Keirstead, Donald - Durham, NH

From: Dick_Quinn@fws.gov
Sent: Tuesday, April 20, 2010 9:31 AM
To: rsstephens@stephensengineers.com
Cc: 'Patterson, Cheri'; 'David Cedarholm'; Keirstead, Donald - Durham, NH; douglas.grout@wildlife.nh.gov; 'James E. Turner'; Joseph F. McKeon; naolson@stephensengineers.com
Subject: Re: Wiswall Dam Denil Fish Ladder Design Status
Attachments: pic28253.gif

Hi Bob

Received your message and read over your e-mail. Joe at a minimum already commented on the target fish species. You are correct in that a separate eelway would be needed as eels do not readily pass thru a Denil. The upstream eelway is quite easy to design. To determine what type of media is needed for passage, Cheri, Doug or others would have to identify the expected size of the eels to be passed - probably the majority in the 6 to 12" range????

One clarifying note on any fish passage project is that the project must be run properly in order to attain success - if we do not have the correct entrance jet, we will have difficulty in passing American shad - herring are a little less of an issue. All this means is that assuming the fishway is oriented properly, adjustments to the entrance channel (where the water comes out) stop logs must be made so as to maintain a 4 to 6" head difference between tailwater and the water level inside of the fishway entrance channel. This does not require daily adjustments but it might require adjustments once or twice a week if flow levels in the river change dramatically. I don't know whose responsibility it will be to maintain this fishway and make the adjustments, but that will be important in the overall success of fish passage there (or anywhere for that matter).

I think we are in good shape on the H&H components, but the Denil design will be slightly different from my previous design based upon the survey that the Corps obtained during the conduct of their study. That identified that the spillway was significantly longer than from the data I was provided earlier. That effects the exit channel and eliminates the removable baffle section we needed in my earlier design. I can talk to you later about the operating flows. To be clear, the fishway will not be designed to pass additional flood waters around the dam as the Corp's natural fishway design was going to provide.

If I am supposed to provide a footprint layout of the proposed fishway, I need to know when the layout is needed from me. My schedule is quite full over the next two months. As you correctly indicate, we need to know exactly where we can locate the sloped wall sections of the fishway based up on cultural/historic consultations. However, the entrance of the fishway is critical - we need to make sure that we are allowed to put it pretty close to the location I had shown in my earlier design.

Also, while I have some survey provided to me by the Corps in a converted Microstation format, it is not truly in an AutoCAD compatible format. It is usable, but if you or others have a true AutoCAD survey drawing of the dam and surrounding areas with spot elevations along the spillway, I'd appreciate getting a copy of that file.

If I didn't respond to all of the questions/comments you had, please let me know ASAP - after today I'll be out of the office until May 3, although I'll possible be in a few hours randomly next week as my field schedule allows.
-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*

Dick Quinn
Administrative Manager, P. E.

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04/12/2010 02:23 PM

Please respond to
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To"'David Cedarholm'"
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SubjectWiswall Dam Denil Fish Ladder Design Status

Dave:

We are designing the Denil fish ladder for review by Dick Quinn per our agreement, intending to work with Dick closely on the design. To continue the design we need answers to some input from the Town/others:

1. Hydraulics and hydrology – the design is based on the migration season, swimming ability and environmental attractors and stresses of the target species. The 2005 USACE Draft Environmental Assessment (Draft EA) lists 34 species of fish known to exist in the Lamprey River upstream of Wiswall Dam. Though not expressly stated, we infer from the Draft EA that Dick Quinn's 1994 Conceptual Plan of Fish Passage of Wiswall Dam (Denil Concept Design) likely focused on some of these: river herring (alewife/blueback herring), American shad, Atlantic salmon, American eel, sea lamprey. We know that the American eel struggles in Denil Ladders, and that the American Shad is showing very poor returns in coastal NH. Could NH DF&G and/or US F&S provide us with:

   i. Practicable list of target species for a Denil fish ladder under this project?

   ii. Migration season for those target species on Lamprey River. From Draft EA, we understand that April-June is the usual upstream migration season. Is this still applicable? Is downstream migration in late summer?

2. Site constraints – We are waiting to receive confirmation from you that cultural resource considerations will not preclude locating the Denil where planned (i.e., with the left wall of the Denil placed where the left downstream training wall is now). We would not want to proceed

and have to redesign as this would cost the Town additional design fees. Please let us know right away if we should not wait, proceeding under the assumption that the location will be as anticipated.

3. Project constraints – the design will be affected by the Town's use of impoundment. We know the use is regulated for downstream and upstream environmental impacts. We also understand that the status of those constraints is that the Town withdraws water such that the impoundment is lowered 18 inches at a rate of not more than 1 inch per day. We know of no other constraints on the Town regarding use of the water. We are designing accordingly.

We spoke to Don Keirstead of NRCS today about the project, especially with regard to the status of the cultural resource evaluation. Don indicated that the Town instructed him earlier this year that they would not be prepared to break ground on the project until 2011. We understand from discussions with Don that NRCS is proceeding with evaluation of cultural resources, and that that evaluation will include digging (i.e., test pits). We would like to be on site at that time, preferably drilling soil borings for geotechnical evaluation of dam modifications, so that we can observe the test pits by NRCS as well. We have asked NRCS to coordinate this work with us and to modify their digging permit to include our soil borings. NRCS has agreed to work this out with/for us. We are therefore planning to be on site when their cultural resources consultant (PAL) is there, probably drilling borings at that time as well.

I spoke with Joe McKeon today as well, who confirmed that the species cited above are the likely list, including American Shad. He is part of a significant east coast restoration effort, though I thought that he indicated that the lamprey has not had large historic populations. SA has resources that indicate the recent annual runs on the Lamprey of just a few fish. Joe also confirmed our concern about practicability of American eel passage, which we believe needs further discussion before putting on the target species list. Joe, please feel free to clarify if needed.

I left a message for Dick Quinn to call me back. He is out through 4/15.
Bob
==========

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RECEIVED
MAY 06 2009
DEPARTMENT OF PUBLIC WORKS
TOWN OF DURHAM, NH

April 30, 2009

Todd Selig, Town Administrator
Town of Durham
100 Stone Quarry Drive
Durham, NH 03824

Dear Mr. Selig,

Thank you for your letter inquiring whether the New Hampshire Fish and Game Department could take over the operation and maintenance of the proposed fish passage system at Wiswall Dam on the Lamprey River in Durham. We would like to applaud the Town of Durham and the NRCS efforts to provide fish passage at Wiswall Dam.

Due to recent budgetary shortfalls, we do not have the fiscal resources or sufficient personnel to take on the operation and maintenance of another fish passage system at a municipal or private owned dam. We would, however, be willing to offer our expertise and experience with fish ladders to help guide and train the Town of Durham with operation and maintenance of a fish passage system at Wiswall Dam.

In addition, we are finding that river restoration projects may work best and be more cost effective where dam removal is considered. It is our understanding that a feasibility study has indicated that dam removal is a viable option that the Town can consider if operation and maintenance of a fish passage system is a problem for the Town of Durham.

Sincerely,

Glenn Normandeau
Executive Director

cc: Doug Grout
Cheri Patterson
Sue Hoey
Dave Cederholm

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MEMORANDUM OF AGREEMENT BETWEEN THE
UNITED STATES DEPARTMENT OF AGRICULTURE - NATURAL RESOURCES CONSERVATION SERVICE
AND THE
NEW HAMPSHIRE STATE HISTORIC PRESERVATION OFFICER
REGARDING MODIFICATIONS TO THE
WISWALL DAM AND WISWALL FALLS MILL SITE
DURHAM, NEW HAMPSHIRE

WHEREAS, the United States Department of Agriculture - Natural Resources Conservation Service (USDA-NRCS) is providing funding and planning assistance for a project designed to restore the aquatic habitat of the Lamprey River by removing obstacles and constructing a Denil fish ladder at the eastern end of the Wiswall Dam that will allow for the upstream migration of anadromous fish (hereinafter referred as the "Project"); and,

WHEREAS, the Town of Durham is proposing other improvements in concert with the Project, including modifying the height of the gate structure on the east side of the dam to provide increased hydraulic capacity and dam repairs to address safety, flooding, and water supply issues; and,

WHEREAS, the Project constitutes a Federal undertaking that is subject to review under Section 106 of the National Historic Preservation Act (16 USC § 470f) and its implementing regulations (36 CFR Part 800), and;

WHEREAS, the USDA-NRCS has determined, in consultation with the New Hampshire State Historic Preservation Officer (NHSHPO), that the Project will have an adverse effect on the Wiswall Falls Mill Site, which is listed in the National Register of Historic Places (National Register), and the Wiswall Dam, a contributing property in the National Register-eligible Wiswall Falls Historic District; and,

WHEREAS, pursuant to 36 CFR § 800.6(a)(1), the USDA-NRCS has informed the Advisory Council on Historic Preservation (ACHP) of its finding of effect and the ACHP has determined that its participation to resolve adverse effects is not necessary; and,

WHEREAS, the USDA-NRCS has solicited input from the general public and local, regional, and state organizations interested in the historical resources throughout the Project planning process, and has invited the Town of Durham, Durham Historic Association, and Durham Historic District Commission to participate in the consultative process and signatories to this Agreement; and,

WHEREAS, the National Park Service, through its Wild and Scenic Rivers Program, has a statutory obligation to protect and enhance significant historic resources along the Lamprey River, a designated Wild and Scenic River, has also been invited to participate as a consulting party on behalf of the Lamprey River Advisory Commission; and,

WHEREAS, the USDA-NRCS has considered alternatives, including no action, partial breach, and full removal of the Wiswall Dam alternatives, and has determined that the planned construction of the Denil fish ladder we have the least impact on historic resources and represents the most prudent and feasible alternative to achieve the Project goals; and

WHEREAS, as a result of continued consultation concerning impacts to the circa 1830 Wiggin Sawmill foundation, the USDA/NRCS has adjusted the plans for the fish ladder in order to minimize, to the extent possible, the effects of the Project by preserving in place portions of the corner of the wall comprising its west and south sides.

NOW THEREFORE, the consulting parties agree that the Project shall be implemented in accordance with the following stipulations in order to take into account the effects of the undertaking on historic properties:

STIPULATIONS

The USDA-NRCS shall insure that the following measures are carried out in consultation with the NHSHPO:

I. Update of Wiswall Falls Mill Site National Register Registration Form

A. The USDA-NRCS, with the assistance of a qualified archaeologist as defined by the Secretary of the Interior Standards and Guidelines for Archaeology and Historic Preservation (36 CFR 61), will prepare an update of the 1988 National Register of Historic Places Registration Form for the Wiswall Falls Mill Site. The updated documentation will conform to current National Register standards for content in accordance with *National Register Bulletin 16A: How to Complete the National Register Registration Form*. It will include a thorough description of the physical aspects of the site and full consideration of its historical significance within the context of the important themes, trends, events, and individuals related to the historic industrial development of the Wiswall Falls Dam privilege. The documentation will include a map showing the boundaries of the site and contributing and non-contributing resources. Photographic views will be sufficient to provide a visual representation of visible resources of the site and illustrate the qualities discussed in the description and statement of significance. Supporting graphical information will include a USGS topographical map showing the boundaries of the site and historic photographs, maps, or other illustrations that show the development of the site over time.

B. The USDA-NRCS will provide a draft of the completed National Register documentation to the NHDHR, Durham Historic District Commission, and Durham Historic Association for review and comment.

C. Upon acceptance of a final draft, the USDA-NRCS will submit two (2) original archival copies of the final National Register Registration Form, photographs, and supporting documentation to the NHDHR. Copies of the form will be submitted to the Durham Historic District Commission and Durham Historic Association.

II. State-level Documentation of Wiswall Dam

A. The USDA-NRCS, with the assistance of a 36 CFR 61-qualified architectural historian, will document the Wiswall Dam in accordance with the state-level written and photograph documentation standards of the New Hampshire Division of Historical Resources (NHDHR). The documentation will include large format black-and-white photographs and negatives, a written narrative report, and supporting graphical information. The written report will provide information about the existing appearance of the dam and its history from the time that it was constructed in 1912.

B. Prior to conducting the documentation, the USDA-NRCS will provide a Schedule of Documentation (SOD) that describes the content and specifications for the documentation to the NHDHR for review and comment.

C. The USDA-NRCS will provide a draft of the completed documentation to the NHDHR, Durham Historic District Commission, and Durham Historic Association for a review and comment period of 45 days.

D. Two (2) original archival copies of the final documentation will be prepared. One (1) copy will be submitted to NHDHR. One (1) copy will be transmitted to an appropriate Durham repository to be identified in the SOD.

III. Final Fish Passage Design

A. The USDA-NRCS will submit its revised plan of for the fish passage to the consulting parties for review and comment. The goal of the review will be to develop a design solution that preserves as much of the Wiggin Sawmill foundation as is feasible.

B. The USDA-NRCS will have met the requirements of this stipulation when all the consulting parties concur by letter or e-mail communication that the final design plan is acceptable.

IV. Archaeological Recordation and Monitoring at the Wiggin Sawmill Foundation

A. USDA-NRCS will insure that the existing condition of the Wiggin Sawmill foundation is recorded by a 36 CFR 61-qualified archaeologist before work at the site commences. The recordation will consist of high-resolution digital photographs and measured drawings of the aboveground remnant foundation walls.

B. The archaeologist will be on-site to monitor ground disturbing activities associated with work conducted in proximity foundation. The monitoring effort will include the recordation of any previously unrecorded structural elements or features associated with the former mill building. Field recordation will include written notes, high-resolution digital photography of the dismantling and removal activities, and sketch maps and/or measured drawings (plans, representative cross-sections) of exposed cultural resources as necessary and as safety conditions

allow. In the event that potentially significant archaeological resources are identified during the excavation, the archaeologist will notify the consulting parties and follow the procedures for unanticipated discoveries identified in Stipulation VI below.

C. An archeological recordation and monitoring plan describing the project methodology, content, and deliverables will be submitted for review and approval by the NHDHR before the fieldwork is conducted.

D. A report containing the results of the recordation and monitoring efforts will be submitted to the NHDHR, Durham Historic District Commission, and Durham Historic Association.

V. Interpretive Panel

A. The USDA-NRCS will fund the design, fabrication, and installation of an interpretive panel that will be installed on the kiosk at the entrance to the Wiswall Falls Mill Site Park. The information contained on the panel will focus on historical themes that will complement the two existing interpretive panels on the kiosk. The content will be developed by the Wiswall Historic Interpretation Committee. The new panel will be consistent with the design and materials of the existing panels.

B. USDA-NRCS will submit a draft version of the panel to the consulting parties for review and approval. Upon approval of the design and content, USDA-NRCS will cause the panel to be fabricated and installed on the kiosk.

VI. Unanticipated Discoveries

The USDA-NRCS will ensure that if previously unidentified historic properties are discovered during the construction of the Project, the signatories to this agreement will be notified immediately and any work that could potentially impact the resource will be suspended. The parties will consult about ways to avoid, minimize or mitigate any effects that the Project may have on the resource and, if necessary, amend this Agreement to provide for the subsequent treatment of the resource.

VII. Duration and Amendments

A. This Agreement will expire if its terms are not carried out within three (3) years from the date of its execution.

B. The parties to this Agreement may, by mutual consent, amend its terms at any time during the period in which it is in effect.

VIII. Dispute Resolution

In the event that a signatory objects in writing to any proposed activity pursuant to this Agreement while it is in effect, the USDA-NRCS will meet with the party to resolve the objection. Following

that meeting, the USDA-NRCS shall determine as promptly as possible whether the objection has been satisfactorily resolved. If the USDA-NRCS determines that the objection has not been satisfactorily resolved, it shall forward within 15 calendar days of its decision all documentation relevant to the dispute, including the proposed action to resolve the dispute, to the ACHP. The USDA-NRCS will take any recommendations or comments provided by the ACHP into account in reaching a final decision regarding the dispute. In the event the ACHP fails to respond to the USDA-NRCS's request for recommendations or comments within 30 calendar days of receiving all pertinent materials, the USDA-NRCS may resolve the dispute in a manner it deems appropriate.

SIGNATORIES

THE FOLLOWING SIGNATORIES TO THIS AGREEMENT HAVE ACKNOWLEDGED THEIR CONCURRENCE BY SIGNING THE ATTACHED INDIVIDUAL SIGNATURE PAGES:

UNITED STATES DEPARTMENT OF AGRICULTURE – NATURAL RESOURCES CONSERVATION SERVICE
By: Richard P. Ellsmore, State Conservationist – New Hampshire

NEW HAMPSHIRE STATE HISTORIC PRESERVATION OFFICER
By: Elizabeth H. Muzzey, NHSHPO

<u>INVITED SIGNATORIES</u>

TOWN OF DURHAM
By: David Cedarholm, P.E., Town Engineer

DURHAM HISTORIC DISTRICT COMMISSION
By: Leslie Schwartz, Chair

DURHAM HISTORIC ASSOCIATION
By: Dick Lord, President

NATIONAL PARK SERVICE
By: Jamie Fosburgh, NPS

SIGNATURE PAGE

EXECUTION AND IMPLEMENTATION OF THIS MEMORANDUM OF AGREEMENT REGARDING MODIFICATIONS TO THE WISWALL DAM AND WISWALL FALLS MILL SITE EVIDENCES THAT THE USDA-NRCS HAS TAKEN INTO ACCOUNT THE EFFECTS OF THE PROJECT ON HISTORIC PROPERTIES AND HAS SATISFIED ITS RESPONSIBILITIES PURSUANT TO SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT.

UNITED STATES DEPARTMENT OF AGRICULTURE – NATURAL RESOURCES CONSERVATION SERVICE

By: _____ Date: 1/24/2011

Richard P. Ellsmore, State Conservationist – New Hampshire

SIGNATURE PAGE

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TOWN OF DURHAM

By: _____ Date: January 13, 2011
David Cedarholm, P.E., Town Engineer

SIGNATURE PAGE

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NATIONAL PARK SERVICE

By: _____ Date: 12/29/10

Jamie Fosburgh, NPS

SIGNATURE PAGE

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DURHAM HISTORIC DISTRICT COMMISSION

By: _____ Date: 12-23-10

Leslie Schwartz, Chair

SIGNATURE PAGE

EXECUTION AND IMPLEMENTATION OF THIS MEMORANDUM OF AGREEMENT REGARDING MODIFICATIONS TO THE WISWALL DAM AND WISWALL FALLS MILL SITE EVIDENCES THAT THE USDA-NRCS HAS TAKEN INTO ACCOUNT THE EFFECTS OF THE PROJECT ON HISTORIC PROPERTIES AND HAS SATISFIED ITS RESPONSIBILITIES PURSUANT TO SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT.

NEW HAMPSHIRE STATE HISTORIC PRESERVATION OFFICER

By: Elizabeth H. Muzzey Date: 12/23/2010
Elizabeth H. Muzzey, NHSHPO

SIGNATURE PAGE

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DURHAM HISTORIC ASSOCIATION

By: _____ Date: 18 Jan, 204

Dick Lord, President

TECHNICAL REPORT

PHASE IB INTENSIVE ARCHAEOLOGICAL SURVEY
WISWALL DAM FISH PASSAGE PROJECT AREA

Durham, New Hampshire

Kristen Heitert
Nichole Gillis

Submitted to:

United States Department of Agriculture
Natural Resources Conservation Service
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Concord, New Hampshire 03301

Submitted by:

PAL
210 Lonsdale Avenue
Pawtucket, Rhode Island 02860

PAL Report No. 2303.01 July 2010

PAL Publications

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MANAGEMENT ABSTRACT

PAL completed a Phase IB intensive archaeological investigation at the Wiswall Dam Fish Passage project area in May 2010. The project area lies in the former location of the nineteenth-century T.S. Wiswall mill complex and twentieth-century Newmarket Electric Company hydroelectric plant. Portions of the proposed project area also lie within the boundaries of the National Register-listed Wiswall Falls Mill Site as well as within the boundaries of the Wiswall Falls Historic District, the latter of which was determined eligible for listing on the National Register in 2008.

A total of 36 50-x-50-centimeter (cm) test pits was excavated along nine transects (A–I) and as four judgmental test pits (JTPs 1–4) within the Area of Potential Effect (APE). Most soil matrices identified within the APE were compact and rocky fills that appeared to be related to construction and use of existing access roads, staging areas, and the dam and dike. The fills generally overlaid sandy silt with gravel C horizon subsoils consistent with the natural glacial subsoil identified for the area. Some test pits contained a remnant coal/clinker layer that is likely related to a fire that destroyed the mill complex in 1883. Only three test pits in the APE contained intact, or partially intact, A and/or B soil horizons. A total of 388 pieces of postcontact cultural material was recovered from the project area. The vast majority of the material (96 percent) was collected from fill deposits and was highly fragmented (see Appendix A). Recovered cultural materials included waste materials related to the 1883 fire that destroyed the mill complex (e.g. coal, cinder, coal ash, clinker), nails, bottle and window glass, a redware and whiteware sherd, brick, a glass button fragment, and a complete iron chisel. The material assemblage (n=17) collected from intact Apz, Buried A, and Wetland A was largely similar to that recovered from the filled soil horizons.

Subsurface testing within the Wiswall Dam Fish Passage project area demonstrated that the APE is characterized by heavily mixed and deeply disturbed soils likely dating to the destruction/demolition of the various milling concerns on the east bank of the river and by subsequent dam construction activities on both sides of the river. The vast majority of materials identified within the project area were cinder, clinker, coal, and coal ash. Very few datable materials or domestic or personal items were recovered from the site, and none of those that were recovered convey any substantive information about the construction and/or use of the mill complex or the day-to-day lives of its managers and employees. None of the cultural material was recovered from intact or historically significant soil contexts and did not form any discrete clusters suggestive of activity areas or a planned landscape. No evidence of builders' trenches or stratigraphic sequences that could provide additional information about the surviving foundation elements of the ca. 1835 sawmill were identified during subsurface excavations, nor was there any evidence of buried, intact structural remains associated with any of the other mill buildings.

Based on an analysis of the field and artifact data, no cultural materials or features that might contribute substantive information about the Wiswall Falls Mill Site or Wiswall Falls Historic District were identified during the Phase IB survey. Furthermore, no pre- or postcontact cultural materials or features individually potentially eligible for listing on the National Register were identified during the survey. No additional archaeological survey is recommended within the proposed APE for the Wiswall Dam Fish Passage project area. In the event that project plans and/or the current APE substantively changes, however, additional archaeological review may be required.

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CHAPTER ONE

INTRODUCTION

The following report details the results of the Phase IB intensive archaeological survey conducted at the Wiswall Dam Fish Passage project area located on the Lamprey River in the Town of Durham, New Hampshire (Figure 1-1). The United States Department of Agriculture – Natural Resources Conservation Service (USDA-NRCS) is proposing to restore the aquatic habitat of the Lamprey River that, because of the various dams and impoundments along its length, currently eliminates the upstream migration of anadromous fish. One element of the proposed restoration project includes constructing a Denil fish ladder at the eastern end of the Wiswall Dam, located approximately 7/10-mile upstream of Packers Falls and five miles upstream of the mouth of the Lamprey River (Figure 1-2).

Wiswall Dam was constructed in 1912 by Newmarket Electric Company to power a small hydroelectric plant. The location, however, was the site of a succession of smaller dams used to power a complex of nineteenth-century mills, including a thriving paper mill owned by the Wiggins and Wiswall families. The remains of several of these earlier structures, as well as the circa (ca.) 1854 stone-lined power canal, are still visible on the landscape. The extant dam was purchased by the Town of Durham in 1965 and the impoundment currently is used as an emergency water supply for the town. The structure comprises a 200-foot (ft) long, 11-ft high concrete gravity dam with a 160-ft long spillway, low-level outlet works, and a millrace.

Project Scope and Authority

The proposed fish ladder installation will include building an emergency spillway on the west side of the dam; repairing and rebuilding the downstream training walls (one of which lies adjacent to the west wall of a historic sawmill foundation; and regrading of the existing ground surface (Figure 1-3). Portions of the proposed project area lie within the boundaries of the National Register-listed Wiswall Falls Mill Site as well as within the boundaries of the Wiswall Falls Historic District, the latter of which was determined eligible for listing on the National Register in 2008 (Stott 1987; Preservation Company 2008). Because the proposed project is being funded in part by the USDA-NRCS, the work at the site constitutes a federal undertaking and as such is subject to review under Section 106 of the National Historic Preservation Act, as amended.

In response to a request by USDA-NRCS, PAL conducted a Phase IB intensive archaeological survey within the Area of Potential Effect (APE) for the Wiswall Dam Fish Passage project area (see Figure 1-3). All tasks associated with the archaeological investigations were carried out in accordance with the standards outlined in the Secretary of the Interior's 1983 *Standards and Guidelines for Archaeology and Historic Preservation* (48 FR 44716, 1983) and follow the guidelines established by the National Park Service (NPS) in the *Recovery of Scientific, Prehistoric, Historic, and Archaeological Data* (36 CFR Part 66, Appendix A). The work also was conducted in accordance with NHDHR's *Generalized Guidelines for Research and Reporting: Scope of Work for Proposed Dam Removals Pertaining to Historical and Archaeological Resources* (NHDHR n.d.) and *Archaeological Standards and Guidelines* (NHDHR n.d.2004).

