



**US Army Corps
of Engineers**

Philadelphia District

DRAFT

ENVIRONMENTAL ASSESSMENT

**SECTION 206 ECOSYSTEM RESTORATION
GROVER'S MILL POND
MERCER COUNTY, NEW JERSEY**

**Prepared By:
Philadelphia District
U.S. Army Corps of Engineers
Philadelphia, Pennsylvania 19107**

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1.0 PURPOSE AND NEED OF THE PROPOSED ACTION

1.1 Property Location

Grover's Mill Pond (Figures 1, 2, and 3) is located on Big Bear Creek, a tributary of the Millstone River, which eventually flows into the Raritan River. Grover's Mill Pond is a 37-acre man-made lake created by an earthen dam across Big Bear Creek. The present earthen dam is 400 feet long and 11 feet high and forms the base for Clarksville Road. The pond was originally impounded in Colonial times to power a gristmill and the dam was first upgraded in 1931 with a subsequent upgrade in 2005. The ownership of the earthen dam is shared by West Windsor Township and Mercer County.

1.2 Need for Action

Over the years the pond has exhibited eutrophic tendencies and has silted to the point where the average water depth is between one and four feet. The maximum pond depth is approximately 6 feet near the dam. The pond becomes anoxic during the summer. In addition, there is little refuge habitat for local fishery populations due to the shallowness of the water and the high water temperatures during the summer months and the ice and colder water temperatures during the winter season. Figures 4 and 5 are aerial photographs of the drained pond from 1981 and the drained pond during the West Windsor Township dam rehabilitation project in 2005, respectively.

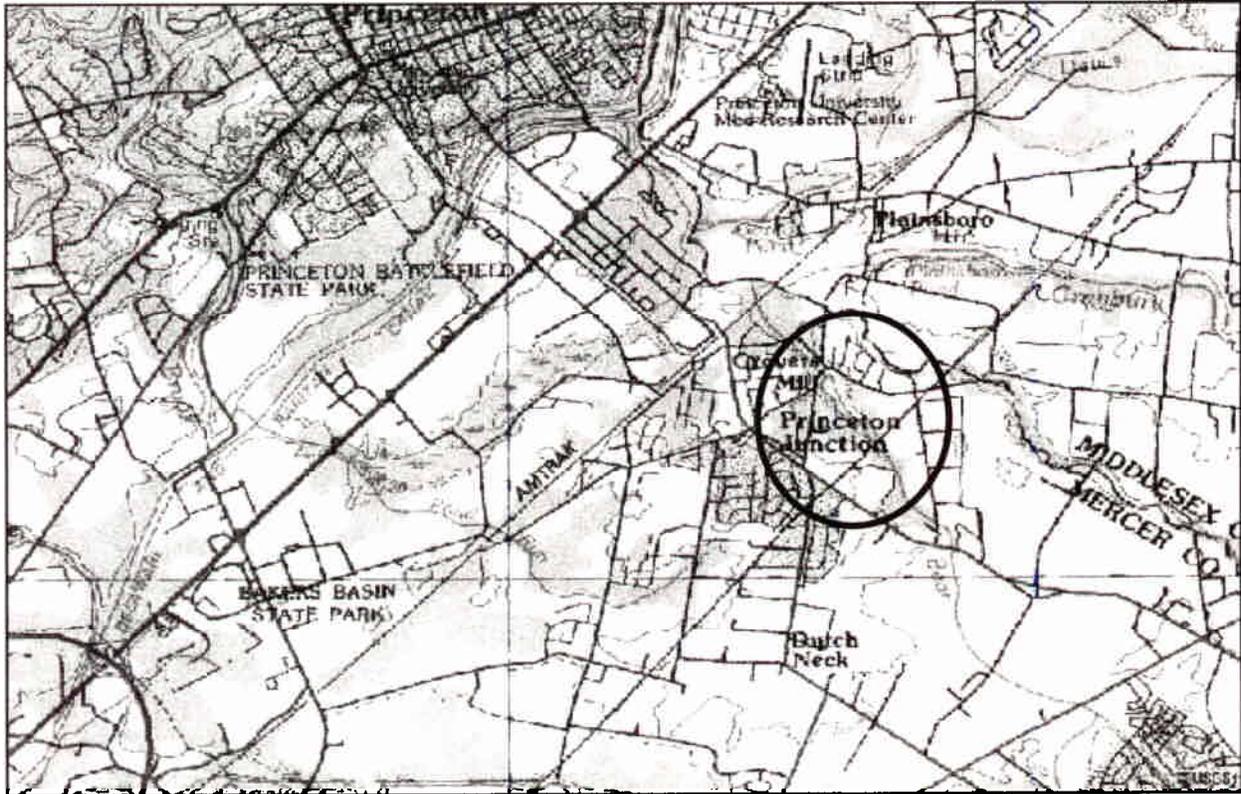


Figure 1. General site location for Grover's Mill Pond, NJ

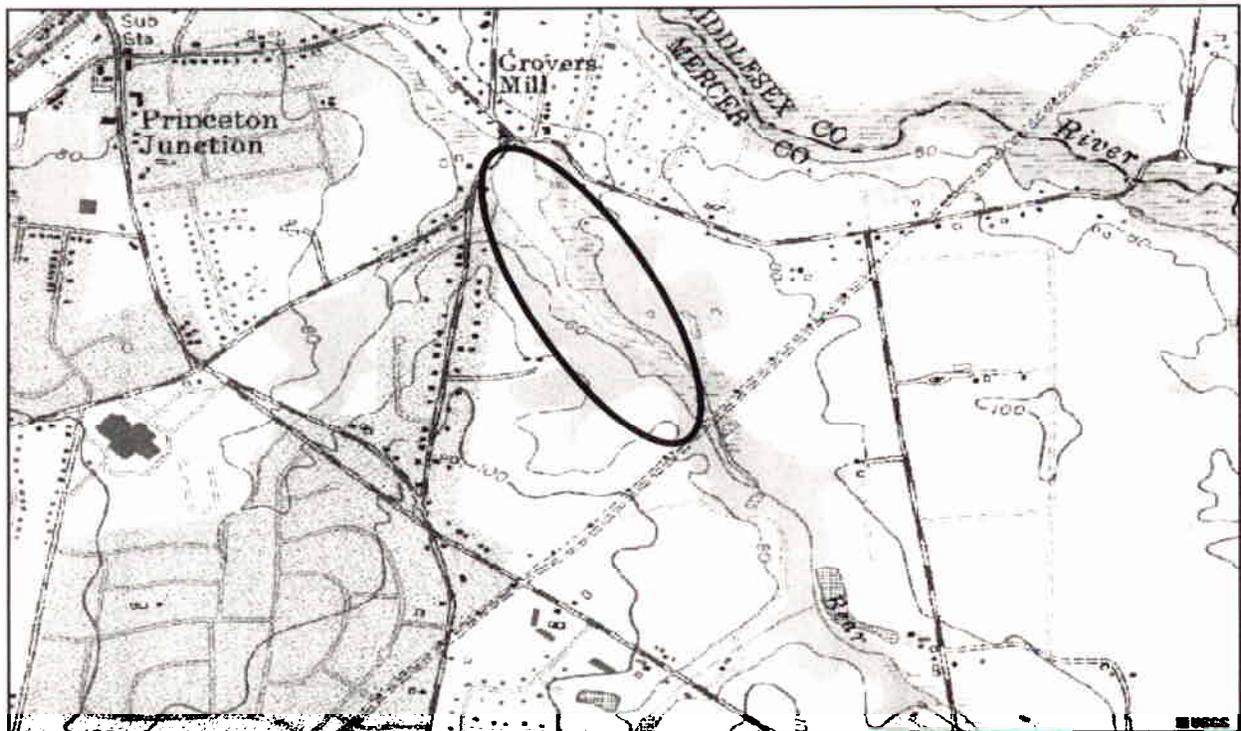


Figure 2. Grover's Mill Pond, NJ restoration site



Figure 3. Aerial photograph of Grover's Mill Pond, NJ and upland disposal facility location

