

Housatonic River Basin Natural Resources Restoration Project
Natural Resources Trustee SubCouncil for Connecticut
Request for Supplemental Information (RSI)
INSTRUCTIONS

PART A: SPONSOR AND PROJECT SUMMARY FORM

Please read "Request for Supplemental Information (RFI) OVERVIEW" and this document,
"Request for Supplemental Information (RSI) INSTRUCTIONS" before completing this form.

Part A must be completed using this "Sponsor and Project Summary Form"

SPONSOR INFORMATION

Type of Entity Check the box that best describes the sponsor.

- | | |
|---|--|
| ☐ Private individual | ☐ Municipal government |
| ☒ Non-profit organization | ☐ Corporation or Business |
| ☐ State government | ☐ County government |
| ☐ Federal government | ☐ Academic Institution |
| ☐ Tribal government | ☐ Other (explain) |

Authorized Representative of Sponsor

Housatonic Valley Association, Inc. (HVA)

Name

Caprice G. Shaw

Title

Water Protection Director

Address

150 Kent Road

City

State

Zip

Cornwall Bridge, Connecticut 06754

Phone

(860) 672-6678

Email

cshaw@hvatoday.org

Contact Person (if different from Authorized Representative):

Name

Title

Address

City

State

Zip

Phone

Email

00054

RECEIVED

Project Name Provide a brief working name:

"The Bend" (aka Garbage Hole) Riparian Vegetation, Shoreline and Recreational Access Improvements

Project Location

Attach an 8.5 x 11-inch map or copy of an aerial photograph showing project location and extent. Include pertinent topographic and geographic information, a scale, and north arrow.

State(s), Municipality/ies:

Cornwall Bridge, CT

Longitude for approximate center of project area:

73 degrees 21' 48.22"W

Latitude for approximate center of project area:

41 degrees 52'07.81"N

NOTE: If a specific location(s) has/have not been selected yet, include in Part C a narrative describing how project location(s) will be selected.

Restoration Priority Category See Appendix C of these Instructions for Restoration Priority Category Descriptions

Primary Category. Check the restoration category that is the primary goal of the project.
Check one box.

- ☐ Aquatic Natural Resources Restoration/Enhancement
- ☐ Riparian & Floodplain Natural Resources Restoration/Enhancement
- ☒ Restoration/Enhancement of Recreational Uses of Natural Resources

Secondary Categories. Check all relevant boxes.

- ☒ Aquatic Natural Resources Restoration/Enhancement
- ☒ Riparian & Floodplain Natural Resources Restoration/Enhancement
- ☐ Restoration/Enhancement of Recreational Uses of Natural Resources

List Specific Injured Natural Resources and/or Impaired Natural Resource Services to Benefit from Project

This project would reduce sediment and pollutant inputs to the main stem of the Housatonic River, thereby benefitting aquatic macroinvertebrate and fish habitat. Riparian plant and wildlife communities would also benefit from native plantings and stormwater Best Management Practices (BMPs). Natural resource services to benefit include recreation (e.g., fishing, boating) both directly (through access improvements) as well as indirectly (through enhanced fish and wildlife habitat).

Project Budget Summary

Complete the table below to summarize the budget information that is detailed in Part D: Project Budget Narrative and Forms. Sponsors are advised to complete Part D (Project Budget Narrative and Forms) before filling in the table below.

Housatonic River NRD Funds – Requested	Other Contributions (Committed)	Other Contributions (Not Committed)	Total Project Cost (boxes 1+2+3)
1. From Part D, Table 2, Box 5 \$222,586	2. From Part D, Table 2, Box 6 \$26,986 plus use of private land for public access	3. From Part D, Table 2, Box 7 \$30,000	4. From Part D, Table 2, Box 8 \$279,572
Amount of Other Contributions to Be Considered as Cost-Matching to NRD Fund Request			
5. use of private land for public access			

Authorizing Statement

I hereby declare that the information included in this project submission and all attachments is true, complete, and accurate to the best of my knowledge, and that the proposed project complies with all applicable state, local, and federal laws and regulations.

Signature of Sponsor or Sponsor Representative

Date

Name of Sponsor or Sponsor Representative
(Type or print clearly)

PART B. PROJECT ABSTRACT

The proposed project consists of recreation and shoreline habitat improvements at an existing upper Housatonic River access point, known as "the Bend" (aka Garabage Hole), located on the east bank of the Housatonic River, several hundred feet downstream of the Cornwall Bridge in West Cornwall. The project includes access for recreation, riparian vegetation improvements, shoreline stabilization, and implementation of stormwater best management practices (BMPs). Public access improvements include handicap access, and hand-carry canoe/kayak access. There is an existing dirt access road that extends to the river edge and associated parking. Invasive plant species dominate the understory of the hardwood forest surrounding the parking area. Ongoing erosion related to heavy public use of the area is apparent in the form of gullies and rivulets in unvegetated areas of concentrated use near the shoreline, which allow sediments to reach the river during runoff events. The site is a popular access point for recreational users.

The existing road and parking would be reshaped/graded to prevent concentrated flow patterns and gully formation. Concentrated flow patterns will be replaced by more diffuse runoff patterns and controlled infiltration; runoff will be diverted into natural riparian buffers and infiltration areas. Where erosion is occurring at the shoreline as a result of concentrated use, the bank will be reshaped and biostabilization (*e.g.*, willow) measures employed to prevent further anthropogenic erosion. The access improvements to the site (handicap access, fishing platform, and hand-carry boat launch) will be complemented by native riparian plantings and removal of exotic species.

PART C. PROJECT NARRATIVE

1.0 GENERAL DESCRIPTION

1.1 Project Goals and Objectives

Primary project goals and objectives are to: 1) enhance in-stream aquatic habitat through shoreline stabilization and stormwater best management practices (BMPs) in key areas of concentrated access with ongoing erosion/stabilization issues along the main-stem of the Housatonic River, 2) enhance public recreational access for in-stream and shoreline uses such as fishing, kayaking, and canoeing, 3) enhance riparian resources by integrating native plantings and exotic species removal into the design, and 4) provide ancillary public services including a composting or incinerating toilet and organized site monitoring/clean-up to ensure that trash and human waste are managed and do not pose a negative impact associated with improved access facilities.

Specific measurable objectives and goals that can be used to assess project success include:

- Provide barrier-free (aka handicap accessible) access (compliant with the Americans with Disabilities Act) on the Upper Housatonic River, where such access is currently lacking, for fishing, birding, and other forms of shoreline recreation.
- Provide managed/formalized access for handcarry boat put-in/take-out.
- Eliminate existing sheet and gully erosion that carries sediment and pollutants directly into the river and riparian wetlands from the existing access road and parking area through use of BMPs.
- Install velocity dissipator/sediment basin immediately below culvert opening on steep slope approximately 150 ft south of the existing road and parking.
- Integrate the removal of invasive species and the establishment of native riparian species into the design. In places that require grading, biostabilization, or BMP installation that will result in ground disturbance, invasives will be replaced by natives that provide wildlife habitat and shoreline stabilization functions.
- Maintain the site in a clean condition. Address the potential for trash and human waste by installing toilet facilities and establishing a plan for regular site monitoring and clean-up.

Section 2.2.4 provides a more detailed discussion of monitoring parameters, monitoring methods/frequencies, and contingencies. In addition to the list above, there are several other project goals and objectives that are more indirect (less quantifiable or directly attributable solely to the proposed site improvements) but that are never-the-less considered by the project sponsors to be important. For example, fish and aquatic macroinvertebrate monitoring are proposed for this project, since these resources will benefit from erosion and sedimentation control measures on the site. Likewise, replacing exotic plant species with native species with a high functional capacity to provide wildlife habitat and shoreline stabilization will benefit a variety of native riparian wildlife species, including some that may have been exposed to prey items affected by upstream pollutant inputs.

1.2 Project Scope and Project Implementation Plan

Current Conditions

The Bend (aka Garbage Hole) is an existing, informal access area used for fishing and as a location to launch hand-carry boats. There is an existing gravel access road to the river and associated parking. The property is owned by the Connecticut Light and Power Company (CL&P). It is located less than ¼ mile south of a covered bridge, on the east bank of the main stem of the Housatonic River in West Cornwall. An unpaved road accesses the site from Lower River Road approximately 800 ft south of Route 128. The unpaved road and associated parking extend from Lower River Road to the river's edge, occupying the riparian buffer zone between 0 and 200 ft from the Housatonic River.

This site receives substantial recreational use but it lacks the formal design features to manage visitation in a manner that limits damage to the surrounding resources. Currently, the shoreline is eroding as a result of concentrated, unmanaged human traffic, and runoff from the road and parking area contribute to the nonpoint source pollution and sediment loading in the river.

The existing parking area and road are improperly sloped/graded and lack stormwater management BMPs. There are gullies and rivulets as much as 6-12" deep and in excess of 30 feet long that have formed in the road and provide a mechanism for sediment to enter the river. The slope of the road and parking is continual, towards the river, allowing concentrated runoff to collect, merge, and erode sections of the road. The road and parking area lack crowning and stormwater management features that direct runoff into natural buffers and infiltration features in a diffuse manner. For example, the site lacks measures such as water bars, broad-based dips, water diversions, ditches with turnouts, and areas that slope away from the river. Lastly, there is a perched culvert and an associated scoured channel about 150 ft downstream from the site that directs sediment into the river and the small wetland described below.

The Housatonic is a large, dynamic river that experiences seasonal overbank flooding. During typical years, flooding on the site does not extend into the existing parking area but does include the lower portion of the existing unvegetated access point. Immediately downstream from the site is a 90 degree bend in the river where exposed bedrock cliffs act as a barrier to river migration and armors the shoreline. There are no mapped (*i.e.*, National Wetland Inventory) wetlands on or adjacent to the site. However field visits identified a small (<1/2 acre) scrub-shrub floodplain wetland immediately to the south of the site, just upstream from the 90 degree bend in the river, as well as a narrow strip of shoreline wetlands at the river margin. There are no significant floodplain forests on or adjacent to the site; only a narrow strip of shoreline forest was inundated during the April 17, 2007 flood event, which represented a peak flow substantially greater than the normal, annual flood level.

The area immediately surrounding the existing unpaved road and parking area consists of rich hardwood forest dominated by cottonwood (*Populus deltoids*), green and white ash (*Fraxinus pennsylvanica* and *Fraxinus americana*), American elm (*Ulmus americana*), red oak (*Quercus rubra*), and sugar and red maple (*Acer saccharum* and *A. rubra*). Black willow (*Salix nigra*), box elder (*Acer negundo*), and sycamore (*Platanus occidentalis*) are found along the immediate shoreline. Herbaceous species include purple avens (*Geum rivale*) and garlic mustard, (*Allaria petiolata*). Garlic mustard is one of the most invasive understory herbs in CT. The shrub and sapling layer is dominated by a host of exotic and invasive species, including shrub honeysuckles (*Lonicera morrowii* & *L. tartarica*), multiflora rose (*Rosa multiflora*), and privet (*Ligustrum vulgare*). These noxious, invasive species have an estimated areal coverage of as much as 75% or more surrounding the scrub-shrub wetland and in the understory of portions of the riparian forest. Soils are derived from rich alluvium. This forest contains occasional large-diameter trees (particularly cottonwoods), and coarse woody debris that provide good micro-habitat.

