FINAL RESTORATION PLAN AND ENVIRONMENTAL ASSESSMENT:

Picillo Farm Superfund Site

Coventry, Rhode Island

Prepared by

Lead Administrative Trustee: U.S. Department of the Interior,
U.S. Fish and Wildlife Service

Cooperating Trustee: State of Rhode Island
Rhode Island Department of Environmental Management

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A. Introduction and Authority/Purpose and Need for Action

This Final Restoration Plan and Environmental Assessment (RP/EA) has been developed by the natural resource trustees (U.S. Department of the Interior and the State of Rhode Island) to identify and evaluate alternatives to restore natural resources injured at or as a result of the discharge of hazardous substance(s) from the Picillo Farm Superfund Site (Site). This document describes proposed restoration actions and incorporates public input received during the restoration planning process.

Executive Order 12580 and 40 C.F.R. § 300.600 designate the Federal and State trustees for natural resources. The Secretary of the Department of the Interior (DOI) is the designated Federal trustee for certain natural resources including, but not limited to: migratory birds, some marine mammals, anadromous fish, endangered species and their respective habitats, and Federal lands managed by DOI. The Secretary of the Interior has designated the Northeast Regional Director of the U.S. Fish and Wildlife Service (Service) to act as the Authorized Official on behalf of DOI for the Picillo Farm Superfund Site. The Executive Order and Federal Regulation provide that each state is the designated trustee for all natural resources within its boundaries. The governor of each state designates the state agency or agencies that will act as the natural resource trustee(s) for his/her state. The Governor of Rhode Island has designated the Rhode Island Department of Environmental Management (RIDEM) as the state's natural resource trustee. Thus, the Service and RIDEM are the natural resource trustees (Trustees) for the Picillo Farm Superfund Site.

Under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), natural resource trustees are authorized to assess and recover compensation for injury to and/or loss of natural resources resulting from a release of a hazardous substance(s).

In 1994, DOI determined that hazardous substances released at the Site adversely affected migratory birds and their habitats, particularly wetlands. DOI sought compensation for these adverse impacts; it initially attempted to require the Potentially Responsible Parties (PRPs) to create eight (8) acres of wetland habitat similar to that which was lost and to protect two (2) acres of adjacent upland habitat. Over 40 PRPs wanted to settle the natural resource damage claim; however, none agreed to perform the restoration work. At the time of settlement, DOI estimated that $175,700 would be required to implement all aspects of habitat restoration, including planning, restoration, and monitoring. (With inflation and more examples of restoration costs in hand, DOI currently estimates that restoration of eight acres of wetlands could cost as much as $500,000.) DOI ultimately received $146,000 in settlement funds. (Some PRPs have still not paid the damages which DOI contends they owe.) DOI deposited the settlement funds in an interest-bearing account managed by DOI; the total amount of available funds (initial deposit plus accrued interest) in that account is currently approximately $172,000. The Trustees do not know when, or if, additional damages owed by some PRPs will be recovered. Therefore, the Trustees have determined that they should initiate restoration, and should seek to maximize wetland restoration with the funds that are currently available.

Prior to expending funds for restoration, CERCLA requires the Trustees to develop a publicly reviewed restoration plan [(42 U.S.C. § 9611(i)]. DOI Natural Resource Damage Assessment Regulations (43 CFR Part 11) require that the restoration plan list a reasonable number of possible alternatives for restoration, rehabilitation, replacement, and/or acquisition of equivalent resources and the services lost to the public associated with each injured resource (43 CFR, §§11.93 and 11.81). In addition, this document constitutes the environmental assessment as defined under the National Environmental Policy Act (NEPA) (40 CFR Part 1502.10), and addresses the potential impact of proposed restoration actions on the quality of the physical, biological, and cultural environment.