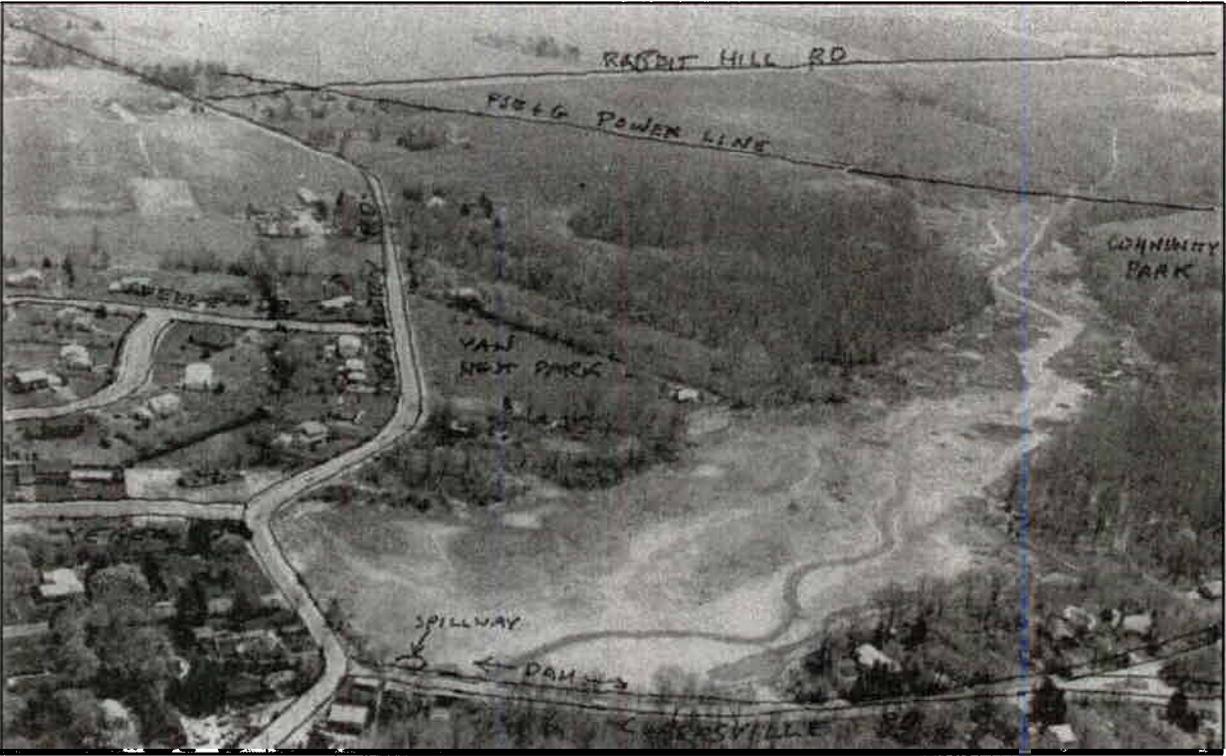


Figure 4 (Above) 1981 aerial photograph of drained Grover’s Mill Pond

Figure 5 (Below) 2005 Photograph of drained Grover’s Mill Pond during dam rehabilitation



2.0 DESCRIPTION OF THE PROPOSED ACTION

2.1 Project Background and Expected Outcomes

The goal of the Grover's Mill Pond Restoration Project is to restore fisheries habitat in a degraded freshwater pond. The restoration goal will be accomplished through sediment removal from the existing pond bottom to create more favorable water depths for local fishery populations (Figure 6). The estimated quantity of material to be dredged is between 50,000 and 60,000 cubic yards. The material shall be placed in an 11-acre confined disposal facility located on township owned property near the upstream end of the pond (Figure 7). Habitat structures such as porcupine cribs, random rock rubble humps, and gravel-spawning beds will be placed into the pond to further enhance the existing fishery habitat. Current design includes the construction of a handicap fishing pier in the Van Nest Park area of the pond by the sponsor. Subsequent placement of an aeration system into the pond is being considered by the sponsor, but is dependent on funding availability. The project is authorized under Section 206 of the Water Resources Development Act of 1996. The project plan and design has been coordinated with applicable resource agencies (Appendix A).

As per coordination with resource agencies, specifically the New Jersey Department of Environmental Protection (NJDEP), Bureau of Freshwater Fisheries, the maximum amount of sediment will be dredged and removed from the original pond bottom contours. Design recommendations provided by the Bureau of Freshwater Fisheries have been incorporated into the plan. Internal nutrient cycling directly influences the severity of anoxia and aquatic plant growth in lake and pond systems. Removal of these nutrient laden sediments and organic matter from Grover's Mill Pond will not only in itself provide additional habitat area, but will reduce subsequent excessive aquatic plant growth. Additional habitat will be available due to decreased plant biomass within the pond. The fishery and other aquatic species will also benefit from the increased availability of oxygen in the lower oxygen starved portions of the water column. In addition, dredging will be completed in a manner to insure that the depth is not uniform and that contours are created to provide habitat diversity for fishery populations. Target species for the project are warmwater species that include: largemouth bass (*Micropterus salmoides*), chain pickerel (*Esox niger*), and sunfish (*Lepomis sp.*). The Bureau of Freshwater Fisheries has stated they will restock the pond with largemouth bass and other applicable species after the project is completed. The combination of sediment removal, physical habitat improvements and the state re-stocking efforts will greatly improve the Grover's Mill Pond ecosystem.

Recreational fishing opportunities for the public are expected to increase subsequent to project completion. The community park along the pond also offers opportunities for environmental education signs discussing the importance of habitat to fish and other aquatic and terrestrial species. Furthermore, West Windsor Township will be conducting a public education campaign to help improve the water quality of runoff coming into the pond by encouraging vegetated buffer strips around the pond and in the watershed.

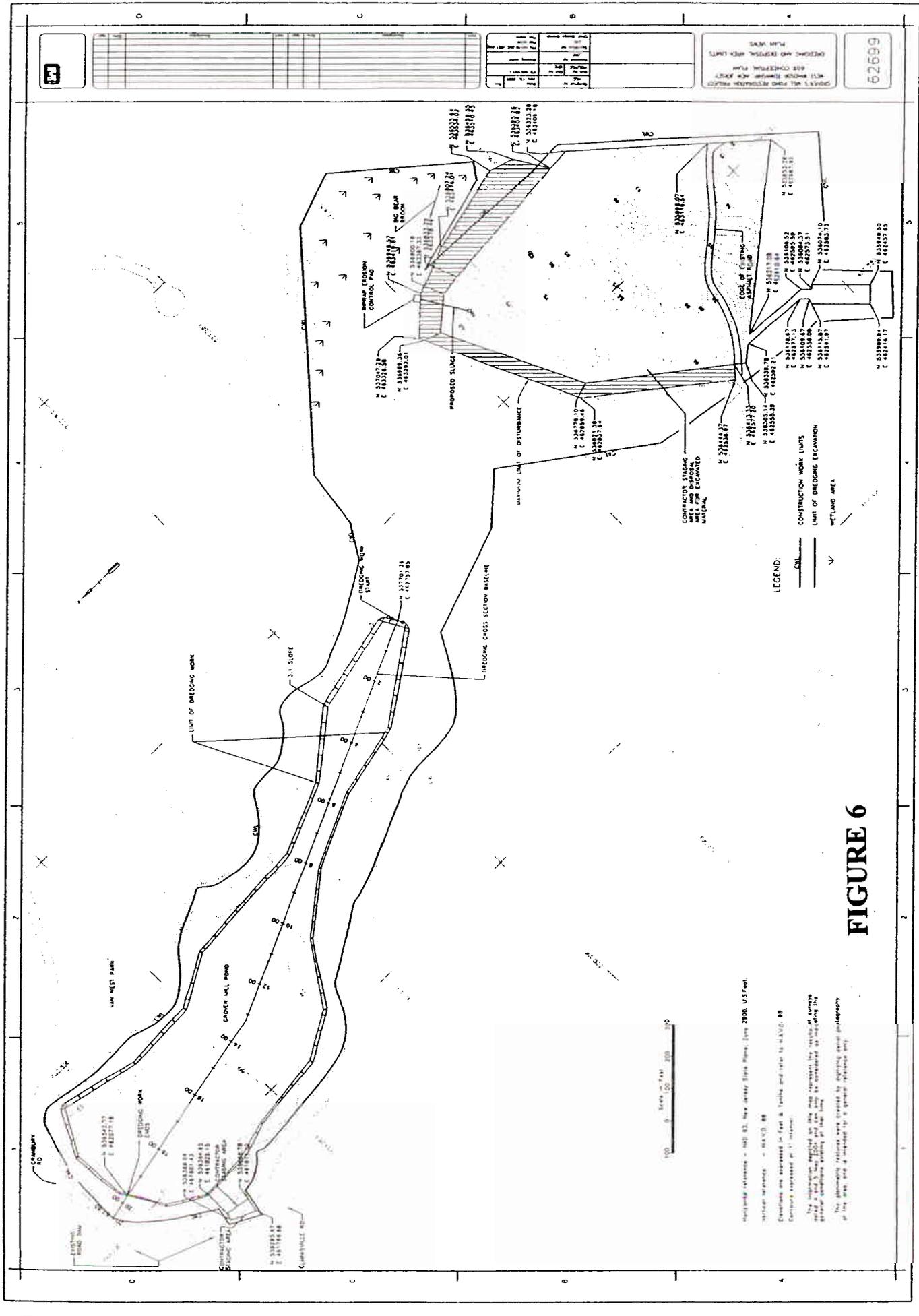


FIGURE 6

Horizontal reference - NAD 83, New Jersey State Plane, Zone 1800, U.S. Feet.
 Vertical reference - MGSVD, 88.
 Coordinates are expressed in Feet & Tenth and refer to NAD83, 88.
 Contours are expressed in 1' intervals.
 The information depicted on this map was obtained by means of aerial photography and a field survey and may not be considered as indicating the precise boundaries of any land area.
 No geographic features were created by digitizing aerial photography of this area and it is subject to a general release only.

