negative when compared to the No Action baseline, the Preferred Alternative reduces the risk of catastrophic economic losses associated with a dam breach and preserves important non-monetized economic values. These include continued operation of tourism facilities, protection of transportation infrastructure, reduced disaster recovery costs, and preservation of ecosystem services such as sediment retention, water quality, and cold-water fisheries. These values align with the Principles and Requirements for Federal Investments in Water Resources (PR&G) and are supported under the National Watershed Program Manual (NWPM) criteria for high hazard dam rehabilitation.

*Determination - The Preferred Alternative is expected to produce minor long-term beneficial effects on the local and regional economy by averting catastrophic loss of life and property, preserving essential services and transportation, and reinforcing the tourism-dependent economy. While not cost-effective in strict economic terms, the project is justified under PR&G and NWPM criteria as a necessary investment in public safety, economic resilience, and long-term watershed function.*

### **Public Health and Safety**

**No Action** - The updated dam breach analysis prepared for this Plan-EA indicates that failure of Goose Pond Dam (PA-464) would result in inundation of 109 residential structures, 28 commercial buildings, 6 institutional facilities, and 9 bridges, as well as approximately 14.5 miles of roadway, 11.12 miles of state-maintained, and 3.4 miles of locally maintained roads. Based on U.S. Census average household size estimates, the population at risk (PAR) is approximately 618 individuals. These figures reflect permanent residential occupancy and assumed representation for commercial buildings. This value does not account for transient daytime populations within institutional buildings, which could substantially increase actual exposure during a flood event. Critical infrastructure that would be affected includes transportation corridors, public safety facilities, and utilities essential for emergency response and post-disaster recovery. Of particular concern is PA-447 (Creek Road), a state-designated north-south highway that parallels Brodhead Creek and lies within the inundation area. According to PennDOT (2022) traffic volume data, PA-390 north of Canadensis experiences approximately 1,500 vehicles per day, with volumes increasing to about 3,600 vehicles south of the village. Although Goose Pond Dam (PA-464) is not directly connected to a major highway, it is accessible from PA-390 via a network of local roads that would be inundated during a dam breach scenario. Interruption or damage to these roadways would severely restrict ingress and egress for residents and emergency responders, delaying evacuation and prolonging response and recovery operations. Inundation

mapping and structure-specific flood risk data are provided in Appendix C of the Watershed Plan.

*Determination: In the event of dam failure, the No Action Alternative would result in significant direct, adverse, and major short-term impacts on public health and safety. Long-term impacts would be adverse and major due to persistent risks to life, property, and community infrastructure.*

**Structural Rehabilitation Alternative** – The Structural Rehabilitation Alternative for Goose Pond Dam (PA-464) would reduce the risk of dam failure and eliminate the associated threat to downstream life and infrastructure. With implementation, the risk of breach-induced inundation would be significantly minimized or eliminated under design storm events. As a result, approximately 109 residential structures, 28 commercial buildings, 6 institutional facilities, 9 bridges, and nearly 14.5 miles of roadway would be protected from catastrophic flooding. This alternative would preserve the integrity of key transportation routes including PA-447 and PA-390, ensuring that critical access for emergency services, residents, and commerce remain uninterrupted during flood events. Emergency response and evacuation routes would be maintained and impacts to public service buildings and utilities would be avoided. Rehabilitation would also reduce or eliminate sedimentation and debris-related blockages that could exacerbate roadway and bridge failures during overtopping events.

*Determination: The Structural Rehabilitation Alternative would result in long-term, major beneficial impacts to public safety and infrastructure resiliency by mitigating the risk of dam failure. No adverse short- or long-term impacts on public health and safety are anticipated under this alternative.*

### **Land Use**

**No Action** - Under the No Action/ FWOP alternative, failure to rehabilitate PA-464 could ultimately lead to a dam breach. A breach scenario would expand the current 100-year floodplain from 849 acres to 1174 acres, increasing the downstream flood risk of structures by more than 26%. New development within this area would be limited by the Monroe County Flood Hazard bylaw.