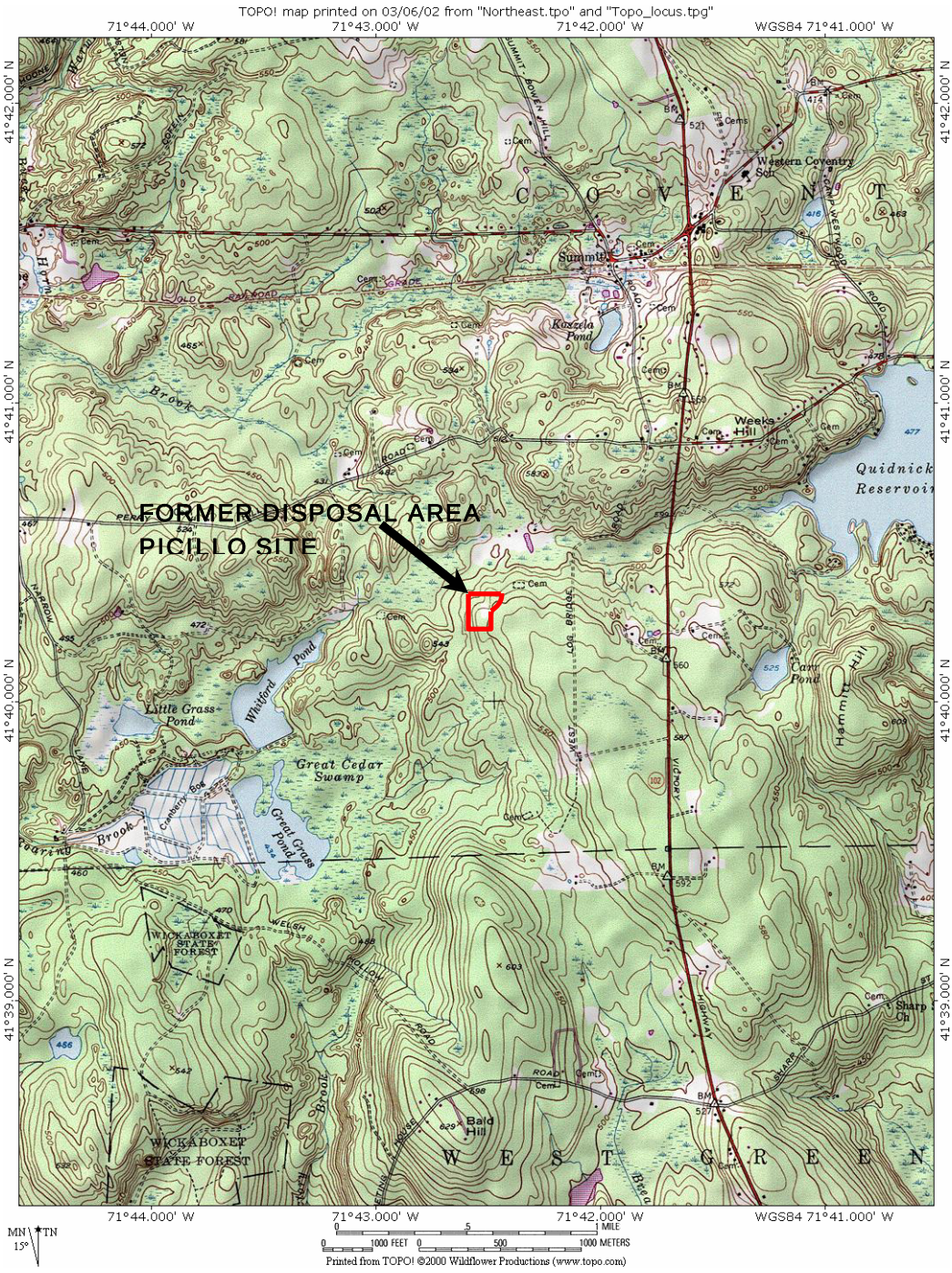
B. Background

The Site includes a disposal area of approximately eight acres surrounded by 100 acres of woodland and wetland habitat on the Picillo Farm Property in southwestern Coventry, Rhode Island (Figure 1). The Site is situated on a watershed divide. To the east, open water, scrub-shrub and forested wetlands drain to the Quidnick Reservoir and ultimately to the Pawtuxet River. To the west and south, red maple swamps and beaver-flooded emergent marshes drain to Whitford Pond and the Great Cedar Swamp, an Atlantic white cedar swamp and associated bog. From that point, water drains to Roaring Brook and ultimately to the Quinebaug River.