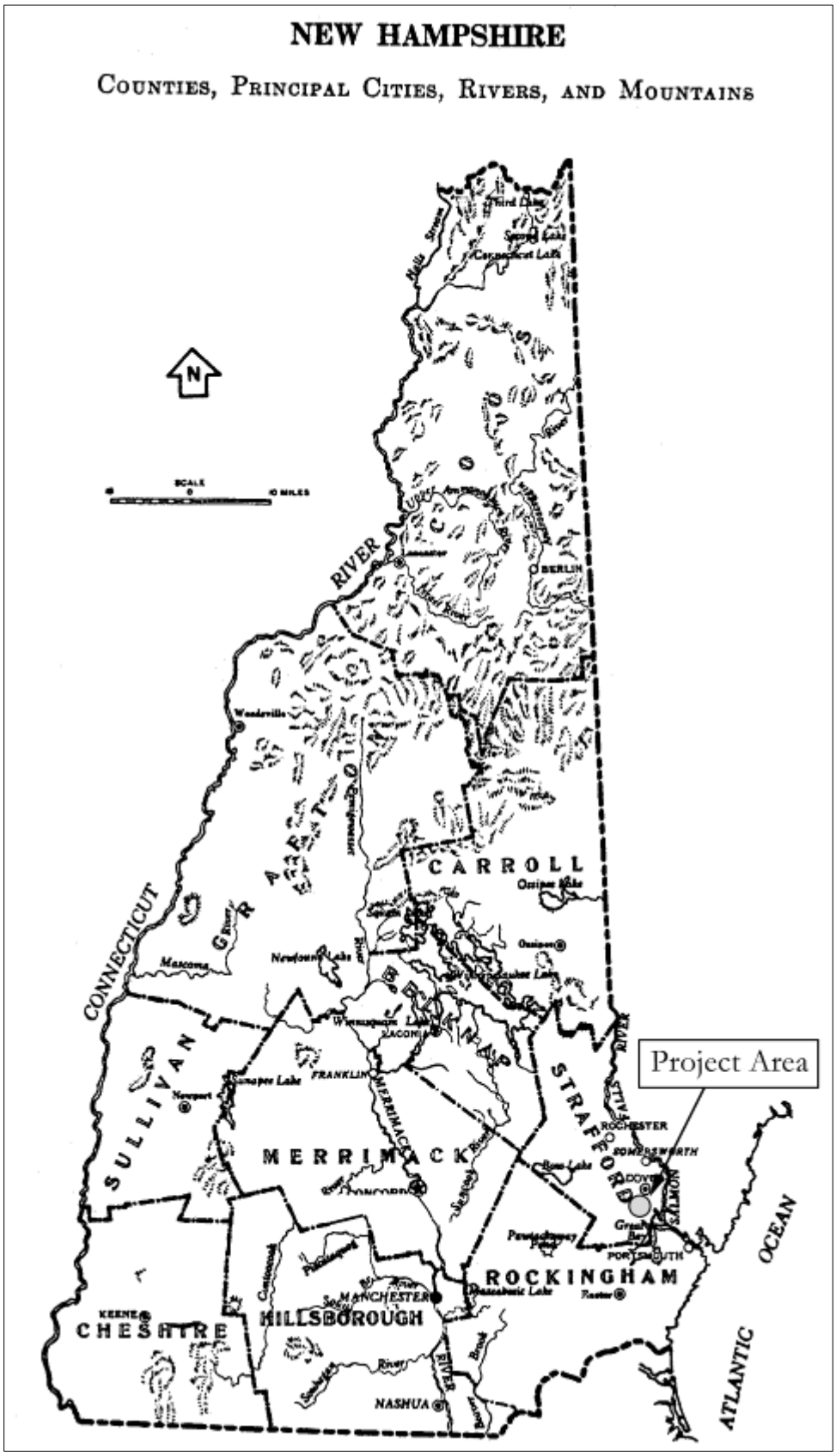

Figure 1-1. Map showing the location of Durham, New Hampshire.

Figure 1-2. Location of the Wiswall Dam Fish Passage project area on the Newmarket, NH topographic quadrangles, 7.5 minute series.

Project Personnel

PAL conducted the Phase IB intensive archaeological investigations at the Wiswall Dam Fish Passage project area from May 24–28, 2010. PAL staff involved in the survey included Stephen Olausen (project manager), Kristen Heitert (principal investigator), Nichole Gillis (project archaeologist) and Joseph Bagely (assistant archaeologist).

Disposition of Project Materials

All project information (field recording forms, maps, photographs) and artifacts are currently stored at the PAL offices at 210 Lonsdale Avenue, Pawtucket, Rhode Island. PAL serves as a temporary curation facility until permanent curatorial arrangements are established.

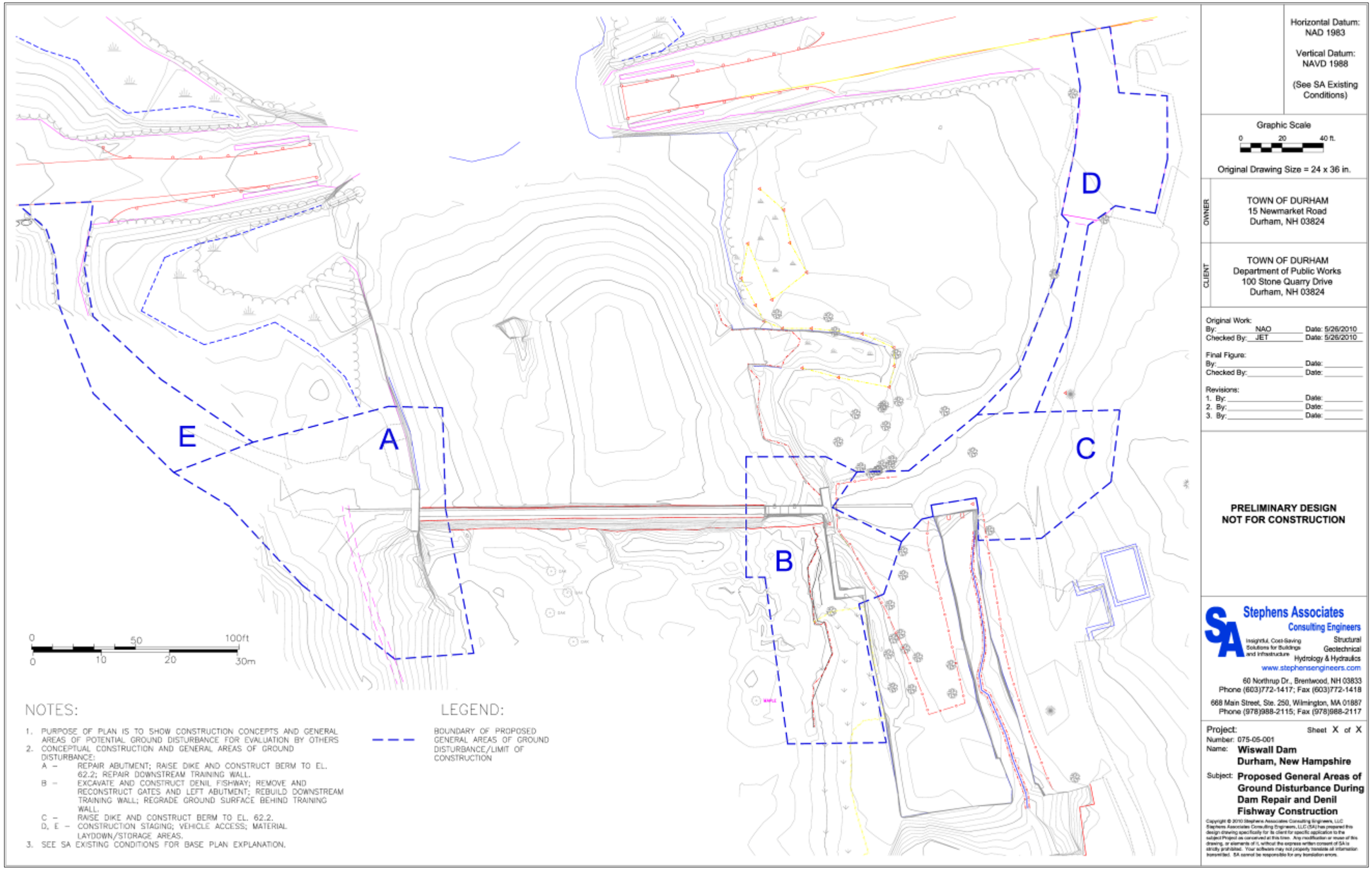

Figure 1-3. Plan of the proposed Wiswall Dam Fish Passage project area.

CHAPTER TWO

RESEARCH DESIGN AND FIELDWORK METHODS

The goal of the Phase IB intensive archaeological survey was to locate and identify any significant archaeological properties that might be affected by project activities. To accomplish this objective, three research strategies were used:

- archival research, including a review of literature and maps;
- field investigations, consisting of a "walkover" visual reconnaissance survey and subsurface testing; and
- laboratory processing and analyses of recovered cultural materials.

The archival research and walkover survey provided the information needed to develop environmental and historic contexts for the project area and develop a predictive model for archaeological sensitivity. Archaeological sensitivity is defined as the likelihood for belowground cultural resources to be present and is based on various categories of information:

- locational, functional, and temporal characteristics of previously identified cultural resources in the project area or vicinity; and
- local and regional environmental data reviewed in conjunction with existing project-area conditions documented during the walkover survey, and archival research about the project area's land use history.

Subsurface archaeological testing was conducted in areas determined during the sensitivity assessment to have high or moderate potential for containing archaeological deposits and that will be subject to proect-related impacts. Cultural materials recovered during the survey were processed in the laboratory and analyzed to interpret the nature of past human activities they represent. The artifact analyses were correlated with other field survey data and the resulting information was interpreted within the environmental and historic contexts developed for the project area. The result was an assessment of potentially significant archaeological resources and their eligibility for listing in the National Register of Historic Places (National Register).

Evaluating Significance and Historic Contexts

The different phases of archaeological investigation (survey, evaluation, and data recovery) reflect preservation planning standards for the identification, evaluation, registration, and treatment of archaeological resources (National Park Service [NPS] 1983). An essential component of this planning structure is the identification of archaeological properties that are eligible for inclusion in the National Register, the official federal list of properties that have been studied and found worthy of preservation. Archaeological properties can be a district, site, building, structure, or object, but are most often sites and districts (Little et al. 2000).

An archaeological property may be precontact, postcontact, or contain components from both periods. Precontact (or what is often termed "prehistoric") archaeology focuses on the remains of indigenous American societies as they existed before substantial contact with Europeans and resulting written records (Little et al. 2000). In accordance with the NPS guidelines, the term "precontact" instead of "prehistoric" is used unless directly quoting materials that use the term "prehistoric." The date of contact varies across the country and in the New England region. There is no single year that marks the transition from precontact to postcontact. Postcontact (or what is often termed "historical") archaeology is the archaeology of sites and structures dating from time periods since significant contact between Native Americans and Europeans. Documentary records as well as oral traditions can be used to better understand these properties and their inhabitants (Little et al. 2000). Again, for reasons of consistency with the NPS guidelines, the term "postcontact" instead of "historical" is used when referring to archaeology unless directly quoting materials that use the term "historical."

The NPS has established four criteria for listing significant properties in the National Register (36 CFR 60). The criteria are broadly defined to include the wide range of properties that are significant in American history, architecture, archaeology, engineering, and culture. The quality of significance may be present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association. The criteria allow for the listing of properties:

A. that are associated with events that have made a significant contribution to the broad patterns of our history; or

B. that are associated with the lives of persons significant in our past; or

C. that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. that have yielded, or may be likely to yield, information important to prehistory or history.

Archaeological properties can be determined eligible for listing in the National Register under all four criteria (Little et al. 2000). Significance under any of these criteria is determined by the kind of data contained in the property, the relative importance of research topics that could be addressed by the data, whether these data are unique or redundant, and the current state of knowledge relating to the research topic(s). A defensible argument must establish that a property "has important legitimate associations and/or information value based upon existing knowledge and interpretations that have been made, evaluated, and accepted" (McManamon 1990:15).

Another critical component in assessing the significance of a historic property is an evaluation of its integrity. Historic properties either retain integrity (this is, convey their significance) or they do not. The NRHP criteria recognize seven aspects or qualities that, in various combinations, define integrity including:

- location, the place where the historic property was constructed or the place where the historic event occurred;
- design, the combination of elements that create the form, plan, space, structure, and style of a property;
- setting, the physical environment of a historic property;

- materials, the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property;
- workmanship, the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory;
- feeling, a property's expression of the aesthetic or historic sense of a particular period of time; and
- association, the direct link between an important historic event or person and a historic property.

To retain historic integrity a property will always possess several, and usually most, of these aspects. The retention of specific aspects of integrity is paramount for a property to convey its significance. Determining which of these aspects are most important to a particular property requires knowing why, where, and when the property is significant (NPS 2002).

The criteria are applied in relation to the historic contexts of the resources. A historic context is defined as follows:

> A historic context is a body of thematically, geographically, and temporally linked information. For an archaeological property, the historic context is the analytical framework within which the property's importance can be understood and to which an archaeological study is likely to contribute important information (Little et al. 2000).

The formulation of historic contexts is a logical first step in the design of an archaeological investigation and is crucial to the evaluation of archaeological properties in the absence of a comprehensive survey of a region (NPS 1983:9). Historic contexts provide an organizational framework that groups information about related historic properties based on a theme, geographic limits, and chronological periods. A historic context should identify gaps in data and knowledge to help determine what significant information may be obtained from the resource. Each historic context is related to the developmental history of an area, region, or theme (e.g., agriculture, transportation, waterpower), and identifies the significant patterns of which a particular resource may be an element. Only those contexts important to understanding and justifying the significance of the property must be discussed.

Historic contexts are developed by:

- identifying the concept, time period, and geographic limits for the context;
- collecting and assessing existing information within these limits;
- identifying locational patterns and current conditions of the associated property types;
- synthesizing the information in a written narrative; and
- identifying information needs.

"Property types" are groupings of individual sites or properties based on common physical and associative characteristics. They serve to link the concepts presented in the historic contexts with properties illustrating those ideas (NPS 1983, 48 FR 44719).

The following historic research contexts have been developed to organize the data relating to the archaeological resources identified within the project area:

- precontact and contact period land use and settlement patterns in the Lamprey River drainage, circa (ca.) 12,500 to 450 years before present (B.P.); and

- postcontact period land use and settlement patterns of Durham ca. A.D. 1650 to present.

Historic contexts, along with expected property types and locational patterns, are discussed in detail in Chapter 4. The potential research value of the known and expected archaeological resources identified within the project area is evaluated in terms of these historic contexts. This evaluation, along with management recommendations, is presented in Chapter 5.

Archival Research

The Wiswall Falls Mill Site and Wiswall Falls Historic District have been the subject of extensive primary and secondary historical research. Previous work conducted by the consulting firm Preservation Company for National Register documentation purposes included the review of secondary town, state, and regional histories (e.g. Durham Historic Association (DHA) 1985; Fitts 1912; Stackpole 1913; Thompson 1892); the comprehensive examination of probate and land records to create a chain-of-title for the property; the examination of historic maps and photographs (e.g. Chace 1856; Hurd 1892; Ross and House 1996; Sanford & Everts 1871); and a review of state site files and cultural resource management reports housed at NHDHR (Bolian and Maymon 1985, 1986; ; Kenyon 1986). In addition, a review of engineering data about the Lamprey River and Wiswall dam and bridge was conducted (Monroe 1989; New Hampshire Highway Department 1951), as well as interviews with and research at local historical societies including the Durham Historic Association.

Supplemental research conducted as part of the Phase IB research program included a review of soil data for the project area through the USDA-NRCS Web Soil Survey (WSS) (USDA 2010). WSS provides access to the largest natural resource information system in the world and has soil maps and data available online for more than 95 percent of the nation's counties, including Strafford County, New Hampshire.

Informant Interviews

Richard Lord, a Durham resident and member of several partnering organizations to the Wiswall Dam Fish Passage project, provided maps, archival photographs, and personally-researched information about the dam and surrounding properties.

Walkover Survey and Sensitivity Assessment

A walkover survey of the project area was conducted to document and assess present environmental conditions. Environmental information documented on the project maps during the walkover included the presence, types, and extent of fresh water; drainage characteristics; presence of bedrock outcrops and level terraces; and the angle of any slopes. Areas of obvious ground disturbance were photographed and noted on project maps as were mill-related structural features not clearly depicted on the most current project site plans.

Information collected during the archival research and walkover survey was used to develop a predictive model of potential site types and their cultural and temporal affiliation. As discussed earlier, portions of the proposed project area lie within the boundaries of the National Register-listed Wiswall Falls Mill Site and as such are considered sensitive for both pre- and postcontact period archaeological resources (see

Chapter 4). None of the testing conducted at the Wiswall Falls Mill Site to date, however, has occurred within the current APE. Furthermore, none of the proposed project impacts are slated for those areas that have been previously tested.

Subsurface Testing

Subsurface testing was conducted in proposed project impact areas with high and moderate archaeological sensitivity to locate and identify any cultural resources. A total of 36 50-x-50-centimeter (cm) test pits was excavated along nine transects (A–I) and as four judgmental test pits (JTPs 1–4) within the APE. Test pits were excavated at 4-meter (m) intervals along transects in impact areas within or adjacent to the historic core of the mill complex (Impact Areas B and C), and at 8-m intervals in impact areas outside of the historic mill core (Impact Areas A, D, and E).

All test pits were excavated by shovel in arbitrary 10-cm levels to sterile subsoil or to 100 cm below ground surface, whichever came first. Excavated soil was hand-screened through ¼-inch hardware cloth, and all cultural materials remaining in the screen were bagged and tagged by level within each unit. The count and type of all recovered cultural material were noted. Soil profiles, including depths of soil horizons, colors, and textures, were recorded for each test pit on standard PAL test pit profile forms. All test pits were filled and the ground surface was restored to its original contour following excavation. Digital images were taken of the general project area.

Laboratory Processing and Analyses

Processing

All cultural materials recovered from the Wiswall Dam Fish Passage project area during the archaeological investigations were organized by site and provenience and recorded and logged in on a daily basis. Cultural materials were sorted by type and either dry brushed or cleaned with tap water depending on the material or artifact type and condition.

Cataloging and Analyses

All cultural materials were cataloged using a customized computer program designed in Microsoft Access 2000. The program is a relational database, which provides the flexibility that is needed when cataloging archaeological collections that often contain disparate cultural materials such as stone, ceramics, and/or glass. Artifacts with similar morphological attributes are grouped into lots, which allows for faster and more efficient cataloging. The artifacts are stored in 2-millimeter thick polyethylene resealable bags with acid-free tags containing provenience identification information. The artifacts are placed in acid-free boxes that are labeled and stored in PAL's curatorial facility in accordance with current NPS standards.

The recovered artifacts were cataloged by material (e.g., ceramic, glass, coal, synthetic) and functional (e.g., plate, bowl, bottle, building material) categories. Artifacts having known dates of manufacture such as ceramics were also identified in terms of type (e.g., redware, pearlware, whiteware) when possible. In addition, ceramic sherds and bottle glass were examined for distinguishing attributes that provide more precise date ranges of manufacture and use. These included maker's marks, decorative patterns, and embossed or raised lettering. Tentative dating of post-contact archaeological resources was performed using ceramic indices according to Hume (1969), Miller (1990, 1991), Miller and Hurry (1983), and South (1977). An analysis of the different nail and bottle types was used to refine the tentative date ranges of historic occupation generated by the ceramic assemblages.

The analyses of the cultural materials recovered during the archaeological investigations also included mapping the density and horizontal and vertical distribution of these materials within the project area.

Curation

Following laboratory processing and cataloging activities, all recovered cultural materials were placed in acid-free Hollinger boxes with box content lists and labels printed on acid-free paper. These boxes are stored at PAL in accordance with state and federal curation guidelines until such time as a permanent curatorial arragments are established.

CHAPTER THREE

ENVIRONMENTAL CONTEXT

The natural resources available within a given area are largely the result of its postglacial development. The availability of these resources, in turn, plays a significant role in determining the type and density of human activity within an area. This chapter presents an overview of the environmental history of Strafford County, with specific reference to the Wiswall Dam Fish Passage project area. This overview will focus on local physical geography, hydrology, and vegetation of the area before concluding with a brief description of the project area's current environmental conditions.

Geology and Geomorphology

Strafford County lies within the Seaboard Lowland physiographic province (Figure 3-1). This province is characterized by gently rolling topography with low relief and subtle breaks between major landforms.

The underlying bedrock in the Durham area comprises a metamorphic complex of calc-silicate biotite granofels, phylite, and schist. This bedrock is overlain by marine and glaciolacustrine surficial deposits formed in silt and clay subsequent to the retreat of the Laurentide ice sheet at approximately 14,000 B.P. (Oldale 1986).

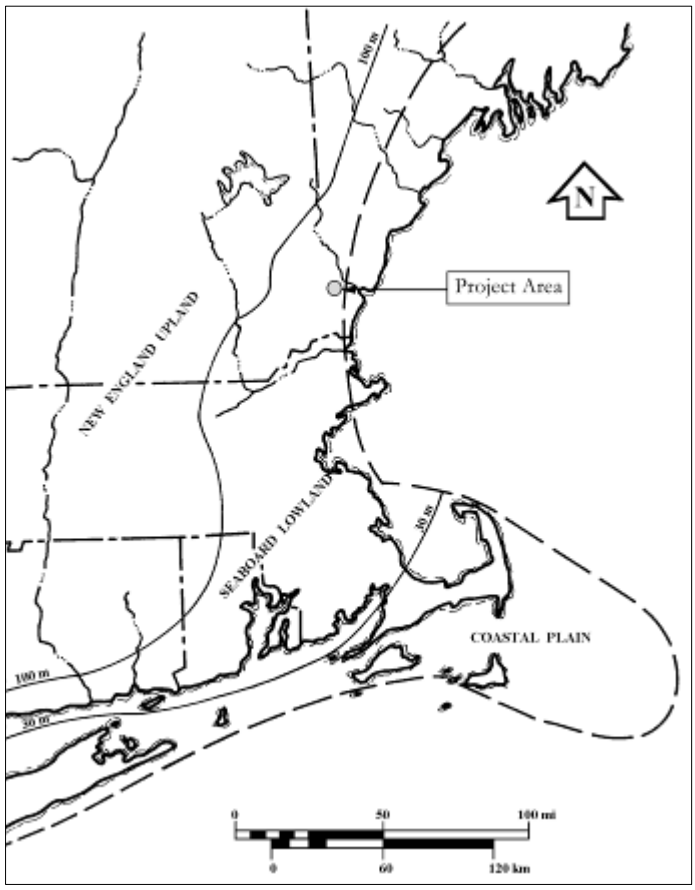

Figure 3-1. Map of the physiographic regions of New England showing the location of the Wiswall Dam Fish Passage project area, Durham, New Hampshire (Fenneman 1938).

Soils

Defining the natural soil types that characterize a project area is critical to assessing the archaeological sensitivity of an area. Understanding the general characteristics of the natural soils enables the identification of intact versus disturbed soil strata and allows for the assessment of the relative integrity and significance of any identified archeological deposits.

The proposed project area was subjected to extensive commercial and industrial development throughout the nineteenth and twentieth centuries. As such, it was expected that there would be great deal of filled and/or disturbed soils within the APE, especially along the eastern bank of the river. Current soil maps, however, suggest that undisturbed portions of the project area are

characterized by Elmwood (EaB), Hollis-Charlton (HcB, HcC) and Windsor (WdB) fine sandy loams occuring on slopes ranging from 3–8 percent (Figure 3-2). Figure 3-3 provides type profiles for each soils series for comparative purposes with those soils encountered during the archaeological survey.

Hydrology

The Wiswall Dam Fish passage project area is situated within the Lamprey River watershed in southeastern New Hampshire (Figure 3-4). The Lamprey River meanders approximately 50 miles through the coastal basin and drains an area of 212 square miles beginning in the Saddleback Mountains in Northwood to it discharge point south into Great Bay, a tidal inlet of the Atlantic Ocean. Major tributaries include the North Branch and Pawtuckaway rivers (Lamprey River Advisory Committee [LRAC] 2010).

The Lamprey River is the largest tributary to the Great Bay National Estuarine Reserve and plays an important role in maintaining the environmental health of the bay. In consideration of that role, the segment of the river that flows through the towns of Lee and Durham was included within the New Hampshire Rivers Management and Protection Program in June 1990. A portion of the river also has been incorporated within the federal Wild and Scenic Rivers System, a program of the National Park Service, becoming only the second river in the State of New Hampshire to receive the designation (see Figure 3-4) (New Hampshire Department of Environmental Services [NHDES] 2010).

Existing Conditions

The Wiswall Fish Passage project area is located on the south side of Wiswall Road in the Town of Durham. The project area spans both sides of the Lamprey River for a stretch of approximately 200 feet south of Wiswall Road, and comprises the extant dam structure (Figure 3-5); the impoundment between the dam and the road; existing access roads and trails (Figure 3-6) and construction staging areas associated with the adjacent Wiswall Road Bridge repair project (Figure 3-7, 3-8). Before being used for construction staging, the flat and heavily graded areas were used as visitor parking for the Wiswall Falls Mill Site/Historic District located on the east bank of the river.

The area is wooded with mostly young oak and some maple and pine, although a few older maples and pine trees are scattered throughout the canopy. Most of the testing areas on the east side of the river are relatively level, while steep to moderate slopes characterize the area west of the river. Most testing areas were located within or adjacent to existing access roads, staging areas, or areas that had been visibly disturbed by dam construction.

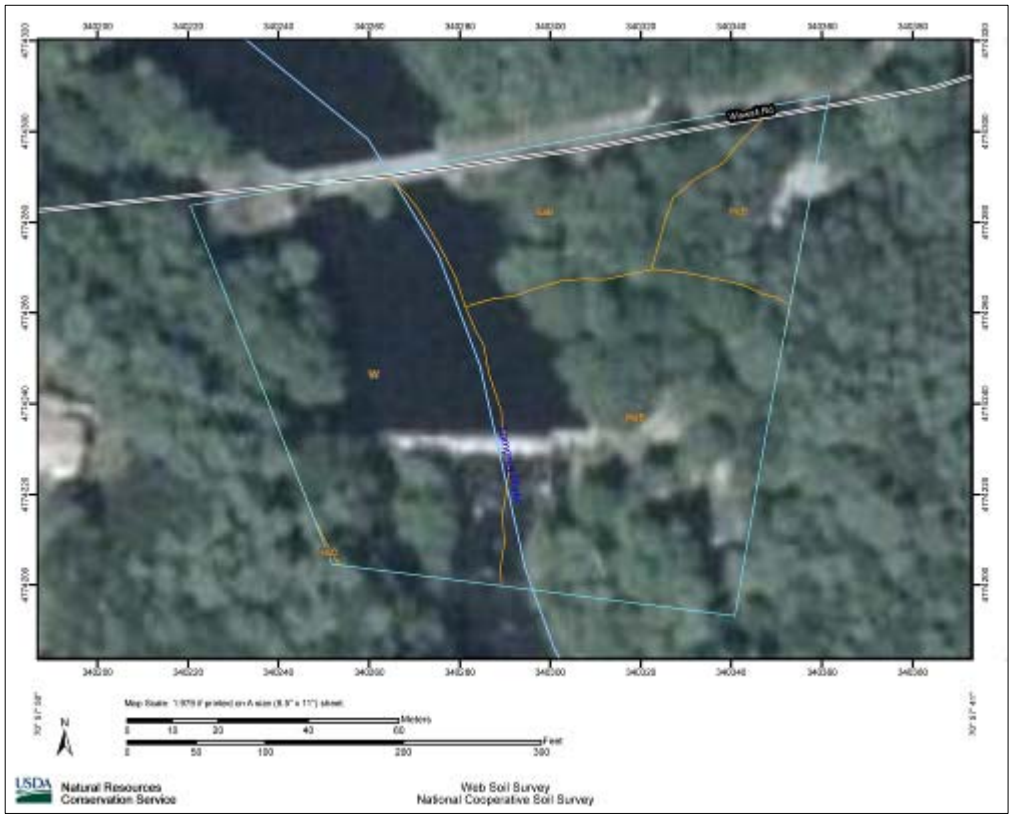

Figure 3-2. Map of the Wiswall Dam Fish Passage project area showing its constituent soil series (USDA 2010).