*Determination: In the event of a dam breach, there would be significant direct, adverse, and major impacts in the short-term land use integrity. Long-term effects on land use and land cover would also be major and adverse due to increased flooding, infrastructure damage, and potential shifts in local development priorities.*

**Structural Rehabilitation Alternative** – The rehabilitation of PA-464 would preserve the dam's existing flood attenuation capacity, thereby maintain the current configuration of the 100-year floodplain and avoid conversion of upland areas into flood-affected zones. Construction activities would temporarily alter land cover at the dam site, with vegetation clearing, soil disturbance, and equipment staging areas introducing short-term impacts.

Revegetation of disturbed areas would be completed post-construction using native species to promote ecosystem resilience and visual compatibility with surrounding land uses. The rehabilitation action supports the continued use of adjacent lands for

agriculture, residential purposes, and ecological functions without expanding the footprint of developed or disturbed lands.

*Determination: Effects on land use and land cover under this alternative would be minor, localized, and temporary, limited to the dam construction footprint. Long-term effects would be negligible and would preserve existing land uses and floodplain function.*

***Will the proposed action or action alternatives (if any) make an irreversible or irretrievable commitment of Federal resources?***

Irreversible commitments include the permanent removal of trees and associated vegetation in the auxiliary spillway area downstream of the proposed labyrinth weir. These trees and habitat features cannot be restored to their original state in the short term, and the loss represents a permanent change to the ecological character of that area (NECH § 610-A.5).

Construction materials, labor, and financial resources are also irretrievable commitments. Although these inputs cannot be recovered once used, they are necessary to reduce long-term risk, improve public safety, and meet dam safety standards. The short-term use of these resources is offset by long-term benefits, including reduced potential for dam failure and associated economic losses. The proposed action would also maintain the value of the original federal investment.

This commitment will not contribute to a loss of long-term productivity for the human environment.

## **Endangered Species Act**

Endangered Species Act (ESA) consultation was completed with U.S. Fish and Wildlife Service. Early in the process, both the USFWS IPaC and the Pennsylvania National Diversity Inventory were consulted to identify potential threatened and endangered species which may be located within the Affected Environment. Once the preferred alternative was identified, NRCS entered into formal consultation with USFWS. The USFWS concurred that the minimal tree removal associated with the project is not likely to adversely affect the listed species.

The U.S. Fish and Wildlife Service (USFWS) concurred with a “May Affect, Not Likely to Adversely Affect” (NLAA) determination for the northern long-eared bat and a “No Effect” determination for the northeastern bulrush, which is not present within the project area. The Information for Planning and Consultation (IPaC) system will be revisited during final design to confirm listed species status and consider the potential federal listing of the tricolored bat.

## **National Historic Preservation Act – Section 106 Review**

In accordance with 36 CFR § 800.4, NRCS consulted with PA SHPO and federally recognized Tribes throughout the Section 106 process, including consultation on the

identification of historic properties within the APE, evaluation of historic significance and National Register eligibility, and NRCS' determination of effect. Consulting parties were provided with cultural resource investigation reports and supporting documentation and were afforded the opportunity to review and comment. Correspondence documenting this consultation is included in Appendix A of the Watershed Plan.

No historic properties affected. Section 106 Review has been completed for the project area and no National Register eligible cultural sites were found.

## Consultation with Federally Recognized Tribes

Correspondence documenting Section 106 consultation, including outreach to all consulting Tribal Nations, responses received, and NRCS' determinations and findings, is summarized in Table 8 and provided in Appendix A of the Watershed Plan. Appendix A includes representative correspondence sufficient to demonstrate compliance with 36 CFR 800.11.