The variety of natural communities and the abundance of transitional zones between communities on the Site provide considerable wildlife habitat. During one survey, Arthur D. Little (1993) compiled a list of 135 species of vertebrates that were observed or expected to inhabit the Site; the list included 18 species of fish, 21 species of amphibians and reptiles, 25 species of mammals, and 71 species of birds. Migratory birds that utilize the Site include, but are not limited to: waterfowl (American black duck, Canada goose, mallard), wading birds (great blue heron, green-backed heron), raptors (American kestrel, red-shouldered hawk) and passerines (blue jay, American robin, ovenbird, yellow warbler).

The Site had been used as a pig farm when illegal dumping of drums containing hazardous and bulk wastes began in 1977. Disposed wastes included industrial solvents, oils, pesticides, polychlorinated biphenyls (PCBs), and other potentially hazardous materials. In September 1977, a sodium aluminum hydride explosion and fire led to the discovery of the Site and brought the dumping activities to a halt.

Since that time, RIDEM and the U.S. Environmental Protection Agency (USEPA) have been involved in cleaning up the Site, focusing on controlling the source of the contamination and cleaning up groundwater and surface water.



SITE LOCATION (approximate) AND AREA TOPOGRAPHY

Picillo Farm Superfund Site
Coventry, Rhode Island

FIGURE NO.
1

As described in the Service's 1994 damage assessment, migratory birds were adversely affected by contamination either directly or via impaired wetland habitats. PCBs in soils caused injury to foraging bird species, such as the American robin and the American woodcock. Metals contamination in surface waters resulted in food web contamination and the reduction and/or loss of biological diversity and productivity. In turn, the impaired diversity and productivity adversely affected migratory birds and other wetland-dependent wildlife.

C. Public Notification and Review

CERCLA requires the Trustees to notify the public and any Federal, State, or local agencies with special interests or expertise relating to the RP/EA. In partial fulfillment of this requirement, the Trustees published a public notice of the availability of the Draft RP/EA in The Providence Journal Bulletin. The document was available for review at the Coventry Public Library, 1672 Flat River Road, Coventry, Rhode Island 02816.

In addition, copies of the RP/EA were available from the U.S. Fish and Wildlife Service at the following address:

U.S. Fish and Wildlife Service
70 Commercial Street, Suite 300
Concord, New Hampshire 03301
Contact: Molly Sperduto
Phone: 603-223-2541, Fax: 603-223-0104
email: molly_sperduto@fws.gov

The document was also available online at:
http://www.fws.gov/northeast/newenglandfieldoffice/Contaminants-NRDAR-restoration_projects-PicilloFarm.htm

Interested parties were asked to comment on the Draft RP/EA by August 31, 2007. Several comments were received.

D. Proposed Restoration

The Trustees primary goal is to implement a restoration project that compensates for adverse impacts to habitat for migratory birds caused by the release(s) at or from the Site. The concept of restoration in this context may include returning a resource to its prior condition, rehabilitating or replacing a resource, and/or acquiring other resources to compensate for those which were lost.

1. **Specific Restoration Projects Considered**

The Trustees are required to consider a "reasonable number" of possible restoration alternatives (43 CFR, §11.81). In their initial review, the Trustees identified the following as desirable characteristics for potential projects: the restored habitat should be

similar in type to the habitat impacted to provide similar services; the project should be in the same watershed as the impacted wetland; and the project should provide long-term or perpetual benefits to fish and wildlife resources. Based on these criteria and on NEPA guidance, the Trustees identified the following specific potential projects:

a. Alternative A: No Action Alternative

Federal regulations require the consideration of this option. Under this Alternative, no restoration, rehabilitation, replacement, or acquisition actions would occur to compensate for resources injured due to contamination or remediation of contamination from the Site.

b. Alternative B: On-Site Wetland Restoration and Upland Habitat Protection

Emergent marsh and shrub-dominated wetlands north of the disposal area and adjacent to the original dwelling and pig barn have been partially filled with soil, debris and refuse along their southern margins. Aerial photos also document historic dumping of debris and refuse in this area during the 1970s. By removing fill and debris, the southern margin of the wetlands could be restored and re-graded to more natural, historic contours. Several acres of wetland habitat could potentially be restored and revegetated.