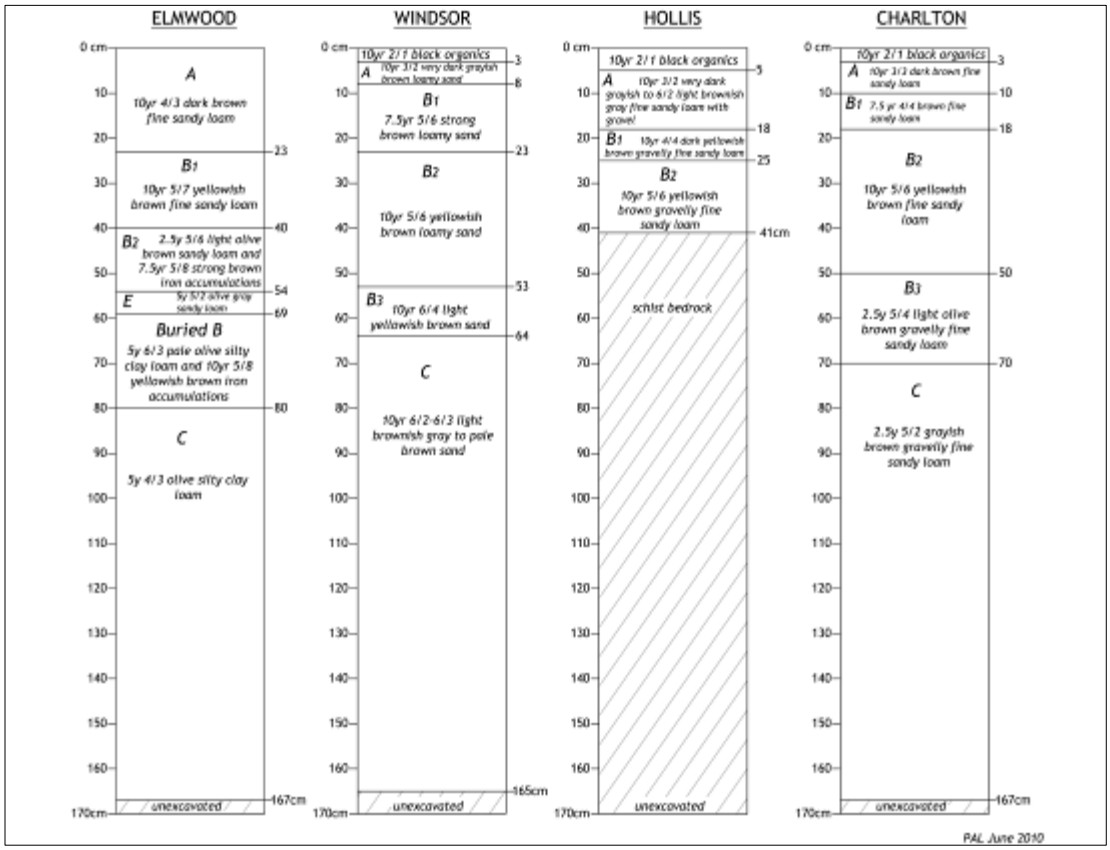

Figure 3-3. Type profiles for soil series found within the Wiswall Dam Fish Passage project area.

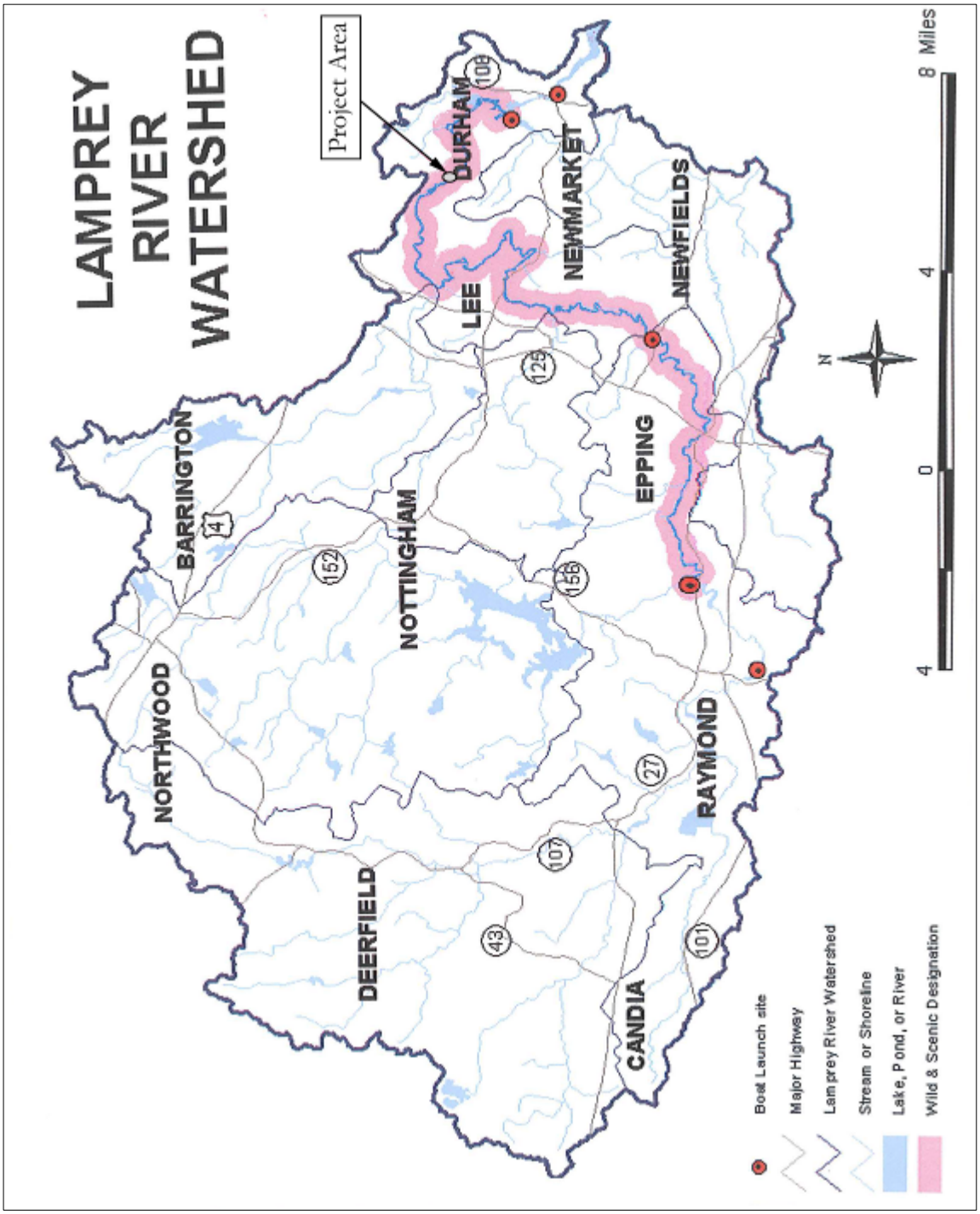

Figure 3-4. Map of the Lamprey River watershed showing the location of the Wiswall Dam Fish Passage project area (LRAC 2010).

Figure 3-5. Photograph of dam and masonry training wall with structural remains of the Wiswall Falls Mill Site visible on the far bank, view east.

Figure 3-6. Photograph of existing access road/trail along the west bank of the river, view south.

Figure 3-7. Photograph of Wiswall Bridge repair work, view west.

Figure 3-8. Photograph of construction staging area on the east bank of the river associated with bridge repair project, view south.

CHAPTER FOUR

CULTURAL CONTEXT

An understanding of regional long-term human settlement and subsistence practices is critical to understanding those same issues within a given project area. This chapter provides an overview of the pre- and postcontact period history of the Great Bay/Seacoast region in southeastern New Hampshire generally, and the Wiswall Dam Fish Passge project area specifically. This review is by no means exhaustive, but provides a framework within which to interpret the archaeological resources identified within the project area.

Precontact Period

The retreat of the Laurentide ice sheet into northern New England approximately 16,000 years ago set into motion a series of profound environmental changes that shaped the landscape for the earliest inhabitants of New Hampshire, ushering in the **PaleoIndian Period (11,000–9,000 B.P.)**. Archaeological evidence suggests that level well-drained soils in proximity to major waterways were selected repeatedly for settlement throughout the precontact period (Potter 1994). The Merrimack Valley appears to have been a particularly attractive location with more than 23 sites dating from the early PaleoIndian to the Late Woodland identified in that region. During this period, the vegetative profile of the region was notably sparse, comprising lichen, moss, and low-growing scrub growth. Exploitable animal communities included elk, caribou, and mastodon, and likely played a major role in the diet of these early populations. Settlement strategies during the PaleoIndian are poorly understood. Because of the range of variability at identified sites, large base camps, small residential camps, and very small task-specific loci have been advanced as the primary settlement models.

The PaleoIndian Period in New Hampshire is represented by a number of diagnostic points recovered from locations throughout the state, including an Eden point in the Merrimack Valley and fluted points discovered along the Saco River. Larger, more complex sites also have been identified and researched. The Whipple Site, a PaleoIndian occupation dating to roughly 10,500 B.P., was located on a tributary of the Connecticut River in Swanzey, New Hampshire (Curran 1984). More recently, Richard Boisvert has published a series of articles on the Israel River Complex, a series of fairly large PaleoIndian sites located in Jefferson, New Hampshire on the Israel River tributary of the Connecticut (Boisvert 1998, 1999, 2000).

The Early Archaic Period (9000–8000 B.P.) saw the gradual movement into and "settling in" of the region (Goodby 2002). Dry, warm summers and dry, cold winters encouraged the spread of pine-dominated forest and saw megafauna populations replaced by smaller prey such as deer and bear as well as a broader range of riverine, estuarine, and plant life that could not survive under the previously frigid conditions. The lithic technology of the Early Archaic reflects this shift from a primary reliance on big game hunting to a more diversified subsistence strategy. Corner-notched, stemmed, and bifurcate-based points serve as the diagnostic artifact class for the period, but in general biface dominated assemblages are rare. A non-bifacial tool kit including beaked unifacial edge tools, cores, and flakes has been proposed as an alternative diagnostic marker for the period (Robinson et al. 1992). The predominance of expedient tools and the nearly exclusive use of local lithic sources also suggests a more settled lifestyle. Settlement strategies during this period remain somewhat speculative. Two overlapping settlement methods have been proposed including: "restricted wandering," defined as seasonal group movements

within well-defined territorial limits, and "central-based wandering communities," interpreted as a large band of individuals, perhaps as many as several hundred, spending an extended period of time in a single location to which they may or may not return at a later date (Ritchie 1969).

The relatively low density of sites dating to the Early Archaic, particularly when compared to subsequent periods, has fueled the notion of commensurately low population densities with the low productivity of the early Holocene cited as a contributing factor. Recent studies, however, indicate that major waterways throughout the state meandered dramatically during between 10,000–7000 B.P., and did not stabilize into their present channels until ca. 7000 B.P. The sediment erosion and accumulation resulting from this meandering likely destroyed and/or deeply buried many cultural deposits, resulting in low archaeological visibility for sites dating to the Early Archaic. The identification of deeply buried Early Archaic sites on floodplains, including the Eddy Site at Amoskeag Falls on the Merrimack River and the Wadleigh Falls Site on the Lamprey River provide evidence of this phenomenon, and suggest that the perception of lower population densities may be more apparent than real (Bunker 1992; Maymon and Bolian 1992; Petersen and Putnam 1992).

The **Middle Archaic Period (8000–6000 B.P.)** saw a shift from the dry conditions of the preceding period to a climate characterized by significant increases in precipitation, perhaps as much as 25–30 percent higher than current levels. Increased rainfall and snowmelt caused extensive flooding along major river systems. "Mast" forests emerged during this period and with them a substantial increase in deer populations that likely became a major subsistence focus. The period is defined by three stemmed projectile points that have their origin along the Atlantic coastal plain including Neville, Neville Variant, and Stark. The Neville type site was identified by Dincauze in Manchester, New Hampshire and contained a substantial collection of these points, some with slightly bifurcate bases hinting at their Early Archaic lineage (Dincauze 1976). In New Hampshire there appears to be an increasing reliance on the use of volcanic material in the production of tools quarried from such sources as Ossipee Mountain and the Boston Basin, although quartz remained the raw material of choice (Bunker 1994). Heavy woodworking tools also are common and suggest the appearance of dugout canoes during this period. Like the Early Archaic, informal tools appear to dominate the many Middle Archaic assemblages.

Settlement and subsistence patterns during the Middle Archaic people are difficult to infer because of the extremely limited database. Middle Archaic components have been identified along large rivers as well as along river tributaries, on secondary perennial streams, and on high terraces away from main rivers (Bunker and Potter 1993; Potter 1993). Archaeologically recovered Middle Archaic sites in New Hampshire include the Dickey Plains Site II in Manchester (Potter and Bunker 1991) and NH 31-20-5 in Belmont (Starbuck 1982).

Environmental conditions during the **Late Archaic Period (6000–3000 B.P.)** are characterized by a shift to drier and slightly warmer conditions with a significant decrease in precipitation. During this period, oak, pine, and beech reached their full extent, and wetlands became more abundant along river margins. Animal communities remained essentially the same as the preceding period, but it is likely that deer became even more plentiful with the full maturity of the mast forest, and that wetland/estuarine resources became an even greater subsistence resource. Late Archaic populations underwent a substantial growth spurt relative to previous periods. This growth spurt, in turn, spurred an elaboration of settlement and subsistence models as well as an unprecedented diversification in lithic technology. As a means to better categorize and interpret the many local expressions of Late Archaic culture, the period has been subdivided into the Laurentian, Narrow Point, and Susquehanna traditions. The use of steatite in the manufacture of cooking and storage vessels serves as a diagnostic marker for the period as a whole.

NH 40-1 contains evidence of both Middle and Late Archaic components represented by what appear to be Neville, Stark, Brewerton, and Squibnocket triangle projectile points (White and Finch 1959). The

Rock's Road Site in Seabrook, New Hampshire (NH 47-21) is situated adjacent to a tidal marsh approximately 1.75 miles from the Atlantic Ocean and yielded Brewerton, Small Stemmed, and Atlantic Phase bifaces (Robinson and Bolian 1987). The Hunt's Island Site, also in Seabrook, yielded Brewerton points as well (Goodby 2002). The Seabrook Marsh Site (NH 47-22) is located in an estuarine setting and contains a substantial Late Archaic "Small Stem" component with evidence for specialized marine adaptations. A small Susquehanna component was also present at the site (Robinson 1985).

Climatic conditions during the **Early Woodland Period (3000–2000 B.P.)** remained essentially the same as those that marked the Late Archaic Period after 1000 B.C. Cooler, wetter conditions encouraged the decline of nut-bearing vegetation in favor of hemlock, pine, and birch and imposed limits on the biotic carrying capacity of the region relative to earlier periods. Human populations in New Hampshire responded to this change by continuing a broad-based hunting and gathering strategy but one more explicitly oriented toward rivers, lakes, and ponds with limited seasonal use of upland settings. In short, general cultural settlement and subsistence patterns did not change dramatically from the Late Archaic to the Early Woodland. Group sizes are assumed to have been relatively small, perhaps between 30 and 50 people that in some cases splintered into even smaller residential camps of 5–15 individuals. Diagnostic cultural material for the Early Woodland includes stemmed and side-notched Adena and Meadowood projectile points, and lithic assemblages comprise a high percentage of "exotic" lithic materials that speak to an expansion of long-distance trade networks. Low-fired Vinette I pottery, which seems to make its first appearance during the Late Archaic, also becomes much more visible in the archaeological record during this time.

An Early Woodland occupation is indicated at the Rock's Road Site in Seabrook by the recovery of a few Meadowwood projectile points, a handful of Vinette I pottery, and a radiocarbon date of 2130 ± 115 B.P. (Robinson and Bolian 1987:38–39). Ceramic sherds recovered from the Eddy Site at Amoskeag Falls and the Beaver Meadow Brook at Sewall's Falls in Concord represent some of the earliest pottery in New Hampshire and appear to straddle the Late Archaic and Early Woodland periods (Bunker 1986; Howe 1988).

Beginning about 150 B.C., the climate appears to have stabilized as the previously damp and cold environment gave way to generally drier and warmer conditions. If the number of identified sites are any guide, it appears that population densities increased during the **Middle Woodland Period (2000–1000 B.P.)** as well, but aggregated almost exclusively in the Champlain and Connecticut River valleys. This population expansion may have overtaxed the subsistence resources of the changing environment and led to a more diffuse hunting and gathering strategy that saw a return to a more intensive exploitation of the uplands. Jack's Reef Corner Notched projectile points function as the most diagnostic artifact for this phase with raw material types derived from both local and non-local sources. Pottery takes on an increasingly diverse stylistic profile, including grit-tempered, coil built vessels with a stamped, incised, and dentate decoration of varying quality (Petersen 1977, 1980, 1992; Petersen and Power 1985; Petersen and Toney 2000).

The Great Bay Site (27-RK-139) is located near Brackett's Point in Greenland, New Hampshire, adjacent to the rich shellfish beds of Great Bay (Finch 1969). Ground-stone tools, several non-diagnostic projectile points, and a varied assemblage of pottery were recovered. The ceramics included both rocker-stamped and incised vessels, suggesting occupations at least during the Middle and possibly Late Woodland Period. Fragments of a ceramic pipe were also recovered. Lithic raw materials include a dark porphyry and a "green trap" (Finch 1969:4). The Middle Woodland Period is well represented at the Rocks Road Site in Seabrook by a concentration of dentate-stamped ceramics, Jack's Reef corner-notched points, and a large (50+) assemblage of tools manufactured from eastern Pennsylvania yellow jasper (Robinson and Bolian 1987:39–40).

The **Late Woodland Period (1000–400 B.P.)** was a period of both continuity and innovation, one in which lithic technologies underwent very little change, while at the same time the development of horticulture dramatically altered the social and cultural landscape for Native American communities. Settlement patterns became markedly more sedentary from A.D. 1100–1450 and residential groups became larger. Villages comprising small hamlets adjacent to cultivated fields began to emerge and appear to have been occupied during the growing season. This intensive occupation of horticultural camps, however, did not preclude the continuance of seasonal camps. Levanna projectile points manufactured primarily from locally available stone are the “diagnostic” marker for the Late Woodland, with associated assemblages tending to be rather restricted and often containing a narrow range of preforms, scrapers, drills, and expedient flake tools. Although perishable materials dating to precontact sites are rarely found in New Hampshire, dugout canoes from the Late Woodland have been reported.

A Late Woodland occupation of the Rock’s Road Site was documented with the recovery of felsite Levanna points, drills, and cord-wrapped, stick-impressed ceramics. A large and significant Contact Period component included house floors, incised and collared "Iroquoian" pottery, bone tools, copper or brass triangular points, iron axes, and other trade items (Robinson and Bolian 1987:40–47). Faunal remains indicate use of a diverse range of marine and terrestrial resources.

Precontact Period Sites in the Lamprey River Watershed

Overall, there are a limited number of documented precontact sites within the Lamprey River drainage basin. By far the best known, best excavated, and most significant site reported to date is the Wadleigh Falls Site (NH 39-1), located on an island in the Lamprey River in Lee immediately west of the current project area (Skinas 1981; Maymon and Bolian 1987). Testing at the site in 1981 and 1982 produced evidence for two stratigraphically separate components datable to the Early and Middle Archaic periods. The Middle Archaic is the larger of the two occupations and contained a Neville-complex assemblage containing a variety of rhyolites (Dincauze 1976). The earlier component comprised primarily quartz debitage and artifacts similar to the Early Archaic "B" horizon at the Weirs Beach Site (Bolian and Hoornbeek 1980). A large faunal assemblage from the site consisted entirely of small calcined bone fragments, with no noticeable difference between the faunal assemblages from the lower and upper components (Maymon et al n.d.).

The Flint Hill Site (NH 39-35), documented through the New Hampshire Archaeological Society (NHAS), is located approximately three miles northeast of Little Rattlesnake Hill in Raymond. The site is located on a quartz dike that continues for some 18 miles in a northeast direction, and may have been a quarry site (NHAS site files). A quartz triangular point (described as either a Squibnocket of Beekman triangle), an ovate quartz knife, and large quartz flakes were recovered from the site. Other sites from the Lamprey River drainage have been reported on the basis of isolated surface finds. These sites include NH 39-8 (a Neville point); NH 39-27 (a "mortar"); NH 39-28 (a point tip and flakes); NH 39-30 (flakes, a pestle, and a biface fragment); NH 39-39 (quartz flakes and a notched pebble sinker); NH 39-40 (a small celt); NH 40-8 (pestle); and NH 40-9 (an effigy pestle).

Contact and Postcontact Periods

The 1524 voyage of Giovanni Verrazano is the first documented European exploration of the area that now comprises New Hampshire and initiated the **Contact and Exploration Period (1500–1679).** When the first European explorers and settlers arrived in New Hampshire, the area was inhabited by the Penacook Indians whose territory extended from northeastern Massachusetts to New Hampshire and Vermont. A Native American trail network crossed the state, with many of the trails following major rivers and streams. The Lamprey River was called the Piscassick by the Indians, and may have served as a transportation corridor from interior settlements to the Great Bay. Seventeenth-century records refer to

the river as the Lamprill, Lamper-eel, or Lampreel. In 1652, it was called the Lamprey River and declared the lawful boundary between Dover and Exeter (Thompson 1892:118).

The earliest EuroAmerican settlers in the Great Bay area, which was originally known as Piscataqua, were primarily English West Country fishermen who set up temporary bases on a cluster of islands 10 miles out of Piscataqua (Great Bay) Harbor. Interactions between the Penacook and the EuroAmericans initially were friendly. Passaconaway, sachem of the Penacook, did not ally himself with the Wampanoag sachem, Philip, and consequently the Penacook largely were spared the ravages of King Philip's War (1675-76). Significant "depredations" did not begin until the mid-eighteenth century during the Seven Years War. In 1694, a force of about 250 Indians under French command attacked settlements along both sides of Oyster River, killing or capturing approximately 100 settlers and destroying five garrison houses as well as numerous other dwellings (NHDHR 1989). Indian attacks continued, especially in areas of sparse settlement including along the Lamprey River, until the authorities in Portsmouth took measures to protect the frontier by sending the militia (Coffin 1878).

The early colonization of New Hampshire has been referred to as the least homogenous of the New England colonies. Different settlement patterns are visible in four regions of the state: Old Colony, Frontier, Connecticut Valley, and Merrimack Valley. The Old Colony, which included Durham, consisted of an approximately 18-mile wide strip of coastline with four original towns: Portsmouth, Dover, Exeter, and Hampton. By 1780, these four towns had been divided into 37 and formed the political, social, and economic core of New Hampshire (Heffernan and Stecker 1986).

Shipbuilding was central to the local economy and formed an important part of New Hampshire's contribution to the Revolutionary War. Between 1775 and 1783, Portsmouth supplied at least 100 ships and 3,000 men to the "guerrilla forces" (Heffernan and Stecker 1986). The inland ports of Newmarket, Durham, and Dover produced the non-seagoing gundalow craft to successfully navigate local, shallow waterways such as the Lamprey, Squamscott, and Oyster rivers. Originally designed in the seventeenth century, gundalows were indespensible to the regional economy as they facilitated the transportation of heavy cargo including local bricks and granite, cord wood, coal, cotton, marsh hay and grass, and other supplies (Heffernan and Stecker 1986:70-72).

In 1784, the war ended, the state constitution was put into effect, and the state boundaries were nearly complete. That same year, the Piscataqua Bridge was built from Newington to Durham, a half-mile engineering wonder at the time (Heffernan and Stecker 1986). The area also was the site of a proposed state capital, Franklin City, and of the beginning of the First New Hampshire Turnpike (NHDHR 1989).

After the Revolutionary War, the focus of settlement and development turned inland, rather than coastal. The rolling hills and mountains of New Hampshire limited the extent of all-important railroad construction during the mid nineteenth century. The Portsmouth Railroad, an unusual east-west alignment, was a notable exception to that rule, but was not enough to accommodate the ever-expanding commercial demands of the region. As a result, the lively Portsmouth trading center relocated to Boston. The Merrimack River and its valley, however, filled the massive economic void left in the wake of Portsmouth’s decline by becoming a textile-manufacturing center. This full-scale industrialization relocated the social, political, and economic center from the eastern coastal towns to the central part of the state.

Three of the seacoast towns – Dover, Newmarket, and Exeter – turned to textile manufacturing to fuel their diminished economies during the late nineteenth and early twentieth centuries. The population receded in farm towns like Durham, and the population once again centered along the coast. The textile mills continued to thrive until about the First World War. By the close of WWI, the new cotton mills of the southern states assumed dominance via their enhanced technology.

The 1920s marked an era of great decline for New Hampshire. Highly competitive farms and factories in the South and Midwest eclipsed the once thriving farms and textile mills of the Northeast. Small family farms could marshall neither the land nor the labor, and the textile mills were shut down by better technology and cheap labor pools. The population decreased rapidly. In response, New Hampshire's economy turned to a more diverse manufacturing base with an emphasis on shoe production (SRRC 1981). As the twentieth century progressed, tourism became the new economic base of New Hampshire as Americans experienced a surge of nostalgia for simpler times represented by "quaint" New England towns. Because the failed railroad, farming, and industrial relics of New Hampshire were left virtually intact, they provided a snapshot of eighteenth- and nineteenth-century life less evident in southern New England (SRRC 1981). As the "megalopolis" of the east coast sprawls ever outward, New Hampshire has become less of a fringe area and more accessible to major urban centers such as Boston. This improved accessibility has prompted a massive building boom in southern New Hampshire, particularly in the seacoast towns.

History of the Wiswall Dam Fish Passage Project Area

The history of the residential and industrial use of the Wiswall Dam Fish Passage project area has been extensively documented as part of previous National Register nomination efforts (Preservation Company 2008; Stott 1987). For that reason, the following section will provide a summary project area history with expanded content, as necessary, concerning those events that are particularly salient to the interpretation of the archaeological survey results.

The area that now comprises the Wiswall Dam Fish Passage project area lies along what was known as the second falls of the Lamprey River, dubbed "Packers Falls" after 1694 when that length of the river was granted to Captain Packer and four associates for milling purposes. While Packers Falls became a locus of early industrial activity, the Wiswall Falls area appears to have remained largely undeveloped as late as 1805 (Figure 4-1).