Table 8. Record of Consultations with PA SHPO and Federally Recognized Tribes

| Date              | Type                                                         | Purpose                                                                                   | Participants                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------|--------------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| March 14, 2022    | Public Scoping                                               | Invitation for participation                                                              | Absentee Shawnee, Delaware Nation, Delaware Tribe of Indians, Eastern Shawnee Tribe, Onondaga Nation, PASHPO, Seneca-Cayuga Nation, Shawnee Tribe, Stockbridge-Munsee Community. Courtesy copy sent to germane THPO.                                                                                                                                                                                   |
| December 22, 2023 | Alternatives meeting                                         | Request for participation and comment                                                     | Absentee Shawnee, Delaware Nation, Delaware Tribe of Indians, Eastern Shawnee Tribe, Onondaga Nation, PASHPO, Seneca-Cayuga Nation, Shawnee Tribe, Stockbridge-Munsee Community. Courtesy copy sent to germane THPO.                                                                                                                                                                                   |
| August 26, 2024   | Selected alternatives letter                                 | Invite Sovereign Tribes, outside agencies for review and comment on selected alternatives | Absentee Shawnee, Delaware Nation, Delaware Tribe of Indians, Eastern Shawnee Tribe, Onondaga Nation, Seneca-Cayuga Nation, Shawnee Tribe, Stockbridge-Munsee Community. Courtesy copy sent to germane THPO.<br><br>PASHPO was inadvertently omitted but stated via a phone conversation that as we were not requesting a formal review and the Phase 1 was not yet complete, they were not concerned. |
| November 1, 2024  | Response to Scoping Letter                                   | No Effect determination                                                                   | Eastern Shawnee Tribe                                                                                                                                                                                                                                                                                                                                                                                  |
| October 31, 2024  | Response to Scoping Letter                                   | No Effect determination                                                                   | Shawnee Tribe                                                                                                                                                                                                                                                                                                                                                                                          |
| April 10, 2025    | Consultation on determination of effect. Included CR Report, | Request for concurrence of determination of effect and SHPO                               | Absentee Shawnee, Delaware Nation, Delaware Tribe of Indians, Onondaga Nation,                                                                                                                                                                                                                                                                                                                         |

| Date             | Type                                                   | Purpose                                                                            | Participants                                                                                                     |
|------------------|--------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
|                  | design, as built, maps and descriptions.               | determination of Eligibility for dam structure                                     | PASHPO, Seneca-Cayuga Nation, Stockbridge-Munsee Community.                                                      |
| April 17, 2025   | PASHPO response.                                       | Request for clarification on specific issues.                                      | PASHPO                                                                                                           |
| April 17, 2025   | Response to PASHPO request                             | Deliver requested clarification(s).                                                | PASHPO                                                                                                           |
| April 29, 2025   | Response to Scoping Letter                             | No Effect determination                                                            | Stockbridge-Munsee Community                                                                                     |
| May 19, 2025     | PASHPO Response deadline.                              | Concurrence with determination of effect and issuance of eligibility determination | PASHPO                                                                                                           |
| May 20, 2025     | Final consultation attempts with tribal governments    | Conform with 36CFR800.4(b)(1)                                                      | No Response                                                                                                      |
| May 23, 2025     | Determination of effect cutoff per 36CFR800.3(c)(4)    | Documentation of no response                                                       | Absentee Shawnee, Delaware Nation, Delaware Tribe of Indians, Onondaga Nation, PASHPO, and Seneca-Cayuga Nation. |
| TBD              | Interagency and public review                          | Review Draft Plan                                                                  | Public, Agencies, Tribal Organizations, Sponsors, and Stakeholders                                               |
| TBD              | Public Notice                                          | Inform public of FONSI                                                             | Public, agencies, tribal governments, sponsors, stakeholders                                                     |
| No definite date | Distribution and Posting of Final Plan to NRCS Website | Inform public of Final Plan                                                        | Sponsors mail out and post Final Plan for all agencies, Sovereign Tribes and Public Stakeholders                 |

## Clean Water Act (CWA)

The pertinent subject matter expert has reviewed the proposed action (and action alternatives, if any) and made the following determination:

Project may or will affect waters, including wetlands. Modifications/design criteria have been included to ensure compliance with CWA is met. All permits received and modifications/design features are clearly presented and documented in the analysis.

Prior to the start of construction using federal funds, the project Sponsor will be responsible for securing and complying with all applicable federal, state, and local permits, including those under the CWA, Pennsylvania Chapter 105 and 102 regulations, and the National Pollutant Discharge Elimination System (NPDES) program. Compliance with permit conditions, mitigation plans, and environmental protection measures will be required throughout construction.

Consultation with the U.S. Army Corps of Engineers (USACE) indicates that mitigation requirements for jurisdictional wetlands and streams at PA-464 will be based on the extent of permanent impacts, including 1.78 acres of wetland fill and 493 linear feet of stream impacts associated with spillway modifications. These requirements will be determined during the individual permitting process. Due to the scope of disturbance, mitigation is expected to be limited and may be fulfilled through on-site enhancement or compensatory credit purchase through a Pennsylvania Department of Environmental Protection (PADEP)-approved mitigation bank.