c. Alternative C: Wetland Restoration in the Vicinity of the Site

Coventry officials and Federal, State and private natural resource agency professionals suggested the following off-site wetland restoration projects within the Town of Coventry:

(1) Sandy Bottom Road Wetland Restoration, Coventry, Rhode Island

The Sandy Bottom Road property consists of approximately 23 acres of undeveloped upland and wetland habitat along the South Branch of the Pawtuxet River in eastern Coventry. The Town of Coventry owns the parcel which abuts two other conservation areas, protecting a total of approximately 59 acres of open space. The 23-acre property consists of wetlands, including an Atlantic white cedar swamp, red maple swamp, tussock sedge marsh and shrub swamp and uplands, including a one-acre early-successional old field, white pine-oak woodlands, and red maple forest.

Situated in a rapidly developing area of Coventry, the property provides opportunities for wetland restoration, as well as passive public recreation and education. In 2002, utilizing funds from the USEPA, the Town of Coventry, in cooperation with the Rhode Island Association of Wetland Scientists, submitted a plan for wetland restoration and education on the property (Figure 2, from Sandy Bottom Road Floodplain – Wetland Restoration and Enhancement Demonstration Project. Phase One). The following three wetland restoration options were considered.

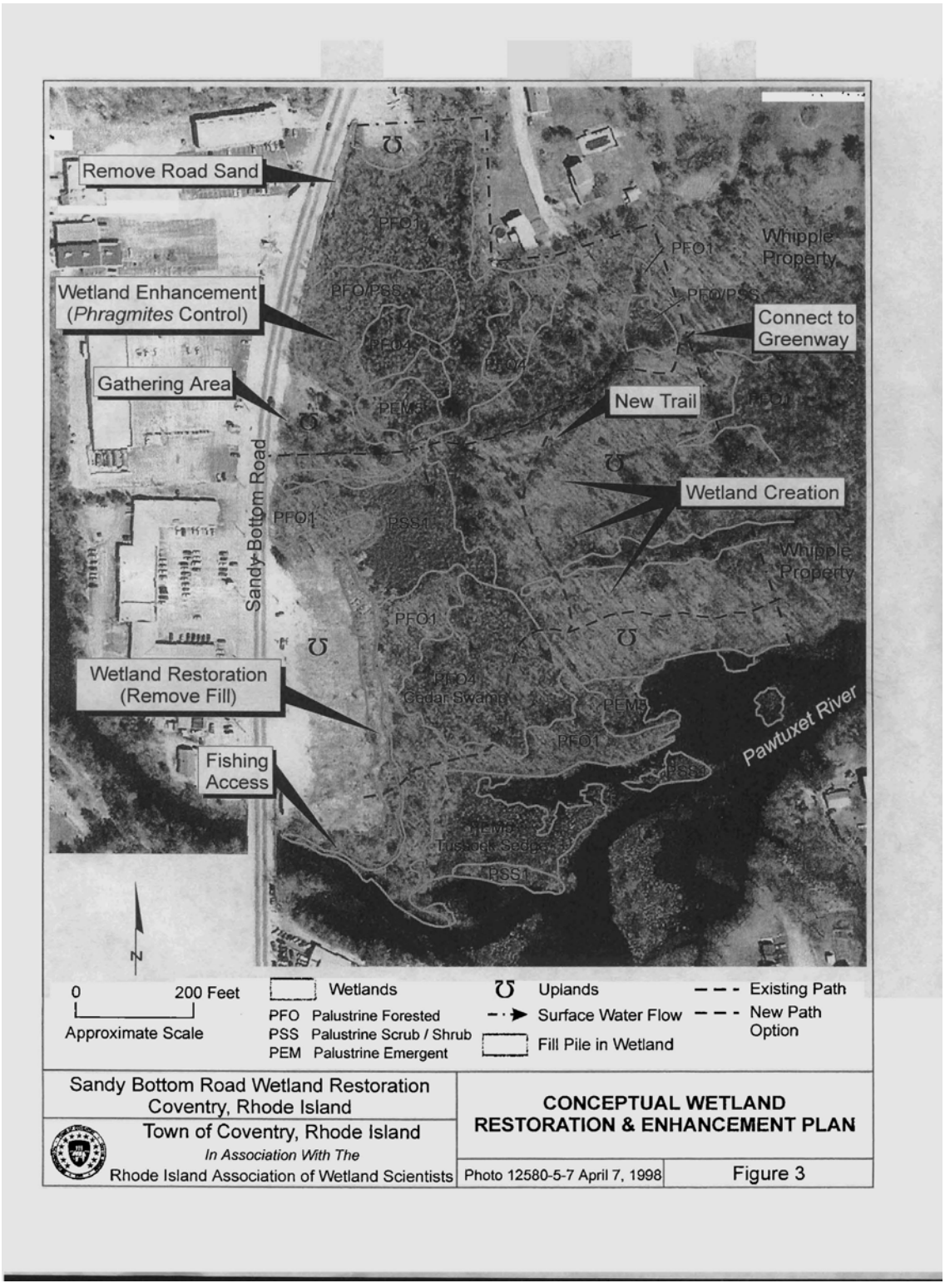


Figure 2. Sandy Bottom Road Conceptual Wetland Restoration Plan.

(a) Floodplain Restoration

A linear array of spoil piles lay along the margin of the forested wetland which abuts the Pawtuxet River in the southwest portion of the property. The piles contain rubble from boulders, concrete and asphalt, as well as debris such as tires and remnants of domestic appliances. Invasive exotic plant species, including Japanese knotweed (*Polygonum cuspidatum*) and Asiatic bittersweet (*Celastrus orbiculata*), cover some of the fill along the wetland margin. Removing fill along the margin of the forested wetland, re-grading to restore original elevations, and revegetating the area with native plants will help to restore the functions and values of the existing forested wetland. Removal and control of invasive exotics will help to prevent their colonization in restored areas.

(b) Wetland Enhancement

Common reed (*Phragmites australis*) dominates large portions of the scrub-shrub wetland bordering Sandy Pond Road in the northwest portion of the property. Removing road sand from the wetland and controlling *Phragmites* by altering the hydrology of the wetland or applying herbicide could enhance the wetland's value to wildlife.

(c) Wetland Creation

Areas of the property containing moderately well-drained soils with seasonal high water may be suitable for creating vernal pools to increase wildlife habitat.