The scrub-shrub wetland is dominated by an herbaceous layer of water parsnip (*Sium suave*), sensitive fern (*Onoclea sensibilis*), skunk cabbage (*Symplocarpus foetidus*), and various wetland grasses, sedges and rushes, including *Carex lacustris*. The shrub layer includes red osier dogwood (*Cornus sericea*), and meadowsweet and steplebush (*Spiraea*, spp). Drier areas around the wetland perimeter are dominated by the invasive wetland shrubs listed as dominating the understory of the surrounding riparian forest. Soils are a mixture of organic material and rich alluvium in the interior portions and hydric, mineral soils derived from alluvium around the edges. Although drier portions of the wetland were infested with invasive shrubs, typical emergent marsh invasives such as purple loosestrife and Phragmites were not noted in the wetland.

The site is known to receive periodic deposits of large wood and other floating debris during flood events. There is a subtle constriction in the river just upstream and when the river begins to widen-out at the site, wood and other flood-related debris tends to accumulate. There is an eddy and some relatively slow water immediately downstream from the site associated with a widening of the river just upstream of the

90 degree bend. During baseflow conditions, a series of riffles occur between the site and the covered bridge ¼ mile upstream.

Desired Future Conditions/Project Scope

The proposed project consists of recreation enhancements, stormwater management improvements, shoreline stabilization, and vegetation enhancements. The following specific project components (integrated as a holistic project package) are proposed:

- Construct ADA-compliant parking area and fishing platform. Install native riparian buffer plantings along margins. Access and platform surfaces would be constructed of a permeable material (vegetated geogrid in packed aggregate/grout over geotech fabric) that would be vegetated, and resistant to erosion from stormwater, flood and ice disturbance and anticipated human use.
- Construct hand-carry boat access. Materials would be permeable, vegetated, stable surface as described above. Install native riparian buffer plantings along margins. Feature would consist of a winding path, 5-10 feet wide, with appropriately spaced water diversions to direct runoff into adjacent vegetated riparian buffers. Path would be designed to provide non-motorized access to shoreline for wading anglers and boaters.
- Reshape and re-grade road and parking area to encourage diffuse runoff and infiltration, and to correct existing, concentrated runoff patterns. Construct associated stormwater runoff BMPs. This would include use of several potential BMPs including road crowning, use of water bars or diversions to direct water into vegetated swales and turnouts, and broad-based dips/re-grading to eliminate direct flow paths to the river. Stormwater would be managed such that it is directed first into constructed swales and turnouts and then into natural riparian buffers in a diffuse manner. For smaller storms, stormwater will infiltrate prior to reaching buffers; for larger storms stormwater would infiltrate within buffers. Existing gullies and rivulets would be removed during road re-grading.
- Provide shoreline stabilization at the existing point of concentrated access. This will involve use of dormant willow material (such as stakes) and/or tubelings, depending on time of year. This will also entail some minor reshaping and temporary roping off of the area to direct users away from the planted area and to the newly constructed, controlled access points. Natural biodegradable materials such as coir logs and/or coir matting will be incorporated into the design to protect the soils and plantings during flood conditions. Small sediment traps/infiltration basins to accommodate runoff from parking areas would only be constructed as necessary. It is expected that proper road grading and some swales/turnouts will be sufficient for the contributing area.
- Native riparian buffer plantings would be used to revegetate the existing unvegetated access area at the shoreline, extending upgradient for a distance of about 20 ft. The proposed fishing platform and boating access would be located just downstream and to the south of the existing access point, allowing the existing devegetated area near the river to be reclaimed as naturally vegetated riparian buffer. The new access points would be flanked by plantings. As such, there would be a net improvement to the riparian buffer as, in the proposed condition, there would be little to no exposed mineral soil receiving heavy traffic. The entire immediate shoreline area would be either plantings or non-erodable surfaces (wood and stabilized path).
- Construct a small velocity dissipater and sediment basin using appropriately-sized riprap at the base of the existing hanging 18" cnp (culvert) to the south of the site. This would serve to attenuate scour and sedimentation downgradient. In addition, coarse sediment build-up could be periodically removed by shovel and bucket.
- Install a portable composting or incinerating toilet facility on the site, to be located more than 100 ft from the river (not visible from the covered bridge).
- Install signage on the site, as appropriate, to guide site users as to appropriate and inappropriate site uses and also an educational kiosk, which will focus on ecological improvements to the site and on project partners and management partners.

- Although not associated with the final, built site condition, temporary erosion control measures to ensure that sedimentation during project implementation does not occur will be emphasized. These would include measures such as mulching and seeding, silt fence, staked straw bales, and temporary stormwater management measures like sediment traps. Proximity to the river makes this particularly important.

The project components listed above will result in a site that provides enhanced function for recreational users, protects the in-stream aquatic habitat by reducing or eliminating sediment generated on the site, and improves the shoreline vegetation condition for riparian habitat, water quality and aesthetics.

Project Implementation Plan (Including Phases, Tasks and Schedule)

The Housatonic Valley association (HVA) is the project responder and sponsor. HVA will manage budget and schedule, and will assist with permitting, public outreach, landowner issues, volunteer coordination and components of implementation (e.g., plantings). The Housatonic Fly Fishermen's Association (HFFA), as a full project partner, will assist HVA in project development and implementation, and will also monitor and maintain the site. HFFA has important site-specific knowledge and will provide volunteer labor during construction and site restoration. The Department of Environmental Protection Inland Fisheries Division (IFD) will also be a partner, providing input on the design and assistance during the construction, site restoration, monitoring and maintenance. The project partners will use the technical expertise of a qualified consultant, Kleinschmidt Associates (Kleinschmidt), to complete project design and construction management. CL&P will also be a project partner, contributing to annual maintenance of the site.

It is anticipated that a phased approach to the work would be used, as follows (along with approximate schedule):

- Phase II conceptual design, site visits and public meetings. (complete March – June, 2007)
- Obtain permission from landowner to pursue project and secure their commitment as a full project partner. (complete June, 2007)
- Site visit by an engineer and a biologist from Kleinschmidt familiar with the design of handicap access and hand-carry boat launch facilities, riparian buffer restoration/plantings, stormwater management BMP design, and biostabilization of shorelines. Team to identify causes of erosion, effective ways to address runoff/erosion problems, and any site constraints (e.g., access, soil depth, regulatory issues such as wetlands or rare species, slope, etc). Initial site visit would be utilized to develop planting plans using reference condition communities up and downstream from the site. Existing wetlands would be delineated. Large trees near the design that are important as habitat and for visual amenities will be located using GPS during the site visit so that these features can be avoided/protected as part of the design. (fall 2008)
- Topographic survey to obtain 1-ft contour base maps of those sites where it is needed for the design. Survey existing features such as culvert, and parking area perimeter. (fall 2008)
- Preliminary design completed by Kleinschmidt. Agency consultation will ensure all parties are in agreement prior to completion of the final design and submission of environmental permit applications. (winter 2008-2009)
- HVA and HFFA to facilitate public meeting to present draft design to public prior to final design work and environmental permitting. (spring 2009)
- Final design and environmental permit applications completed. (summer 2009)
- Receive permits and complete any design modifications necessary to meet permit conditions. (fall 2009)
- Prepare bid documents, put work out to bid, and select contractor. (fall 2009)
- Implementation during low flow conditions. (fall of 2009 or summer of 2010)
- Monitoring and maintenance. (see Section 2.2.4)

- HVA to pursue permanent conservation over the property in the future.

Property Access Agreements/Easements

The property owner, CL&P, has allowed informal access on the site for many years. CL&P is committed to this project, as evidenced by the attached commitment letter, and has agreed to assist the HFFA with management and maintenance for the toilet facilities. Due to temporary regulatory restrictions, CL&P is unable to place a conservation easement on this parcel at this time. However, CL&P considers this parcel a priority parcel for conservation once restrictions are lifted. In addition, they agree to assist with trash removal and maintenance. HVA has attached a letter of support from CL&P indicating their willingness to work-out an easement should this Phase II application be successful, and their willingness to assist with site maintenance.

Regulatory Approvals

The project includes work on the immediate shoreline of the river and adjacent to wetlands. Once plans are finalized and drafted, HVA will consult with the Department of Environmental Protection Inland Water Resource Division and the United States Army Corps of Engineers for permit need determination. Required permits will likely include, but will not necessarily be limited to, Section 404 Water Quality Certification Permit of the Clean Water Act obtain from the U.S. Army Corps of Engineers, and local Planning and Zoning and Inland Wetlands Commissions.

2.0 EVALUATION CRITERIA NARRATIVE

2.1 Relevance and Applicability of Project

2.1.1 Location of Project

The attached site location map (Figure 1) shows the location of the subject property, on the main stem of the Housatonic River in northwest CT.

2.1.2 Natural Recovery Period

This project will continue to provide a recuperation area for natural resources damaged by PCB contamination, includes fish and invertebrates as well as recreational use. In fact, by creating an accessible fishing area and boat launch this project will enable visitors who were never before able to visit the river the chance to boat, fish, and enjoy the riverfront. And the recreational opportunities which were impacted; fishing, boating, public access, will be expanded. Also, by addressing the erosion and loss of natural vegetation due to the damage caused by many years of foot traffic, runoff and flooding, this project will stop ongoing damage to the aquatic habitat.

2.1.3 Sustainable Benefits

This project would reduce sediment and pollutant inputs to the Housatonic through stormwater management improvements and shoreline stabilization. Reduced sediment/pollutant loads will benefit aquatic macroinvertebrates and fish, which are sensitive to pollutant loading, turbidity and embeddedness. Riparian plant and wildlife communities would also benefit from native plantings and stormwater BMPs. Natural resource services to benefit include recreation (*e.g.*, fishing, boating) as a result of access improvements and enhanced fish and wildlife habitat.

As long as the detailed monitoring plan outlined in Section 2.2.4 is followed this project would provide ongoing, sustainable recreational and ecological benefits. Stormwater management measures would trap sediment (and associated sediment-bound nutrients like phosphorous), and encourage infiltration (and discourage concentrated overland flows), thereby protecting in-stream water quality and adjacent slopes from potential erosion. Construction of the recreation access improvements would allow for ongoing recreational benefits.