The NRCS coordinated with the USACE Philadelphia District regarding potential jurisdictional wetlands and permitting requirements under Section 404 of the CWA. The USACE issued correspondence advising that proposed work at the Goose Pond Dam may involve waters and/or wetlands under USACE jurisdiction and recommended a site-specific Jurisdictional Determination (JD) be conducted during the final design phase.

## **Clean Air Act**

The pertinent subject matter expert has reviewed the proposed action (and action alternatives, if any) and made the following determination:

The project will not result in permanent air emissions and no modifications or further coordination needs to occur to ensure compliance.

## **Special Management Area Considerations**

The pertinent subject matter expert has reviewed the proposed action (and action alternatives, if any) and made the following determinations based on special management area presence, proximity, or lack of:

No activities are proposed within or in the vicinity of Special Management Areas.

## **Pertinent Executive Orders**

The applicable subject matter experts have determined the proposed action (and action alternatives, if any) are in compliance with the following Executive Orders (EO), which were deemed pertinent based on the nature of the proposal:

### **EO 11988, Floodplain Management**

Rehabilitation of PA-464 will increase downstream flood protection, resulting in no change to the existing extent of the 100-year floodplain and no change in floodplain function and value.

### **EO 11990, Protection of Wetlands –**

The preferred action will include means to minimize harm to existing wetlands. Impacts are expected to be limited; however, mitigation efforts will be implemented through on-site enhancements or compensatory credit purchase through a PADEP approved

mitigation bank. Mitigation efforts will be determined during the individual permitting process in consultation with the U.S. Army Corps of Engineers.

**EO 13007, Indian Sacred Sites – Not Applicable**

**EO 13112, Invasive Species –**

The reconnaissance survey for the dam sites identified no invasive species. However, the Town indicated the species observed include multiflora rose, Japanese barberry, autumn olive, and garlic mustard.

The incorporation of BMPs into the construction documents for compliance by the contractor will provide for the control of spread of invasive species. BMPs would include: 1) use of equipment and construction / timber mats that are thoroughly cleaned prior to mobilization to the site and prior to demobilization, 2) cleaning construction equipment before moving to a new site to minimize the risk of transporting seeds or propagules, 3) proper disposal of excavated or dredged material, 4) disposal of excavated and dredged material in pre-approved, non-wetland areas, 5) provide training or personnel with knowledge of identification of invasive species; 6) applying control treatments prior to construction and monitoring during and after construction.

**EO 13186, Migratory Birds –**

Minor short-term impacts due to temporary habitat removal during construction. Long-term, reservoir conditions maintained.

The Brodhead Tributary Watershed and PA-464 dam site attract a variety of migratory bird species. Thirteen migratory bird species, including bald eagle, have been identified by USFWS as having potential to occur in the project area, and others are likely to be present as well. The dam is not located in any Audubon Important Bird Areas (IBA).

During construction, temporary disturbances such as noise, vegetation clearing, and human activity may affect migratory birds and their nesting or foraging behavior. However, these impacts are expected to be localized and short-term. Long-term habitat availability may be slightly altered but is not expected to significantly reduce the overall suitability of the area for migratory birds. USFWS suggested minimizing the risk of take to migratory birds by choosing to remove trees when birds are unlikely to be nesting (tree removal recommended between September 1 and March 31). A determination of NLAA has been received from the USFWS (Watershed Plan Appendix A).

**EO 13443, Facilitation of Hunting Heritage and Wildlife Conservation –**

Construction activities related to rehabilitation of the dam could potentially result in the temporary displacement of wildlife species in the immediate vicinity of the project site. Construction activities could affect normal fish and wildlife behaviors, such as feeding, breeding, resting, and movement throughout their habitat. In addition, noise can stress individuals, disrupt communications and other natural sounds, or displace individuals from their habitat. During and immediately after construction, terrestrial and aquatic habitats would be disturbed from construction equipment modifications to the topography within the construction sites.

Construction equipment would cause little or no direct mortality to wildlife, which can generally disperse into neighboring habitat. Construction work would last a year or two, or longer, depending on the scope of the project. Construction crews would implement BMPs, such as restricting ground-moving activities during nesting or hibernation periods of certain species, using qualified biological construction monitors to avoid vehicle strikes to the greatest extent possible, and replanting native vegetation in disturbed areas to the greatest extent possible.