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3.0 ALTERNATIVES CONSIDERED

Several alternatives for the environmental restoration of Grover's Mill Pond have been considered. The alternatives focus on sediment removal in the wet (un-drained pond) or the dry (drained pond), with several variations on doing it in the dry. Habitat enhancement alternatives include different types of fishery structures and the use of a circulator or aerator system. These enhancements are the same for all construction alternatives and are dictated, in part, from recommendations of the New Jersey Department of Environmental Protection, Bureau of Freshwater Fisheries and funding availability. All the alternatives include the placement of removed pond material on an 11-acre township owned upland property. The removed material shall be placed in a confined disposal facility with earthen dikes varying from 10-20 feet high. All the alternatives pose environmental, construction, and cost challenges. Table 1 compares the various alternatives.

3.1 The "No-Action" Alternative

The no-action alternative would not achieve the objective of improving the habitat of aquatic species and ecosystem of Grover's Mill Pond. The no-action alternative would leave the pond in its degraded state with a poor fishery, inadequate aquatic habitat, and low water quality within the lake and downstream.

3.2 Excavation of Sediments in Dry Conditions

3.2.1 Cofferdam Individual Areas of the Pond

This alternative involves the construction and removal of multiple "dry" cells within the pond where water would be pumped from each cell individually; pond sediments would be allowed to dry, excavated and transported to the upland placement site. Conventional construction equipment would be used to do the work. This alternative has potential for high construction costs due to construction and maintenance of the cells and operation of pumps; a long construction period; risk of delays due to precipitation; additional state permits for pond water lowering; potential impacts to the existing fishery; impacts on pond wetland edge habitat due to dewatering; and impacts on forested and pond edge wetlands for construction of an access road.

3.2.2 Dry Lake & Bypass Water with Pump or with Gravity Flow

This alternative involves the draining of the lake by opening of the dam sluice gate, allowing of the pond sediments to dry, and excavating and transporting of the removed sediments to the upland placement site. Conventional construction equipment would be used to do the work. This alternative has potential for high construction costs due to construction of an access road and operation of pumps; a long construction period associated with material drying; risk of delays due to precipitation; additional state permits for pond water lowering; impacts to the existing fishery; fishery salvage operations would be required; impacts on pond wetland edge habitat due to dewatering; and impacts on forested and pond edge wetlands for construction of an access road.

3.2.3 Construct an Earthen Berm

This alternative involves the construction and removal of an earthen berm access road through the center of the pond from which heavy equipment can operate. Conventional construction equipment would be used to do the work. Water would be pumped from the dry cell on one side of the berm to the other side which would maintain the pond level and flow. The material would be allowed to dry and then excavated and transported to the upland placement site. This alternative has potential for high construction costs for the construction and maintenance of the berm and operation of the pumps; a long construction period to allow for material drying; risk of delays due to precipitation; additional state permits for pond water lowering; impacts to the existing fishery; fishery salvage operations would be required; impacts on pond wetland edge habitat due to dewatering; and impacts on forested and pond edge wetlands for construction of an access road.

3.3 Dredging of Bottom Sediments in Wet Conditions

This alternative is the preferred alternative based on coordination with resource agencies and the ability to realistically meet construction and environmental timing restrictions and cost limits. This alternative involves the use of a small hydraulic dredge to remove the accumulated lake bottom materials and the transportation of these materials via a pipeline into a confined disposal facility with the return of excess water from the drying process through a weir back into Grover's Mill Pond. This alternative has potential for lower construction costs than other alternatives as heavy equipment will only be needed for construction of the confined disposal facility at the upland placement site; a shorter construction period because sediment material will not be dried prior to transport; the risk of delays due to precipitation and increased flows is reduced since the dredge can operate during rain days and the transport of dry material is not necessary; additional state permits for pond water lowering will not be needed; no direct impacts to the existing fishery are expected due to pond water level lowering and fishery salvage efforts; no direct impacts on pond wetland edge habitat is expected since dewatering is not necessary; and impacts on forested wetlands for construction of an access road will be minimized as the slurry pipe can be placed on the wetland surface and then removed after project completion.

<u>ALTERNATIVES</u>	<u>CONSTRUCTION RISKS/PROBLEMS</u>	<u>CONSTRUCTION COSTS</u>	<u>CONSTRUCTION BENEFITS</u>	<u>ENVIRONMENTAL RISK</u>
No Action	None	None	None	*Conditions remain the same or worst
Dredge in wet conditions	*CDF needed *Shallow pond/Access *No visual confirmation of desired bottom contours *Historical survey needed for CDF site *Security concerns at CDF	*No cofferdam sheeting costs *Large fenced CDF needed *CDF construction	*No cofferdam sheeting costs *Relatively short construction period	*Sediment discharge *WQ impact *Extended construction period for material drying *Less impact risk *Construction noise
Cofferdam individual areas of the pond	*Use of multiple sump pumps *Cofferdam failure *Potential sediment smell *Extended construction period *CDF needed	*Cofferdam material costs *Sump pump operation *CDF construction *Fishery salvage efforts	*Sight controlled pond bottom excavation and contouring	*Sediment discharge for cofferdam construction *Extended construction period for cofferdam construction *Temporary lowering of water table *Construction noise *Hydrology impacts to pond wetlands *Fishery salvage efforts
Dry lake & bypass pump or gravity flow	*Precipitation and drying/drainage construction delays *Potential sediment smell *Use of multiple sump pumps *Extended construction period *CDF needed	*CDF construction *Sump pump operation *Fishery salvage efforts	*Sight controlled pond bottom excavation and contouring	*Temporary lowering of water table *Construction noise *Hydrology impact to pond wetlands *Fishery salvage efforts
Earthen berm divide	*Precipitation and drying/drainage construction delays *Potential sediment smell *Use of sump pumps *Berm failure *Extended construction period	*CDF construction *Berm installation and material costs *Fishery salvage efforts	*Berm material on site *Sight controlled pond bottom excavation and contouring	*Sediment discharge for berm construction *Temporary lowering of water table *Construction noise *Hydrology impacts to pond wetlands <i>Fishery salvage efforts</i>

Table 1. Restoration alternatives at Grover’s Mill Pond, NJ

4.0 EXISTING ENVIRONMENT

4.1 Project Description

As previously described, Grover’s Mill Pond is located on Big Bear Creek, a tributary of the Millstone River, which eventually flows into the Raritan River. The goal of the Grover’s Mill Pond Restoration Project is to restore fisheries habitat at the degraded freshwater pond. The restoration goal will be accomplished through sediment removal from the existing pond to create better water depths for local fishery populations. The estimated quantity of material to be dredged is between 50,000 and 60,000 cubic yards. The material shall be placed in an 11-acre confined disposal facility located on township owned property near the upstream end of the pond. Fishery habitat structures will be placed into the pond to further enhance the existing fishery habitat. Current design includes the construction of a handicap fishing pier in the Van Nest Park area of the pond by the sponsor. Placement of an aeration system into the pond is being considered by the sponsor, but is dependent on funding availability.

4.2 Climate

According to the Mercer County, New Jersey Soil Survey (1972), Mercer County, including the area of Grover’s Mill Pond, has a continental climate that is humid and temperate.