2.1.4 Magnitude of Ecological Benefits

The project improvements would directly benefit the aquatic, riparian and recreation resources that have been injured by the release of pollutants from the GE facility located upstream. Specifically, the project will improve stormwater management, and stabilize and re-vegetate shorelines in areas of concentrated use and active erosion, benefiting aquatic resources that require clean, clear water. Trout, other fish, and the aquatic macroinvertebrates they depend on cannot tolerate sediment or pollutant loading without detrimental impacts. Trout, for example, hunt by sight and use coarse-textured/clean substrate for spawning. As such any measure that reduces sediment inputs will benefit this species. Aquatic resources will also benefit from riparian buffer improvements which will provide additional shade, coarse woody debris and organic inputs.

Other species that would benefit from improved water quality and riparian vegetation enhancements include wading birds and waterfowl, riparian wildlife such as mink and otter, reptiles such as wood turtle, and passerines such as northern water thrush. Many riparian species forage on small fish and other prey items in the river and have therefore been subject to some accumulation of contaminants as a result of historic discharges. Replacing invasive species with native riparian vegetation is a specific benefit to the native flora and fauna of the region. Species chosen will emphasize the following functions: wildlife food and cover (e.g., berry-producing shrubs such as Viburnum and dogwood), shoreline stabilization (e.g., willow, dogwood), and aesthetics.

2.1.5 Magnitude of Recreational Benefits

Improved public access to the Housatonic River for recreational pursuits would benefit the local community by promoting participation in outdoor recreation and other activities that may result in increased local and visitor spending at businesses catering to boaters, fishermen and outdoor recreation.

The CT Department of Environmental Protection (DEP), in its most recent Statewide Outdoor Recreation Plan, recognized that participation in outdoor recreation is known to benefit participants physically and educationally and psychologically. The proposed site improvements would provide these benefits to the local community in an appropriate, wooded setting near the intersection of two major roads.

Freshwater fishing is a popular activity in CT and in the project vicinity. The USFWS (2003) reported there were 254,000 anglers aged 16 years old or older who fished freshwater in CT in 2001. Of those, an estimated 145,000 fished rivers or streams for an estimated 1,405,000 days of river and stream fishing. The DEP (2005) estimated that 34 percent of all households in CT participated in freshwater fishing in 2005, representing 23 percent of the state's population. With respect to paddle boating, the DEP (2005) reported 35 percent of CT's households participated in canoeing, kayaking or tubing in 2005, representing 27 percent of the state's population.

Closer to the proposed project area, FirstLight,, former owner of the Falls Village Hydroelectric Project, estimated 17,000 recreation visits associated with outdoor activities at the project annually with as much as 500 occurring on peak weekends (2002 Licensed Hydropower Development Recreation Report).

Establishing this barrier free fishing and boating access on the Housatonic River would provide a clean, safe and well-managed environment for pursuit of outdoor recreation. Barrier free access sites are very limited in the region. Thus, establishing such a site here would open the facilities to a greater number of people and a greater diversity of people.

Recreational fishing and boating contribute to the local economy through the expenditures that participants make on equipment and trip related expense, and the value of the trip over and above those expenses. Direct expenses include those expenditures that recreationists make when purchasing goods

and services associated with their activity. Indirect expenses are incurred as the money expended trickles through the local economy.

An evaluation of the economic benefits of fishing and boating at the proposed site has not been preformed. However, the USFWS (2003) estimated that anglers spent an estimated \$74,112,000 on freshwater trip and equipment related purchases alone in CT in 2001. Trip and equipment related expenditures for kayaking and canoeing, and the nonconsumptive value of both activities, would result in a substantial economic value relating to these activities in the state, a portion of which could be realized by development of the proposed site.

2.2 Technical Merit

2.2.1 Technical/Technological Feasibility

The proposed recreational enhancement will use proven techniques while protecting natural resources. The technical design will minimize the amount of additional disturbance on the site, and will preserve important features such as large, native trees. Finally, project improvement features will be designed to withstand flood energies to minimize the need for maintenance. Site work and design will utilize an engineer and a biologist familiar with fluvial geomorphology and hydrologic issues.

All of the proposed construction activities for this project are feasible, and have been used successfully in other natural areas. The proposed design is consistent with extensive design guidance available from the U.S. Forest Service, National Park Service, U.S. Access Board and other agencies for facilities of this type. Site surveys (including topography, large trees, site features, and wetlands) would be prepared by licensed professional surveyors and wetland scientists, with the site design and specifications prepared by licensed professional engineers.

Project construction would be performed by an outside contractor with earthwork experience. Equipment would likely include a bulldozer and excavator, as well as dump trucks to deliver materials to the site. Additional equipment would include tampers for soil compaction.

The bid for construction would be overseen by the design engineer and would include a pre-bid site visit with contractors. Contractors would be required to provide liability insurance, bid bonds, and performance bonds for the project, and also be expected to demonstrate that they have the qualifications to do the work, are in good standing with regulatory agencies, and are certified in Best Management Practices (BMPs) for erosion and sediment control. Construction oversight (*i.e.*, inspections) would be provided by the design engineer as well as the project partners.

Canoe/Kayak Launch

Access for small boats is currently provided by a gravel road that leads directly to the river. The access site is eroded from parking lot runoff and requires a lot of maintenance to replace gravel that has washed into the Housatonic River. The proposed enhancement will provide a reinforced hand-carry boat launch that is consistent with guidelines published by the National Park Service. All surfaces within the floodplain of the Housatonic River will be designed of hard materials to resist erosion and flood damage. The launch will be approximately 10' wide, constructed of geogrid embedded with large gravel, with rip rap scour protection at the toe. A 6' wide handicapped-accessible trail will lead to the boat launch. Although the launch is intended for small boats, such as canoes and kayaks, it will also be feasible to launch emergency boats, such as Zodiac rafts, at the site with a small crew. The footprint of the proposed boat launch will be narrower than the existing eroded area, so that there is an opportunity to restore the shoreline through biostabilization techniques using native plant materials. The physical separation between the parking area and launch will prevent runoff down the launch, thereby mitigating the long-standing problems with erosion at the site.

Accessible Fishing Area

An accessible fishing area, approximately 50' long, is proposed just downstream of the hand-carry boat launch. The area will be as wide as 15', with a vegetative buffer restored between the area and the adjacent wetland. The shoreline in front of the fishing area will be stabilized with large rip rap, with a granite curb provided along the edge of the site. Depending on the seasonal fluctuation in water levels and safety requirements, a railing may also be provided. Access to the site will be provided through a handicapped-accessible trail. The site will provide an overlook for the Housatonic River, and a park bench will be installed at the site. The surface of the site may be stabilized using geogrid embedded with small gravel. Because the site is regularly subjected to flooding, railings will either not be used or will be designed to withstand flood/ice damage, and all surfaces will be hardened.

Composting Toilet Facility

A composting toilet facility is proposed to address long-standing problems with human waste at the site. The facility will be fully handicapped-accessible, with approaches by reinforced trails. Trail surfaces will be designed to avoid erosion and ponding of water while lying lightly on the land. The actual surfaces will be determined during final design.

The composting toilet will rely on commercially-available systems powered by a 12 volt DC battery recharged by a solar panel on the roof of the toilet building. The collection tank will sit within a concrete foundation with a locked access for clean out. Waste from composting toilets is dry, and is easier to dispose of than liquid waste. Composting toilets in use at the nearby Housatonic Meadows State Park are considered to be clean and compatible with aesthetic goals for the site.

Parking

The existing parking lot will be regraded with additional gravel, with stormwater Best Management Practices (BMPs) installed to direct runoff into vegetated buffers at the edges of the lot (rather than directly to the river). Acceptable parking areas will be designated, with at least one handicapped-accessible space provided adjacent to trails. A more detailed site survey will be required to determine the number of parking spaces that can be provided; the maximum capacity will be identified during final design. In the long term, there is opportunity to provide overflow parking in the field area to the north, owned by CL&P. BMPs will include breaking the area up into sub-watersheds, using measures such as grading (dips and crowns) and water bars to direct runoff into natural buffers and constructed features such as shallow, vegetated swales at the edge of the parking lot to promote infiltration.

Wetland Protection

At the time of the site survey the wetland will be delineated and mapped. In addition to restoring vegetative buffers around the wetland, a sediment basin would be installed at the outlet of the culvert that directs flow into the basin. The sedimentation basin will be a shallow depression lined with rip rap that will allow sediment to settle out before flowing into the wetland and the Housatonic River. The basin will be buffered with native plantings.

Signage

Some signage is anticipated for the site. Signage will likely include signs for parking, canoe/kayak drop off (no long term parking) and handicap parking. There will also be a sign and/or kiosk describing the project and its partners. Additional signage could also be provided to describe the history of the site (e.g., old stone foundations) and the natural history of the Housatonic River. The project budget includes funds for construction of a basic kiosk, however the signage contained within and development of the associated content will be developed using funds outside of this funding request (i.e., project partners will develop this material using their own funding sources). It is anticipated that the site will be for general public use but that commercial use (e.g., rafting company put-in/take-out that could overwhelm the site and/or

detract from general public useage) will be prohibited and associated signage or kiosk information will be used to post this message.

2.2.2 Adverse Environmental Impact

There is the potential that the proposed project may result in increased recreational use of the site and associated potential adverse environmental impacts including: trash, human waste, and trampling of vegetation and soils (and resulting erosion). Each of these potential adverse impacts is recognized and, as such are addressed in the proposed design. Regular site monitoring and clean-up, toilet facilities and state-of-the-art BMPs to address erosion and sedimentation are included in the proposed project. Section 2.2.4 details the specifics of the monitoring program designed to address these specific potential adverse environmental impacts.

2.2.3 Human Health and Safety

Currently, the site is being used as an informal fishing and carry-in boat launch. With the development of this project, recreational usage will increase, therefore increasing overall risk of injury at the site. However, the site will be developed to accommodate zodiac put-ins to allow river rescue teams to respond to river incidents, thereby providing a human health and safety benefit for river users.

Human health and safety concerns for organized volunteers include all elements when working in an outdoor environment, including poison ivy and other infectious plants, disease carrying ticks and animals, miss-handling of tools, weather, high water levels, flow conditions, and falling overhead snags. In addition, there are also individual health issues such as dehydration, exhaustion and allergic reactions. Before every volunteer event, HVA will conduct a "Tailgate Safety Speech" identifying field hazards, go over tool safety and the buddy system including what to look out for if a volunteer is in trouble. All volunteers will sign in and sign a wavier which will require them to list a contact person to call in case of emergency and any medical conditions that could jeopardize their safety. Each volunteer event will have a first aid kit, available water and local authorities will be notified in advance. Lastly, the kiosk can be used to post health and safety information.