The first industrial activity at Wiswall Falls was initiated by the Wiggin brothers, Moses and Issachar. Sons of prominent Durham family, the men inherited 175 acres from their father, Captain William Wiggin, in 1831, including the roughly 7-acre mill privilege at Wiswall Falls. The first structure at the privilege was a large wooden crib dam built across a natural granite ledge in 1835 followed by saw, grist, and flour mills on the east bank of the river. The Wiggins Mills complex was the largest in Durham, and it is likely that Wiswall Road was laid out at that time to connect the mills to Packers Falls Road.

In 1840, the brothers purchased a second mill privilege opposite the first on the west side of the river. To connect the two parcels, New (Wiswall) Road was built across the Lamprey during the early 1840s. During this same period, several houses were built north of the road along the east bank of the river and occupied by the Wiggin family. In 1852, the Wiggins Mill Bridge underwent extensive work in what was likely an effort to upgrade its capacity to handle increased industrial, commercial, and residential use.

In 1853, Moses Wiggin leased the dam, mills, and water rights to Thomas Wiswall and Isaac Flagg Jr., sons of partners in an Exeter paper factory. The agreement went in to effect in 1854, and Wiswall and Flagg converted the sawmill into a paper mill while Wiggin, per the lease agreement, excavated a stone-lined power canal and built a new two-story paper mill with two water wheels on the site. To build the new factory, Wiggins moved a machine shop from Newmarket to the site and placed it over the canal south of the existing saw and grist mills. Flagg soon backed out the partnership, and his interest in the business was acquired by Howard Moses. Howard's ill health led him to sell his interest to his father, Charles, who remained active in the mill for many years. By the mid 1850s, the Wiggins Mill complex was a thriving industrial and residential complex (Figure 4-2).

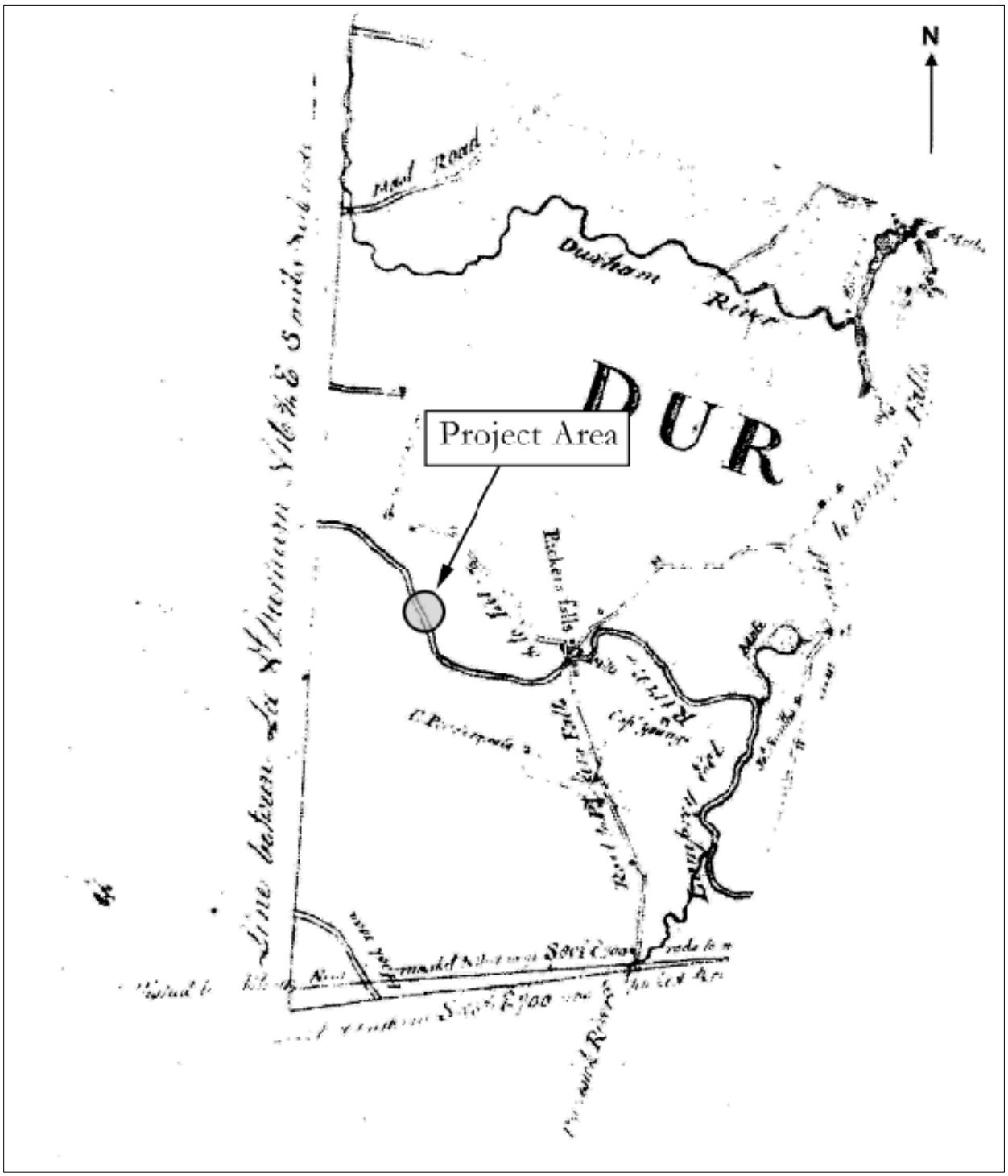

Figure 4-1. 1805 map of Durham showing the location of the Wiswall Dam Fish Passage project area (Smith 1805).

Following Moses Wiggin's death in 1857, Thomas Wiswall bought outright the mills, water rights, and lease to the site at auction under the name TH Wiswall & Company. The 4-acre mill site south and east of the road is described as containing a paper mill, grist mill, sawmill, planning and joining shed, and a shingle shed. Wiswall's dam was completely rebuilt in 1868, and a large addition was made to the paper mill. The new dam provided 9.5 ft head of water that powered six turbines in the three mills. By the 1870s, however, the available water power proved insufficient to operate multiple mills, so Wiswall converted the entire site over to paper manufacture, with a specialized emphasis on wallpaper (Figures 4-3, 4-4, 4-5). Throughout the 1870s and 1880s, several episodes of bridge repair and reinforcement are reported in the town reports, suggesting that the busy mill complex was continuing to put a strain on the aging structure.

Figure 4-2. 1856 map of Durham showing the location of the Wiswall Dam Fish Passage project area (Chace 1856).

Wiswall's partner Charles Moses passed away in 1883 and only several months later in November 1883 the Wiswall mill complex was destroyed by fire. Thomas Wiswall was unable to find a buyer for the mill site and associated residential properties, so the surviving dam and sawmill were used on a small scale until both were damaged in a freshet in the spring of 1896 (Figure 4-6). Interestingly, the 1892 Hurd map of the area depicts the sawmill structure while the 1895 USGS map does not, suggesting that the sawmill may have been completely abandoned even before 1896 (Figures 4-7, 4-8).

In 1899, James Burnham bought the mill site and water power privileges from the then-retired Wiswall. East of the river, the property extended roughly 150 ft east from the east bridge abutment and 500 ft south from the road; west of the river the property extended to Glidden Lane. Burnham organized the Newmarket Light, Heat, and Power Company by 1900 and built a small power station at the foot of the canal where the paper mill formerly stood. In 1912, the Newmarket Electric Company acquired the power plant and built a new concrete dam and head gate (Figure 4-9). Two years later, the aged bridge was rebuilt by the town, possibly in response to rising water levels. In 1930, the power plant ceased operation, and by 1940 the plant building was gone (Figure 4-10). In 1951, the bridge that had been rebuilt by the town in 1914 collapsed, and was reconstructed yet again, retaining elements of the earlier nineteenth-century structure including the stone abutments and central pier.

Over the next several years the mill site property passed through state and private ownership until it was acquired by the town in 1965 for use in Durham's public water supply system. Since that time, the original mill site on the east bank of the river has been developed as the John Hatch Memorial Park, a cooperative effort among the Town, the LRAC, and the NPS, and is a popular recreational spot for town residents.

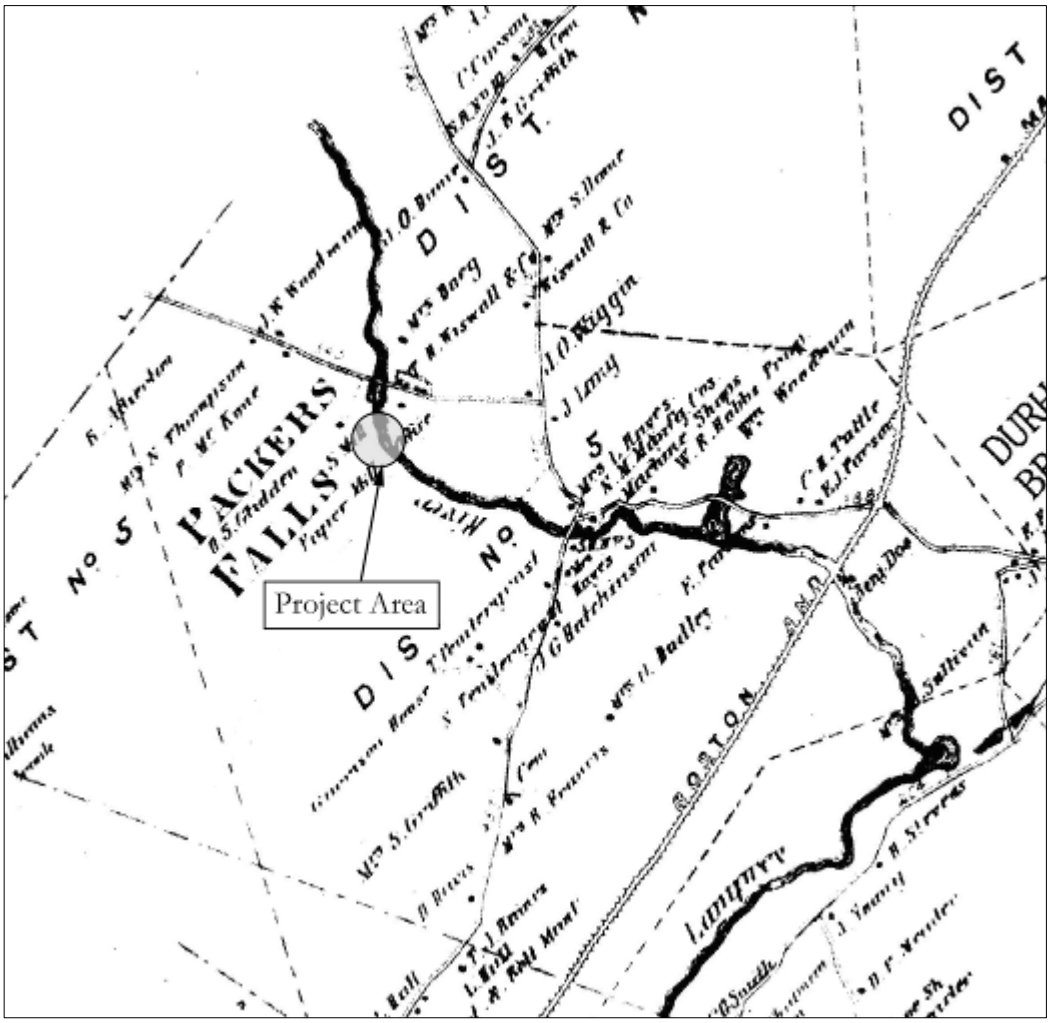

Figure 4-3. 1871 map of Durham showing the location of the Wiswall Dam Fish Passage project area (Sanford & Everts 1871).

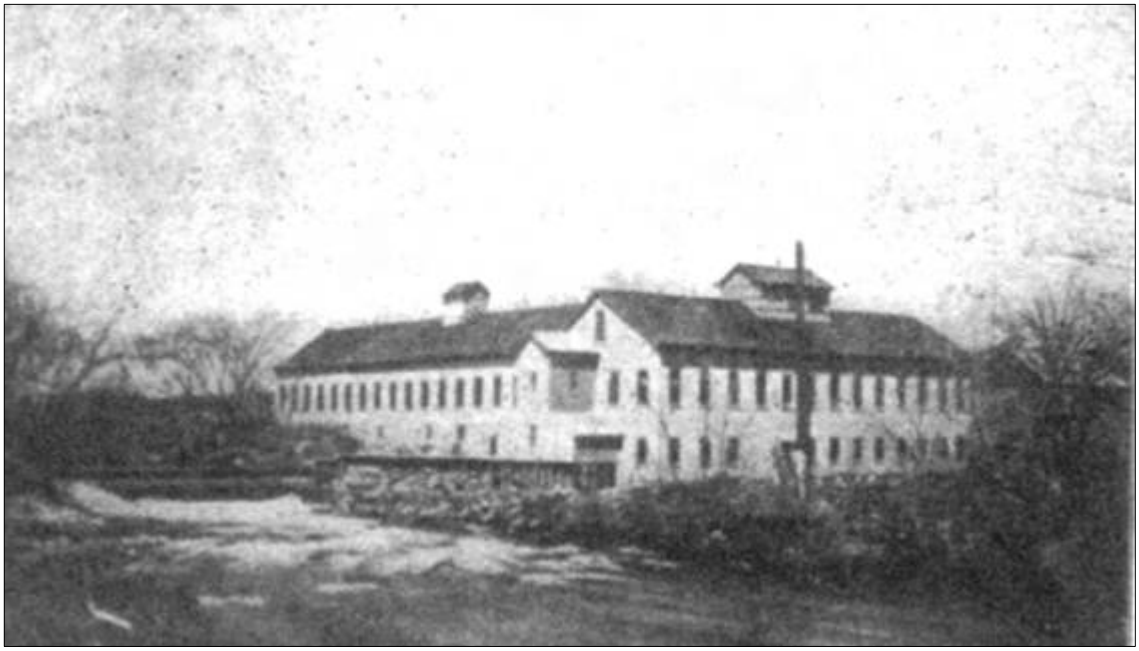

Figure 4-4. Photograph of the T.H. Wiswall Paper Mill, Durham – date unknown (DHA 2010).

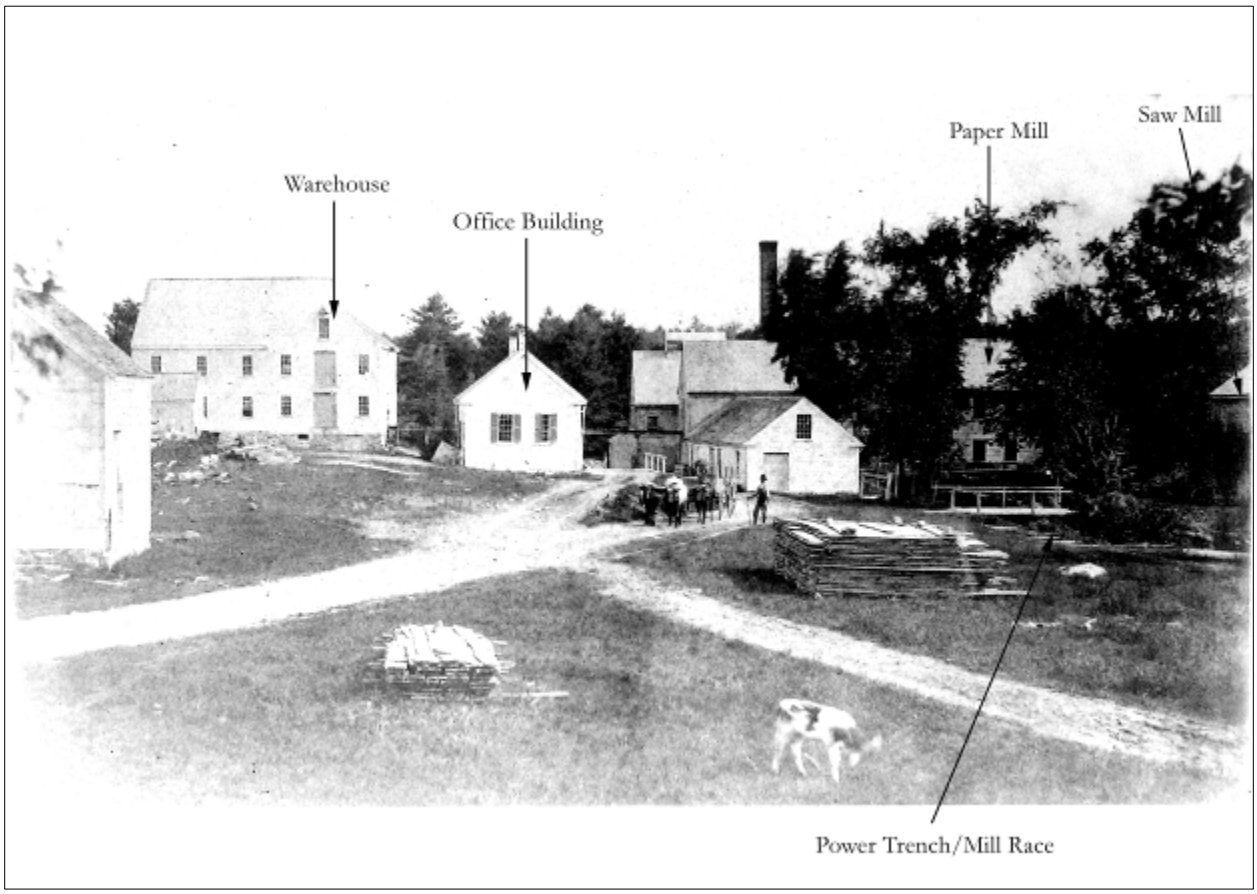

Figure 4-5. Photograph of the Wiswall mill complex, view southwest, ca. 1880 (DHA 2010).

Figure 4-6. Photograph of the 1835 Wiggins Brothers sawmill, view southeast, ca. 1900 (DHA 2010).

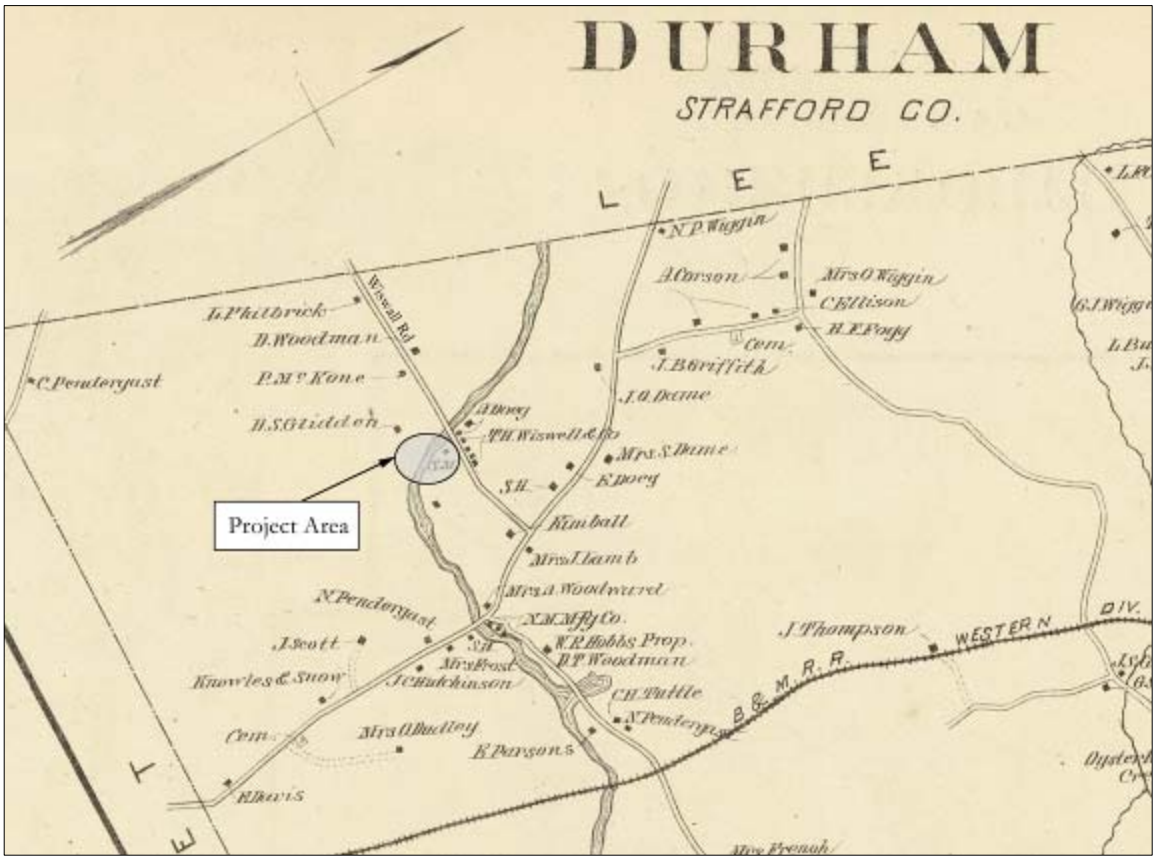

Figure 4-7. 1892 map of Durham showing the location of the Wiswall Dam Fish Passage project area (Hurd 1892).

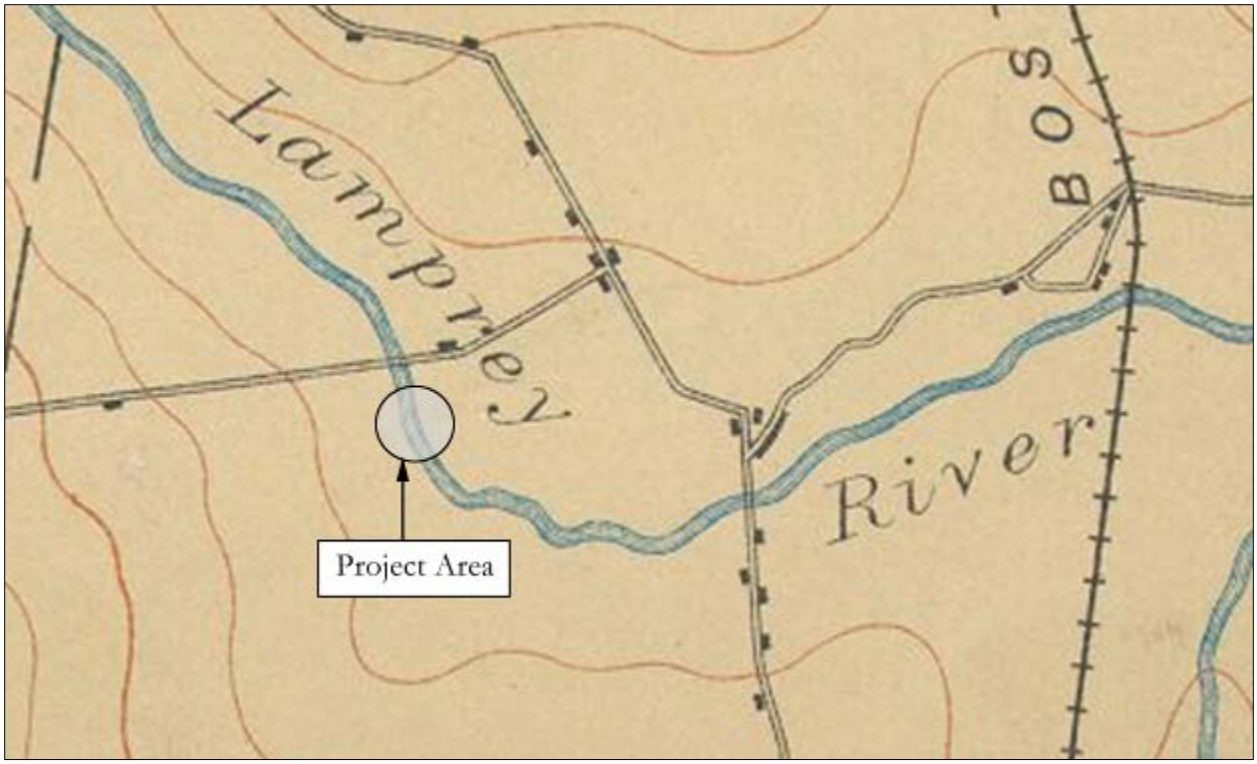

Figure 4-8. 1895 Dover USGS topographic quadrangle, 15 minute series, showing the location of the Wiswall Dam Fish Passage project area.

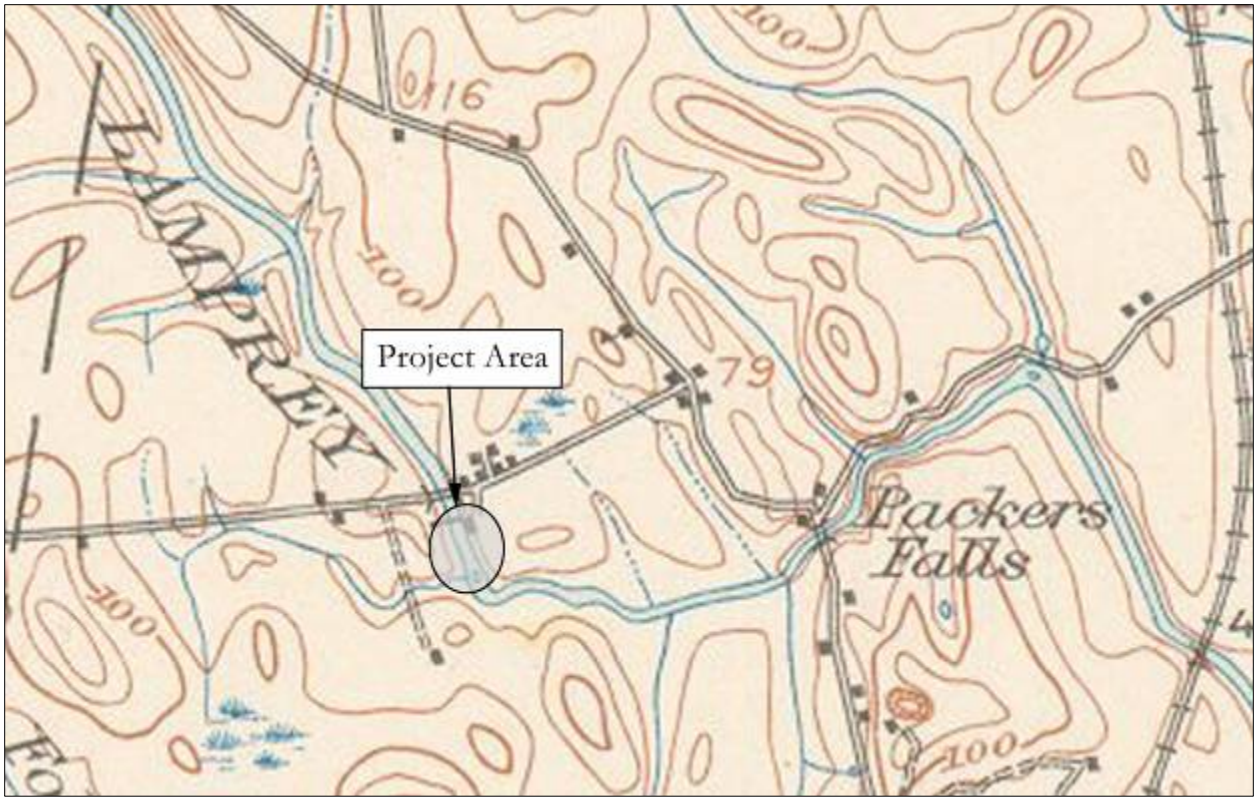

Figure 4-9. 1916 Dover USGS topographic quadrangle, 15 minute series, showing the location of the Wiswall Dam Fish Passage project area.