d. Alternative D: Acquisition of Equivalent Resources

Acquisition of equivalent resources entails the purchase and protection in perpetuity of wetland and/or upland habitats that provide resources similar to those injured by the contamination. Potential protection areas include those lands which provide habitat for migratory birds or other important natural resources such as endangered, threatened or rare species. Upland areas that help maintain the integrity of aquatic areas and are at risk of being lost due to threatened imminent development will be considered a priority.

Acquisition of equivalent resources is frequently considered the least-preferred alternative because it results in preservation of existing resource values rather than replacement of lost resource values. However, in areas under imminent threat of development, protection can be a critical mechanism to secure and promote resource viability by decreasing future direct and indirect impacts of such development.

Undeveloped land to the south and west of the Site is currently an area of focus for state wildlife managers and private conservation organizations, including The Nature Conservancy (TNC). TNC's Pawcatuck Borderlands Program has initiated an effort to link nearly 136,000 acres of conservation land along the Rhode Island/Connecticut

border. Protection of that area, the largest forested system between Boston and Washington, D.C., is one of TNC's top priorities in the northeast region of the United States.

The area is comprised of extensive, unfragmented blocks of coastal plain forest that are vulnerable to development. These forests, along with wetlands and rivers, provide habitat for a variety of migratory birds, amphibians, reptiles, mammals and insects. According to the Rhode Island Natural Heritage Program's breeding bird database, more than 70 species of birds are likely to breed in the area. These species include numerous passerines such as thrushes (Northern water thrush, Eastern bluebird), warblers (yellow-rumped, pine, black-throated green), vireos (red-eyed and yellow-throated), sparrows (chipping, song and house), and swallows. Raptors, including red-shouldered, red-tailed and broad-winged hawks, and waterfowl such as wood ducks and Canada geese are also likely to breed in the area. Mammals, including fisher, white-tailed deer and black bear, also inhabit the large forested tracts. Atlantic white cedar wetlands provide habitat for rare insects, including the state-endangered, globally rare, banded boghaunter dragonfly (*Williamsonia litneri*), and the rare Hessel's hairstreak butterfly (*Mitoura hesseli).*

TNC is currently raising funds to complete the purchase and protection of three parcels (Shepard, Cioe and Bates) that are approximately three miles from the Site (Figure 3).