2.2.4 Measurable Results

As discussed in Section 1.1, measurable objectives and goals include:

- Provide barrier-free access to the Upper Housatonic River, where none currently exists, for fishing, birding, and other shoreline uses.
- Provide managed/formalized access for handcarry boat put-in/take-out.
- Eliminate existing concentrated runoff patterns and associated sheet and gully erosion from the existing access road and parking area through use of BMPs to address ongoing erosion that carries sediment directly into the river and riparian wetlands.
- Integrate the removal of invasive species and the establishment of native riparian species into the design. In places that require grading, biostabilization, or BMP installation that will result in ground disturbance, invasives will be replaced by natives that are known to provide wildlife habitat and shoreline stabilization functions.
- Maintan the site in a clean condition. Address the potential for trash and human waste, by installing toilet facilities and establishing a plan for regular site monitoring and clean-up. =

The table below summarizes those parameters that would be monitored and identifies the monitoring frequency and responsible parties.

Approach to Monitoring

Monitoring Parameter	Monitoring Frequency	Responsible Parties	Contingency
Erosion from site facilities (i.e., roads, paths, parking areas)	Every six months (once in spring and once in fall); twice/month during construction	HVA, HFFA & Project Partners	Stabilization through plantings, mulching and BMP implementation.
Sediment (i.e., build-up of sediment in sediment basins, turnouts, or swales)	Every six months (once in spring and once in fall)	HVA, HFFA & Project Partners	If sediment has filled any of the stormwater BMPs to capacity it will be removed using shovel and bucket by volunteers.
Invasive plant species	Annual	HVA, HFFA & Project Partners	Remove invasives by hand and replace with natives.
Trash/waste	Monthly (April-November)	HVA, HFFA & Project Partners	Regularly scheduled monitoring and clean-up efforts.
Facilities (visual assessment of structural integrity, vandalism)	Annual	HVA, HFFA & Project Partners	Repair of damaged facilities (from natural or human causes)
Coarse woody debris/flood debris	Annual	HVA, HFFA & Project Partners	The lower portions of the accessways and the fishing platform may receive annual deposits of large wood and other flood debris that need to be removed.
Aquatic macroinvertebrates	Annual	HVA, HFFA & Project Partners	Identify trends.
Fish	Annual	HVA, HFFA & Project Partners	Identify trends.
Recreational Use (parameters: users and vehicles)	Annual	HVA, HFFA & Project Partners	Identify trends. Identify use versus capacity during peak use days.

In the existing condition, there is substantial ongoing erosion and sedimentation associated with concentrated human use including gullies leading to the shoreline and bank erosion where people access the river. Post-construction, HVA and HFFA (cooperatively) will visit the site at least twice per year (spring and fall), during months with no snow cover, and will visually note any signs of active erosion such as rivulets or gullies leading to the river. Post-construction, the stewardship monitoring coordinated by HVA and HFFA will serve to identify any deficiencies in the containment of sediment on the site. Since the design will emphasize BMPs, and road/parking facility characteristics (e.g., crowned surfaces, controlled drainage to infiltration features and naturally vegetated buffers) that will prevent the formation of gullies such as those currently found on the site, it is highly unlikely that there will be need to correct significant erosion problems. However, the ongoing monitoring will ensure that any such erosion is identified should it occur. If erosion is identified, HVA and HFFA will utilize staff and/or volunteers to correct the problem (foreseeable erosion would likely involve small/manageable areas that can be addressed with biostabilization, riparian plantings, mulch, shovels and buckets). During project construction HVA and HFFA (cooperatively) will visit the site at least biweekly. Further, during construction, any deficiencies in erosion control measures (e.g., improperly toed-in silt fence, improperly stabilized/located soil stockpiles) will be noted and the Contractor informed of the deficiency. Failure to address the problem immediately will result in reporting the deficiency to the appropriate contact people at the State/Town. Erosion monitoring during construction may be redundant with other potential site monitoring by municipal or government officials, but will add one more layer of monitoring to ensure that proper erosion and sedimentation control measures are adhered to.

Monitoring will also be used to identify any areas where sediment has built up in stormwater management structures such as swales, turnouts and infiltration areas. This will ensure that sediment does not reach a feature's capacity and compromise its function. This can be accomplished with volunteers using shovels and buckets.

In the existing condition, about 75% of the areal coverage of understory and herbaceous strata surrounding the parking area consists of invasive species such as invasive shrub honeysuckles, multiflora rose, garlic mustard, and privet. In places where grading, biostabilization, or BMP installation result in soil disturbance, invasives will be replaced by natives that are known to provide wildlife habitat and shoreline stabilization functions. These areas will then be monitored annually. HVA and HFFA will utilize volunteers to remove by hand invasive species that encroach into the planted areas and will replace stressed or dead native plantings with comparable native riparian plantings as necessary. The measurable goal will be to reduce the coverage of invasives to 10% or less of the areal cover in the shrub and the herb strata (the tree stratum is currently not a problem). Note that HVA and HFFA and partners will attempt to extend this effort into non-graded and non-planted portions of the site (*i.e.*, out into the undisturbed riparian forest) to address the extensive footprint of the invasives in this area with other funding/volunteer resources, however this funding request focuses on the immediate project footprint.

There will likely be increased recreational use of the site as a result of this project. There is a lack of public restrooms available in the nearby business district of West Cornwall. As such, a composting or incinerating toilet facility will be added to the parking area as part of the proposed design. HVA and HFFA will, in coordination with CL&P, ensure that the facility is maintained. Although signs will inform visitors to carry out all trash, HFFA and HVA, with assistance from CL&P, will check the site regularly to ensure that trash does not build-up. Appropriate signage will be incorporated into the design that acknowledges project partners and objectives, and requests users to keep the site clean.

Any damage to project facilities from natural causes (*e.g.*, downed trees, flooding) or human causes (*e.g.*, vandalism) would be addressed through volunteer labor where possible (*e.g.*, manageable fixes). In cases where the damage is more extensive, maintenance would be addressed by the project partners. Part D (Project Budget) includes an amount for potential maintenance in fiscal years 2-4. This amount, if not needed during those years, would be used to establish maintenance fund for the site for unforeseen maintenance needs.

Recreational use (number of vehicles, number of users, and nature of visit) will be monitored. A specific weekend will be chosen and annually monitored for us. In addition, a kiosk on the site will use self-administered monitoring techniques (log book, survey form) to track use. This monitoring is intended to compare the site's capacity to actual use, to identify trends in use, and to provide a measurable indicator of site use.

Aquatic macroinvertebrates are an excellent indicator of aquatic ecosystem health. HFFA and HVA volunteers will use artificial substrates to annually monitor invertebrates by family. Substrates such as a piece of wood and a bag of rocks (to capture different substrate specialists) will be placed in set locations for set times and retrieved. Numbers of organisms will be counted and diversity and composition will be assessed with identification to at least the family level. Fish will be monitored by HFFA through membership surveys and/or other on-site techniques in cooperation with the State.

2.3 Project Budget

2.3.1 Relationship of Expected Costs to Expected Benefits

This project is associated with both high costs and very high benefits. The applicants believe that the expected benefits, both ecological and recreational, more than justify the associated design, implementation and monitoring/maintenance costs. The cost to benefit ratio for this project is favorable in part because of favorable site conditions that facilitate effective site design and implementation (gentle

slopes, easy site access, existing footprint of disturbance, willing landowner, no need to clear mature forest, no need for substantial cut or fill), and in part because of the location on the main-stem river in an area with a high demand for public access. The fact that there are no land acquisition costs involved in securing public use on the river is a large cost saving, significantly bolstering the benefit to cost ratio.

2.3.2 Implementation-Oriented

As detailed in Section 1.2, this project involves implementation of substantial, tangible site improvements that will immediately benefit the ecological integrity of the river as well as provide recreational amenities. Part of the project involves a design phase, but this will be immediately followed by permitting and implementation. No long term studies or planning are required to establish the basis for the project.

2.3.3 Budget Justification and Understanding

This write-up is provided in Part D Project Budget Narrative.

2.3.4 Leveraging of Additional Resources

HVA is seeking funding from additional resources including REI Inc., Orvis Inc., and L.L. Bean Inc. HVA and HFFA membership have donated staff time and materials to this project, as has Kleinschmidt. As discussed in Part D, there are several project components that could be increased in scope with additional matching funds such as matching funds from the NRCS Wildlife Habitat Incentives Program (WHIP), and such funds will be pursued. Examples of project components that will be increased should such funding be secured, includes developing and printing kiosk materials, conducting invasive species control and native planting programs on the entire site (not just the immediate project footprint), and developing a self guided natural history walk/trail through the site.

2.4 Socioeconomic Merit

2.4.1 Community Involvement and Diversity

This project is being implemented through a partnership between Housatonic-based conservation organizations. HFFA is entirely composed of volunteers who donate their time to advocate for a clean Housatonic River that supports healthy fisheries. HVA organizes approximately 150 stream team volunteers throughout the Housatonic Watershed who are monitoring water quality and shoreline conditions. Additionally, HVA stream team volunteers conduct restoration activities including numerous river cleanups, riparian plantings, and meeting with local commissions and community leaders to raise awareness of impairments observed along the river.

This project sponsors will recruit volunteers to manage invasive plants and plant native species suitable for stabilizing the shoreline and buffering the river from polluted runoff. HVA and HFFA volunteers will also manage and maintain the site, collect macroinvertebrates to monitor water quality pre-and post construction, and organize an opening day celebration.

2.4.2 Adverse Socioeconomic Impacts

HVA has met with neighbors and the Housatonic River Commission which identified a number of concerns with this project including: increase usage, commercial use, increased human waste and litter. These issues will be addressed by the following: the site will be designed so that users will not contribute to erosion and runoff, signs will be posted only allowing large groups to drop off or pick up paddlers and large vehicles may not be parked on site. The CL&P has agreed to assist the HFFA volunteers with maintenance of the property and toilet facility.

2.4.3 Coordination and Integration

This project will integrate with the Housatonic River Commission's *Housatonic River Management Plan* by:

- controlling invasive vegetation at the site,
- controlling polluted runoff through BMP that allow absorption of runoff before entering the Housatonic River,
- use project site monitoring data to monitor recreational use at this site,
- monitoring and maintaining waste generated at the site through volunteers and a composting/incinerating toilet that will be managed by the property owner.

According to the Housatonic River Commission's Recreational Management Plan its goals are:

- "promoting effective local management of existing recreation facilities and resources for their best use,
- preserve the Housatonic River environment and its unique and fragile natural features from over use,
- minimize conflicts among various recreational users and promote a balance blend of uses appropriate to the River environment,
- promote education of the general public in the safe and responsible recreational use of the Housatonic River."

With implementation of this project, it will address all of the above and meet the Housatonic River Commission's Recreation Management Plan goals.

The benefits of outdoor recreation according to the *Connecticut Statewide Comprehensive Outdoor Recreation Plan 2005-2010* (Recreation Plan), include many areas such as physical, educational, psychological, and community and economical opportunities. According to the state's Recreation Plan, spending less time out doors our society is suffering from what Robert Michael Pyle refers to as "a degenerative cycle of disconnect and loss." The state's Recreation Plan recognizes that encouraging this reconnect with the environment while participating in outdoor activities reduces "anxiety, counteracts depression, and increase a person's sense of well-being." This project meets the state's Recreational Plan by bringing more individuals including folks with physical challenges to enjoy the majestic and beautiful Housatonic River which is essential for the protection of its health.