CHAPTER FIVE

RESULTS AND RECOMMENDATIONS

This chapter presents the results of the Phase IB archaeological survey conducted within the Wiswall Dam Fish Passage project area followed by interpretations and management recommendations based on these findings. A catalog of cultural material recovered during subsurface testing is included in Appendix A.

Previous Archaeological Investigations at the Wiswall Falls Mill Site/Historic District

The Wiswall Falls Mill Site and historic district were the subject of several archaeological surveys during the mid 1980s. Phase I and II investigations on the east bank of the river just south of the dam resulted in the identification of the Wiswall Falls Mill Site (Bolian and Maymon 1985, 1986) (Figure 5-1). The site comprises nine (9) structural features including the ca. 1835 sawmill foundation remains (one of the first mills to be erected on the site), the ca. 1854 paper mill foundation, and the large, well-preserved 1854 stone-lined power canal. Subsurface testing yielded evidence of the fire that destroyed the entire complex in 1883, and a previously undocumented shed foundation immediately east of the power canal.

Another survey conducted by Victoria Kenyon in 1986 also provided important information about the general landscape integrity of the Wiswall Falls Mill Site. Subsurface testing just north of the dam near Wiswall Road identified a relict plowzone and also provided evidence of precontact occupation in the form of three lithic cores recovered from intact subsoil. This concentration of materials expanded the geographic boundaries of the known precontact use of the area as illustrated by another pre-contact site (NH40-10), located roughly 75 meters downstream from the dam site. NH40-10, first identified in 1977 on the basis of a single "flint" flake eroding from an embankment on an alluvial beach, was later tested with a single test pit and yielded an assemblage of 24 rhyolite, quartz, and argillite lithic flakes.

None of the previous testing conducted at the Wiswall Fall Mill Site to date, however, occurred within the current APE. Furthermore, none of the proposed project impacts are slated for those areas that have been previously tested. As such, the placement of the shovel test pits during the Phase IB survey was designed to 1) better delineate known resources and identify previously undocumented resources along the east bank of the river north and south of the dam, and 2) characterize soil conditions and identify previously undocumented resources along the west bank of the river north and south of the dam.

Results of Phase IB Subsurface Testing

A total of 36 50-x-50-cm test pits was excavated along nine transects (A through I) and as four judgmental test pits (JTPs 1 through 4) within the APE (Figure 5-2). Test pits were excavated at 4-m intervals along transects in impact areas within or adjacent to the historic core of the mill complex (Impact Areas B and C), and at 8-m intervals in impact areas outside of the mill core (Impact Areas A, D, and E).

Most soil matrices identified within the project area were compact and rocky fills (Figure 5-3). Typically these were gravel fills or mottled and redeposited natural soil matrices. Most fill and disturbed soil matrices appeared to be related to construction and use of existing access roads, staging areas, and the

dam and dike. The vast majority of the fills overlay sandy silt with gravel C horizon subsoils consistent with the natural glacial subsoil identified for the area (see Figure 3-3). Some test pits within the APE contained a remnant coal/clinker layer that is likely related to a fire that destroyed the mill complex in 1883 (see discussion below). Only a few test pits in the APE contained intact, or partially intact A and/or B soil horizons.

Impact Area A

Impact Area A lies west of the dam on an alluvial terrace. An emergency spill way and dike are proposed for this location as well as repair of the downstream training wall and ground surface re-grading. While some disturbance related to the construction of the dam was expected, Kenyon's identification of artifact-bearing, intact subsoil horizons on the east bank of the river north of the dam suggested similar potential for this location. While the area does not appear to have been integrated as part of the industrial complex to the east, it was actively occupied and farmed by the Glidden family in the nineteenth century. Kenyon's identification of a relict plowzone stratum on the east bank of the river similarly suggested that historic period deposits relating to the historic occupation of the parcel (e.g. driveways and paths, sheet middens) might survive in Area A.

Transect B (TB-1–6) and JTP-2 were placed within Impact Area A (see Figure 5-2). Most of Impact Area A encompasses an open, heavily graveled area adjacent to the existing dike and dam. The area south of the dike and dam consists mainly of a wooded, steep slope traversed by a narrow dirt foot path. Rip-rap has been placed on the lower portion of the slope near the river and prevented test pit excavation in that area.

TB-1–4 were placed around the periphery of the disturbed and heavily graveled area adjacent to the dam and dike (Figure 5-4). Soils were sand and cobble fills overlying a brown sandy silt with cobbles C subsoil horizon (see Figure 5-3). The shallow sandy soil profiles terminating at C subsoil at an average depth of 33 centimeters below surface (cmbs) strongly suggest that the area has been stripped and graded, most likely during dike and dam construction. No cultural materials were identified within the test pits.

TB-5 and 6 were placed along the narrow dirt path south of the existing dam and dike (Figure 5-5). Soil profiles were more intact, consisting of a very dark gray brown sandy silt (A horizon) to approximately 15cmbs, overlying dark yellow brown sandy silt with cobbles (B horizon), and a brown sandy silt with cobbles (C subsoil horizon) (see Figure 5-3). No cultural materials were recovered from the test pits.

JTP-2 was placed adjacent to the dam and dike to assess the level of disturbance related to their construction. The soils within JTP-2 consisted of gravel fills to 73cmbs. No cultural materials were recovered from the test pit.

Impact Area B

Impact Area B encompasses the eastern end of Wiswall Dam, and spans the embankment north and south of the structure west into the river. This is the proposed fish ladder construction location and will undergo extensive subsurface disturbance including removing and reconstructing the extant gates and east abutment, rebuilding the downstream training wall, and regrading the ground surface behind the training wall. This location is particularly sensitive as it lies in the heart of the former Wiggins/Wiswall mill complex, and contains the surviving foundation walls of what is believed to be the Wiggins 1835 sawmill, one of the first mill structures to be erected on the site. East of the foundation wall is a high and level area previously within the saw and paper mill footprint, while the area west of the foundation wall consists of the low, rocky bank of the Lamprey River.

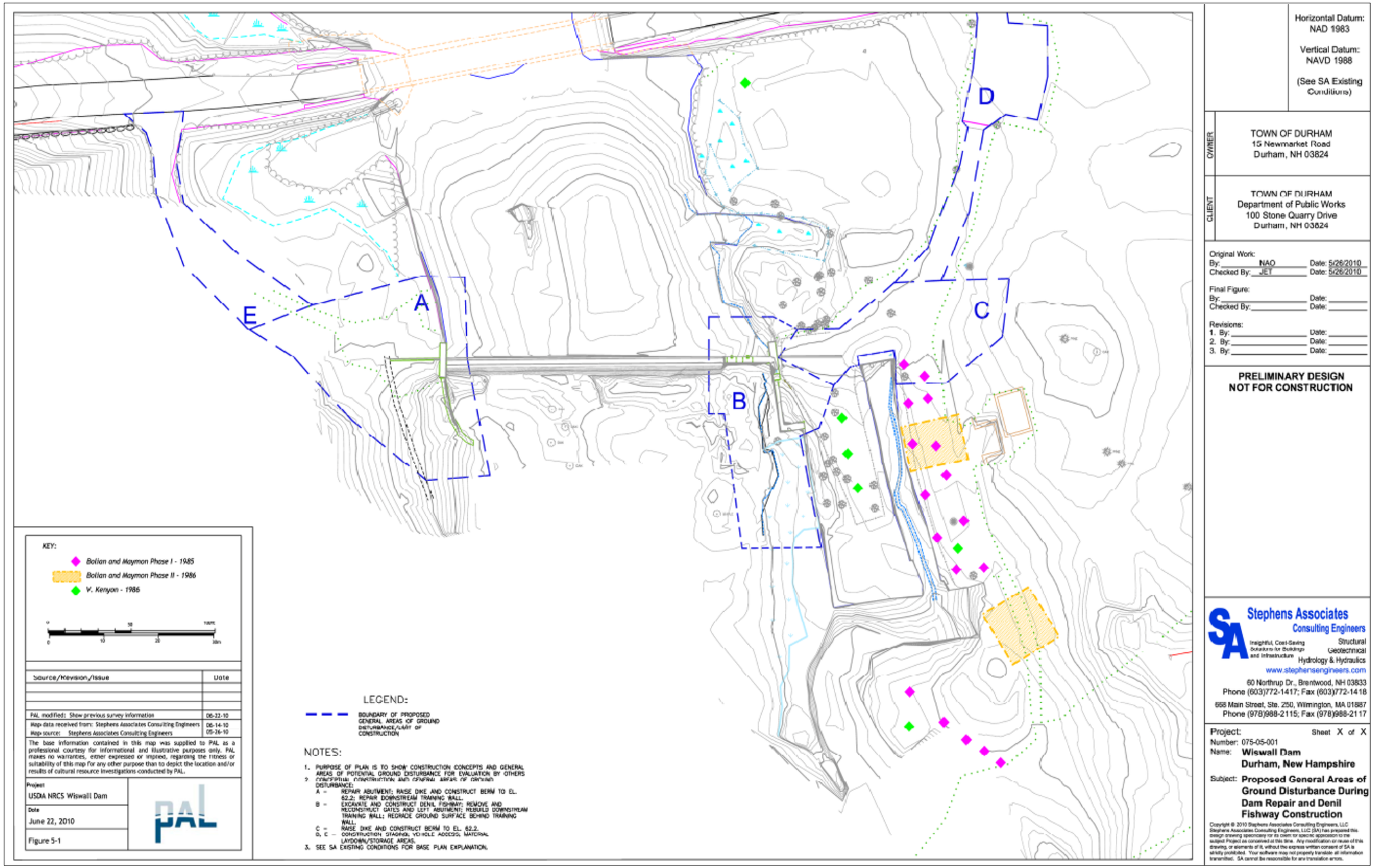

Figure 5-1. Locations of previous archaeological testing at the Wiswall Falls Mill Site/Historic District.

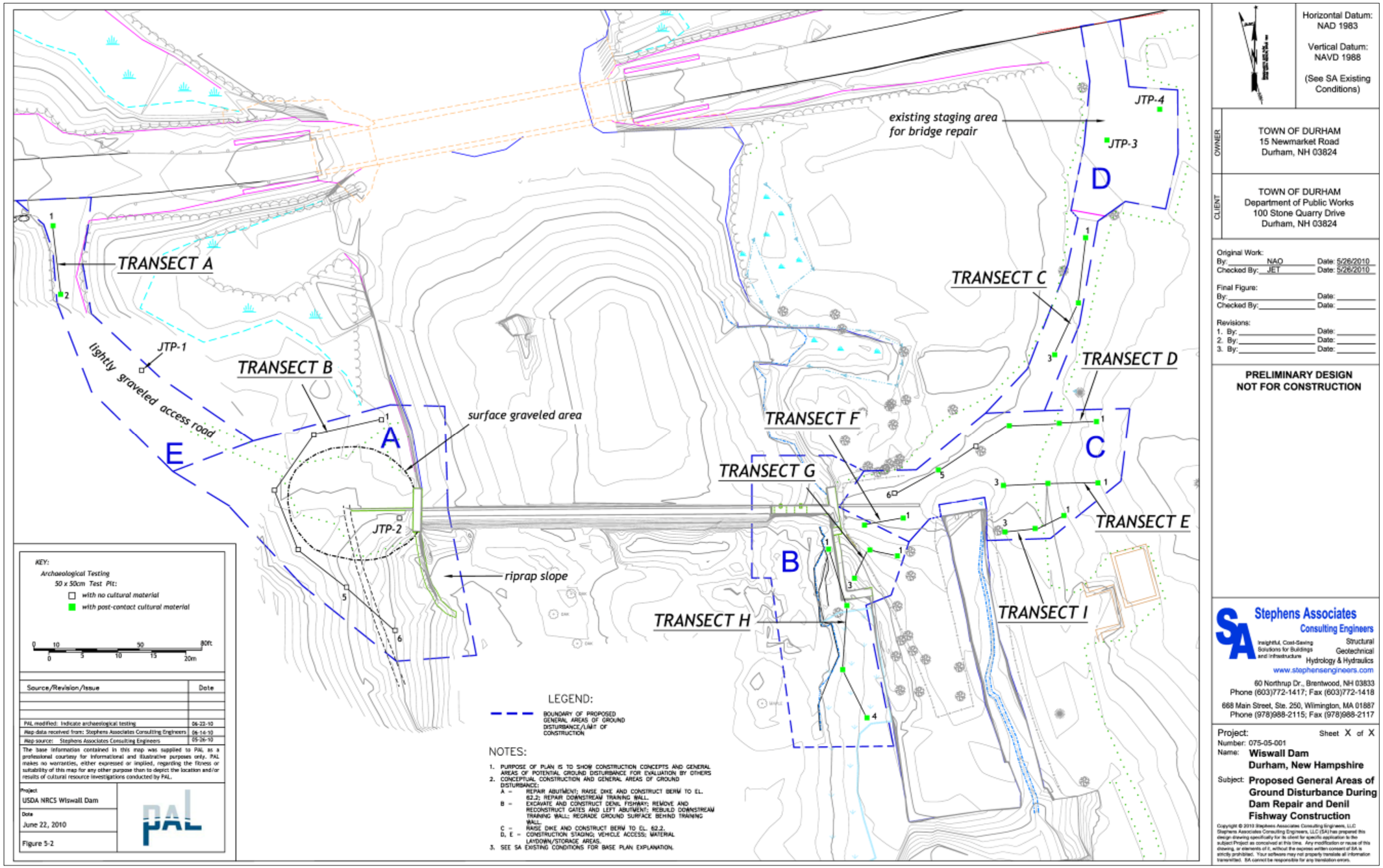

Figure 5-2. Location of subsurface testing conducted for the Wiswall Dam Fish Passage Project.

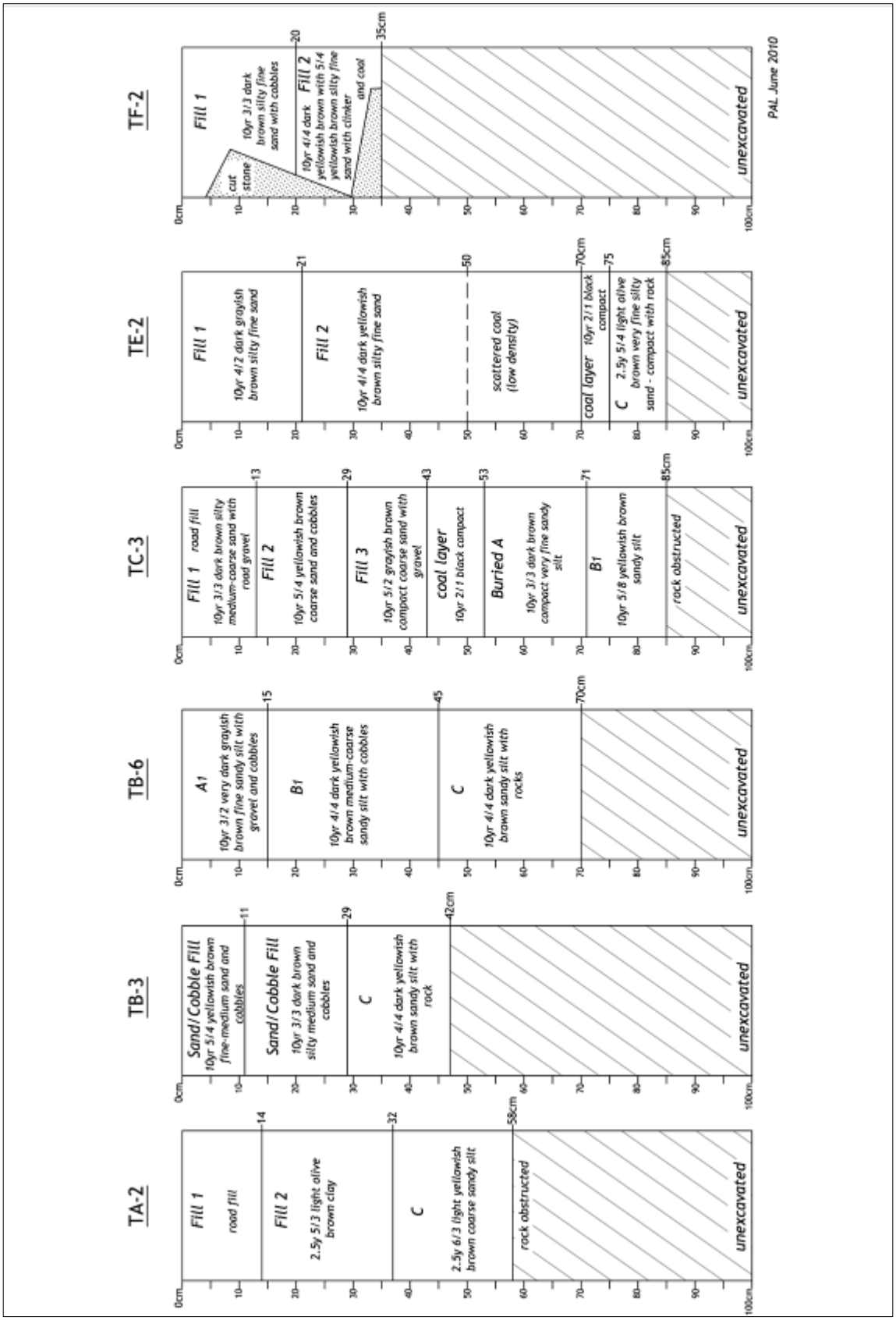

Figure 5-3. Typical test pit profiles within the Wiswall Dam Fish Passage project area.

Figure 5-4. Surface disturbance in the vicinity of the existing dam and dike, Impact Area A, view east.

Figure 5-5. Location of TB-5 and TB-6, Impact Area A, view south.

Transect F and G test pits were placed at 4-m intervals east of the saw and paper mill foundation wall and within the footprint of the structures (see Figure 5-2; Figure 5-6). Soil profiles showed multiple sandy fill layers to 100 cmbs. The fill matrices contained a significantly lower density of cobbles and gravels than were observed in other test pits within the project area. Fill matrices within Transect F and G also contained a higher density of cultural material than other test pits within the project area. Recovered materials included primarily clinker, coal, coal ash, although nails and other ferrous metal fragments also were identified. TG-2 contained a distinct coal/cinder fill layer at 50–55 cmbs and TG-3 contained a mottled fill and cinder/coal layer from 60–70 cmbs. The cinder and coal material is likely related to the fire that destroyed the mill complex in 1883.

Figure 5-6. Transects F and G, Impact Area B, view south.

Fill matrices within Transect F and G test pits also contained some large and small cut granite stones. TF-2 was expanded to investigate if the two large pieces of cut granite identified in it represented intact foundation remains. The expanded test pit excavation showed that the granite blocks were not connected to any other foundation stones and were steeply slanted (Figure 5-7). Given the orientation, disarticulation, and associated filled soil context, it is likely that the granite blocks were displaced foundation stones incorporated as part of a larger filling episode. It is unknown if the cut stones identified in transect test pits were related to demolished portions of the mill or mill race foundations, although a mixture of both is likely.

Figure 5-7. Cut stones within expanded TF-2, Impact Area B, view west.

Four Transect H test pits (TA-1–4) were placed at 8-m intervals within the wet and rocky bank on the east side of the Lamprey River (Figure 5-8). The river bank is characterized by woody debris and vegetation typical of disturbed areas including poison ivy and briars. TH-1 and -2 were placed adjacent to the west and southwest sides of the sawmill foundation wall. Soil matrices were rocky fills containing low to moderate densities of modern and historic cultural material including glass, brick, cement, nails, and iron. Both test pit excavations were impeded by rocks at approximately 35 cmbs. TH-3 and -4 were placed further south along the river bank; soils were dark brown silty sand (Wetland A), overlying dark gray silty loam (Wetland C), and contained low-density cultural material including bottle glass, ferrous metal, and a nail.

Impact Area C

Area C is located north and adjacent to the core of the former Wiggins/Wiswall mill complex, and is the proposed location for dike construction. During the fieldwork, revised project plans were provided to PAL showing a 20-ft southern extension of Impact Area C. This area is proposed to be filled to a depth of roughly 2 feet to create a berm extending east from the eastern edge of the former mill race structure. The grade on the north and south sides will be sloped gradually to meet existing ground surface elevations to allow emergency vehicle access over the berm.

Figure 5-8. Transect H, Impact Area B, view south.

Most of Impact Area C consists of lightly to moderately graveled access roads or heavily graveled areas adjacent to the existing dam and dike (Figure 5-9). Areas east of the access road is slightly terraced and wooded with mostly immature maple and scattered oak and pine. The survival of intact, precontact artifact-bearing soils in this location was assessed as low given the amount of historic period disturbance to the landscape. The potential for historic period deposits associated with the milling uses of the property, however, was assessed as high with possible resource types including (but not limited to) former roadbeds, buried foundations, and trash deposits.

Figure 5-9. Transects D, E, and I, Impact Area C, view southwest.

TD-1–2, TE-1–2, and TI-1–2 were place in the terraced, wooded area east of the access road (see Figure 5-2). Most soil profiles showed sandy and rock fills, overlying a light olive brown sandy silt with rock C subsoil horizon at an average depth of 70 cmbs. TE-1, however, contained relatively intact soils consisting of a very dark grayish brown silty sandy plowzone (Apz) to 35 cmbs, overlying a yellowish brown sand B horizon to 65 cmbs, and a light olive brown silty sand C subsoil horizon. Low- to moderate-density cultural material was recovered from fill and Apz matrices, including clinker, coal, brick, glass, a shell, and a button fragment. Additionally, a coal/clinker layer was identified in TI-2 and TE-2 between 70–75 cmbs and 46–51 cmbs, respectively, which is likely related to the fire that destroyed the mill complex in 1883 (see Figure 5-3).

The remaining test pits within Transects D, E, and I were placed in heavily graveled areas that have been previously disturbed as part of the current access road or dike/dam, and/or are within filled areas that were formerly within the northern portion of the mill race alignment. All soil profiles contained dense gravel fills. Asphalt chucks were recovered from the gravel fills in most test pits, although TE-3 was the only

test pit to contain a solid asphalt surface (30–45 cmbs). Fill matrices in these test pits also contained a low density of other materials including clinker, coal, and concrete fragments.

Impact Area D

Area D lies north and east of the dam on an alluvial terrace and is proposed as a construction staging, vehicle access, and materials storage area. This area formerly was part of the mill complex, but does not appear to have been as intensively developed as those portions of the riverbank farther to the south. Kenyon's survey work in 1986 identified an intact subsoil horizon containing lithic debris in a single test pit excavated just west of Area D close to the edge of the river, suggesting similar precontact potential for the proposed impact area. It was also believed that structural remains or artifact concentrations associated with the mill complex also might survive in this location. A circa (ca.) 1880 photograph looking southwest toward the mill from Wiswall Road shows the area crisscrossed by access roads, and while no structures are depicted it is possible that outbuildings pre-dating that period stood in that location (see Figure 4-5).

Three Transect C test pits (TC-1–3) and JTPs 3 and 4 were placed within Impact Area D where construction staging and vehicle access is proposed (see Figure 5-2). The northern portion of the APE is currently being used as a staging area for construction of a bridge over the Lamprey River at Wiswall Road, while the southern portion of the APE consists of a lightly to moderately graveled access road (Figure 5-10).

Figure 5-10. Transect C with current staging area in background, Impact Area D, view north.

JTPs 3 and 4 were placed in the northern area that is currently being used as a staging area for bridge construction. As most of the area was covered by heavy machinery and other equipment and supplies, the test pits were placed in accessible areas. Both JTPs contained three distinct sandy fill layers, overlying a brown sandy silt C subsoil horizon at approximately 60cmbs. Fill matrices contained low density cultural material including modern bottle glass, brick, Styrofoam, panty-hose, and a large cut nail. The soil profiles indicate that the area has been graded and subsequently filled; the disturbance is likely related to access road and staging area construction and use.

Transect C test pits were placed at 8-m intervals along the existing access road; TC-1 was placed at the east edge of the road, TC-2 at the road center, and TC-3 at the west edge of the road. Soils were fill to 55cmbs over C horizon subsoils in TC-1, while remnant B horizon subsoils were identified below fill at 70 cmbs in TC-2, and Buried A and B horizon soils were identified beneath fill at 71 cmbs in TC-3 (see Figure 5-3). Similar to test pits in other parts of the project area, a cinder/coal fill layer was identified between approximately 40 and 50 cmbs in TC-2 and TC-3 that is likely related to the fire that destroyed the mill complex in 1883(see Figure 5-3). Fill soils contained a low to moderate density of cultural material including coal, clinker, coke, coal ash, metal, plastic, bottle glass, brick, nails, one lamp glass, and three small ceramic fragments.

Impact Area E

Impact Area E lies west and north of the dam on an alluvial terrace and is proposed as a construction staging, vehicle access, and materials storage area. This location was assessed with similar pre- and postcontact archaeological sensitivity/potential to that of Impact Area A.

Two Transect A test pits (TA-1 and -2) and JTP-1 were placed within Impact Area E, where construction staging and vehicle access is proposed (see Figure 5-2). Most of the APE consists of a lightly to moderately graveled access road (Figure 5-11). The topography of the area west of the existing road alignment is characterized by steep slopes while the area east of the road slopes moderately to a wetland and the river. Areas on both sides of the road area are wooded with immature maple and scattered oak and pine.

Figure 5-11. Impact Area E, view south.

Transect A test pits were placed at 8-m intervals along the west edge of the existing access road. Soils comprised silty loams with dense gravels (road fills) to approximately 30–37 cmbs, overlying a sandy silt with gravel B subsoil horizon in TA-1 and a coarse sandy silt C subsoil horizon in TA-2 (see Figure 5-3). Both test pits were impeded by dense roots and rocks at 50 cmbs in TA-1 and at 58 cmbs in TA-2. Eleven pieces of modern bottle glass were recovered from road fill matrices. Soil profiles within the test pits suggest that soils within the current road alignment were stripped, graded, and subsequently filled with gravels.

JTP-1 was placed in a relatively level area just east of the current road alignment. Soils were water saturated wetland matrices consisting of a very dark grayish brown silt (Wetland A) to 32 cmbs, overlying a dark yellow brown and gray mottled sandy silt with rock (Wetland C) to 65 cmbs.