The area is subject to precipitation from normal rainfall, thunderstorms, snowfall, and heavy rains associated with hurricanes. Mercer County has an average annual precipitation of approximately 44 inches that is well distributed throughout the year. Heaviest rainfalls are often seen in July and August. Summer temperatures rarely exceed 100° Fahrenheit, but middle to upper 90's occurs frequently. Winter temperatures generally do not go below 10° Fahrenheit.

4.3 Air Quality

The Grover's Mill Pond Restoration Project would take place in Mercer County, New Jersey. This area is classified as moderate nonattainment for ozone (oxides of nitrogen [NO_x] and volatile organic compounds [VOCs]). Mercer County, New Jersey is within the Philadelphia-Wilmington-Atlantic City Nonattainment Area (PA-NJ-DE-MD). The 1990 Clean Air Act Amendments include the provision of Federal Conformity, which is a regulation that ensures that Federal Actions conform to a nonattainment area's State Implementation Plan (SIP) thus not adversely impacting the area's progress toward attaining the National Ambient Air Quality Standards (NAAQS).

Air quality is monitored in New Jersey by the New Jersey Department of Environmental Protection, Bureau of Air Monitoring. Air quality monitoring is conducted by placing air monitors within high population density areas within the state. The state has been broken down into 9 "air regions". The Grover's Mill Pond project area falls within the Central Delaware Valley region. The state's hourly air quality readings are based on the national system called Air Quality Index (AQI) developed by the U.S. Environmental Protection Agency. The AQI records levels of five common air contaminants: carbon monoxide, sulfur dioxide, particulates, ground level ozone and nitrogen dioxide. The closest monitoring stations to the project site are located at Rider University and the city of Burlington. Historic records of air quality in the project area show it to be generally good with ozone exceeding the standards on occasion. Current air quality readings dated 16 January 2006 show levels of all pollutants below standards and considered "good" (NJ Department of Environmental Protection website: <http://www.state.nj.us/dep/airmon>).

4.4 Topography and Soils

According to the Mercer County, New Jersey Soil Survey (1972), the Grover's Mill Pond project area is located in the Northern Coastal Plain physiographic province. The coastal plain section of the county comprises primarily gently sloping or nearly level areas with slopes besides streams occasionally exceeding five percent. Elevations vary from approximately 10 feet to 150 feet above sea level.

The Coastal Plain section of Mercer County is mostly covered by soils of the Galestown-Evesboro Association and Sassafras-Dragston Association. The soil types surrounding the project area can generally be described as stony or channery silt loams. They are derived from surficial glacial deposits, and as a result, are relatively infertile, acidic, exhibit slow permeability, and have a seasonally high water table. The Sassafras-Dragston Association is found throughout most of the Grover's Mill Pond watershed. With the exception of undulating areas, the erosion potential of these soils is considered moderate. The Galestown-Evesboro Association is associated with river and stream deposits. They range from moderately to poorly drained and are subject to more erosion. The soils of Mercer County have been exhaustively studied and

catalogued by the U.S. Department of Agriculture, Soil Conservation Service in cooperation with the New Jersey Agricultural Experiment Station. Soils identified in the Mercer County Soil Survey (Table 2) within the project area include:

SYMBOL	SOIL DESCRIPTION
EvB	(Evesboro loamy sand, 0-5% slope)
SrC	(Sassafras sandy loam, gently undulating)
FrC	(Fort Mott loamy sand, 5-10% slope)
Ad	(Alluvial land, wet)
WfB	(Woodstown-Fallsington sandy loams, gently undulating)
Ot	(Othello silt loam)
SrC2	(Sassafras sandy loam, 5-10% slope, eroded)
SyB	(Sassafras-Woodstown sandy loam, gently undulating)
SdE	(Sandy and silty land, steep)
SdD	(Sandy and silty land, strongly sloping)

Table 2. Soils identified within the Grover’s Mill Pond project area

4.5 Land Use and Recreation

Grover’s Mill Pond is part of New Jersey’s Green Acres Local Assistance Program and is dedicated to permanent recreation and open space. The Grover’s Mill Pond Master Plan Task Force was established in 1991 to develop and present a Master Plan for the restoration of the pond. The plan was developed in 1992 and had three recommendations to include: 1) Repair and upgrade the dam and spillway to meet current dam regulations; 2) Renovate waterfront facilities in Van Nest Park along Grover’s Mill Pond; and 3) Rehabilitate the pond through deepening, silt removal and installation of a silt trap. The facilities at Van Nest Park have been completed to include picnic pavilion, open field, canoe launch, and a boardwalk and dock on the pond. The dam and spillway upgrade has recently been completed by the township. The restoration of the pond was the third recommendation to improve the recreational value of the area.

Regional recreational facilities, both private and public, are extensive in the West Windsor Township area. Both active and passive recreation are supported. The Grover’s Mill Pond area supports some of these activities to include fishing, hiking, picnicking, sightseeing, and boating. The majority of the land surrounding the pond is publicly owned with some private property and residential homes located southwest of the pond.

4.6 Hazardous, Toxic, and Radioactive Substances

Dredging and upland placement of dredged materials is planned for this project. The material planned for removal from Grover’s Mill Pond and soils located at the upland placement area were sampled and analyzed to characterize their physical and chemical makeup and to identify any risk of contamination. The geotechnical/environmental investigation was performed by the Philadelphia District, U.S. Army Corps of Engineers. Pond sediment sampling included

the sampling and analysis of a series of four paired boreholes within representative areas of the pond sediments. The pond sediments were found to have a very soft fine grained (silts and clays) layer ranging from approximately one to three feet thick above relatively firm sands and gravels. In addition, a series of hand auger samples were collected and sampled as a composite sample in the proposed upland disposal area. This sample was meant to represent the surface soils in the proposed disposal area. The data results compared favorably to New Jersey Department of Environmental Protection N.J.A.C. 7:26D Residential Direct Contact Soil Cleanup Criteria indicating there is no evidence of chemical contamination. A copy of the data results and report is provided in Appendix B.

4.7 Aquatic Resources and Wetlands

Grover’s Mill Pond is currently considered eutrophic. This nutrient rich condition has evolved in part due to nutrient laden sediments accumulating within the pond. Historically, the pond’s watershed has been dominated by agriculture. Sediment laden runoff from agricultural areas is likely the source of sediments in Grover’s Mill Pond. These sediments have also caused the pond to become shallower over the life of the pond. The nutrients and shallow water have created conditions favorable for aquatic plant growth. As a result, high densities of rooted and non-rooted aquatic plants have developed. Similar to other ponds like Grover’s Mill Pond, an established wetland community exists immediately adjacent to the pond and its tributaries.

4.7.1 Surface Waters

Waters of the State of New Jersey are protected by water quality standards based on classified uses of each water body. The New Jersey Department of Environmental Protection uses these standards when regulating discharges. Water quality criteria for Bear Brook and Grover’s Mill Pond were taken from N.J.A.C. 7.9B Surface Water Quality Standards dated August 2004. Grover’s Mill Pond and Bear Brook are classified as Category II FW2-NT waters (Table 3).

Category II	Those waters not designated as Outstanding National Resource Waters or Category I at N.J.A.C. 7.9B-1.15 for purposes of implementing the antidegradation policies set fourth at N.J.A.C. 7.9B-1.5(d)
FW2	The general surface water classification applied to those freshwaters that are not designated as FW1 or Pinelands waters
Non-trout (NT)	Freshwaters that have not been designated in N.J.A.C. 7.9B-1.15(b) through (h) as trout production or trout maintenance. These waters are generally not suitable for trout because of their physical, chemical or biological characteristics, but are suitable for a wide variety of other fish species.

Table 3. Surface water quality standard taken from N.J.A.C. 7.9B Surface Water Quality Standards NJDEP August 2004

In an August 11, 1969 New Jersey Fish and Game sampling report that was compared to water quality data collected in 1952, the water quality of Grover’s Mill Pond was seen as degrading as a result of organic pollution entering from upstream via Bear Brook and local watershed development. A decrease in dissolved oxygen and siltation of the main channel were noted. These conditions have continued until present day. However, numerous acres of

upstream agricultural lands have been converted to residential development likely resulting in reduced loading of sediment historically coming from these fields.

4.7.2 Groundwater

According to the Mercer County, New Jersey Soil Survey (1972), the sources of ground water in the project area are the seaward sloping aquifers of Cenozoic and Cretaceous age. Groundwater is relatively abundant from the Magothy formation that underlies Grover’s Mill Pond.