2.4.4 Public Outreach

HVA and HFFA will recruit and train volunteers to establish, maintain and monitor this site for future uses. Volunteers will be trained to remove invasive plants and replace with native and natural riparian plants. They will be required to make seasonal visits to monitor success of new plantings and to remove any new invasive plants. In addition, HFFA will recruit volunteers to conduct seasonal cleanups at the site location. Monitoring data and project success will be publicized in local area news. Local and regional press, stakeholders, funders, volunteers and project supports will be invited to a celebration opening day event which will publicize this new fishing and boating access site. The project partners will have the opportunity to discuss the restoration efforts that were involved and to discuss with the public ways to enjoy the site including regarding the sensitive habitats that exist there.

2.5 Applicant Implementation Capacity

2.5.1 Technical Capacity of Applicant and Project Team

HVA was founded in 1941 by western CT residents concerned with the future of the Housatonic River and its surrounding lands, the Housatonic Valley Association (HVA) is the oldest non-profit, citizens'

watershed protection organization in the U.S. HVA is the only non-profit organization dedicated solely to protecting the natural character and environmental health of the Housatonic River and its entire 2,000-square-mile watershed, which stretches from the Berkshires of western MA, through western CT and a small part of eastern NY, to Long Island Sound. HVA works to achieve this mission through community assistance, research, education, and advocacy. HVA employs five full time staff and ten part time staff.

**Caprice Shaw-Water Protection Director-Housatonic Valley Association
Cornwall Bridge, Connecticut**

Education: State University of New York in Plattsburgh, NY, BA in Environmental Science with a minor in Geology. Caprice is HVA's Water Protection Director who oversees the Southern Valley River Manager, Mid-Housatonic Watershed Coordinator, and the Tenmile River Manager. Caprice has been involved with river policies from the northern end of the Housatonic in Pittsfield, MA to the river mouth at Long Island Sound. She coordinates numerous volunteer stream teams for NY, mid-river and southern valley sections of the Housatonic Watershed in CT and NY. She has expanded HVA's monitoring program to include biological assessment, and has organized volunteer crews for riparian plantings. Former experience includes working for the Emergency Response Section of the State of MA Department of Environmental Protection, Coordinator of Monitoring Programs for an engineering firm, and overseeing timber crews for the United States Department of Forestry. Additional training: CT DEP "Train the Trainer" certificated for Rapid Bioassessment in Wadeable Streams by Volunteer Monitors and NY's Hudson Basin River Watch Stream Bioassessment training, OSHA Health and Safety Training and EPA Emergency Response to Hazardous Materials Incidents.

The HFFA was founded in 1961 as "The Housatonic Fishermen's Association". It was organized to protect the Housatonic River fishery, and play the role of river custodian. Volunteer based efforts include annual bank clean-ups, stocking operations, and conservation projects. The HFFA has been conducting annual trash clean-ups at the subject property as well as other areas along the Housatonic for many years. The group's membership feels passionately about the Housatonic River and the associated aquatic resources and will play a critical role in providing valuable volunteer stewardship efforts related to developing and maintaining this site.

Kleinschmidt is a New England-based consulting firm with over 100 employees, including offices in Pittsfield, ME; Essex, CT; Syracuse, NY; and Strasburg, PA. Kleinschmidt has been providing engineering, environmental and planning services to clients throughout the country since 1966. Kleinschmidt is a full service firm best known for its work on river and shoreline projects, including work associated with dams, piers, wharves, and boat launches. The staff assigned to this project specialize in river restoration work. Other core Kleinschmidt service areas include fish passage, dam removal, dam upgrades and modifications, environmental permitting, licensing, and environmental work (including wetlands, recreation, and fisheries). Key project team members from Kleinschmidt are as follows:

Alan Haberstock, Project Manager and Project Biologist
Education: Yale University School of Forestry and Environmental Studies, MS Forest Ecology
Years Experience: 18 including consulting and university research; 11 years at Kleinschmidt
Projects: More than 12 riparian buffer, stream and wetland restoration projects including: Coles Creek Wetlands/Riparian Buffer Restoration (client: NY Power Authority), Woonasquatucket Riparian Buffer Restoration (clients: RI Department of Environmental Management, Woonasquatucket River Watershed Council), Sebasticook River channel restoration (client: Town of Newport, Maine), Allen's Falls wetland creation (client: Brookfield Power), Sunday River channel and riparian buffer restoration (client: Maine DOT).
Other: Alan is on the Board of two conservation groups: Sebasticook River Watershed Association (President) and Somerset County Soil and Water Conservation District (Vice Chair).

Matt Bernier, Project Engineer
Education: Cornell University, BS Civil Engineering
Years Experience: 18 years at Kleinschmidt
Projects: Multiple shoreline restoration, fish passage, stream restoration and shoreline improvement projects including: Gardiner shoreline habitat restoration and site access improvements (client: Town of Gardiner), Woonasquatucket Riparian Buffer Restoration (clients: RI Department of Environmental Management, Woonasquatucket River Watershed Council), Sebasticook River channel restoration (client: Town of Newport, Maine), Sunday River channel and riparian buffer restoration (client: Maine DOT).
Other: Matt is on the Board of the Sebasticook River Watershed Association (current Treasurer, founder and 1st President).

Marty Phillips, Resource Economist
Education: University of Maine at Orono, BS Natural Resources, MS Agricultural and Resource Economics
Years Experience: 20 years of consulting and university research; 11 years at Kleinschmidt
Similar Projects: Multiple recreation assessments to identify existing recreational use and need for facilities (clients: New York Power Authority; South Carolina Gas & Electric, Duke Power), Lake Wallenpaupack Recreation Plan (PPL); Gardners Falls Recreation Plan (CEEMI), Carpenter-Rommel Projects Recreation Plan (Entergy); Casco Bay Boating Study (Maine Department of Inland Fisheries and Wildlife).

2.5.2 Administrative Capacity of Applicant and Project Team

In addition to the key staff members listed above, Kleinschmidt will also utilize, as necessary, other staff members including but not limited to GIS, engineering, biology, and recreation specialists. Since Kleinschmidt has over 60 employees in Maine, and more than 10 employees in CT, there is ample capacity to complete this project on time and on budget. HVA has the staff, facilities and experience to administer the project. HFFA has a strong and loyal membership prepared to assist with this project.

2.5.3 Project Commitments

See Part D (Budget) and attached letters. HFFA and HVA included a conservative budget for committed volunteer efforts (*i.e.*, the value of the efforts will likely be more in actuality), and CL&P has committed to providing the property itself for the project (as well as contributing to maintenance and being a project partner). In addition to the dollar values for staff and volunteers we provided in Part D, the (unknown) value of the site is committed for purposes of public access and all project components.

PART D PROJECT NARRATIVE AND FORMS

Design and Construction

Preliminary construction cost opinions were prepared using data from RS Means *Site Work & Landscape Cost Data* (2007), using quantities calculated from the conceptual engineering plan. RS Means data is widely used in the engineering field for preparing cost opinions, and is based on data from actual construction projects throughout the United States with regional cost adjustment factors.

The budget for installed costs includes materials and construction, as well as overhead and profit. A contingency was added to all costs to account for inflation, uncertainty in final design details and quantities, and permit conditions. The actual costs of recent, similar construction projects in New England were also considered. A contingency of 40% was used for construction implementation as materials and fuel costs are expected to continue to result in annual increases (inflation) for construction materials and services beyond the general inflation rate. This 40% takes into account both design uncertainties (20%) and potential cost increases due to inflation (20%). The target project construction date is late summer or early fall 2009 but the 20% considers the possibility that the project may not be constructed until 2010 (three years of inflation at about 7% per year).

Costs of engineering and permitting, wetland delineation and surveying, and construction management were based on a percentage of the cost opinion for construction. The costs for these services are in line with similar projects that have been constructed recently.

The construction and design budget is itemized below. More detailed spreadsheets with a further break-down of implementation of cost components were completed in order to generate the numbers below but that level of detail is not provided here. Note that the line items below do not correspond to the line items in required Tables 1 and 2, but it was thought this additional detail would be useful.

<u>Design and Implementation Tasks</u>	<u>Budget</u>
Mobilization/Demobilization	\$2,200
Driveway & Parking Area	\$11,300
Accessible Fishing Area	\$26,500
Accessible Trails	\$10,800
Canoe/Kayak Launch	\$12,500
Biostabilization	\$13,100

Toilet Facility	\$34,900
Signage	\$2,000
Stormwater BMPs	\$5,200
Subtotal (Construction)	\$118,500
Engineering Design & Permitting Support¹ (25%)	\$30,000
Wetland Delineation & Surveying (15%)	\$17,700
Construction Management (10%)	\$11,800

TOTAL

\$178,000

¹ The \$30,000 for design and permitting support includes three items from Table 2 (engineering site visit, design and permitting support, and bidding process/contractor selection).

When completing the detailed RS Means-based construction budget break-downs, numerous assumptions were made. Assumptions were based on our knowledge of the site and our experience with similar projects in New England. We assumed "adverse conditions" for several line items from the RS Means costs due to our experience with projects near water. We assumed costs for materials and construction services using the nearest city for which data is available (Waterbury). We also made several other assumptions when selecting the RS Means cost items such as, but not limited to: > 150 h.p. equipment, 25 mile haul distance for equipment, 5 mile haul distance for gravel materials, adverse conditions for placement of materials, and use of a vibrating roller for materials compaction.

Permitting, Public Meetings, and Project Administration

The budget for overall project administration includes time for HVA to manage the scope, schedule and budget for this project. HVA will process invoices, lead periodic progress meetings or conference calls, review deliverables such as design plans and specifications, ensure major milestone tasks occur on schedule, interface with the land owner (a project partner), and provide overall project guidance. HFFA, as a project partner, will assist with many of these tasks on a fully voluntary (donated time and materials) basis. HVA's time and materials are a combination of requested NRD funding and committed funding (donated staff time and materials) from HVA. HVA will also take primary responsibility for stakeholder involvement including presentations to describe the project at public meetings. There will also be costs associated with establishing a permanent conservation easement for this piece of property.