### **Certifying Statement for EA Page Limit and Deadline**

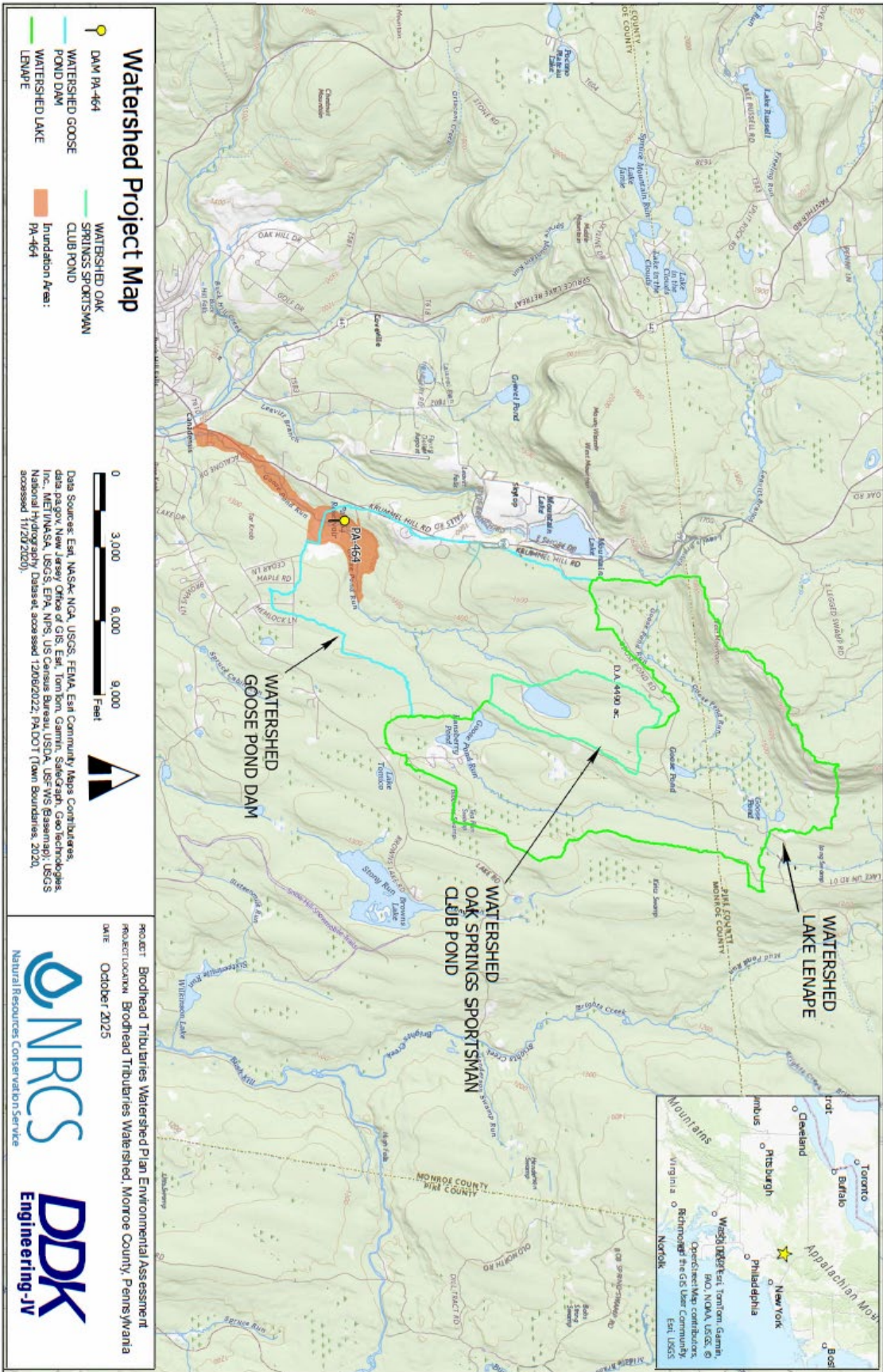
The Responsible Official certifies that this EA:

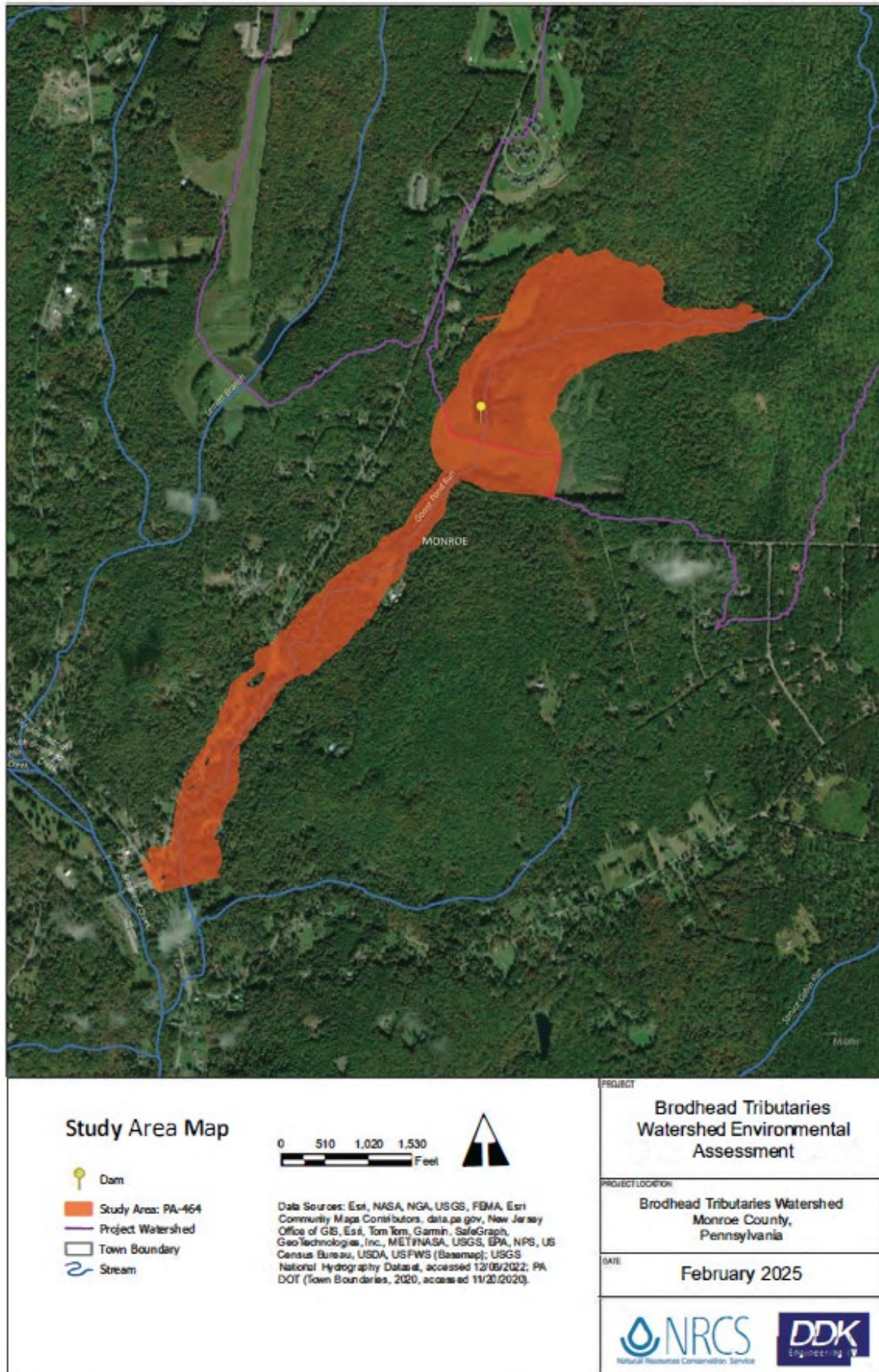
- ☒ Demonstrates the agency has thoroughly considered the factors mandated by NEPA;
- ☒ Represents the agency's good-faith effort to prioritize documentation of the substantive issues and most important considerations required by NEPA within the congressionally mandated page limits;
- ☒ Reflects the agency's expert judgment;
- ☒ Addressed briefly, or left unaddressed, any issues or considerations that were, in the agency's judgment, comparatively not of a substantive nature;
- ☒ Represents the agency's good-faith effort to fulfill NEPA's requirements within the Congressional timeline (or within the minimally extended timeline) and this effort is substantially complete; and
- ☒ Contains analysis that is adequate to inform and reasonably explain the responsible official's final decision regarding the proposed action or selected alternative.