4.7.3 Wetlands

Various types of wetland communities are associated with Grover’s Mill Pond. In an effort to accurately identify and survey these communities’ locations, a wetland delineation was performed within boundaries that are slightly larger than the limits of the Grover’s Mill Pond project. A copy of the wetland delineation report dated 14 December 2004 is provided as Appendix C. Three areas of wetlands were delineated and surveyed, including the principal area around the pond and Big Bear Creek (47.58 acres), one small area to the north of the pond’s dam (1.15 acres), and an additional small area in the southeastern section of the site (1.47 acres).

4.8 Wild and Scenic Rivers

A resource information review revealed that no nationally designated wild and scenic rivers or river segments are located within the project area.

4.9 Vegetation

The vegetation of Mercer County and specifically the Grover’s Mill Pond watershed reflects the environmental conditions (geology, climate, and soils) associated with the different physiographic provinces and the disturbance history, both natural and anthropogenic. A wide variety of native and introduced species can be found within forested as well as non-forested areas of the Grover’s Mill Pond and surrounding areas. Some common woody, herbaceous, and aquatic vegetation likely to occur within and in the proximity of the project area are listed in Table 4.

Red Maple (<i>Acer rubrum</i>)	Inkberry (<i>Ilex glabra</i>)
Black Willow (<i>Salix nigra</i>)	Sweet Pepperbush (<i>Clethra alnifolia</i>)
Scarlet Oak (<i>Quercus coccinea</i>)	Joe-Pye-Weed (<i>Eupatorium fistulosum</i>)
Black Oak (<i>Quercus velutina</i>)	Wild grape (<i>Vitis labrusca</i>)
Royal Fern (<i>Osmunda regalis</i>)	Woodland aster (<i>Aster divaricatus</i>)
White Pine (<i>Pinus strobus</i>)	Arrowwood (<i>Viburnum dentatum</i>)
Sweet Pepperbush (<i>Clethra alnifolia</i>)	Virginia Creeper (<i>Parthenocissus quinquefolia</i>)
Water Smartweed (<i>Polygonum amphibium</i>)	Dotted Smartweed (<i>Polygonum punctatum</i>)
Royal Fern (<i>Osmunda regalis</i>)	Rhododendron (<i>Rhododendron Spp.</i>)
American Beech (<i>Fagus grandifolia</i>)	Marshpepper Knotweed (<i>Polygonum hydropiper</i>)
Christmas Fern (<i>Polystichum acrostichoides</i>)	Poison ivy (<i>Toxicodendron radicans</i>)

Tulip Tree (<i>Liriodendron tulipifera</i>)	Wild rose (<i>Rosa spp.</i>)
Black Gum (<i>Nyssa sylvatica</i>)	Blackberry (<i>Rubus allegheniensis</i>)
Maple-leaved viburnum (<i>Viburnum acerifolium</i>)	Flowering dogwood (<i>Cornus florida</i>)
Highbush Blueberry (<i>Vaccinium corymbosum</i>)	Glaucous Greenbrier (<i>Smilax glauca</i>)
White oak (<i>Quercus alba</i>)	Cinnamon Fern (<i>Osmunda cinnamomea</i>)
Northern Red Oak (<i>Quercus rubra</i>)	Partridgeberry (<i>Mitchella ripens</i>)
Golden-rod sp. (<i>Solidago sp.</i>)	Sensitive Fern (<i>Onoclea sensibilis</i>)
Sweetgum (<i>Liquidambar styraciflua</i>)	False Nettle (<i>Bohemeria cylindrical</i>)
Green Ash (<i>Fraxinus pennsylvanica</i>)	Spatterdock (<i>Nuphar lutea</i>)
Sycamore (<i>Platanus occidentalis</i>)	Broad-leaved Cattail (<i>Typha latifolia</i>)
Chestnut Oak (<i>Quercus prinus</i>)	Common Reed (<i>Phragmites australis</i>)
Slippery Elm (<i>Ulmus rubra</i>)	Mayapple (<i>Podophyllum peltatum</i>)
Black Walnut (<i>Juglans nigra</i>)	Spicebush (<i>Lindera benzoin</i>)
Smartweed (<i>Polygonum amphibium</i>)	Common Greenbriar (<i>Smilax rotundifolia</i>)
Climbing Hempweed (<i>Mikania scandens</i>)	Japanese Honeysuckle (<i>Lonicera japonica</i>)
Bracken Fern (<i>Pteridium aquilinum</i>)	Asiatic Tearthumb (<i>Polygonum perfoliatum</i>)
Black Huckleberry (<i>Galyussacia baccata</i>)	Jack-in-the-Pulpit (<i>Arisaema triphyllum</i>)
Cabomba/Fanwort (<i>Cabomba caroliniana</i>)	Duckweed (<i>Lemna minor</i>)
Pondweeds (<i>Potamogeton sp.</i>)	Eurasian Watermilfoil (<i>Myriophyllum spicatum</i>)
Sallow Sedge (<i>Carex lurida</i>)	Waterlilies (<i>Nymphaea sp.</i>)

4.10 Wildlife Resources

Vegetation, surface waters and other habitats in and around Grover's Mill Pond provide areas for a variety of wildlife species. Some common bird, ectothermic and mammal species likely to occur in the proximity of the project area are listed in Tables 5, 6 and 7 respectively.

Red-winged Blackbird (<i>Agelaius phoeniceus</i>)	Mourning Dove (<i>Zenaidura macroura</i>)
Bluejay (<i>Cyanocitta cristata</i>)	Belted Kingfisher (<i>Megaceryle alcyon</i>)
Mallard (<i>Anas platyrhynchos</i>)	American Robin (<i>Turdus migratorius</i>)
Black Duck (<i>Anas rubripes</i>)	Song Sparrow (<i>Melospiza melodia</i>)
Common Crow (<i>Corvus brachyrhynchos</i>)	Mockingbird (<i>Mimus polyglottos</i>)
Great Blue Heron (<i>Ardea herodias</i>)	Black-capped Chickadee (<i>Parus atricapillus</i>)
Barn Swallow (<i>Hirundo rustica</i>)	Tufted titmouse (<i>Parus bicolor</i>)
American Bittern (<i>Botaurus lentiginosus</i>)	Thrush sp.
Canada Geese (<i>Branta canadensis</i>)	House Sparrow (<i>Passer domesticus</i>)
Great Horned Owl (<i>Bubo virginianus</i>)	Red-eyed Vireo (<i>Vireo olivaceus</i>)
Red-tailed hawk (<i>Buteo jamaicensis borealia</i>)	American Woodcock (<i>Scolopax minor</i>)
Eastern Screech Owl (<i>Otus asio</i>)	Field Sparrow (<i>Spizella pusilla</i>)
Turkey Vulture (<i>Cathartes aura</i>)	Scarlet Tanager (<i>Piranga olivacea</i>)
Least Flycatcher (<i>Empidonax minimus</i>)	Common Grackle (<i>Quiscalus quiscula</i>)
Common Flicker (<i>Colaptes auratus</i>)	Cardinal (<i>Richmondia cardinalis</i>)

Catbird (<i>Dumetella carolinensis</i>)	Warbler sp.
House Wren (<i>Troglodytes aedon</i>)	Starling (<i>Sturnus vulgaris</i>)

TABLE 6 ECTOTHERMIC SPECIES GROVER'S MILL POND AREA	
Northern Black Racer (<i>Coluber constrictor</i>)	Northern Water Snake (<i>Nerodia sipedon</i>)
Musk Turtle (<i>Sternotherus odoratus</i>)	Northern Brown Snake (<i>Storeria dekayi</i>)
Bog Turtle (<i>Clemmys muhlenbergii</i>)	Northern Ringneck Snake (<i>Diadophis punctatus</i>)
Red-eared Slider (<i>Trachemys scripta</i>)	Eastern Worm Snake (<i>Carphophis amoenus</i>)
Eastern Painted Turtle (<i>Chrysemys picta</i>)	North Redbelly Snake (<i>Storeria occipitomaculata</i>)
Redbelly Turtle (<i>Pseudemys rubriventris</i>)	Eastern Smooth Earth Snake (<i>Virginia valeriae</i>)
Eastern Mud Turtle (<i>Kinosternon subrubrum</i>)	Eastern Hognose Snake (<i>Heterodon platyrhinos</i>)
Five-lined Skink (<i>Eumeces fasciatus</i>)	Eastern Ribbon Snake (<i>Thamnophis sauritus</i>)
Northern Fence Lizard (<i>Sceloporus undulatus</i>)	Eastern Box Turtle (<i>Terrapene carolina</i>)
Salamander sp.	Spotted Turtle (<i>Clemmys guttata</i>)
Eastern Milk Snake (<i>Lampropeltis triangulum</i>)	Eastern Garter Snake (<i>Thamnophis sirtalis</i>)
Black Rat Snake (<i>Elapha obsoleta</i>)	Snapping Turtle (<i>Chelydra serpentina</i>)
American Toad (<i>Bufo americanus</i>)	