TABLE 1. HOUSATONIC RIVER NRD FUNDING ALLOCATION BY FISCAL YEARS¹

PROJECT TITLE:	<i>Garbage Hole Riparian Vegetation, Shoreline and Recreational Access Improvements</i>					
SPONSOR NAME:	Housatonic Valley Association					
EXPENSE CATEGORY (See App. A)	FISCAL YEAR 1	FISCAL YEAR 2	FISCAL YEAR 3	FISCAL YEAR 4		
	Housatonic River NRD Funds	Housatonic River NRD Funds	Housatonic River NRD Funds	Housatonic River NRD Funds		
A. SALARIES	\$8,500	\$9,000	\$475	\$475		
B. OVERHEAD AND BENEFITS	\$2,550	\$2,700	\$143	\$143		
C. CONTRACTED SERVICES	\$47,700	\$130,300				
D. SUPPLIES, MATERIALS AND EQUIPMENT	\$600	\$4,500	\$500	\$500		
E. TRAVEL	\$200	\$200	\$50	\$50		
F. OTHER (monitoring & maintenance)	\$1,000	\$1,000	\$500	\$500		
G. OTHER (Phase II Conceptual Design)	\$1,000					
H. Other-Audit/Accounting	\$5,000	\$5,000				
TOTAL BY FISCAL YEAR	1	2	3	4		
	\$66,550	\$152,700	\$1,668	\$1,668		
GRAND TOTAL (sum of boxes 1+2+3+4)						\$222,586
[This sum is the total NRD fund request and should match Part A, Budget Summary, Box 1.]						

¹ The fiscal year is July 1 – June 30. If the proposed project will be completed in one year, fill in only the column titled "Fiscal Year 1."

TABLE 2. PROJECT BUDGET SUMMARY BY TASK AND FUNDING SOURCE

PROJECT TITLE:		Garbage Hole Riparian Vegetation, Shoreline and Recreational Access Improvements						
SPONSOR NAME:		Housatonic Valley Association						
TASK ²	HOUSATONIC RIVER NRD FUNDS	OTHER CONTRIBUTIONS		TOTAL COST BY TASK				
		COMMITTED	NOT COMMITTED					
A. Phase II conceptual design (April - June, 2007 - prior to funding)	\$1,000	\$7,000					\$8,000	
B. Property owner/stakeholder meetings/agreements	\$9,000	\$1,000					\$10,000	
C. Engineering site visit	\$3,000						\$3,000	
D. Topographic survey	\$17,700						\$17,700	
E. Design & permitting support	\$25,000						\$25,000	
F. Public meetings	\$6,386	\$750					\$7,136	
G. Permitting	\$9,000	\$1,000					\$10,000	
H. Bidding/Contractor selection	\$2,000						\$2,000	
I. Implementation	\$118,500		\$15,000				\$133,500	
J. Construction management	\$11,800						\$11,800	
K. Monitoring and maintenance	\$9,200	\$12,236	\$15,000				\$36,436	
L. Overall project administration	\$10,000	\$5,000					\$15,000	
TOTAL BY FUNDING SOURCE	5	\$222,586	6	\$26,986	7	\$30,000	8	GRAND TOTAL: \$279,572

NOTES: Box 5 should be the same as the Grand Total indicated in Part D Table 1. Box 6 above should match Part A, Budget Summary, Box 2. Box 7 above should match Part A, Budget Summary, Box 3. Box 8 should match Part A, Budget Summary, Box 4

² The listed tasks should correspond with information provided in the Project Implementation Plan.

HVA will also play the lead role in preparing and submitting permit applications. The design consultant will provide permitting support (*i.e.*, all necessary plans and specifications, impact assessments, area and volume calculations, technical or scientific text describing existing and proposed conditions, presentations at up to 2 meetings such as Inland Wetland Commission or Planning Board, and prepare site location maps), however HVA will review and add to these materials, will attend additional meetings with regulators and stakeholders, will submit all applications as the applicant (or applicant's agent if CL&P is the applicant), will pay all application fees, and will function as the primary contact for regulatory agencies and commissions.

Monitoring and Maintenance

Monitoring would be completed with a combination of volunteer labor and some administration time of HVA staff to monitor the parameters identified in Part C. Following fiscal year 4 all monitoring and maintenance oversight and funding would be provided by project partners including HVA, CL&P and HFFA. Monitoring and maintenance funds not used during fiscal years 1-4, would be placed into a dedicated fund to be used for maintenance needs in future years if acceptable to the CT DEP and the CT Sub-Council; otherwise it will be returned.

Maintenance costs are not as predictable as design and implementation costs. Our budget assumes that annual maintenance activities will include removal of accumulated dry material from the composting toilet, and periodic (several times per summer – depending on monitoring) cleaning and toilet paper replacement. Other maintenance related to the toilet facility will include periodic battery maintenance and occasional potential repairs and/or replacement of components like the toilet seat and solar panel. Periodic maintenance of stormwater BMPs and project surfaces and structures (*e.g.*, railings) are also possible but the design is intended to accommodate annual flooding and periodic heavy human use with as little maintenance as possible. Nevertheless, we have included a budget for the inevitable maintenance contingencies.

Discussion of Tables 1 and 2

Table 1, line C, Year 1 includes the following contracted services: \$17,700 for wetland delineation and surveying, and \$30,000 for engineering and permitting support. Table 1, line C, Year 2 includes the following contracted services: \$11,800 for construction management, and \$118,500 for construction/implementation. Lines A, B, D and E on Table 1 are associated with HVA staff and materials and correspond to lines B, F, G and L on Table 2 (*i.e.*, all of these tasks relate to overall project management, stakeholder/landowner relations, and permitting). It is assumed that construction would take place during the latter part of fiscal year 2 (July 1, 2009 to June 30, 2010).

Other Contributions

The project will benefit from a minimum of \$26,986 of other contributions with a high likelihood that this can be significantly increased. Volunteer work organized by

HFFA and HVA will include both the memberships of these groups as well as numerous project partners such as the Boy Scouts and CL&P. Importantly, additional funds will be pursued from a variety of groups such as Orvis, L.L. Bean, as well as agencies such as NRCS (Wildlife Habitat Incentives Program or WHIP). It is important to note that there are several project components that could be added to the base project described in this application should large additional funding be secured. For example, invasives species could be controlled and replaced by native plantings throughout the entire CL&P lot rather than just the immediate project area.

Perhaps most importantly, CL&P has agreed to be a partner in this project and to provide the land itself for this public access project. This is a significant committed value that is not included in Table 2, largely because we have not had an appraisal and because an easement cannot be established until CL&P's assets are un-frozen. The monetary value of this committed project component (the land itself) is significant, however.



Housatonic Valley Association
Protecting Your Backyard
www.hvatoday.org

In Connecticut and New York
150 Kent Road
P.O. Box 28
Cornwall Bridge, CT 06754
860-672-6678

In Massachusetts
1838 Pleasant Street
P.O. Box 251
South Lee, MA 01260
413-394-9796

The Trustee Sub Council for Connecticut Housatonic River Basin
Natural Resources Restoration Project
c/o Mr. Michael Powers
CTDEP –Inland Fisheries Division
79 Elm Street
Hartford, CT 06106-5127

June 20, 2007

RE: Letter of Commitment
Housatonic River Natural Resource Restoration Shoreline Improvement Proposal

Dear Members of the Trustee Sub Council:

The Housatonic Valley Association (HVA) and Housatonic Fly Fisherman's Association (HFFA) are pleased and excited to partner with Kleinschmidt Association (Kleinschmidt) to enhance and restore a series of river access spots for both habitat and recreational use as outlined in our proposal.

As agreed, HVA and HFFA are committed to being the project sponsors. HVA will provide project administration and management as well as coordinate and assist landowners with necessary site-development permits. In addition, HVA and HFFA will recruit and organizing volunteers and conduct public outreach and site research.

HVA and HFFA are very fortunate to have the technical expertise of Kleinschmidt, a dynamic team of civil and hydraulic engineers, terrestrial and aquatic biologists, and permitting specialists. They will provide their technical expertise in developing site specific designs in keeping with State and local regulations, opinions of project costs and provide bid assistance. In addition, Kleinschmidt has donated several hours of staff time and expense in coordinating and preparing this project proposal to date.

HVA and HFFA believe that this project will restore and rehabilitate aquatic and natural resources, and recreational access, along the Housatonic River.

Sincerely,

Caprice Shaw
Water Protection Director
Housatonic Valley Association

Russ Bevens
Housatonic Fly Fisherman's
Association



**Northeast
Utilities System**

107 Selden Street, Berlin, CT 06037

Northeast Utilities Service Company
P.O. Box 270
Hartford, CT 06141-0270
(860) 665-5000

June 20, 2007

The Trustee Sub Council for Connecticut Housatonic River Basin
Natural Resources Restoration Project
c/o Mr. Michael Powers
Connecticut Department of Environmental Protection,
Inland Fisheries Division
79 Elm Street
Hartford, CT 06106-5127

Dear Members of the Trustee Sub Council:

This letter is to inform the Trustee Sub Council that The Connecticut Light and Power Company (CL&P), a subsidiary of the Northeast Utilities (NU), is pleased to have an opportunity to partner with and provide permission to the Housatonic Valley Association (HVA), the Housatonic Fly Fisherman's Association (HFFA) and Kleinschmidt Association (Kleinschmidt) to enhance and restore a river access spot for both habitat and recreational use as outlined in this proposal on CL&P land located on Lower River Road in West Cornwall, Connecticut (the "Property").

CL&P is committed to co-sponsoring this project and will continue to grant access to its land for public recreational use. We agree that HVA will provide project administration and management as well as assist with necessary site-development permits.

We understand that HVA and HFFA will recruit and organize volunteers to monitor and remove trash that may accumulate at this site due to increased public use. We also agree to assist with trash removal and disposal after the season and after volunteer cleanups.

The terms of an eventual conservation easement or transfer of the Property would need to be reflected in a mutually acceptable purchase and sale agreement, which must be approved by governmental agencies having jurisdiction over its sale as well as CL&P's Board of Directors.

CL&P believes this project will restore and rehabilitate aquatic and natural resources, and recreational access, along the Housatonic River and we are pleased to be a partner in this initiative.

Sincerely,

Salvatore Giuliano
Manager-Corporate Property Management
Northeast Utilities Service Company
As Agent for CL&P

January 15, 2007

VIA FIRST CLASS MAIL and ELECTRONIC MAIL

Ms. Caprice G. Shaw
Water Protection Director
Housatonic Valley Association
PO Box 28
Cornwall Bridge, CT 06754

Letter of Commitment

Housatonic River Natural Resources Restoration, Shoreline Improvement Project Proposal

Dear Ms. Shaw:

Kleinschmidt Associates (Kleinschmidt) has been working to provide technical input relative to a proposal being prepared by the Housatonic Valley Association (HVA) and the Housatonic Fly Fishermen's Association (HFFA) for the above-captioned restoration project. Per phone calls with you, your Executive Director (Lynn Werner), and Russ Bevans of HFFA, Kleinschmidt understands that HVA will function as the project respondent and sponsor, and if the proposal is successful, will provide overall project administration and management as well as public outreach, environmental permitting, landowner coordination and volunteer coordination. HFFA, a full project partner that has been instrumental in identifying restoration opportunities and needs, will provide volunteer labor and input, and has site-specific knowledge and insight with regard to the Housatonic River in northwest, Connecticut. Kleinschmidt's role will be to provide technical design, opinions of costs and bid assistance for the various, proposed improvement projects using staff from Kleinschmidt's Connecticut and Maine offices. We understand that the Connecticut Department of Environmental Protection (DEP) may participate as a project partner as well on at least some aspects of the overall project (*i.e.*, Garbage Hole).