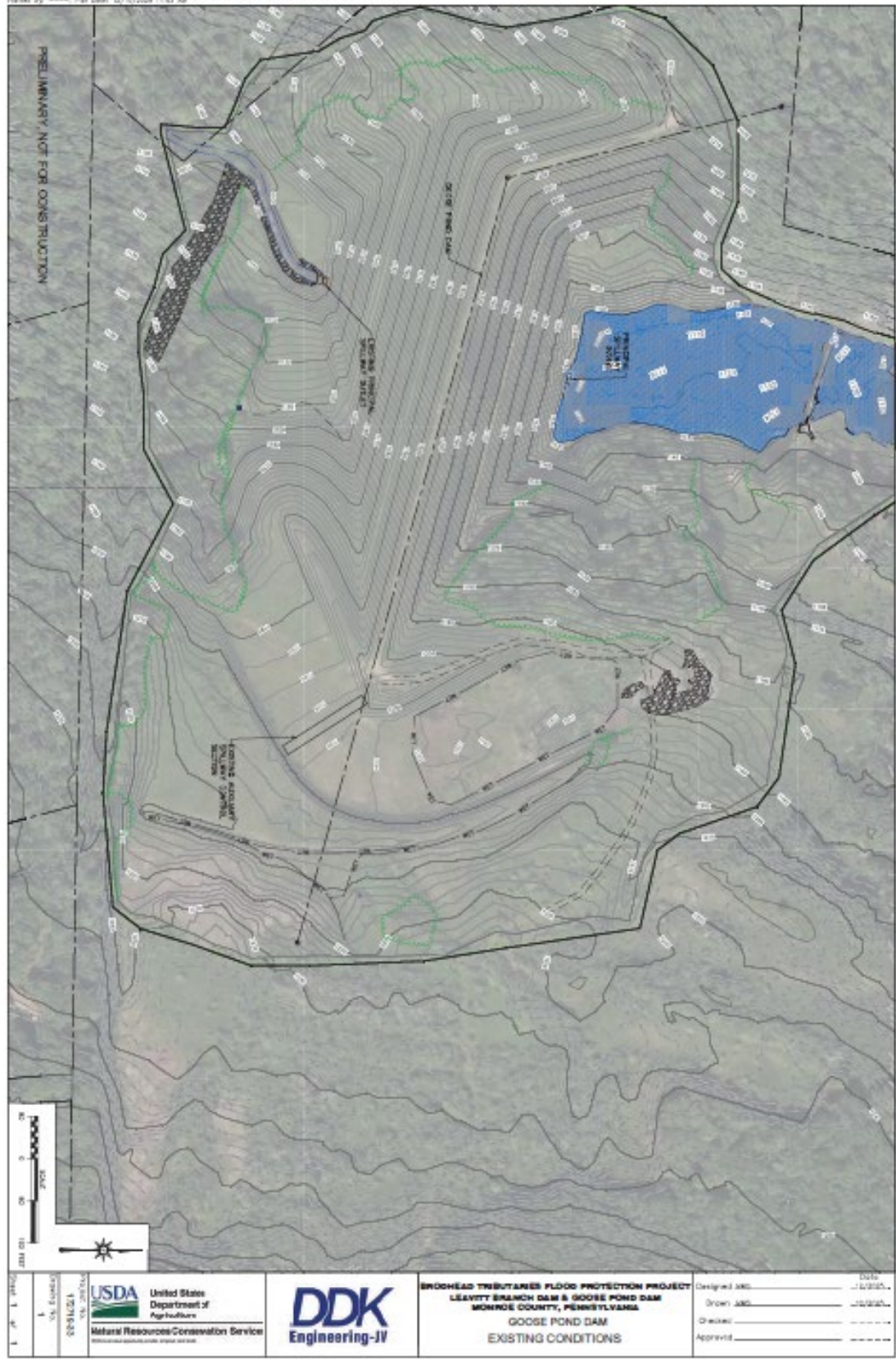
## **APPENDICES**

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- Watershed Project Map
- Study Area Map
- Existing Conditions Map
- Preferred Alternative Map







APPENDICES-4