TABLE 7 MAMMAL SPECIES GROVER'S MILL POND AREA	
Wood Chuck (<i>Marmota monax</i>)	Muskrat (<i>Ondatra zibethicus</i>)
Moles (<i>Talpidae spp.</i>)	White-tailed Deer (<i>Odocoileus virginianus</i>)
Virginia Opossum (<i>Didelphus virginiana</i>)	White-footed Mouse (<i>Peromyscus leucopus</i>)
Striped Skunk (<i>Mephitis mephitis</i>)	Raccoon (<i>Procyon lotor</i>)
House Mouse (<i>Mus musculus</i>)	Gray Fox (<i>Urocyon cinereoargenteus</i>)
Little Brown Bat (<i>Myotis lucifugus</i>)	Eastern Mole (<i>Scalopus aquaticus</i>)
Eastern Mink (<i>Mustela vison</i>)	Gray Squirrel (<i>Sciurus carolinensis</i>)
Weasel (<i>Mustela frenata</i>)	Shrews (<i>Soricidae spp.</i>)
Red Fox (<i>Vulpes fulva</i>)	Cottontail Rabbit (<i>Sylvilagus floridanus</i>)
	Eastern Chipmunk (<i>Tamias striatus</i>)

4.11 Finfish and Invertebrate Species

A variety of finfish are found inhabiting aquatic areas encompassing the Grover's Mill Pond and its tributaries. Table 8 provides a general list of fish species found in the Pond and Bear Brook areas during a 23 April 2004 fishery survey conducted by the New Jersey Department of Environmental Protection, Bureau of Freshwater Fisheries. Due to sampling limitations (target species, methodology, and aquatic vegetation) additional species may exist but were not collected. Historically, two fish salvage efforts have been conducted at Grover's Mill Pond. The last known salvage effort occurred in 2005 and was associated with the pond lowering and dam rehabilitation project performed by West Windsor Township. The potential impacts of this fishery salvage effort on the existing fishery population within the pond are unknown.

TABLE 8
FISH SPECIES GROVER'S MILL POND AREA

Bluespotted sunfish (<i>Enneacanthus gloriosus</i>)	Bluegill (<i>Lepomis macrochirus</i>)
Eastern Mudminnow (<i>Umbra pygmaea</i>)	Largemouth Bass (<i>Micropterus salmoides</i>)
Pirate perch (<i>Aphredoderus sayanus</i>)	Green sunfish (<i>Lepomis cyanellus</i>)
Tadpole madtom (<i>Noturus gyrinus</i>)	White sucker (<i>Catostomus commersoni</i>)
Chain Pickerel (<i>Esox niger</i>)	Creek chubsucker (<i>Erimyzon oblongus</i>)
Tessellated darter (<i>Etheostoma olmstedii</i>)	Pumpkinseed (<i>Lepomis gibbosus</i>)
Brown Bullhead (<i>Ictalurus nebulosus</i>)	

4.12 Threatened and Endangered Species

Endangered species are those whose prospects for survival are in immediate danger because of a loss or change of habitat, over-exploitation, predation, competition or disease. Threatened species are those that may become endangered if conditions surrounding the species begin or continue to deteriorate. Coordination with Federal and State resource agencies was performed to identify any species of concern within or near the project area (Appendix A).

In a letter dated 08 December 2004, a New Jersey Natural Heritage Database and Landscape Project search conducted by the New Jersey Department of Environmental Protection, Natural Heritage Program did not reveal the presence of State listed rare wildlife species, rare plant species, or rare natural communities on or within ¼ mile of the project site.

In a letter dated 30 December 2004, the U.S. Fish and Wildlife Service has concluded that except for an occasional transient bald eagle (*Haliaeetus leucocephalus*), no other federally listed or proposed endangered or threatened flora or fauna under their jurisdiction are known to occur within the project area. Additional reporting of resources within the project area is expected from the U.S. Fish and Wildlife Service, New Jersey Field Office as part of the Fish and Wildlife Coordination Act Section 2(b) reporting requirements.

In a letter dated 08 February 2005, the New Jersey Department of Environmental Protection, Division of Fish and Wildlife concluded that other than a 2003 record for the threatened long-eared owl downstream of the project no other records of State endangered and threatened faunal species exists for areas at or immediately near the Grover's Mill Pond project area.

No state or federal listed threatened or endangered flora or other flora of special concern was observed either on or adjacent to the Grover's Mill Pond site during the wetland survey conducted in October 2004.

4.13 Prime and Unique Farmlands

Important farmlands, as described in the United States Department of Agriculture's (USDA) Soil Surveys include:

“Prime Farmland is land best suited for providing food, feed, forage, fiber and oilseed crops, and also available for these uses (the land could be cropland, pastureland, rangeland, forest land, or other land but not builtup land or water). It has the soil quality, growing season and moisture supply needed to produce sustained high yields of crops economically when treated and managed, including water management, according to modern farming methods.”

“Unique farmland is land other than prime farmland that is used for the production of specific high-value food and fiber crops. It has the special combination of soil quality, location, growing season and moisture supply needed to produce sustained high quality and/or high yields of a specific crop when treated and managed according to modern farming methods. Examples of such crops are citrus, olives, cranberries, fruit and vegetables.”

A project coordination letter was mailed to the Mercer County Soil Conservation District on 03 December 2004. The Conservation District has supplied information regarding the requirements for erosion and sediment control plans for the construction of the upland confined disposal facility. No other downstream in-lake restrictions would apply. In addition, coordination with the Natural Resources Conservation Service (NRCS) on 12 September 2005 has not revealed the existence of Prime Farmland or Additional Farmland of Statewide Importance in the project area. The NRCS noted that much of the farmlands in the watershed have been converted to residential development. Many of the remaining farms are enrolled in United States Department of Agriculture programs and are therefore required to implement erosion and sediment control methods and other farming practices that include vegetated buffers, contour farming, and other sediment loss reduction practices.

4.14 Cultural Resources

The major known cultural resource in the project area is the National Register of Historic Places (NRHP) eligible Grover’s Mill Historic District. Of secondary historical importance is the association of Grover’s Mill with the famous 1938 War of the Worlds radio broadcast that caused national panic when Orson Welles and the Mercury Theater players convinced a large segment of the American public that a Martian invasion was taking place in the little known town of Grover’s Mill, New Jersey.

Grover’s Mill Historic District has been determined eligible for its association (Criteria A) with the 18th and 19th Century Grist Mill activities in Mercer County and also as a good surviving representative (Criteria C) of an early hydro-industrial town, specifically the 18th century Grist Mill with intact mechanics. Grover’s Mill was one of two gristmills built in West Windsor in the 18th century and is the sole surviving mill. The original section of the mill was reportedly built in 1759 and operated by Daniel Wolsey. George Bergen ran it during the Revolutionary War period. In 1859 Joseph Grover took over operation of the mill. Roads to the mill were built in the 18th century to provide easy access for West Windsor farmers. Unlike Aqueduct Mills, which spurred the growth of a thriving hamlet, Grover’s Mill remained essentially a mill with a couple of mill-related houses nearby. During Grover’s ownership, which lasted until 1929, several mill workers’ houses and a barn were built.

A contributing property within a National Register Historic District is a building or structure of the historic time period that contributes to the historic significance (National Register

eligibility) of the district. Buildings located within the spatial boundaries of the historic district may or may not be contributing properties. The historic district includes eight contributing properties including first and foremost the Mill, a large clapboard mill building set on a stone foundation. The second contributing property is the Mill pond and bridge/dam, which extends south of the mill along Grover's Mill Road. The current bridge built in 1931 follows the same alignment as earlier bridges and roads. The dam also remains on the same alignment as it did during the 18th century. The remaining six contributing properties consist of five houses and a barn. There are two 19th century architecturally distinctive houses, Millwright's House at 427 Grover's Mill Road, and the Grover House at 175 Cranbury Road, north of the Mill along Cranbury Road. Grover's Mill Company on Cranbury Road is a historic barn located diagonally across from the mill building. The structure continues to sell agricultural related equipment. The remaining three properties are 19th century mill workers' houses that have seen varying amounts of modern renovation. These are the properties at 160 Cranbury Road, 152 Cranbury Road, and 148 Cranbury Road.