Cultural Materials

A total of 388 pieces of postcontact cultural material was recovered from the project area. The vast majority of the material (96 percent) was collected from fill deposits and was highly fragmented (see Appendix A). Recovered cultural materials included waste materials related to the 1883 fire that destroyed the mill complex (e.g. coal, cinder, coal ash, clinker), which comprised a full 40 percent of the assemblage. Steel and iron nails also were recovered in some numbers (n= 46), with at least one iron nail appearing to have been annealed as a result of the fire, and brick (n=48) in very low densities across the site, one of which appeared burnt.

In addition to the waste and architectural materials, a number of amber bottle glass fragments (n=45), window glass fragments (n=6), a shell fragment, and a white glass button fragment. Across the entire project area, only two ceramic sherds were recovered including a redware fragment (JTP-3, 40–50 cmbs) and a blue shell-edged whiteware rim fragment (TC-1, 20–30 cmbs). Both ceramics were recovered from fill in Impact Area D. A complete chisel also was recovered at 10–20 cmbs from a fill context in TF-2.

The material assemblage (n=17) collected from intact Apz, Buried A, and Wetland A was largely similar to that recovered from the filled soil horizons (Table 5-1). Given the depth at which most of the materials were buried, it is likely that they are contemporaneous with the operation of the mill. The recovery of the nail, window glass, and curved glass from 0–10 cmbs in the Wetland A soils of TH-3 and TH-4, however, strongly suggest that they washed downslope or downstream from elsewhere on the site.

Table 5-1. Materials Recovered from Intact Soil Contexts, Wiswall Dam Fish Passage Project Area.

Unit	Stratum	Depth	Object	Count
TC-03	Buried A	50 - 60	Coal	4
			Mortar	2
TE-01	Apz	20 - 30	Coal	1
			Clinker	2
		30 - 40	Clinker/Coke	1
TH-03	Wetland A	0 - 10	Wire Nail	1
TH-04	Wetland A	0 - 10	Window Glass	1
			Curved Glass	2
TH-04	Wetland A	40 - 50	Unidentified Nail	3
			Total	17

Table 5-2. Distribution of Burn Layer and Associated Cultural Material, Wiswall Dam Fish Passage Project Area.

Unit	Stratum	Depth	Object	Count
TE-02	Coal Layer	70 - 80	Clinker	3
TG-02	Coal/Cinder	50 - 60	Clinker	1
			Nail	1
			Coal	1
TI-02	Coal/ Clinker	40 - 50	Coal Ash	1
			Clinker/Coke	2
			Clinker	6
			Total:	15

Conclusions and Management Recommendations

Subsurface testing within the Wiswall Dam Fish Passage project area demonstrated that the APE is characterized by heavily mixed and deeply disturbed soils likely dating to the destruction/demolition of the various milling concerns on the east bank of the river and by subsequent dam construction activities on both sides of the river. Belowground disturbance was most often manifest as deep gravel fills and graded C subsoil horizons below fills.

The artifact assemblage comprised slag, coal, miscellaneous historic ceramics and metal fragments, and glass. No precontact cultural materials were recovered during the excavations. The vast majority of materials identified within the project area were cinder, clinker, coal, and coal ash. Very few datable materials or domestic or personal items were recovered from the site, and none of those that were recovered convey any substantive information about the construction and/or use of the mill complex or the day-to-day lives of its managers and employees.

None of the cultural material was recovered from intact or historically significant soil contexts and did not form any discrete clusters suggestive of activity areas or a planned landscape. While a layer of cinder and coal was identified in several test pits that is indicative of the 1883 fire that destroyed the mill, the layer generally did not contain other artifacts that would provide additional information about the complex. The stratigraphic association of this burn layer also was somewhat problematic. In some test pits, the layer was found within fill soils, while in others it was found to overlie graded B or C horizon subsoils (Table 5-2). The mixed association of the layer suggests that it was likely disturbed in some areas subsequent to the fire event. The cinder/coal layer likely represents the same matrices previously identified by Bolian and Maymon (1985, 1986) and by Kenyon (1986) within several test pits excavated in areas of the mill complex south of the current APE.

No evidence of builders' trenches or stratigraphic sequences that could provide additional information about the surviving foundation elements of the ca. 1835 sawmill were identified during subsurface excavations, nor was there any evidence of buried, intact structural remains associated with any of the other mill buildings. Two large pieces of cut granite were identified in one of the test pits – after expanding the test pit, however, it was clear that the stone, while probably part of a historic foundation at one time, was completely displaced from its original context and had merely been incorporated as part of a larger filling episode.

Based on an analysis of the field and artifact data, no cultural materials or features that might contribute substantive information about the Wiswall Falls Mill Site or Wiswall Falls Historic District were identified during the Phase IB survey. Furthermore, no pre- or postcontact cultural materials or features individually potentially eligible for listing on the National Register were identified during the survey. No additional archaeological survey is recommended within the proposed APE for the Wiswall Dam Fish Passage project area. In the event that project plans and/or the current APE substantively changes, however, additional archaeological review may be required.

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APPENDIX A

CATALOG OF CULTURAL MATERIA

Appendix A. Catalog of Cultural Materials, USDA/NRCS - Wiswall Dam, 1B.

Provenience	Material	Object	Attributes	Color(s)	Manufacture Date	Makers Mark	Count
Wiswall Falls Mill Site							
JTP 03 0-10, Fill 1	Earthenware	Brick	Fragment	Red		☐	1
	Glass Molded Glass	Bottle/Jar	Body	Amber		☐	7
JTP 03 30-40, Fill 2	Styrofoam	Modern Trash	Fragment	White	1962 Present	☐	1
	Textile		Fragment	Gray		☐	1
JTP 03 40-50, Fill 2	Coarse Earthenware Redware	Ceramic Sherd	Fragment	Red	1600 Present	☐	1
	Glass Molded Glass	Bottle/Jar	Body	Amber		☐	2
JTP 04 50-60, Fill 3	Ferrous	Nail Machine Cut Nail	Mostly Complete	Rust	1790 1900	☐	1
TA-01 0-10, Fill 1	Glass Molded Glass	Bottle/Jar	Body	Amber		☐	2
TA-01 20-30, Fill 1	Glass	Curved Glass	Fragment	Amber		☐	4
	Glass Molded Glass	Curved Glass	Fragment	Colorless		☐	1
	Glass Molded Glass	Curved Glass	Body	Green		☐	1
TA-02 20-30, Fill 2	Glass Molded Glass	Bottle/Jar	Base	Amber	1940 1960	☐	2
TC-01 0-10, Fill 1	Glass Molded Glass	Bottle/Jar	Body	Amber		☐	1
TC-01 10-20, Fill 1	Clinker		Complete	Gray, Maroon		☐	2
	Coal Ash		Complete	Cream		☐	1
	Earthenware	Brick	Fragment	Red		☐	1
	Ferrous	Nail Machine Cut Nail	Fragment	Rust	1790 1900	☐	1
	Glass	Bottle/Jar	Fragment	Amber		☐	2
TC-01 20-30, Fill 1	Clinker		Complete	Gray, Maroon		☐	2
	Refined Earthenware Whiteware Shell-Edged Rim	Ceramic Sherd	Rim	Blue, White	1835 1870	☐	1
TC-01 30-40, Fill 2	Clinker		Complete	Dk Gray, Maroon		☐	2
	Coal Bituminous		Complete	Black		☐	1
	Ferrous	Unidentified	Fragment	Rust		☐	1
TC-01 50-60, Fill 2	Coal Bituminous		Complete	Black		☐	2
	Glass	Curved Glass	Fragment	Amber		☐	1
TC-02 40-50, Fill 3	Clinker		Complete	Dk Gray, Maroon		☐	4
	Ferrous	Nail Unidentified Nail	Fragment	Rust		☐	1
TC-02 60-70, Fill 4	Ferrous	Nail Unidentified Nail	Fragment	Rust		☐	1

Appendix A. Catalog of Cultural Materials, USDA/NRCS - Wiswall Dam, 1B.

Provenience	Material	Object	Attributes	Color(s)	Manufacture Date	Makers Mark	Count
Wiswall Falls Mill Site							
TC-03 0-10, Fill 1	Earthenware	Brick	Fragment	Red		☐	1
TC-03 30-40, Fill 3	Glass Molded Glass	Bottle/Jar	Lip/Neck	Amber		☐	1
TC-03 40-50, Fill 4	Asphalt		Complete	Black		☐	1
	Coal Bituminous		Complete	Black		☐	2
TC-03 50-60, Buried A	Coal Bituminous		Complete	Black		☐	4
	Mortar		Complete	White		☐	2
TD-01 0-10, Fill 1	Clinker		Complete	Gray, Maroon		☐	2
TD-01 20-30, Fill 1	Clinker		Complete	Gray, Maroon		☐	3
	Earthenware	Brick	Fragment	Red		☐	4
TD-01 30-40, Fill 2	Earthenware	Brick	Fragment	Red		☐	5
TD-01 50-60, Fill 2	Earthenware	Brick	Fragment	Red		☐	6
	Ferrous	Nail Machine Cut Nail	Fragment	Rust	1790 1900	☐	1
TD-02 40-50, Fill 2	Glass Molded Glass	Button	Fragment	White		☐	1
TD-03 0-10, Fill 1	Asphalt		Complete	Black		☐	1
TD-03 10-20, Fill 1	Asphalt		Complete	Black		☐	2
TD-05 10-20, Fill 1	Asphalt		Complete	Black		☐	2
	Ferrous	Nail Unidentified Nail	Fragment	Rust		☐	1
TE-01 20-30, Apz	Clinker		Complete	Dk Gray, Maroon		☐	2
	Coal Bituminous		Complete	Black		☐	1
TE-01 30-40, Apz	Clinker/Coke		Complete	Black		☐	1
TE-02 0-10, Fill 1	Clinker		Complete	Dk Gray, Maroon		☐	1
	Coal Bituminous		Complete	Black		☐	1
TE-02 10-20, Fill 1	Clinker		Complete	Dk Gray, Maroon		☐	2
	Coal Bituminous		Complete	Black		☐	1
TE-02 20-30, Fill 2	Clinker		Complete	Dk Gray, Maroon		☐	1
	Coal Ash		Complete	Gray, Red, White		☐	1
	Earthenware	Brick	Fragment	Red		☐	1
TE-02 50-60, Fill 2	Clinker		Complete	Dk Gray, Maroon		☐	1

Appendix A. Catalog of Cultural Materials, USDA/NRCS - Wiswall Dam, 1B.

Provenience	Material	Object	Attributes		Color(s)	Manufacture Date	Makers Mark	Count
Wiswall Falls Mill Site								
TE-02 50-60, Fill 2	Earthenware	Brick	Fragment		Red		☐	1
TE-02 60-70, Fill 2	Clinker		Complete		Dk Gray, Maroon		☐	2
	Earthenware	Brick	Fragment	Burned	Black, Red		☐	1
TE-02 70-80, Coal Layer	Clinker		Complete		Dk Gray, Maroon		☐	3
TE-03 30-40, Asphalt	Asphalt		Complete		Black		☐	6
TE-03 40-50, Concrete	Asphalt		Complete		Black		☐	4
	Mortar		Complete		Gray		☐	1
	Wood	Wood	Fragment	Cut	Brown		☐	1
TF-01 0-10, Fill 1	Clinker/Coke		Complete		Black		☐	1
	Earthenware	Brick	Fragment		Red		☐	1
TF-01 10-20, Fill 1	Clinker		Complete		Dk Gray, Maroon		☐	2
	Ferrous	Unidentified	Fragment		Red, Rust		☐	1
TF-01 20-30, Fill 1	Asphalt		Complete		Black		☐	1
	Clinker/Coke		Complete		Black		☐	2
	Ferrous	Unidentified	Fragment		Rust		☐	1
TF-01 30-40, Fill 2	Clinker		Complete		Dk Gray, Maroon		☐	1
	Coal Ash		Complete		Gray, Red, White		☐	2
	Coal Bituminous		Complete		Black		☐	1
	Ferrous	Nail Unidentified Nail	Mostly Complete		Rust		☐	2
TF-01 40-50, Fill 2	Clinker		Complete		Dk Gray, Maroon		☐	2
	Coal Ash		Complete		Gray, Red		☐	1
	Igneous Quartz	Raw Material	Complete		Clear, Gray		☐	1
TF-01 50-60, Fill 2	Clinker		Complete		Dk Gray, Maroon		☐	2
	Clinker/Coke		Complete		Black		☐	2
	Coal Ash		Complete		Gray, Red, White		☐	2
	Ferrous	Nail Unidentified Nail	Fragment		Rust		☐	4
TF-01 60-70, Fill 2	Clinker		Complete		Gray, Maroon		☐	1
	Clinker/Coke		Complete		Black		☐	1

Appendix A. Catalog of Cultural Materials, USDA/NRCS - Wiswall Dam, 1B.

Provenience	Material	Object	Attributes	Color(s)	Manufacture Date	Makers Mark	Count
Wiswall Falls Mill Site							
TF-01 60-70, Fill 2	Coal Ash		Complete	Gray, Red, White		☐	1
	Ferrous	Unidentified	Fragment	Rust		☐	1
TF-01 70-80, Fill 2	Clinker		Complete	Gray, White		☐	1
	Clinker/Coke		Complete	Black		☐	3
	Ferrous	Nail Unidentified Nail	Fragment	Rust		☐	1
TF-01 80-90, Fill 3	Clinker		Complete	Dk Gray, Maroon		☐	1
	Ferrous	Nail Unidentified Nail	Fragment	Rust		☐	2
TF-01 90-100, Fill 3	Clinker/Coke		Complete	Black		☐	1
	Wood	Wood	Complete Charred	Black		☐	1
TF-02 0-10, Fill 1	Earthenware	Brick	Fragment	Red		☐	1
	Ferrous	Unidentified	Fragment	Rust		☐	1
TF-02 10-20, Fill 1	Ferrous	Chisel	Complete	Rust		☐	1
	Ferrous	Unidentified	Fragment	Rust		☐	1
TF-02 20-30, Fill 2	Ferrous	Nail Machine Cut Nail	Mostly Complete	Rust	1790 1900	☐	1
TG-01 30-40, Fill 2	Clinker		Complete	Dk Gray, Maroon		☐	1
	Earthenware	Brick	Fragment	Red		☐	1
	Ferrous	Unidentified	Fragment	Rust		☐	1
TG-01 40-50, Fill 2	Clinker/Coke		Complete	Dk Gray, Maroon		☐	1
	Ferrous	Nail Machine Cut Nail	Fragment	Rust	1790 1900	☐	6
TG-01 50-60, Fill 2	Ferrous		Fragment	Rust		☐	1
TG-01 60-70, Fill 2	Ferrous	Nail Machine Cut Nail	Fragment	Rust	1790 1900	☐	1
	Ferrous	Screw	Mostly Complete	Rust		☐	1
	Steel	Nail Wire Nail	Complete	Rust	1890 Present	☐	1
TG-02 0-10, Fill 1	Asphalt		Complete	Black		☐	1
	Earthenware	Brick	Fragment	Red		☐	1
	Ferrous	Nail Unidentified Nail	Fragment	Rust		☐	2
TG-02 20-30, Fill 1	Aluminum	Can Pull Tab	Complete	Silver	1962 1975	☐	1
	Earthenware	Brick	Fragment	Red		☐	1

Appendix A. Catalog of Cultural Materials, USDA/NRCS - Wiswall Dam, 1B.

Provenience	Material	Object	Attributes	Color(s)	Manufacture Date	Makers Mark	Count
Wiswall Falls Mill Site							
TG-02 20-30, Fill 1	Steel	Nail Wire Nail	Mostly Complete	Rust	1890 Present	☐	1
TG-02 30-40, Fill 2	Coal Bituminous		Complete	Black		☐	2
	Ferrous	Nail Machine Cut Nail	Fragment	Rust		☐	1
	Steel	Nail Wire Nail	Complete	Rust	1890 Present	☐	1
TG-02 40-50, Fill 2	Clinker		Complete	Dk Gray, Maroon		☐	4
	Coal Ash		Complete	Black		☐	1
	Coal Bituminous		Complete	Black		☐	2
TG-02 50-60, Coal/Cinder	Clinker		Complete	Dk Gray, Maroon		☐	1
	Coal Bituminous		Complete	Black		☐	1
	Ferrous	Nail Unidentified Nail	Fragment	Rust		☐	1
TG-02 60-70, Fill 3	Clinker		Complete	Dk Gray, Maroon		☐	1
	Coal Bituminous		Complete	Black		☐	1
	Earthenware	Brick	Fragment	Red		☐	1
	Ferrous	Nail Machine Cut Nail	Mostly Complete	Rust		☐	7
	Wood	Wood	Complete Burned	Black, Brown		☐	1
TG-02 70-80, Fill 3	Clinker/Coke		Complete	Black		☐	2
	Earthenware	Brick	Fragment	Red		☐	2
	Ferrous	Nail Machine Cut Nail	Fragment	Rust	1790 1900	☐	3
TG-03 0-10, Fill 1	Clinker		Complete	Dk Gray, Maroon		☐	1
	Mortar		Complete	Gray		☐	1
TG-03 10-20, Fill 1	Ferrous	Unidentified	Fragment	Rust		☐	1
TG-03 20-30, Fill 1	Clinker		Complete	Cream, Dk Gray, Maroon		☐	1
TG-03 30-40, Fill 1	Clinker/Coke		Complete	Black		☐	1
	Coal Bituminous		Complete	Black		☐	3
	Ferrous	Unidentified	Fragment	Rust		☐	1
	Igneous Granitic	Raw Material	Complete	Black, Gray, White		☐	1
TG-03 40-50, Fill 1	Clinker		Complete	Cream, Dk Gray, Maroon		☐	2

Appendix A. Catalog of Cultural Materials, USDA/NRCS - Wiswall Dam, 1B.

Provenience	Material	Object	Attributes	Color(s)	Manufacture Date	Makers Mark	Count
Wiswall Falls Mill Site							
TG-03 40-50, Fill 1	Coal Bituminous		Complete	Black		☐	1
	Ferrous	Unidentified	Fragment	Rust		☐	4
TG-03 50-60, Fill 1	Clinker/Coke		Complete	Black		☐	1
	Ferrous	Unidentified	Fragment	Rust		☐	5
TG-03 60-70, Fill 1	Clinker		Complete	Cream, Dk Gray, Maroon		☐	2
	Clinker/Coke		Complete	Black		☐	2
	Coal Bituminous		Complete	Black, Rust		☐	1
	Ferrous		Fragment	Rust		☐	1
TH-01 0-10, Fill 1	Earthenware	Brick	Fragment	Red		☐	2
	Mortar		Complete	Gray		☐	1
TH-01 10-20, Fill 1	Ferrous	Unidentified	Fragment	Rust		☐	1
TH-01 20-30, Fill 1	Earthenware	Brick	Fragment	Red		☐	1
	Ferrous	Unidentified	Fragment	Rust		☐	1
TH-02 0-10, Fill 1	Earthenware	Brick	Fragment	Red		☐	3
	Glass	Flat Glass	Fragment	Aqua, Clear		☐	2
	Glass Molded Glass	Bottle/Jar	Body	Amber		☐	13
	Plaster/Mortar		Complete	Cream, Gray		☐	3
TH-02 10-20, Fill 1	Earthenware	Brick	Fragment	Red		☐	6
	Ferrous	Nail Unidentified Nail	Fragment	Rust		☐	1
	Glass Molded Glass	Bottle/Jar	Body	Amber		☐	12
	Plaster/Mortar		Complete	Gray		☐	2
TH-02 20-30, Fill 1	Earthenware	Brick	Fragment	Red		☐	3
	Glass	Flat Glass Window Glass	Fragment	Aqua, Clear		☐	1
	Glass Molded Glass	Bottle/Jar	Body	Amber		☐	3
	Mortar		Complete	Gray		☐	1
TH-03 0-10, Wetland A	Steel	Nail Wire Nail	Fragment	Rust	1890 Present	☐	1
TH-04 0-10, Wetland A	Glass	Flat Glass Window Glass	Fragment	Aqua, Clear		☐	1
	Glass Molded Glass	Curved Glass	Fragment	Colorless		☐	2

Appendix A. Catalog of Cultural Materials, USDA/NRCS - Wiswall Dam, 1B.

Provenience	Material	Object	Attributes	Color(s)	Manufacture Date	Makers Mark	Count
Wiswall Falls Mill Site							
TH-04 40-50, Wetland A	Ferrous	Nail Unidentified Nail	Fragment	Rust		☐	3
TI-01 0-10, Fill 1	Clinker		Complete	Cream, Dk Gray, Maroon		☐	3
TI-01 10-20, Fill	Clinker		Complete	Dk Gray, Maroon		☐	4
	Clinker/Coke		Complete	Black		☐	1
TI-01 20-30, Fill 1	Clinker		Complete	Cream, Dk Gray, Maroon		☐	2
	Coal Ash		Complete	Cream, Gray, Maroon		☐	2
	Glass	Flat Glass Window Glass	Fragment	Aqua, Clear		☐	1
	Shell		Fragment	Brown, White		☐	3
TI-01 30-40, Fill 2	Clinker		Complete	Dk Gray, Maroon		☐	2
	Mineral	Brick Fire Brick	Fragment	Black, Cream, Speckled		☐	3
TI-01 40-50, Fill 2	Igneous Granitic	Raw Material	Complete	Black, Gray, White		☐	1
	Mineral	Brick Fire Brick	Fragment	Black, Cream, Speckled		☐	1
	Shell		Fragment	Brown, White		☐	1
TI-01 50-60, Fill 2	Clinker		Complete	Dk Gray, Maroon		☐	2
	Steel	Nail Wire Nail	Fragment	Rust		☐	1
TI-01 60-70, Fill 2	Clinker		Complete	Cream, Dk Gray, Maroon		☐	2
	Coal Ash		Complete	Cream, Maroon		☐	1
	Ferrous	Unidentified	Fragment	Rust		☐	1
TI-02 10-20, Fill 1	Asphalt		Complete	Black		☐	1
	Clinker		Complete	Dk Gray, Maroon		☐	1
TI-02 20-30, Fill 2	Asphalt		Complete	Black		☐	2
	Clinker		Complete	Dk Gray, Maroon		☐	2
	Clinker/Coke		Complete	Black		☐	1
TI-02 30-40, Fill 2	Asphalt		Complete	Black		☐	2
	Clinker/Coke		Complete	Black		☐	1

Appendix A. Catalog of Cultural Materials, USDA/NRCS - Wiswall Dam, 1B.

Provenience	Material	Object	Attributes	Color(s)	Manufacture Date	Makers Mark	Count
Wiswall Falls Mill Site							
TI-02 40-50, Coal/ Clinker	Clinker		Complete	Dk Gray, Maroon		☐	6
	Clinker/Coke		Complete	Black		☐	2
	Coal Ash		Complete	Cream, Dk Gray		☐	1
TI-02 50-60, Fill 3	Clinker		Complete	Cream, Dk Gray, Maroon		☐	3
TI-02 60-70, Fill 3	Clinker		Complete	Cream, Dk Gray, Maroon		☐	2
TI-02 70-80, Fill 3	Clinker		Complete	Cream, Dk Gray, Maroon		☐	2
TI-03 0-10, Fill 1	Coal Bituminous		Complete	Black		☐	2
	Mortar		Complete	Cream, Gray		☐	2
TI-03 10-20, Fill 1	Asphalt		Complete	Black		☐	1
TI-03 20-30, Fill 2	Asphalt		Complete	Black		☐	3
	Mortar		Complete	Gray		☐	1
TI-03 30-40, Fill 2	Asphalt		Complete	Black		☐	2
TI-03 40-50, Fill 2	Clinker		Complete	Cream, Dk Gray, Maroon		☐	3
	Coal Bituminous		Complete	Black		☐	2
TI-03 50-60, Fill 2	Clinker		Complete	Cream, Dk Gray, Maroon		☐	2
	Clinker/Coke		Complete	Black		☐	1
						Total:	**388**

APPENDIX B

SITE FORM

NEW HAMPSHIRE ARCHAEOLOGICAL INVENTORY FORM
New Hampshire Division of Historical Resources
New Hampshire State Historic Preservation Office

Site No. 27 - _____ - _____
Date Plotted ____ / ____ / ____

I IDENTIFICATION

A. DHR Site No. 27 - _____ - _____ B. Site Name: Wiswall Falls Mill Site
C. NHAS Site No. NH - _____ - _____ D. Temp. Site No. _____
E. Version of form ____ New X Revised ____ Transcribed
F. Type of form ____ Minimal Documentation X Intensive Documentation

II LOCATION

A. County: Strafford B. City/Town: Durham
C. USGS Quadrangle: Newmarket D. Quad Date: 1988
E. USGS Map Series ____ 7.5' X 15' ____ 1/25,000 ____ Other
F. UTM Zone 19 G. Easting 03 40 320 H. Northing 47 74 251
I. USGS Datum X WGS 84 (preferred) ____ NAD 27 ____ NAD 83

III OWNERSHIP

A. Status (Select as many as appropriate)
____ Private (Single) ____ Private (Multiple) ____ Local Government
X State Government ____ Federal Government ____ Non-Profit
____ Unknown ____ Other (Specify) _____
B. Name of Owner(s): Town of Durham
Street Address: 15 Newmarket Rd
City/Town, State, Zip: Durham, NH 03824

IV REPORTING INFORMATION

A. Name of Form Preparer(s): Kristen Heitert
B. Institutional Affiliation/Employer: PAL, Inc.
C. Sponsor: USDA-NRCS
D. Date Surveyed 05/24-28/2010 E. Date Form Prepared 06/29/2010
F. Investigative Type (Select One)
X CRM contract ____ Sponsored research ____ Private research
____ Volunteered data ____ Other (Specify) _____
G. Investigative Techniques (Select as many as appropriate)
____ Oral history X Documentary X Collection analysis
____ Non-recovery survey ____ Aerial photography X Map interpretation
X Mapping ____ Arbitrary surface col. ____ Controlled sf. col.
____ Auger / Soil core X Shovel test ____ Test pit excavation
____ Heavy equipment ____ Block excavation ____ Remote sensing
____ Other (Specify) _____
H. Bibliographic Citation:

Heitert, Kristen and Nichole Gillis
2010 Phase IB Intensive Archaeological Survey, Wiswall Dam Fish Passage Project Area, Durham, New Hampshire. PAL Report No. 2303.01. Submitted to USDA-NRCS, Concord, NH.

Kenyon, Victoria
1986 Cultural Resources Review, Wiswall Falls, Durham, New Hampshire. Report prepared for the Town of Durham.

Maymon, Jeffrey, and Charles Bolian
1985 Phase I Cultural Resource Assessment, Wiswall Falls Hydroelectric Project, Durham, New Hampshire. Prepared for the Southern New Hamphshire Hydroelectric Development Corporation.