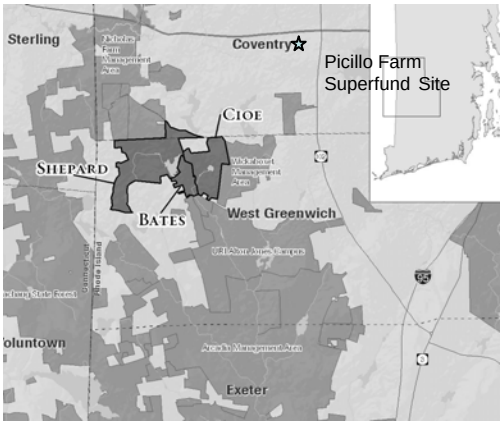


Figure 3. Land protection priorities (map developed by The Nature Conservancy).

(1) The Shepard Property

The Shepard Property (Figure 4) is located on Sand Hill Road, approximately three (3) miles southwest of the Site. It is approximately 960 acres in size, with 78 acres in Coventry and 882 acres in adjacent West Greenwich.

Part of the Coventry portion of the property is in the same watershed as the Site, draining into Arnold Pond, and from there to Roaring Brook. The remainder of the property drains southward to the Wood River watershed. The property is comprised of a variety of habitat types. Upland areas consist primarily of hardwood forest (>80% hardwood) and mixed hardwood forest (50-80% hardwood). Oak woodlands, such as the one in Figure 4, are the dominant community type. Several stands of softwood are found in the northern portion of the property. Roughly 5% (approximately 50 acres) of the property is wetland—primarily forested swamps adjacent to Coney Brook, which bisects the property before draining into the 42-acre Tillinghast Pond on the eastern edge of the property.

Figure 4. The Shepard Property.

Purchase of the Shepard Property creates a nearly continuous corridor of protected land from the Nicholas Farm Management Area to the Arcadia Management Area. TNC currently needs to raise approximately $2.5 million to complete the purchase and fund the stewardship of the property.

(2) The Cioe Property

The 479-acre Cioe Property (Figure 5) is located on Narrow Lane in West Greenwich, approximately 2.5 miles southwest of the Site. The eastern border of the property abuts the 678-acre Wickaboxet Management Area.

The northern third of the property drains into Arnold Pond and the Roaring Brook watershed, while the remainder drains south to the Wood River watershed. The property is primarily forested; it is comprised of upland hardwood forest (more than 80% hardwood), mixed deciduous forest (50-80% hardwood), and occasional areas of mixed coniferous forest (50-80% softwood). Less than 5% of the property is wetland (less than 25 acres). There are forested seepage wetlands in the northern portion of the property as well as several forested drainage areas associated with a seven-acre pond in the center of the property.

The highly developable nature of the property is evidenced by the fact that the owner has recently received approval for a subdivision plan comprised of 165 house lots. According to the subdivision plan, access to the lots would require more than five miles of road construction.

To prevent the imminent development of the property, TNC purchased 315 acres in July 2006 and TNC currently has a binding agreement to acquire the remaining acreage.

Figure 5. The Cioe Property.

(3) The Bates property

The 120-acre Bates property is on Plain Meeting House Road in West Greenwich. The property is southeast of Tillinghast Pond, directly between the Shepard Property (on the west) and the Cioe property (on the east).

Upland forests are the dominant habitat type on the property; they are similar to those on the Shepard and Cioe tracts. Except for small drainage areas on the eastern border with the Cioe parcel, the property contains very little wetland. To fully connect all of the conservation lands in the area, TNC has a binding agreement to acquire this property.