Regarding the War of the Worlds broadcast, at the intersection of Cranbury, Clarksville, and Grover's Mill Roads there are the remains of the water tower that was shot to pieces by nervous residents in 1938 on the night of the Mercury Theater broadcast. It is barely visible now, standing behind the house to the Grover's Mill Company, obscured by a fence and overgrown vegetation. There is also a "Martian Landing Site" monument installed in 1988 in Van Nest Park near Grover's Mill Pond. The plaque is a 3D bronze relief depicting an impassioned Orson Welles orating into a microphone as a 1930's family listens in terror by their radio. Looming above is a sinister Martian machine, a metallic tentacled tripod. There are occasional celebrations marking important anniversaries of the broadcast. The 60th celebration in 1998 included a formal "Martian ball."

4.15 Infrastructure

The project site is located near Grover's Mill, New Jersey. The surrounding urban communities consist predominantly of single homes and a few industries. Utilities located in the general project area would consist of phone lines, sewer lines, utility service lines as well as other structures that would expect to be found within such an urban setting. A Sunoco Pipeline L.P. 16 inch high pressure petroleum products pipeline borders the area defined as the confined disposal facility location. Transportation routes in the project and surrounding areas include divided and undivided highways, secondary and local roads.

4.16 Socioeconomic Conditions

According to the United States Census Bureau (12 January 2006), the 2000 census for Mercer County estimated the human population to be at 350,761 persons with a 2004 updated estimate of 365,271. In 1999 an estimated 8.6% of the county population was below poverty levels. The 1999 median household annual income was estimated at \$56,612. The project area falls within the Trenton-Ewing, New Jersey Metropolitan Area. The 2000 census for West Windsor Township estimated the human population at 21,907 persons with a 1999 median household annual income of \$116,335.

4.17 Environmental Justice

Project and construction activities to include dredging and construction of the confined disposal facility will occur on publicly owned lands. The homes adjacent to the pond are primarily residential single family homes with a wooded buffer separating the pond from those properties. In addition, a forested area makes up the majority of the upstream project area. Due to the undeveloped nature of the majority of the project area and the fact that the project will be on publicly owned lands, no low income and/or minority communities are expected to be located in the immediate vicinity of the project.

5.0 ENVIRONMENTAL EFFECTS

5.1 Project Description

The general project area will not appreciably change. The changes in bottom water profiles will not be visible to the public. Other than a handicap access fishing pier where public access fishing now occurs, no structural changes to the pond area are planned. Earthmoving and construction of the upstream confined disposal facility will change the appearance of that area temporarily. The confined disposal facility will be re-graded following completion of the sediment drying process. Any impacts on the project are believed to be temporary and minor.

5.2 Climate

Due to the nature of this project, which includes limited construction, this project is not expected to adversely impact the climate within or around the project area.

5.3 Air Quality

Construction equipment may cause a minor and short-term increase in emissions due to construction activity. The project will result in no significant change in air quality within or around the project area.

The Grover's Mill Pond Restoration Project would take place in Mercer County, New Jersey. This area is classified as moderate nonattainment for ozone (oxides of nitrogen [NO_x] and volatile organic compounds [VOCs]). Mercer County, New Jersey is within the Philadelphia-Wilmington-Atlantic City Nonattainment Area (PA-NJ-DE-MD). The 1990 Clean Air Act Amendments include the provision of Federal Conformity, which is a regulation that ensures that Federal Actions conform to a nonattainment area's State Implementation Plan (SIP) thus not adversely impacting the area's progress toward attaining the National Ambient Air Quality Standards (NAAQS). Appendix D provides a General Conformity Analysis for this project.

The total estimated emissions that would result from construction of the Grover's Mill Pond Restoration Project are 8.15 tons of NO_x and 1.22 tons of VOCs. These emissions are below the *General Conformity trigger* levels of 100 tons NO_x and 50 tons VOCs per year. General Conformity under the Clean Air Act, Section 176 has been evaluated for the project according to the requirements of 40 CFR 93, Subpart B. The requirements of this rule are not applicable to this project because the total direct and indirect emissions from the project are below the conformity threshold values established at 40 CFR 93.153 (b) for ozone (NO_x and VOCs) in a Moderate Nonattainment Area (100 tons NO_x and 50 tons VOCs per year). The project is not considered regionally significant under 40 CFR 93.153 (i).

5.4 Topography and Soils

The underwater profile of Grover's Mill Pond will be modified with the project. Accumulated sediments shall be removed from the pond to re-establish original contours as part of the restoration effort. Construction of the 11-acre confined disposal facility will require earth moving activities to include construction of 10-20 foot earthen berms. Upon completion of the

material drying process, the confined disposal facility will be re-graded to meet uses in the area. The impacts on topography in the project area are expected to be temporary and minor.

The possibility of soil erosion in the vicinity of Grover's Mill Pond is considered moderate due to the soil types in the area. However, soil erosion is possible from disturbed areas during construction. An approved sediment and erosion control plan and National Pollution Discharge Elimination System Permit will be secured from the Mercer County Conservation District and the New Jersey Department of Environmental Protection prior to construction activities commencing. Appropriate sediment and erosion controls will be utilized to prevent impacts to environmental resources in the area. Due to the nature of this project and implementation of approved erosion control techniques, no adverse impact to the geology or soils within or around the project area is expected.

5.5 Land Use and Recreation

Predominantly, land use in the surrounding area is associated with recreational use of the publicly owned park. Some private residences do exist adjacent to the pond. A short-term and minimal impact associated with access to the pond during construction is expected. No long-term adverse impact to land use and recreation is expected as a result of the project. A positive and long term impact is expected as a result of the restoration efforts.

5.6 Hazardous, Toxic, and Radioactive Substances

Based on sediment and soil analysis for the project, no hazardous, toxic and radioactive waste impacts are expected as a result of this project.

5.7 Aquatic Resources and Wetlands

5.7.1 Surface Water

All necessary precautionary measures will be implemented to ensure that the Grover's Mill Pond and associated surface water resources are protected from harmful discharges that may adversely affect aquatic life, and/or their recreational use. Incidental positive impacts are expected as a result of removing nutrient laden sediments from Grover's Mill Pond resulting in better seasonal water quality conditions in-lake and downstream.

5.7.2 Groundwater

Dredging will be conducted to re-establish historic contours of the pond. Re-grading and preparation of the 11-acre proposed confined disposal facility will be necessary. Due to the nature of these construction activities, no negative short or long-term impacts on groundwater resources in the project area are expected.

5.7.3 Wetlands

Both vegetated wetlands and open water habitat exist within and on the boundaries of the pond. The preferred alternative will result in short term and minor impacts to fringe wetland areas during construction. The dredge pipeline will lay across the land surface of existing forested wetlands immediately adjacent to the confined disposal facility. The pipe will be removed following the completion of dredging. In addition, the discharge pipe and rock filter

for the confined disposal facility will be placed in this same general area. Upon completion of sediment drying, these structures will also be removed. The total temporary impact, as a result of the placement and removal of these structures is 0.05 acres of wetlands.

5.8 Wild and Scenic Rivers

A resource information review revealed that no nationally designated wild and scenic rivers or river segments are located within the project area.

5.9 Vegetation

Potential minor and long-term impacts on vegetation exist with the project. Rooted and floating aquatic vegetation will be removed from the pond during the dredging portion of the project. A ten foot buffer will remain along the edge of the pond. The current density of vegetation in the pond is detrimental to the ecosystem. Therefore, removal of some of this vegetation is considered a positive long-term impact. In addition, placement of the outfall structure and piping may result in the impact of a handful of trees and shrubs near the confined disposal facility. The footprint of this impact is very small. The exact position of these structures will be adjusted in the field to avoid any tree removal, if possible. As a result, no significant long-term adverse impact is anticipated as a result of the project.

5.10 Wildlife Resources

Birds, mammals, reptiles and amphibians are capable of moving, and would be expected to leave the immediate project construction areas and relocate to areas in the immediate vicinity. Species that reside in these adjacent areas may be temporarily impacted by increases in species densities. Due to the amount of adjacent nearby habitat, it is expected that no significant adverse impact to wildlife resources will occur as a result of this project. Construction schedules and methodology will be based, in part, on timing restrictions established by the resource agencies. Coordination is ongoing with appropriate agencies.