By this letter, we are confirming our intent to dedicate the necessary human resources to this project in the role of project consultant using our standard rates. To date, Kleinschmidt has: attended the Restoration Project Workshop on November 28, 2006, visited the proposed sites (Garbage Hole, the Abutments, and Push'emUp Pool) during December 2006, participated in several conference calls and phone calls with HFFA and HVA to establish partner roles and project approach, and assisted with the preparation of the project proposal. Thus far, Kleinschmidt considers its time donated. Should the application be successful, Kleinschmidt will execute a design contract with HVA for continued design service for the proposed improvement projects.

Ms. Caprice G. Shaw
January 15, 2007

2.

Our understanding of the required scope of work and project background are based on our direct experience with this project to date as well as similar projects we have completed in New England and the northeast including our extensive work on the Housatonic River. As a multidisciplinary, New England-based firm, Kleinschmidt has the necessary technical expertise to complete the work, including but not limited to: civil and hydraulic engineers, terrestrial and aquatic biologists, permitting specialists, GIS specialists, and drafters.

Sincerely,

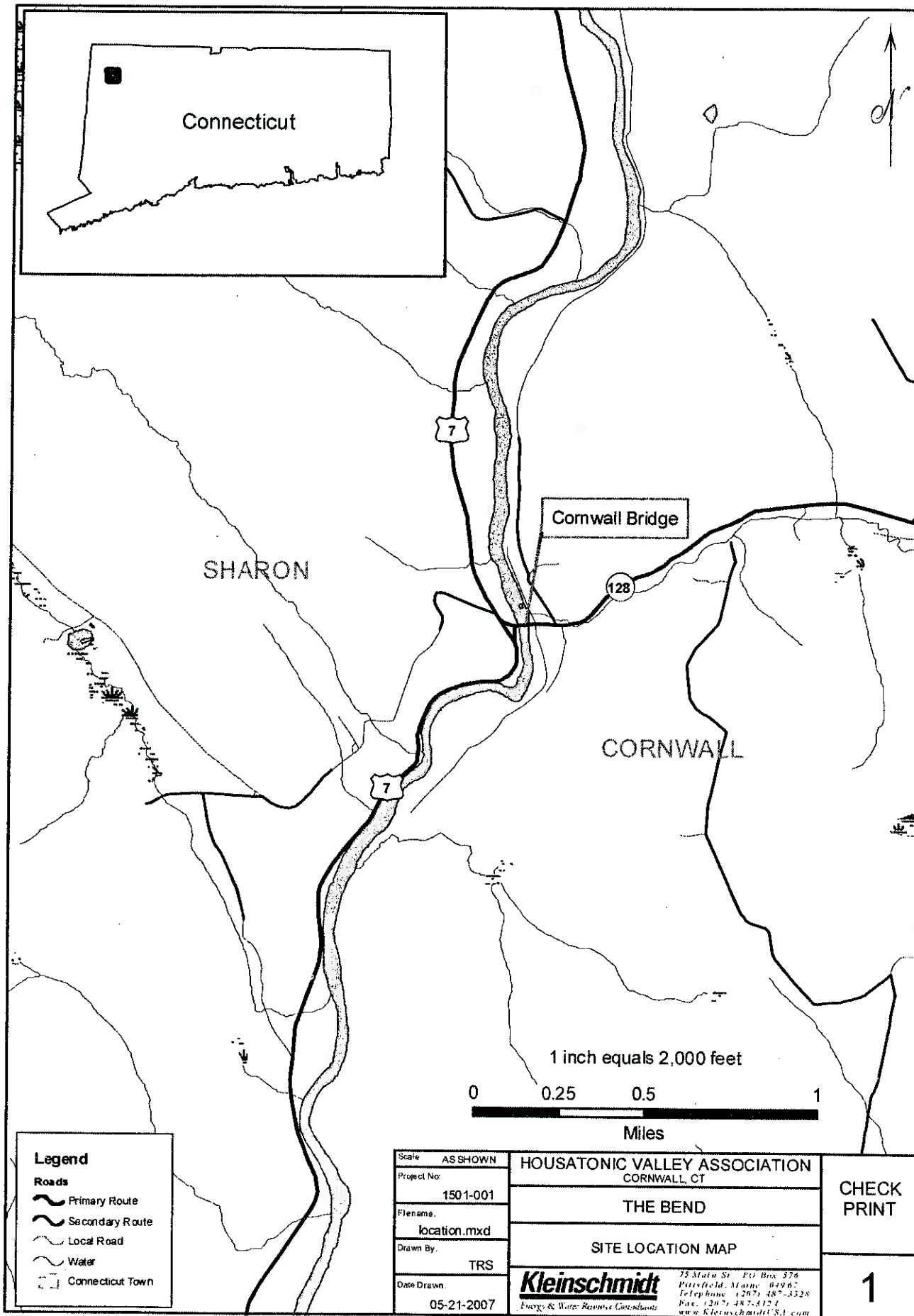
KLEINSCHMIDT ASSOCIATES

A handwritten signature in black ink, appearing to read "Alan Habershtock". The signature is stylized with a large, looped initial "A" and a long, sweeping horizontal stroke at the end.

Alan Habershtock, PWS
Project Manager

AEH:fhw

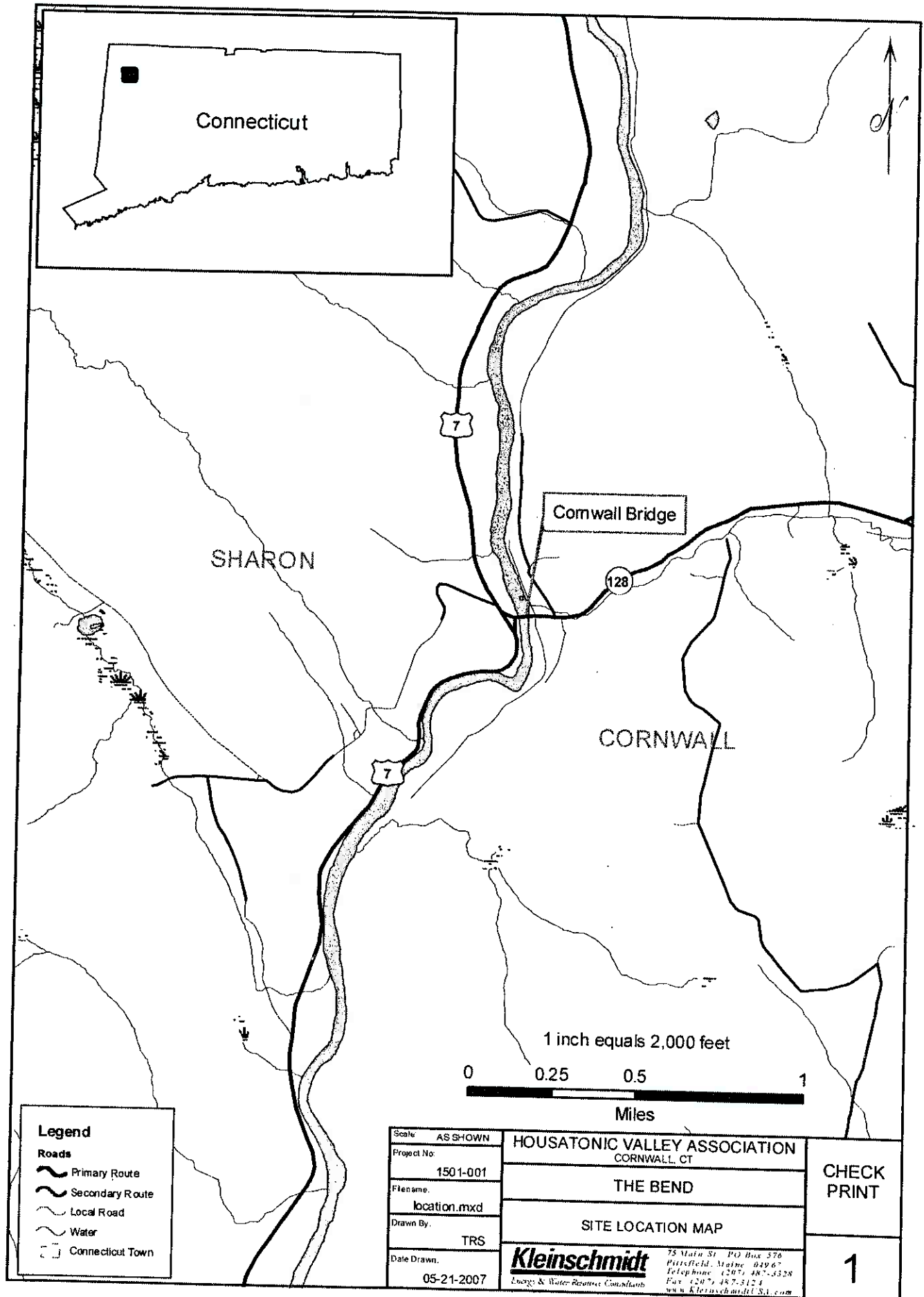
cc: J.M. Christensen, Kleinschmidt
J. A. Palmer, Kleinschmidt
M. C. Schimpff, Kleinschmidt