2. Evaluation of Impacts and Comparison of Projects

Both CERCLA and NEPA require the Trustees to assess and disclose the potential effects of restoration alternatives. This section discusses the potential benefits and consequences of each of the alternatives identified above.

Criteria considered in evaluating each of the possible restoration projects include the following: similarity of the restored habitat to the injured resources; technical feasibility; cost; potential for additional injury resulting from the proposed actions, including long-term and indirect impacts; ability of the resources to recover with or without alternative actions; potential effects of the action on human health and safety; consistency with relevant Federal, State, and Tribal policies; and compliance with applicable Federal, State, and Tribal laws.

a. Alternative A: No Action Alternative

Under the no action alternative, injuries to migratory birds and their habitats would be uncompensated. Wetland and upland habitat impacted by contamination would not be restored and associated services lost to the public in the past and future would not be compensated. No benefits would be realized from the settlement with the responsible parties at the Picillo Farm Superfund Site and the Trustees' obligations under the Consent Decree would not be met.

b. Alternative B: On-Site Wetland Restoration

Restoration of on-site wetlands was considered; however, on-site restoration is not considered optimum primarily because the Town of Coventry is considering utilizing the area adjacent to the potential restoration site for a police training facility. Construction and disturbance adjacent to the potential restoration area would reduce its value as wildlife habitat. Restoration of wetlands adjacent to the landfill would also provide minimal benefit to the public since access to the area is restricted.

c. Alternative C: Wetland Restoration in the Vicinity of the Site

One potential wetland restoration project was identified in the vicinity of the Site.

(1) Sandy Bottom Road Wetland Restoration, Coventry, Rhode Island
The Sandy Bottom Road Wetland Restoration Site contains several potential wetland restoration and enhancement opportunities, including fill removal, invasive species control, and vernal pool creation.

Removing debris, road sand and historic fill from scrub-shrub and forested floodplain wetlands would restore approximately two (2) acres of former wetland habitat similar to the habitat which was impacted at the Site. This would increase flood storage capacity and improve wildlife habitat. Removal and control of several invasive species, including Japanese knotweed, Asiatic bittersweet and common reed, would improve vegetative species diversity and benefit wildlife. Creating vernal pools in areas of seasonal high water may increase potential amphibian breeding habitat.

Wetland restoration at the Sandy Bottom Road Site may also result in increased opportunities for wetland education and limited public recreation. The Phase One Report prepared by the Town of Coventry identified several opportunities to involve local schools with the restoration project, including assisting the town with collecting water quality data from the Pawtuxet River, collecting baseline data, and long-term monitoring of the wetland ecosystem. Additionally, opportunities exist to develop and enhance walking trails on the property.

Based on the conceptual wetland restoration plan and the Service's experience with wetland restoration, the proposed wetland restoration activities are technically feasible and have a strong likelihood of success. Required permits would be obtained prior to construction to comply with Federal, State and local laws and regulations. Cost estimates have not yet been established; however, the project could be undertaken in phases to accommodate the limitations imposed by currently available funds. The highest priority would be given to the removal of fill from wetlands and creation of vernal pools. Additional funds could potentially be raised through partnerships with other organizations such as the USEPA, the Service Partners Program, and the National Fish and Wildlife Foundation (Five-Star Restoration Matching Grants Program). Based on feedback the town received from the Phase One Report, it appears that the project has considerable public support and this may also increase the potential for raising additional funds.

d. Alternative D: Acquisition of Equivalent Resources
The acquisition of three contiguous parcels located within approximately three miles of the Site was considered; the purpose of the acquisition would be primarily to protect the properties from development. The properties' relatively close proximity to Providence and abundance of uplands contribute to their suitability for development. The owner of the Cioe property had already applied and received approval for a 165-lot

subdivision development when he sold a portion of the property to TNC. Permanent protection of any of the parcels would prevent development and related threats to associated wetlands such as erosion, physical disturbance, contaminant runoff, and septic leachate. Protection would also prevent construction of roads and associated disturbance and fragmentation of wildlife habitat. The three parcels form a link to over 130,000 acres of adjacent protected property. The Trustees agree that development of this corridor would impede wildlife movement throughout the larger area.