1986 Phase II Cultural Resource Assessment, Wiswall Falls Hydroelectric Project, Durham, New Hampshire. Prepared for the Southern New Hamphshire Hydroelectric Development Corporation.

Preservation Company
2008 Wiswall Falls Historic District (Area Form DUR-W), Durham, New Hampshire. Document on file, New Hampshire Division of Historical Resources, Concord, NH.

Stott, Peter H.
1987 Wiswall Falls Mill Site National Register of Historic Places Nomination Form. P.H. Stott Consulting Services, Newton Highlands, MA.

V CULTURAL TEMPORAL AFFILIATIONS

A. Eras Represented
X Prehistoric ____ Protohistoric X Historic

B. Cultures Represented
X Native American Indian X Euro-American ____ Unknown

VI PREHISTORIC ERA SITE DATA

A. Prehistoric Periods (Select as many as appropriate)
____ Paleoindian ____ Indeterminate Archaic ____ Early Archaic
____ Middle Archaic ____ Late Archaic ____ Indeterminate Woodland
____ Early Woodland ____ Middle Woodland ____ Late Woodland
____ Late Prehistoric X Unknown Prehistoric

B. Basis for Assignment of Prehistoric Periods (Select as many as appropriate)
____ Diagnostic artifacts ____ Diagnostic features ____ C14 dating
____ Other radiometric ____ Other (Specify): Non-diagnostic lithic cores

C. Prehistoric Site Type(s) (Select as many as appropriate)
____ Open habitation (Undiff) ____ Habitation / Village ____ Habitation / Campsite
____ Rockshelter / Cave ____ Quarry ____ Workshop
____ Fishing station ____ Ceremonial (Undiff) ____ Cemetery
____ Rock art X Unknown ____ Other
Specify other: _____

D. Prehistoric Material Present at Site Check if ☐ Continued on continuation sheet
Artifact category / Artifact type / Quantity ☐ Collected ☐ Observed on site ☐ Observed in prior collection

3 non-diagnostic lithic cores

VII HISTORIC ERA SITE DATA

A. Historic Period of Occupation ____ Indeterminate
B Beginning date 1835 ____ Exact ____ Estimated X Approximate
Ending date 1940 ____ Exact ____ Estimated X Approximate

C. Basis for Assignment of Historic Dates
____ Diagnostic artifacts ____ Diagnostic features ____ Architectural
____ Oral tradition ____ Map interpretation X Documentary
____ Other (Specify) _____

D. Historic Site Type (select as many as appropriate)
____ Residential ____ Agricultural ____ Commercial
____ Crafts production X Industrial ____ Cemetery
____ Education ____ Governmental ____ Religious
____ Transportation ____ Recreational ____ Military
____ Social ____ Health care ____ Shipwreck
____ Other (Specify) _____

E. Historic Material Present at Site ☐ Continued on continuation sheet
Artifact category / Artifact type / Quantity ☐ Collected ☐ Observed on site ☐ Observed in prior collection

A total of 388 pieces of postcontact cultural material was recovered from the project area. The vast majority of the material (96 percent) was collected from fill deposits and was highly fragmented (see Appendix A). Recovered cultural materials included waste materials related to the 1883 fire that destroyed the mill complex (e.g. coal, cinder, coal ash, clinker), which comprised a full 40 percent of the assemblage. Steel and iron nails also were recovered in some numbers (n= 46), with at least one iron nail appearing to have been annealed as a result of the fire, and brick (n=48) in very low densities across the site, one of which appeared burnt.

VIII PHYSICAL DESCRIPTION

A. Current Conditions (Select as many as appropriate)
X Exposed bedrock ____ Agricultural field ____ Other open area
____ Scrub vegetation X Forested ____ Urbanized
____ Suburbanized ____ Industrial / commercial ____ Submerged
____ Unknown / unrecorded ____ Other (Specify) _____

B. Vegetation at time of survey (type and % ground cover): The area is wooded with mostly young oak and some maple and pine, although a few older maples and pine trees are scattered throughout the canopy. Most of the testing areas on the east side of the river are relatively level, while steep to moderate slopes characterize the area west of the river. Most testing areas were located within or adjacent to existing access roads, staging areas, or areas that had been visibly disturbed by dam construction.

C. Predominant Aspects of Disturbance (Select as many as appropriate)

____ None apparent ____ Agricultural field X Construction
____ Transportation ____ Mining / quarrying _____ Erosion
____ Vandalism ____ Archaeological excavation _____ Timbering
____ Unknown / unrecorded ____ Other (Specify) _____

D. Site Size (Square meters): 3 acres – 12,140 sq m
E. Site Elevation (Feet AMSL at center point): 51
F. Major Drainage System ____ Connecticut ____ Merrimack
____ Androscoggin X Coastal ____ Saco
G. Minor Drainage System (Principal tributary to Major Drainage, if appropriate) : Lamprey River

H. Closest Source of Fresh Water (Select only one)

____ Permanent stream ____ Ephemeral stream ____ Spring
____ Swamp bog ____ Lake / pond ____ Slough / oxbow lake
____ Artificial pond ____ Artificial ditch / canal ____ Unknown / unrecorded
X Other (Specify): Dam impoundment

I. Vertical Distance above Closest Water < 1 meter
J. Horizontal Distance from Closest Water: Adjacent
K. Down Slope Direction (Select only one)
___ N ___ NE ___ E ___ SE ___ S ___ SW X W ___ NW ___ All ___ Flat ___ Unknown / unrecorded
L. Soil Association _____
M. Soil Series / Phase & Complex Elmwood (EaB), Hollis-Charlton (HcB, HcC) and Windsor (WdB)
N. Soils Reference: United States Department of Agriculture - Natural Resources Conservation Service's Web Soil Survey, http://websoilsurvey.nrcs.usda.gov/app/

IX SPECIAL STATUS LAND USE

A. Special Use Categories (Select as many as appropriate)

____ None ____ Wilderness Area ____ Wildlife Preserve
____ Nature Preserve X Public Park X Scenic River
____ Military Land ____ Archaeological Preserve ____ State Forest
____ Federal Forest X Historic District ____ Current Use (Historic)
____ Current Use (Other) ____ Other (Specify) _____

X APPLICABLE HISTORIC CONTEXT(S)

A. Principal Context: Industry – 18, 22-24
B. Secondary Context : Archaeology - 1106
C. Secondary Context _____
D. Secondary Context _____

XI MAPS

A. Attach a USGS topographic map (or non photo-reduced copy) of the site area.
B. Attach sketch map or copy of project map (include north arrow, scale, site boundaries and total area surveyed, use continuation sheet if necessary).

XII SITE DESCRIPTION

A. Narrative description of site setting, nature of finds, distribution of the archaeological materials, with reference to other sites in the vicinity, and directions on how to get to the site (use continuation sheet if necessary).

The Wiswall Falls Mill Site and historic district were the subject of several archaeological surveys during the mid 1980s. Phase I and II investigations on the east bank of the river just south of the dam resulted in the identification of the Wiswall Falls Mill Site (Bolian and Maymon 1985, 1986). The site comprises nine (9) structural features including the ca. 1835 sawmill foundation remains (one of the first mills to be erected on the site), the ca. 1854 paper mill foundation, and the large, well-preserved 1854 stone-lined power canal. Subsurface testing yielded evidence of the fire that destroyed the entire complex in 1883, and a previously undocumented shed foundation immediately east of the power canal.

Another survey conducted by Victoria Kenyon in 1986 also provided important information about the general landscape integrity of the Wiswall Falls Mill Site. Subsurface testing just north of the dam near Wiswall Road identified a relict plowzone and also

provided evidence of precontact occupation in the form of three lithic cores recovered from intact subsoil. This concentration of materials expanded the geographic boundaries of the known precontact use of the area as illustrated by another pre-contact site (NH40-10), located roughly 75 meters downstream from the dam site. NH40-10, first identified in 1977 on the basis of a single "flint" flake eroding from an embankment on an alluvial beach, was later tested with a single test pit and yielded an assemblage of 24 rhyolite, quartz, and argillite lithic flakes.

Subsurface testing in 2010 demonstrated that the majority of the northern portion of the site is characterized by heavily mixed and deeply disturbed soils likely dating to the destruction/demolition of the various milling concerns on the east bank of the river and by subsequent dam construction activities on both sides of the river. Belowground disturbance was most often manifest as deep gravel fills and graded C subsoil horizons below fills.

None of the cultural material was recovered from intact or historically significant soil contexts and did not form any discrete clusters suggestive of activity areas or a planned landscape. While a layer of cinder and coal was identified in several test pits that is indicative of the 1883 fire that destroyed the mill, the layer generally did not contain other artifacts that would provide additional information about the complex. The stratigraphic association of this burn layer also was somewhat problematic. In some test pits, the layer was found within fill soils, while in others it was found to overlie graded B or C horizon subsoils. The mixed association of the layer suggests that it was likely disturbed in some areas subsequent to the fire event. The cinder/coal layer likely represents the same matrices previously identified by Bolian and Maymon (1885, 1986) and by Kenyon (1986) within several test pits excavated in areas of the mill complex south of the current APE.

No evidence of builders' trenches or stratigraphic sequences that could provide additional information about the surviving foundation elements of the ca. 1835 sawmill were identified during subsurface excavations, nor was there any evidence of buried, intact structural remains associated with any of the other mill buildings. Two large pieces of cut granite were identified in one of the test pits – after expanding the test pit, however, it was clear that the stone, while probably part of a historic foundation at one time, was completely displaced from its original context and had merely been incorporated as part of a larger filling episode.

XIII RESEARCH POTENTIAL, OTHER VALUES & RECOMMENDATIONS (Complete for minimal documentation forms)

A. Narrative description of the research which may be proposed for the site, any additional aspects of the site which may make it important such as presence of unusual ecological factors, and recommendations for additional research, especially if the site is endangered (use continuation sheet if necessary).

XIV ASSESSMENT OF SIGNIFICANCE (complete for intensive level forms)

A. Narrative discussion of the significance of the site and its research potential (use continuation sheet if necessary).

The Wiswall Falls Mill Site is the best remaining example of Durham's small nineteenth-century manufacturing base. To date, however, this significance is manifested more through the surviving aboveground mill and dam elements rather than through archeologically-recovered data. The 2010 excavations in the northern portion of the site east of the river as well as within the larger historic district along the west bank of the river illustrated substantial subsurface disturbances associated with historic and modern construction and landscaping efforts. These findings contradict earlier assessments of the site's integrity (Stott 1987), and largely preclude the interpretive value of the archaeologically-recovered materials in those areas. Earlier archaeological work in the southern portion of the site, on the other hand, yielded evidence of the structural evolution and demolition processes at the site that, with more expansive horizontal exposure, may yield additional information on the form and function of a nineteenth-century multi-purpose mill site.

XV SURVEYOR'S EVALUATION

NR listed:	____ individual	NR Criteria:	____ A	NR eligible:	
	____ within a district		____ B		____ individually
			____ C		____ within district
Integrity:	____ yes		____ D		____ not eligible
	____ no				____ more information needed

36 CFR 61 SURVEYOR _____ **DATE** _____

OTHER SURVEYOR _____ **DATE** _____

****

SHPO USE ONLY: Reviewed for Determination of Eligibility (date) ____ / ____ / ____

Entered in database ____ / ____ / ____ By _____

NEW HAMPSHIRE ARCHAEOLOGICAL INVENTORY FORM
New Hampshire Division of Historical Resources

Site No. 27 - _____ - _____

CONTINUATION SHEET (indicate section(s) being continued

Figure 1. Location of the Wiswall Dam Fish Passage project area on the Newmarket, NH topographic quadrangles, 7.5 minute series.

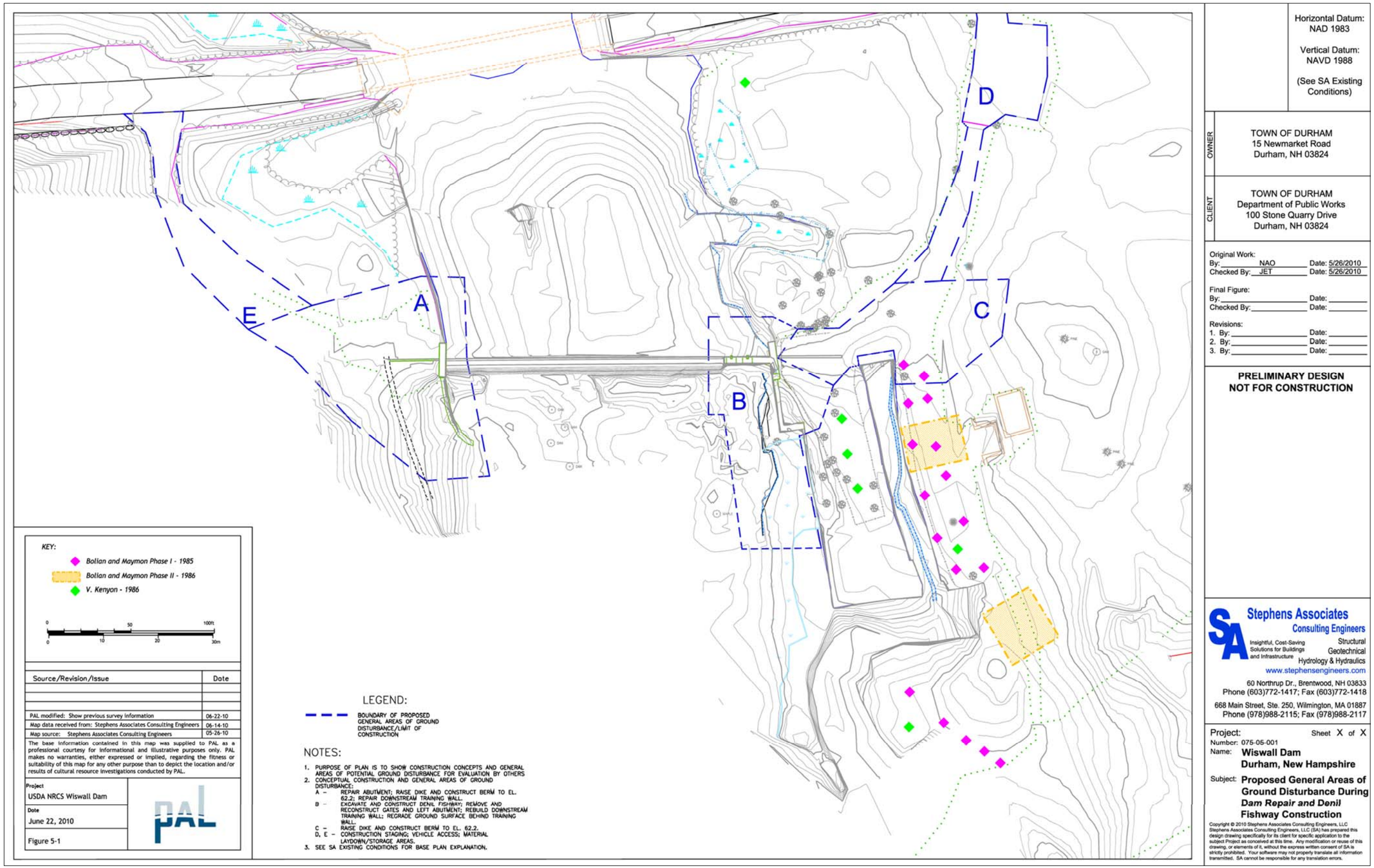


Figure 2. Locations of previous archaeological testing at the Wiswall Falls Mill Site/Historic District.

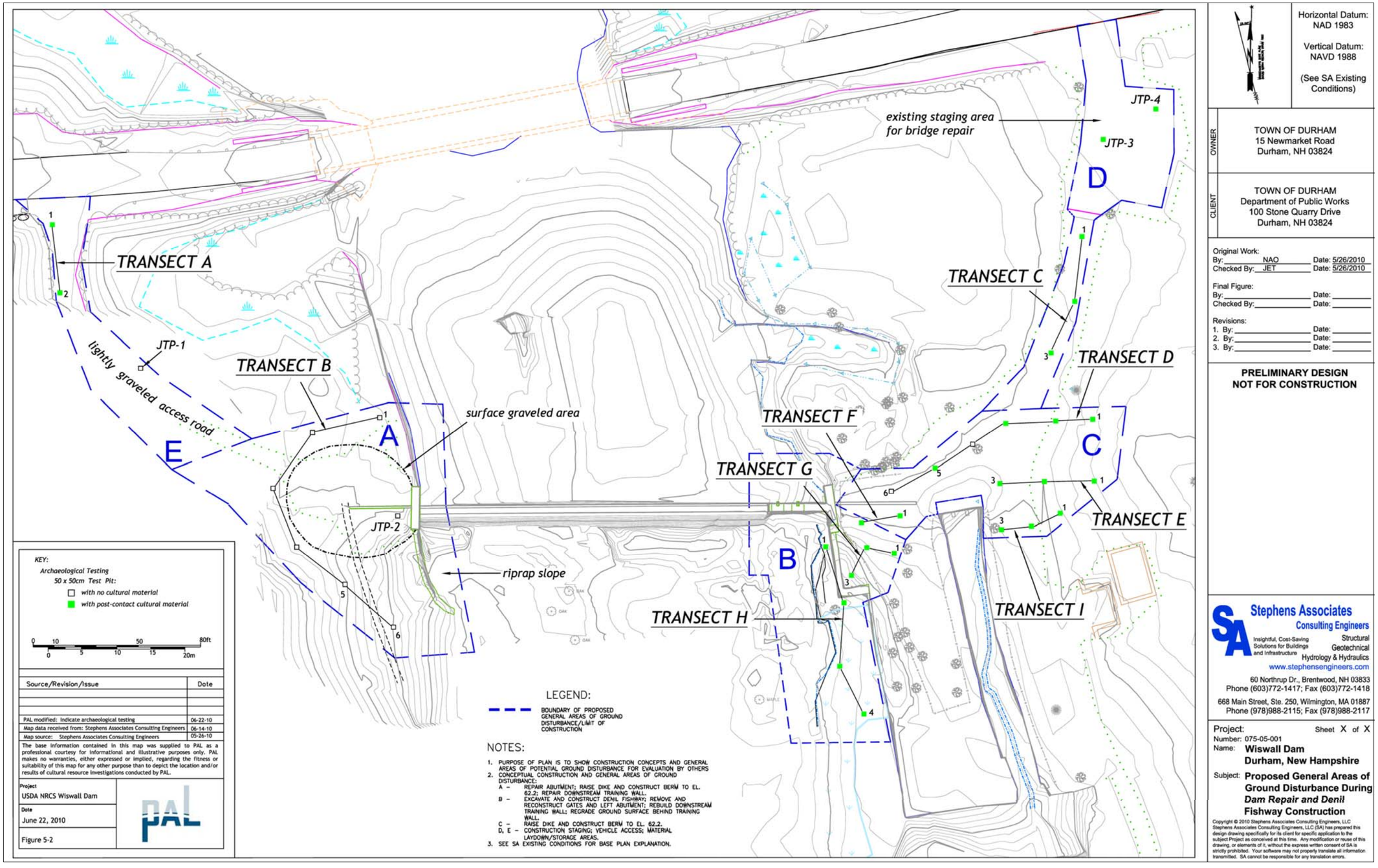


Figure 3. Location of subsurface testing conducted for the Wiswall Dam Fish Passage Project.

United States Department of Agriculture

NRCS
Natural Resources Conservation Service
Federal Building, 2 Madbury Road
Durham, NH 03824-2043 (603) 868-7581 Fax: (603) 868-5301 www.nh.nrcs.usda.gov

August 24, 2010

Elizabeth H. Muzzey
Director and State Historic Preservation Officer
New Hampshire Division of Historical Resources
19 Pillsbury Street
Concord, New Hampshire 03301-3570

Attn: Edna Feighner

Re: Wiswall Dam Fish Passage
Durham, New Hampshire
NHDHR #551

Dear Ms. Muzzey:

Enclosed please find a copy of the report entitled *Phase IB Intensive Archaeological Survey, Wiswall Dam Fish Passage Project Area, Durham, New Hampshire* prepared by our cultural resource consultant the Public Archaeology Laboratory (PAL). PAL's findings indicate that the Wiswall Dam Fish Passage Project (Project) will not impact any previously unidentified archaeological sites that are eligible for listing in the National Register of Historic Places (National Register). With these findings and the information about previously identified historic properties presented in the Request for Project submitted to your office in March 2010, the USDA, Natural Resources Conservation Service (NRCS) New Hampshire has completed the historic property identification phase of the National Historic Preservation Act Section 106 review process in accordance with 36 CFR 800.4

Pursuant to 36 CFR 800.5, NRCS New Hampshire has applied the criteria of adverse effect and has determined that the preferred alternative for the Project will have an unavoidable adverse effect on the Wiswall Falls Historic District (Area DUR-W), which has been evaluated eligible for listing in the National Register. The impacts will be specific to the Wiswall Dam (ca. 1912), which has been evaluated as a contributing resource within the eligible district, and the Wiswall Mill Site (ca. 1835/1854), which is listed in the National Register and is a contributing property within the potential district.

In accordance with 36 CFR Part 800.5, NRCS has taken the effects of the Project on identified historic properties into account during the planning for the Project. Several alternatives, including no action, partial breaching, and full removal of the dam options, were explored. NRCS New Hampshire is in agreement with its project partner the Town of Durham, that the selected alternative minimizes the impact on historic properties to the greatest degree possible while still meeting the Project goals of providing for upstream and downstream passage of anadromous fish species. NRCS New Hampshire has invited comment from interested parties and the general public through several advertised public meetings. There have been no objections to the plans and the Project has received significant local support.

As mitigation for the effects of the Project on Historic Properties, NRCS New Hampshire proposes to prepare New Hampshire State Level Historical and Photographic Documentation of the affected properties. The documentation will include a statement of significance and a historical context for

the development of the Wiswall Falls Dam water privilege. This context will include information about development of the historic mills and the Wiswall Dam, and will take into account the role the privilege played in the development of the surrounding community over time.

With this letter, NRCS New Hampshire requests concurrence with its adverse effect finding and the proposed mitigation. If the proposed mitigation is acceptable, NRCS New Hampshire will prepare a Memorandum of Agreement and forward it to your office for review and execution. The MOA will stipulate that the historical and photographic documentation will be prepared by a qualified professional architectural historian and that a Schedule of Documentation providing details about the content of the documentation will be subject to the review and approval of the New Hampshire Division of Historic Resources.

NRCS New Hampshire appreciates your review of this Project and looks forward to receiving your response. If we do not receive a response within 30 days, NRCS will assume concurrence with the proposed plan to mitigate the effects of the project and proceed as outlined above.

Sincerely,

Richard P. Ellsmore
State Conservationist, NRCS
2 Madbury Road
Durham, NH 03824

NEW HAMPSHIRE DIVISION OF HISTORICAL RESOURCES
State of New Hampshire, Department of Cultural Resources
19 Pillsbury Street, Concord, NH 03301-3570
TDD Access: Relay NH 1-800-735-2964
www.nh.gov/nhdhr
603-271-3483
603-271-3558
FAX 603-271-3433
preservation@dcr.nh.gov

September 22, 2010

Richard P. Ellsmore
State Conservationist
Natural Resources conservation Service
Federal Building
2 Madbury Road
Durham, NH 03824-2043

Re: Project Review: Wiswall Dam Fish Passage, Durham, NH (DHR #551) Report Review: *Phase IB Intensive Archaeological Survey Wiswall Dam Fish Passage Project Area, Durham, NH* Prepared by Public Archaeology Laboratory, Pawtucket, RI.

Dear Mr. Ellsmore:

The Division of Historical Resources (Division) is in receipt of your request for review for the report prepared by Kristen Heitert and Nichole Gillis from the Public Archaeology Laboratory (PAL) for the project cited above. The Division concurs with the recommendations provided and finds the information acceptable as written.

Based upon the information provided in the above cited report, it has been determined that there are no known properties of archaeological significance within the area of the undertaking's potential impact and no further identification or evaluative studies are recommended. However, since the Wiswall Dam was evaluated as a contributing resource within the listed Wiswall Falls Historic District, the Division concurs with your determination of adverse effect specific to the Wiswall Dam.

The Division looks forward to continued consultation and development of an MOA. We wish to remind NRCS that in the development of the MOA identified consulting parties should be included in discussions. Thank you for affording the Division an opportunity to comment on your project plans and effects.

Sincerely,

Linda Ray Wilson

Linda Ray Wilson, Deputy Director
State Historic Preservation Office

LRW:emf

Cc: David Cedarholm, Town Engineer

New Hampshire
Fish and Game Department

11 Hazen Drive, Concord, NH 03301-6500
Headquarters: (603) 271-3421
Web site: www.WildNH.com

TDD Access: Relay NH 1-800-735-2964
FAX (603) 271-1438
E-mail: info@wildlife.nh.gov

Glenn Normandeau
Executive Director

December 2, 2010

James E. Turner, P.E.
Stephens Associates Consulting Engineers, LLC
60 Northrup Drive.
Brentwood, NH 03833

RE: Wiswall Dam and Fish Ladder Construction Project

Dear Mr. Turner:

Thank you for consulting with the NH Fish and Game Department (NHFGD) regarding the proposed Wiswall Dam and fish ladder construction project. After consultation with Department staff relative to the impacts of this construction project, we offer the following recommendations:

1) The Lamprey River contains fish species of federal and state concern, primarily diadromous species, in addition to resident fish, wildlife and associated habitat. The diadromous fish that are within the work area are river herring, American shad, and American eels, both as juveniles and adults. We recommend that any drawdown of the impoundment occur as early as possible after ice out, sometime in late-March or early-April because river herring begin spawning as early as late-April or early-May. Dewatering the impoundment and breaching of the gate structure should occur before spawning begins.

Also, we recommend the re-watering process start no later than mid-June. If further low-level work needs to be conducted, please notify the NHFGD relative to the extended timetable, as soon as possible.

2) Rainbow smelt are present at the head-of-tide from ice-in (mid-December-beginning of January) and start spawning activity as early as mid-March (temperature dependent) through April. The NHFGD needs to be assured that no siltation occurs from this construction project starting in mid-March, when rainbow smelt and other diadromous species are present in the Lamprey River. Rainbow smelt and river herring are both a "species of concern" for NOAA Fisheries and a "Species of Greatest Conservation Need" for NH.

3) A slow drawdown is essential to minimize the impact to aquatic life in the impoundment, which will help the slowest moving species to adjust to the varying water levels (e.g. freshwater mussels). In addition, a slow release allows for near normal river flows downstream without causing a high flow surge that could impact aquatic life.

Stream flows above and below the dam should be maintained throughout the project construction phases. Re-watering of the impoundment should follow the guideline of storing 10% while releasing 90% of the inflow once low-level construction is completed. This will assure downstream riverine habitat is maintained for fish and wildlife.