5.11 Finfish and Invertebrate Species

Aquatic life in the form of invertebrates and finfish inhabit the waters of the Grover's Mill Pond project area. Minor and short term impacts are expected as a result of the dredging of sediments from the pond. Some finfish and invertebrates are mobile and would be expected to leave the areas being dredged and temporarily relocate to areas in the immediate vicinity. The dredging work will occur over a period of several weeks therefore allowing species time to relocate. Although portions of habitat currently being utilized by species in the pond will be removed through dredging, the habitat enhancement efforts following dredging in conjunction with habitat enhancement as a result of the dredging work, will offset any impacts to currently existing populations. There are no negative appreciable changes in the water temperature regime expected as a result of construction activities and no stream relocation or pond lowering is proposed. As a result, no significant adverse impacts to invertebrate and finfish resources will occur as a result of this project. Positive impacts associated with habitat enhancement and State fish restocking efforts are expected. Any timing restriction recommended by the resource agencies will be considered during project construction scheduling.

5.12 Threatened and Endangered Species

Coordination with various Federal and State natural resource agencies is ongoing to identify threatened and endangered species that may be utilizing the project area. Other than the Bald Eagle (*Haliaeetus leucocephalus*), no other species potentially utilizing the area have been identified. Due to the nature of this project and the mobility of the majority of species of concern, no significant negative impact to these species or their habitat is expected. Coordination with the U.S. Fish and Wildlife Service is ongoing through the Fish and Wildlife Coordination Act, project recommendations developed through this coordination shall be considered for the project.

5.13 Prime and Unique Farmlands

Possible areas of concern have not been identified by the NRCS or Mercer County Conservation District. No adverse impact to these resources is expected.

5.14 Cultural Resources

The NJ SHPO has concurred that the National Register of Historic Places (NRHP) eligible Grover's Mill Historic District will not be impacted by the project as now planned. Most of the 18th and 19th century historic district lies north of the project's area of potential effect. Within the historic Grover's Mill Pond, prehistoric archaeological deposits may be present in the terraces adjacent to Big Bear Creek that now lie buried beneath several meters of post-settlement alluvium. During initial Section 106 consultation with the NJ SHPO dated February 20, 2004 the District Archaeologist questioned whether an underwater survey with a sub-bottom profiler using narrow beam sound waves would be able to locate such deposits through the thick layer of organic debris on the bottom the pond. Historic period debris of all sorts could also be present in the thick sediments at the bottom of the pond and it would be difficult to assess the age and significance of these targets through remote sensing. The NJ SHPO has concurred by letter dated March 25, 2004 that archaeological monitoring of the dredging (wet alternative) now planned would seem to be a better choice.

Dredged material would be placed on the south side of the lake on land owned by the township that had previously been converted to athletic fields. A confined disposal facility covering 11 acres will be constructed in this location. Excavation to a ten-foot depth is now planned and the excavated material will be used to construct the surrounding berm. No previous earth disturbing excavation has occurred in the disposal area and there is moderate potential for intact buried archaeological deposits. An intensive Phase 1b archaeological survey will be conducted of the entire disposal area and the results of that investigation will be coordinated with NJ SHPO pursuant to 36 CFR 800.4. Section 106 consultation on the methodology to be employed for this survey is ongoing.

5.15 Infrastructure

The construction of the restoration project will slightly increase vehicular traffic on nearby roads surrounding the pond. Nearby residents may be temporarily inconvenienced, however project activities will be short-term and are not expected to significantly impact existing transportation routes. The confined disposal facility will be designed to have a construction

footprint outside of the gas utility right of way paralleling the site. No impact to this resource is expected.

5.16 Socioeconomic Conditions

The project is not expected to adversely impact the economy or social structure near the pond or surrounding areas.

5.17 Environmental Justice

This project is not expected to adversely impact any minority or low-income communities in the project area, because none exist.

5.18 Cumulative Impacts

Cumulative impacts are impacts on the environment that result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions, regardless of who undertakes these actions. This cumulative impact assessment focuses on impacts associated with the Grover's Mill restoration project.

Historically, the most significant impacts on Grover's Mill Pond and surrounding areas has been development and land use. Agricultural and land development activities have contributed sediments and nutrients to the pond resulting in the current pond conditions. The transformation of urban areas to suburban areas, application of best management practices on remaining lands, and restrictions on stormwater runoff and erosion control in suburban areas have resulted in a reduction in sediment and nutrient loads coming into the pond. Restoration of the pond is expected to remediate the historic impacts associated with land use in the watershed.

Future watershed activities have the potential to impact the long-term success of the project. Increases in sedimentation from the watershed from continued development and ongoing human activities could affect the project by reducing depths and covering aquatic habitat structures. However, due to the anticipated application of appropriate best management practices by local jurisdictions for future unknown projects in the watershed, excessive sedimentation and its subsequent potential negative impact on the aquatic ecosystem of Grover's Mill Pond is expected to be minimized.

Cumulative effects of the actions in conjunction with those associated with the project is expected to remain positive, Continued recognition of environmental concerns by public and private parties alike in conjunctions with increased public access and recreational use of Grover Mill resources, are expected to promote the necessary environmental ethics to support a continued realization of positive environmental benefits in both the Grover's Mill Pond and surrounding watershed.

5.19 Environmental Permits and Regulatory Compliance

A summary of project compliance with applicable environmental statutes is provided in Appendix E. Work in waters of the United States, including wetlands, must be in compliance with Sections 404 and 401 of the Clean Water Act. The State of New Jersey is responsible for

issuance or waiver there of the Section 401 State water quality certification for any work, which may affect water or waterways in the state.

The State of New Jersey conducts the 401 WQC review as part of their Freshwater Wetlands Protection Act (FWPA) permitting program. Under their comprehensive permitting program they regulate all activities in freshwater wetlands, as well as in "transition areas" such as upland buffers adjacent to the wetlands. (N.J.S.A. 13:9B-1 et seq.). In general, Section 401 State water quality certifications are issued upon receiving a state permit under the FWPA. The project sponsor will apply for and secure a FWPA state permit for the project. Upon issuance of this permit, Section 401 of the Clean Water Act will be satisfied.

Work in waters of the United States, including wetlands, must be in compliance with Section 404 of the Clean Water Act. Therefore, a review of impacts associated with the potential discharge of fill material has been performed as per Section 404(b)(1) of the Clean Water Act (Appendix F). The requirements of Executive Order 11990, Protection of Wetlands, are therefore met as a result of minimization of impacts to waters of the United States.

The Soil Erosion and Sediment Control Act of 1975 as amended, (N.J.S.A. 4:24-39 et. seq.) stipulates that any project proposing more than 5,000 square feet of soil disturbance for a construction project must create a Soil Erosion and Sediment Control Plan and have it certified by the local District before any construction may commence to ensure that the project meets State Standards. An approved Plan will be secured from the Mercer County Soil Conservation District prior to the start of construction activities for the project. In addition, a National Pollutant Discharge Elimination System permit will be secured from the Mercer County Conservation District and the New Jersey Department of Environmental Protection prior to construction activities commencing.

6.0 COORDINATION

The proposed project is being coordinated with the U.S. Fish and Wildlife Service, New Jersey Field Office; U.S. Environmental Protection Agency Region 2, Environmental Compliance Division; New Jersey Department of Environmental Protection (NJDEP), Division of Fish and Wildlife; NJDEP, Division of Engineering and Construction; NJDEP, Office of Dredging and Sediment Technology; NJDEP, Division of Parks and Forestry; NJDEP, Land Use Regulation Program; New Jersey State Historic Preservation Office; Mercer County Soil Conservation District; and United States Department of Agriculture, Natural Resources Conservation Service. Copies of correspondence with Federal, State and local interests are provided in Appendix A.

7.0 CONCLUSIONS

This Environmental Assessment has evaluated potential environmental impacts associated with the ecosystem restoration project at Grover's Mill Pond, New Jersey. The findings herein have been prepared in accordance with the National Environmental Policy Act of 1969, as amended. Potential impacts to environmental and cultural resources resulting from the proposed action have been described and evaluated in this document.

The objective of this Section 206 project is to improve the Grover's Mill Pond ecosystem. The preferred alternative of dredging sediments from the pond and enhancement of aquatic habitat was selected based on coordination with Federal and State resource agencies. This alternative minimizes potential adverse environmental impacts and maximizes the restoration of the ecosystem. The primary environmental gain will come in the form of aquatic habitat with incidental benefits of improved water quality and recreation.

8.0 LITERATURE CITED

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