THE TWO GROUPS, MEETING AT THE
MALL, BY SHIRAZ O. JALALI

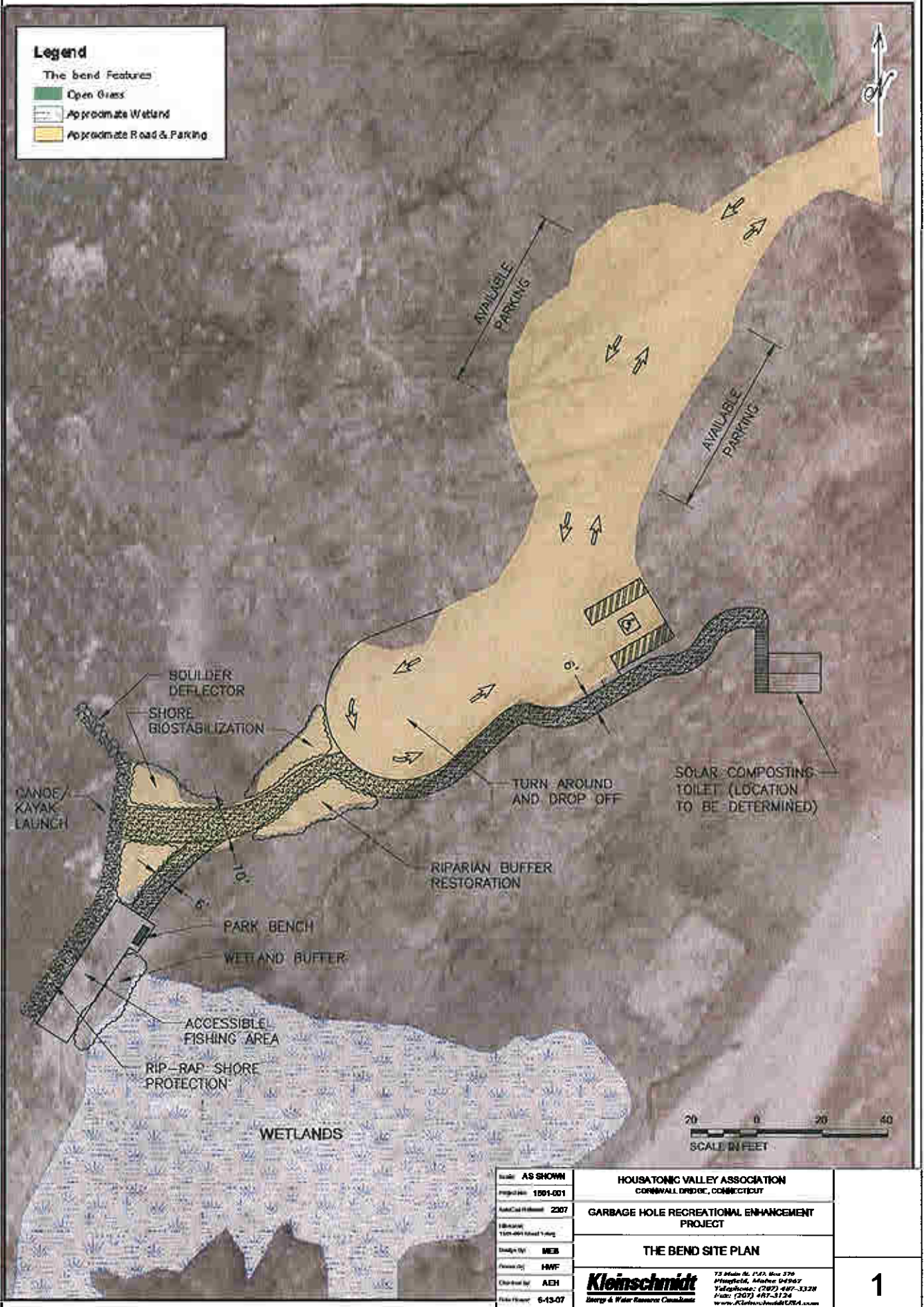


Issue: AS BROWN	HOUSTON VALLEY ASSOCIATION CORNWALL BRIDGE, CONNECTICUT	
Registration: 1691-001		
Annual Release: 2007	THE BEND RECREATIONAL ENHANCEMENT PROJECT	
Release 150-000 Street 2 Ang	THE BEND CANOE/KAYAK LONGITUDINAL AND TRANSVERSE SECTION	
Design for: MEB		
Drawn by: CBH/HWF		
Checked by: AEH		
Date Released: 6-10-07	 Survey & Water Resource Consultants 77 N. Main St., P.O. Box 376 Appleton, WI 54912-0376 Phone: (920) 417-1124 www.kleinschmidt.com	

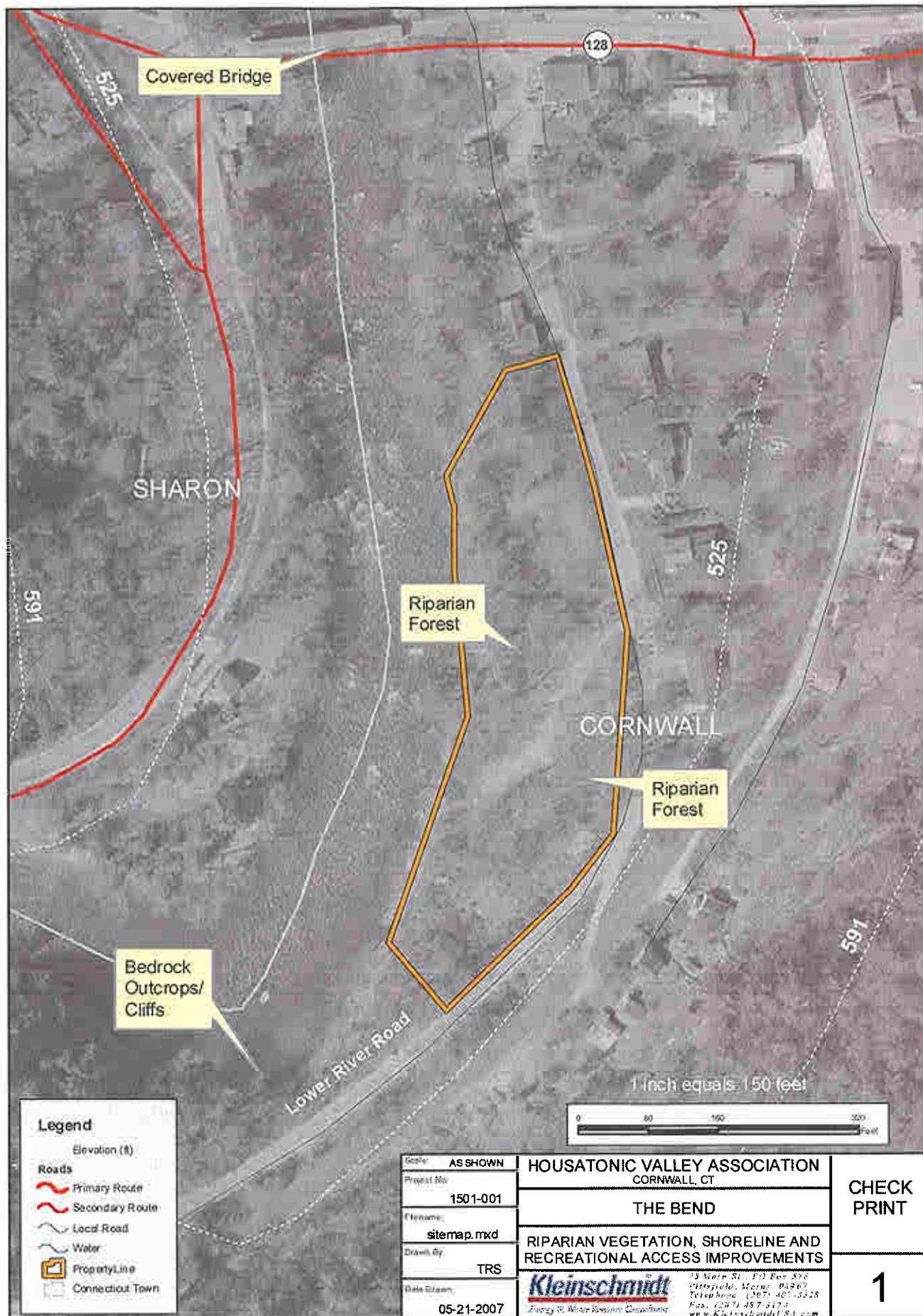


THIS PROJECT IS NOT A GUARANTEE OF THE ACCURACY OF THE INFORMATION PROVIDED. IT IS THE RESPONSIBILITY OF THE USER TO OBTAIN NECESSARY PERMITS AND TO VERIFY THE INFORMATION PROVIDED. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND FOR THE PROTECTION OF THE ENVIRONMENT. THE USER SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE ENVIRONMENT. THE USER SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE ENVIRONMENT.

A:\1501\1501\Drawings\WORKING DRAWINGS\1501-001 Sheet 1.dwg



Scale: AS SHOWN	HOUSATONIC VALLEY ASSOCIATION CORNWALL BRIDGE, CONNECTICUT	
Project No: 1501-001		
State/Cat/Release: 2307	GARBAGE HOLE RECREATIONAL ENHANCEMENT PROJECT	
Drawn by: MEB	THE BEND SITE PLAN	
Checked by: HWF	Kleinschmidt	73 Main St., 1st Fl., Box 376 Pittsfield, MA 01203 Telephone: (417) 487-3328 Fax: (417) 487-3124 www.kleinschmidtusa.com
Client: AEN	Design & Water Resource Consultants	
Date: 6-13-07		
		1





Housatonic Valley Association
Protecting Your Backyard
www.hvatoday.org

In Connecticut and New York
150 Kent Road
P.O. Box 28
Cornwall Bridge, CT 06754
860-672-6678

In Massachusetts
1838 Pleasant Street
P.O. Box 251
South Lee, MA 01260
413-394-9796

The Trustee Sub Council for Connecticut Housatonic River Basin
Natural Resources Restoration Project
c/o Mr. Michael Powers
CTDEP -Inland Fisheries Division
79 Elm Street
Hartford, CT 06106-5127

June 20, 2007

RE: Letter of Support
The Bend (aka Garbage Hole) Riparian Vegetation, Shoreline and Recreation Access Improvements
Proposal, West Cornwall, Connecticut

Dear Members of the Trustee Sub Council:

The undersigned are writing to support the Housatonic Valley Association (HVA), the Housatonic Fly Fisherman's Association (HFFA) and Kleinschmidt Associates (Kleinschmidt) proposal to enhance and restore the river access spot known as The Bend in West Cornwall, Connecticut.

The Bend is an existing, informal access area used for both fishing and launching hand-carry boats. However human activity and surface runoff has created erosion and easy access for polluted runoff to enter this stretch of the river. In addition, invasives have impacted this site and are out competing the natural habitat.

We agree with and support the project proposal goals and objectives which are to enhance in-stream aquatic habitat through shoreline stabilization and stormwater best management practices (BMPs) in key areas on-site. Secondary goals are to enhance public access to in-stream (e.g., fishery and boating) and riparian resources (e.g., shoreline plant and wildlife).

This project will reduce sediment and pollutant loading into the main stem of the Housatonic River which will benefit aquatic resources such as macroinvertebrates and fish that are sensitive to pollutant loading, turbidity and embeddedness. Riparian plant and wildlife communities will also benefit from native plantings and stormwater BMPs. This project will aid natural resource services including recreation (e.g., fishing, boating) as a result of access improvements and enhanced fish and wildlife habitat. This project will also provide new river access for physically challenged individuals and will make it easier for zodiac access for river rescue teams.

Due to state regulatory restrictions, we understand that the property owner, Connecticut Light and Power Company (CL&P), is unable to place a conservation easement on this parcel at this time. However, we applaud and support CL&P for earmarking this site as a priority parcel for conservation once restrictions are lifted.

We believe this project will restore and rehabilitate aquatic and natural resources, and recreational access, along the Housatonic River.

Sincerely,

Kirt Mayland, Trout Unlimited
Torrey Collins, Housatonic River Outfitters, Inc.

Chris Fulton, Stratford Bait and Tackle

Dan Kinney, HFFA

Rob Nicholas, Housatonic Anglers Guide Service/Fly Fishing Instruction

Don Mysling, DEP Inland Fisheries