Currently, TNC is trying to raise $2.5 million to complete the purchase of the tracts and fund stewardship efforts. Since more than 1,500 acres of the land to be protected are located in West Greenwich, the town has provided $8 million towards the project.

Habitat protection is feasible and could be carried out in partnership with TNC and other organizations. There is considerable public support for the protection efforts and no permits are required.

Protection of any one of the parcels would partially meet the goals of restoring injuries caused by the Site by protecting upland and wetland habitat and preventing future degradation associated with development. Due to its location (partially located in Coventry and in the same watershed as the Site), the Shepard Property would be the most appropriate for funding by the Trustees. However, none of the property acquisition/protection alternatives has a direct link to wetland creation or restoration which was one of the primary goals of the settlement for the Site.

3. Comments Regarding the Restoration Plan

Several comments were received regarding the RP/EA. One resident expressed support for restoring the Sandy Bottom Road Site, noting that it "would enhance our town's recreational offerings and offer many a chance to experience the natural beauty of this area." The town's recreational planner agreed that restoration of the Sandy Bottom Road Site would be beneficial for the town.

RIDEM staff recommended seeking the assistance of the RIDEM water quality and wetland restoration team to obtain information about wetland restoration design and permitting. If the restoration project does not occur, it was recommended that the acquisition projects be reconsidered.

4. Proposed Restoration Action

Based on an evaluation of the potential benefits and impacts of the various restoration alternatives, the Trustees propose Restoration of the Sandy Bottom Road Site. Of the different alternatives, this alternative most closely compensates for the loss of wetland and upland habitat at the Picillo Farm Superfund Site. With limited resources, this alternative provides an opportunity to directly restore, enhance and create approximately two (2)

acres of wetlands and will indirectly benefit existing, adjacent upland and wetland systems. While it does not include any habitat protection, this alternative best meets the settlement priority of creating wetland habitat.

Furthermore, the project provides several opportunities for wetland education and passive recreation. The town is particularly supportive of cleaning up the Site and promoting public enjoyment of the area. Local schoolteachers have also expressed interest in incorporating the restoration project into existing school curriculum. In cooperation with partners, facilities built at the Site would promote educational and limited recreational value to the public.

The project has the potential to engage a number of cooperators from Federal, State and local resource agencies to assist in the completion of a highly successful restoration. The Trustees have also confirmed the landowner, or town's, support of the project. For all of these reasons, the Trustees believe that the Sandy Bottom Road Wetland Restoration Project provides the best opportunity to restore resources and services lost to the environment and to the public as a result of activities at the Picillo Farm Superfund Site.

5. Monitoring Plan

Baseline conditions for restoration at the site should be established before restoration activities are initiated. Monitoring of post-restoration conditions should occur for at least five years after completion. A monitoring plan will be issued prior to restoration activities beginning.

E. List of Agencies, Organizations, and Parties Consulted for Information

Kelly Addy Lowder, Town of Coventry
Rick Enser, RIDEM, Natural Heritage Program
Marcia Gittes, Office of the Solicitor, Department of the Interior
Anna Krasko, U.S. Environmental Protection Agency
Shelley Ducharme, RIDEM, Office of Waste Management
Kevin Essington, The Nature Conservancy, Rhode Island
Peter Lockwood, Rhode Island Association of Wetland Scientists
Julie Lundgren, The Nature Conservancy, Rhode Island
Andrew MacLachlan, USFWS
Greg Mannesto, USFWS
Carol Murphy, RIDEM, Office of Water Resources
Brent Narkowicz, Town of Coventry
Bob Sutton, RIDEM, Division of Planning and Development

References

Little, A.D. 1993. Ecological risk assessment at the Picillo Farm Site, Coventry, Rhode Island. Final report submitted to the U.S. Environmental Protection Agency, Region 1. Cambridge, MA.

FINAL RESTORATION PLAN AND ENVIRONMENTAL ASSESSMENT:

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Coventry, Rhode Island

This Final Restoration Plan and Environmental Assessment is approved for implementation.

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Regional Director / DOI Designated Authorized Official Date