4) Appropriate silt curtains, booms, etc .should be installed to prevent siltation within the water column, in accordance with the Wetlands Bureau permit conditions. In addition, minimization of impacts caused by instream work involving all equipment should be attempted during this construction.

5) The Lamprey River is a very popular recreational trout fishery just below Wiswall Dam at Packers Falls. For the safety of downstream anglers; as well as, aquatic life it is recommended that any releases of water are done as slowly as possible.

6) The NHFGD's Nongame and Endangered Species Program has reviewed NHB10-0921 for the proposed Wiswall Dam and fishway in Durham. The NHB review indicated the state endangered brook floater mussel and wood turtle, a species of concern, in the immediate vicinity of the project. We also have records for the state endangered Blanding's turtle and the state threatened spotted turtle in close proximity.

A brook floater survey was conducted on the Lamprey River this summer but we do not expect the final report for the survey until January. At this time, we do not expect impacts to brook floater mussel at this location since there have been dramatic declines in the species occurrence in this watershed since the last mussel survey.

If the project involves the installation of grates, there could be the likelihood of entrainment of turtles, and mortality from drowning can be expected. The Department recommends that a turtle protocol involving regular inspections be developed for minimization of turtle mortality.

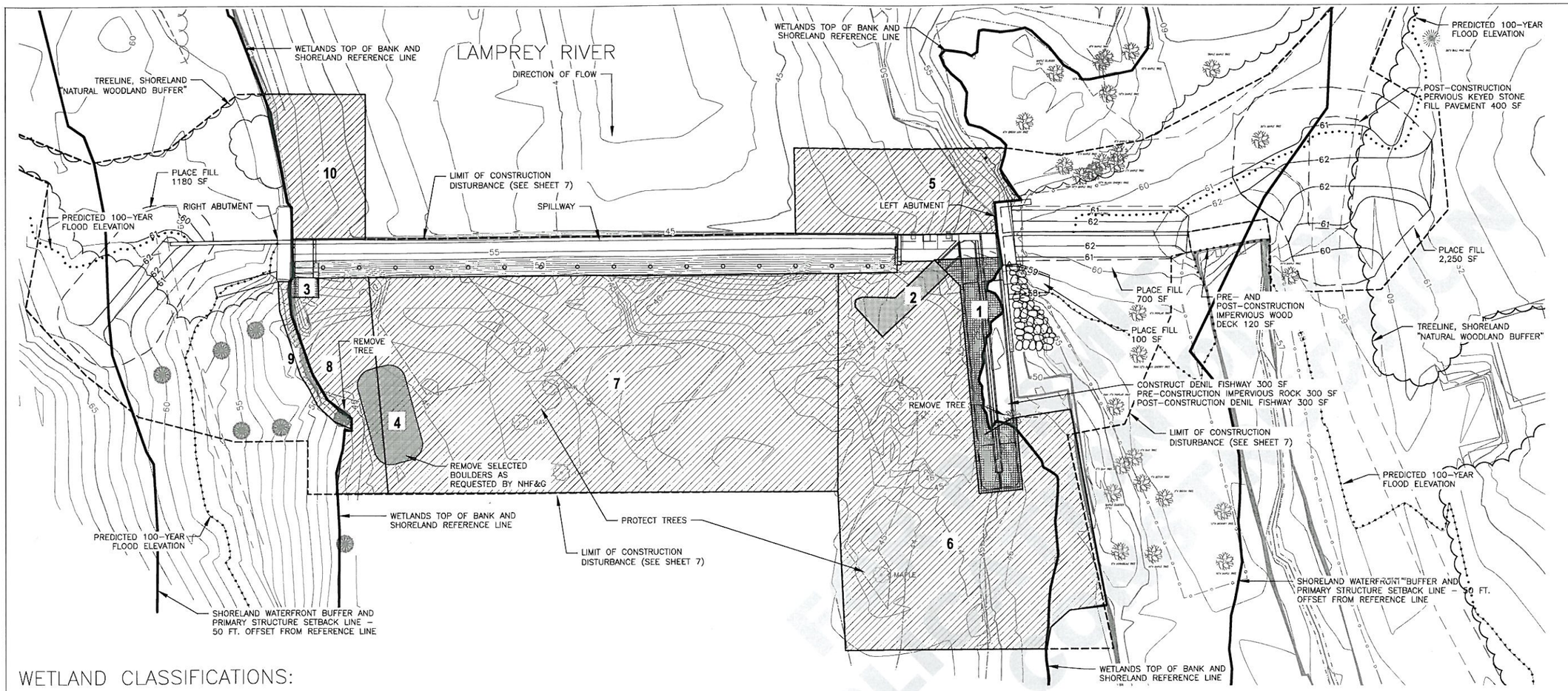
The Nongame Program will develop a protocol for inspection and turtle recovery, relocation and reporting once the schedule for ladder operation is developed through consultation with NHFG Marine Division. In order to avoid killing turtles in the ladder, including the protected turtles species - wood, spotted, and Blanding's, we recommend that the development of a turtle protocol be included as a condition of the wetlands permit for this project.

If you have any further questions or comments relative to the information offered above, please do not hesitate to contact Carol Henderson at (603) 271-3511 or Michael Dionne or Cheri Patterson at (603) 868-1095. Thank you.

Sincerely;

Glenn Normandeau
Executive Director

cc: Dave Cedarholm, Town of Durham Engineer
Michael Dionne, Marine Biologist
Cheri Patterson, Supervisor Marine Programs
Carol Henderson, Environmental Review Coordinator



WETLAND CLASSIFICATIONS:

1. RIVERINE-UPPER PERENNIAL-UNCONSOLIDATED SHORE-ROCK-INTERMITTENTLY EXPOSED-FRESH
2. RIVERINE-UPPER PERENNIAL-ROCK BOTTOM-BEDROCK-INTERMITTENTLY EXPOSED-FRESH
3. RIVERINE-UPPER PERENNIAL-ROCK BOTTOM-RUBBLE-PERMANENTLY FLOODED-FRESH
4. RIVERINE-UPPER PERENNIAL-ROCK BOTTOM-RUBBLE-INTERMITTENTLY EXPOSED-FRESH
5. RIVERINE-LOWER PERENNIAL-AQUATIC BED-ROOTED VASCULAR-PERMANENTLY FLOODED-FRESH
6. RIVERINE-UPPER PERENNIAL-UNCONSOLIDATED SHORE-VEGETATED-SEASONALLY FLOODED-FRESH AND RIVERINE-UPPER PERENNIAL-ROCK BOTTOM-RUBBLE/BEDROCK-INTERMITTENTLY EXPOSED-FRESH
7. RIVERINE-UPPER PERENNIAL-ROCK BOTTOM-RUBBLE/BEDROCK-INTERMITTENTLY EXPOSED-FRESH
8. RIVERINE-UPPER PERENNIAL-UNCONSOLIDATED SHORE-VEGETATED-SEASONALLY FLOODED-FRESH
9. RIVERINE-UPPER PERENNIAL-UNCONSOLIDATED SHORE-VEGETATED-SEASONALLY FLOODED-FRESH
10. RIVERINE-LOWER PERENNIAL-AQUATIC BED-ROOTED VASCULAR-PERMANENTLY FLOODED-FRESH

NOTES:

1. SEE SHEET 2 FOR DESIGN AND CONSTRUCTION NOTES.
2. SEE SHEET 5 FOR EXPLANATION OF BASE PLAN.
3. PROPERTY BOUNDARY IS LOCATED OUTSIDE OF VIEW SHOWN ON THIS SHEET. SEE SHEETS 5 AND 7 FOR PROPERTY BOUNDARY RELATIVE TO SITE AND PROPOSED IMPACTS.
4. WETLANDS DELINEATED AND SURVEYED BY USACE, CLD, MSA AND NRCS. SEE SHEET 5.
5. WETLAND CLASSIFICATIONS CORRESPOND TO WETLAND IMPACTS SHOWN ON PLAN AND DESCRIBED IN SUMMARY ON THIS SHEET.
6. TREE LINES FROM VARIOUS SURVEYS SHOWN HEREIN SCHEMATICALLY USING SINGLE SYMBOL (I.E. LINETYPE). SEE SHEET 5 FOR LEGEND SHOWING SYMBOLS AND LINETYPES NOT SHOWN ON LEGEND OF THIS SHEET.
7. THE PROJECT DOES NOT IMPACT NHDES PRIME WETLANDS CITED IN http://des.nh.gov/organization/divisions/water/wetlands/prime_wetlands.htm.
8. 100-YEAR FLOOD ELEVATIONS UPSTREAM AND DOWNSTREAM OF WISWALL DAM ESTIMATED BY SA HYDRAULIC MODEL. SEE SHEET 3.
9. CONTRACTOR SHALL PREPARE AND SUBMIT EROSION AND SEDIMENT CONTROL AND STORMWATER MANAGEMENT PLAN PER NHDOT SECTION 645.7. PLANS WILL BE REVIEWED BY OWNER AND NHDES IN ACCORDANCE WITH WETLAND PERMIT REQUIREMENTS PRIOR TO ANY WORK ON SITE.
10. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL INSTALL TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES PER NHDES APPROVED EROSION AND SEDIMENT CONTROL AND STORMWATER MANAGEMENT PLAN AND NHDES REQUIREMENTS.

LEGEND:

- TEMPORARY WETLAND IMPACT
- PERMANENT WETLAND IMPACT, STRUCTURE
- PERMANENT WETLAND IMPACT, DREDGE
- TREELINE: SHORELAND NATURAL WOODLAND BUFFER
- WETLANDS TOP OF BANK, SHORELAND REFERENCE LINE AND SHORELAND SETBACKS FROM REFERENCE LINE
- 100-YEAR FLOOD ELEVATION

SUMMARY OF WETLAND IMPACTS/CONSTRUCTION ACTIVITIES

DESCRIPTION OF IMPACT/ACTIVITY	AREA OF IMPACT, FT²	LENGTH OF IMPACT, FT.
PERMANENT WETLAND IMPACTS	TOTAL = 1,116	TOTAL = 194
1. CONSTRUCT DENIL FISHWAY.	543	66 (BANK) + 66 (RIVER)
2. ROCK EXCAVATION FOR DENIL FISHWAY FISH ENTRANCE.	181	25
3. CONSTRUCT CONCRETE PLUNGE POOL.	42	7
4. REMOVE SELECTED BOULDERS AS REQUESTED BY NEW HAMPSHIRE DEPARTMENT OF FISH AND GAME.	350	30
TEMPORARY WETLAND IMPACTS	TOTAL = 15,908	
5. CONSTRUCT COFFERDAM, CONSTRUCTION EQUIPMENT ACCESS FOR DEMOLITION/CONSTRUCTION OF LEFT ABUTMENT.	1,354	
6. ACCESS FOR CONSTRUCTION EQUIPMENT TO CONSTRUCT DENIL FISHWAY	5,329	
7. ACCESS FOR CONSTRUCTION EQUIPMENT TO INSTALL ROCK ANCHORS ON SPILLWAY DOWNSTREAM FACE AND TO REPAIR SPILLWAY CONCRETE.	7,366	
8. ACCESS FOR EQUIPMENT AND PERSONNEL TO CONSTRUCT CONCRETE PLUNGE POOL AND RECONSTRUCT STONE MASONRY WALL. POSSIBLE STOCKPILING OF STONE MASONRY WHILE DISMANTLING/RECONSTRUCTING STONE MASONRY WALL.	779	
9. MAINTENANCE/REPAIR OF RIGHT DOWNSTREAM STONE MASONRY WALL	135	
10. ACCESS TO DAM UPSTREAM LIKELY BY BARGE/BOAT. POSSIBLE ANCHORAGE OF BARGE/BOAT FOR CONSTRUCTION OF DOWNSTREAM MIGRATION NOTCH.	945	

N

Horizontal Datum: NAD 1983

Vertical Datum: NAVD 1988
Datum Shift: (NGVD 1929 minus NAVD 1988) = 0.73 ft

(See Sheet 5 - Existing Conditions)

Graphic Scale
0 15 30 ft.

Original Drawing Size = 22 x 34 in.

OWNER
TOWN OF DURHAM
15 Newmarket Road
Durham, NH 03824

CLIENT
TOWN OF DURHAM
Department of Public Works
100 Stone Quarry Drive
Durham, NH 03824

By: NAO Date: 12/21/2010
Checked By: JET Date: 12/21/2010
Checked By: RSS Date: 12/21/2010
Checked By: Date:

Revisions:
1. By: Date:
Checked By: Date:
2. By: Date:
Checked By: Date:
3. By: Date:
Checked By: Date:

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668 Main Street, Ste. 250, Wilmington, MA 01887
Phone (978)988-2115; Fax (978)988-2117

Project: Sheet 1 of 1
Number: 075-05-001
Name: **Wiswall Dam Upgrades and Repairs Durham, New Hampshire**
Subject: **NHDES Wetland Impacts**

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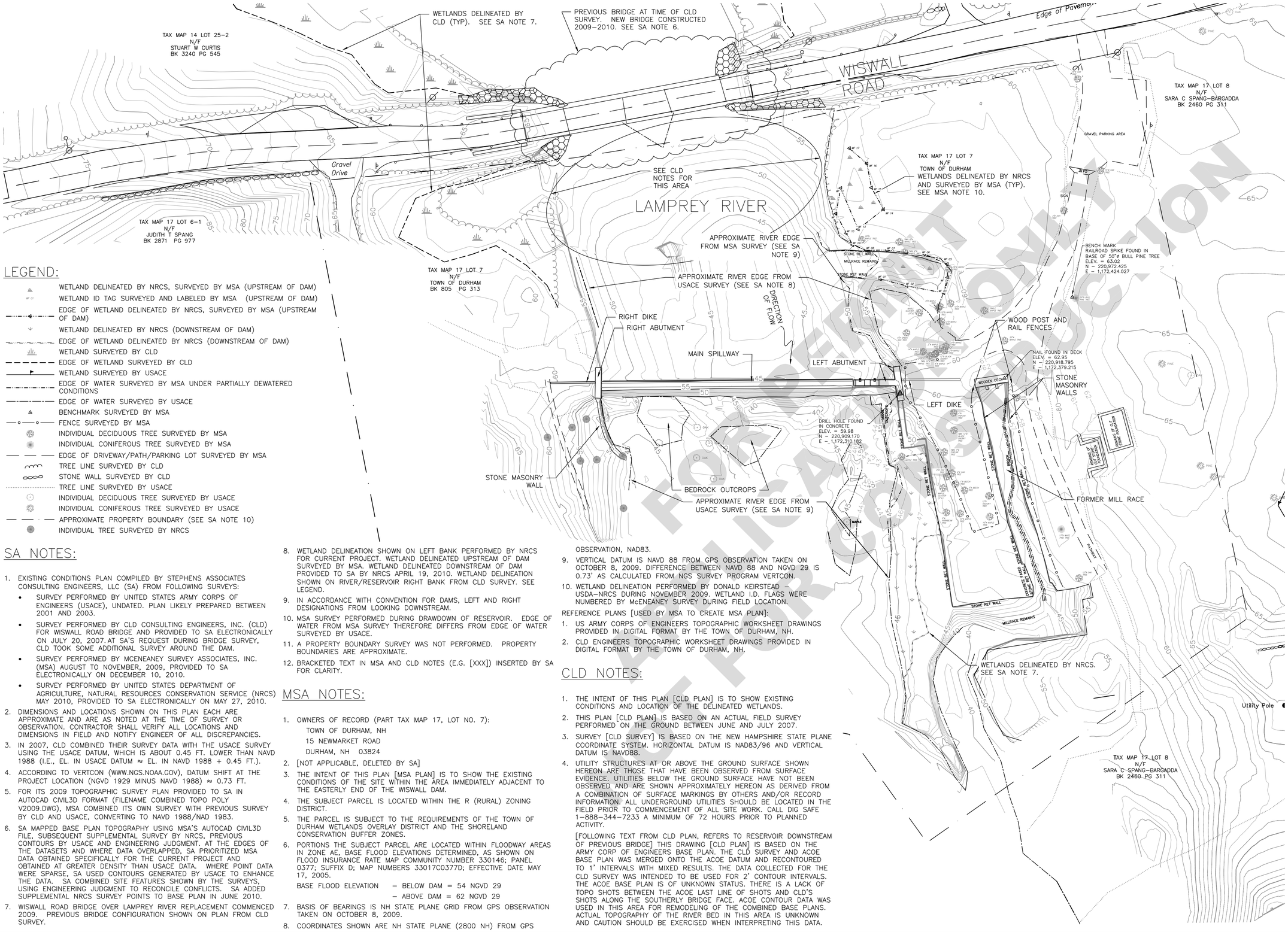

FOR PERMIT APPLICATION ONLY
NOT FOR CONSTRUCTION

LEGEND:

- WETLAND DELINEATED BY NRCS, SURVEYED BY MSA (UPSTREAM OF DAM)
- WETLAND ID TAG SURVEYED AND LABELED BY MSA (UPSTREAM OF DAM)
- EDGE OF WETLAND DELINEATED BY NRCS, SURVEYED BY MSA (UPSTREAM OF DAM)
- WETLAND DELINEATED BY NRCS (DOWNSTREAM OF DAM)
- EDGE OF WETLAND DELINEATED BY NRCS (DOWNSTREAM OF DAM)
- WETLAND SURVEYED BY CLD
- EDGE OF WETLAND SURVEYED BY CLD
- WETLAND SURVEYED BY USACE
- EDGE OF WATER SURVEYED BY MSA UNDER PARTIALLY DEWATERED CONDITIONS
- EDGE OF WATER SURVEYED BY USACE
- BENCHMARK SURVEYED BY MSA
- FENCE SURVEYED BY MSA
- INDIVIDUAL DECIDUOUS TREE SURVEYED BY MSA
- INDIVIDUAL CONIFEROUS TREE SURVEYED BY MSA
- EDGE OF DRIVEWAY/PATH/PARKING LOT SURVEYED BY MSA
- TREE LINE SURVEYED BY CLD
- STONE WALL SURVEYED BY CLD
- TREE LINE SURVEYED BY USACE
- INDIVIDUAL DECIDUOUS TREE SURVEYED BY USACE
- INDIVIDUAL CONIFEROUS TREE SURVEYED BY USACE
- APPROXIMATE PROPERTY BOUNDARY (SEE SA NOTE 10)
- INDIVIDUAL TREE SURVEYED BY NRCS

SA NOTES:

1. EXISTING CONDITIONS PLAN COMPILED BY STEPHENS ASSOCIATES CONSULTING ENGINEERS, LLC (SA) FROM FOLLOWING SURVEYS:
   - SURVEY PERFORMED BY UNITED STATES ARMY CORPS OF ENGINEERS (USACE), UNDATED. PLAN LIKELY PREPARED BETWEEN 2001 AND 2003.
   - SURVEY PERFORMED BY CLD CONSULTING ENGINEERS, INC. (CLD) FOR WISWALL ROAD BRIDGE AND PROVIDED TO SA ELECTRONICALLY ON JULY 20, 2007.AT SA'S REQUEST DURING BRIDGE SURVEY, CLD TOOK SOME ADDITIONAL SURVEY AROUND THE DAM.
   - SURVEY PERFORMED BY MCENEANEY SURVEY ASSOCIATES, INC. (MSA) AUGUST TO NOVEMBER, 2009, PROVIDED TO SA ELECTRONICALLY ON DECEMBER 10, 2010.
   - SURVEY PERFORMED BY UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE (NRCS) MAY 2010, PROVIDED TO SA ELECTRONICALLY ON MAY 27, 2010.
2. DIMENSIONS AND LOCATIONS SHOWN ON THIS PLAN EACH ARE APPROXIMATE AND ARE AS NOTED AT THE TIME OF SURVEY OR OBSERVATION. CONTRACTOR SHALL VERIFY ALL LOCATIONS AND DIMENSIONS IN FIELD AND NOTIFY ENGINEER OF ALL DISCREPANCIES.
3. IN 2007, CLD COMBINED THEIR SURVEY DATA WITH THE USACE SURVEY USING THE USACE DATUM, WHICH IS ABOUT 0.45 FT. LOWER THAN NAVD 1988 (I.E., EL. IN USACE DATUM ≈ EL. IN NAVD 1988 + 0.45 FT.).
4. ACCORDING TO VERTCON (WWW.NGS.NOAA.GOV), DATUM SHIFT AT THE PROJECT LOCATION (NGVD 1929 MINUS NAVD 1988) ≈ 0.73 FT.
5. FOR ITS 2009 TOPOGRAPHIC SURVEY PLAN PROVIDED TO SA IN AUTOCAD CIVIL3D FORMAT (FILENAME COMBINED TOPO POLY V2009.DWG), MSA COMBINED ITS OWN SURVEY WITH PREVIOUS SURVEY BY CLD AND USACE, CONVERTING TO NAVD 1988/NAD 1983.
6. SA MAPPED BASE PLAN TOPOGRAPHY USING MSA'S AUTOCAD CIVIL3D FILE, SUBSEQUENT SUPPLEMENTAL SURVEY BY NRCS, PREVIOUS CONTOURS BY USACE AND ENGINEERING JUDGMENT. AT THE EDGES OF THE DATASETS AND WHERE DATA OVERLAPPED, SA PRIORITIZED MSA DATA OBTAINED SPECIFICALLY FOR THE CURRENT PROJECT AND OBTAINED AT GREATER DENSITY THAN USACE DATA. WHERE POINT DATA WERE SPARSE, SA USED CONTOURS GENERATED BY USACE TO ENHANCE THE DATA. SA COMBINED SITE FEATURES SHOWN BY THE SURVEYS, USING ENGINEERING JUDGMENT TO RECONCILE CONFLICTS. SA ADDED SUPPLEMENTAL NRCS SURVEY POINTS TO BASE PLAN IN JUNE 2010.
7. WISWALL ROAD BRIDGE OVER LAMPREY RIVER REPLACEMENT COMMENCED 2009. PREVIOUS BRIDGE CONFIGURATION SHOWN ON PLAN FROM CLD SURVEY.
8. WETLAND DELINEATION SHOWN ON LEFT BANK PERFORMED BY NRCS FOR CURRENT PROJECT. WETLAND DELINEATED UPSTREAM OF DAM SURVEYED BY MSA. WETLAND DELINEATED DOWNSTREAM OF DAM PROVIDED TO SA BY NRCS APRIL 19, 2010. WETLAND DELINEATION SHOWN ON RIVER/RESERVOIR RIGHT BANK FROM CLD SURVEY. SEE LEGEND.
9. IN ACCORDANCE WITH CONVENTION FOR DAMS, LEFT AND RIGHT DESIGNATIONS FROM LOOKING DOWNSTREAM.
10. MSA SURVEY PERFORMED DURING DRAWDOWN OF RESERVOIR. EDGE OF WATER FROM MSA SURVEY THEREFORE DIFFERS FROM EDGE OF WATER SURVEYED BY USACE.
11. A PROPERTY BOUNDARY SURVEY WAS NOT PERFORMED. PROPERTY BOUNDARIES ARE APPROXIMATE.
12. BRACKETED TEXT IN MSA AND CLD NOTES (E.G. [XXX]) INSERTED BY SA FOR CLARITY.

MSA NOTES:

1. OWNERS OF RECORD (PART TAX MAP 17, LOT NO. 7):
   TOWN OF DURHAM, NH
   15 NEWMARKET ROAD
   DURHAM, NH 03824
2. [NOT APPLICABLE, DELETED BY SA]
3. THE INTENT OF THIS PLAN [MSA PLAN] IS TO SHOW THE EXISTING CONDITIONS OF THE SITE WITHIN THE AREA IMMEDIATELY ADJACENT TO THE EASTERLY END OF THE WISWALL DAM.
4. THE SUBJECT PARCEL IS LOCATED WITHIN THE R (RURAL) ZONING DISTRICT.
5. THE PARCEL IS SUBJECT TO THE REQUIREMENTS OF THE TOWN OF DURHAM WETLANDS OVERLAY DISTRICT AND THE SHORELAND CONSERVATION BUFFER ZONES.
6. PORTIONS THE SUBJECT PARCEL ARE LOCATED WITHIN FLOODWAY AREAS IN ZONE AE, BASE FLOOD ELEVATIONS DETERMINED, AS SHOWN ON FLOOD INSURANCE RATE MAP COMMUNITY NUMBER 330146; PANEL 0377; SUFFIX D; MAP NUMBERS 33017C0377D; EFFECTIVE DATE MAY 17, 2005.
   BASE FLOOD ELEVATION – BELOW DAM = 54 NGVD 29
   – ABOVE DAM = 62 NGVD 29
7. BASIS OF BEARINGS IS NH STATE PLANE GRID FROM GPS OBSERVATION TAKEN ON OCTOBER 8, 2009.
8. COORDINATES SHOWN ARE NH STATE PLANE (2800 NH) FROM GPS OBSERVATION, NAD83.
9. VERTICAL DATUM IS NAVD 88 FROM GPS OBSERVATION TAKEN ON OCTOBER 8, 2009. DIFFERENCE BETWEEN NAVD 88 AND NGVD 29 IS 0.73' AS CALCULATED FROM NGS SURVEY PROGRAM VERTCON.
10. WETLAND DELINEATION PERFORMED BY DONALD KEIRSTEAD – USDA–NRCS DURING NOVEMBER 2009. WETLAND I.D. FLAGS WERE NUMBERED BY McENEANEY SURVEY DURING FIELD LOCATION.

REFERENCE PLANS [USED BY MSA TO CREATE MSA PLAN]:

1. US ARMY CORPS OF ENGINEERS TOPOGRAPHIC WORKSHEET DRAWINGS PROVIDED IN DIGITAL FORMAT BY THE TOWN OF DURHAM, NH.
2. CLD ENGINEERS TOPOGRAPHIC WORKSHEET DRAWINGS PROVIDED IN DIGITAL FORMAT BY THE TOWN OF DURHAM, NH.

CLD NOTES:

1. THE INTENT OF THIS PLAN [CLD PLAN] IS TO SHOW EXISTING CONDITIONS AND LOCATION OF THE DELINEATED WETLANDS.
2. THIS PLAN [CLD PLAN] IS BASED ON AN ACTUAL FIELD SURVEY PERFORMED ON THE GROUND BETWEEN JUNE AND JULY 2007.
3. SURVEY [CLD SURVEY] IS BASED ON THE NEW HAMPSHIRE STATE PLANE COORDINATE SYSTEM. HORIZONTAL DATUM IS NAD83/96 AND VERTICAL DATUM IS NAVD88.
4. UTILITY STRUCTURES AT OR ABOVE THE GROUND SURFACE SHOWN HEREON ARE THOSE THAT HAVE BEEN OBSERVED FROM SURFACE EVIDENCE. UTILITIES BELOW THE GROUND SURFACE HAVE NOT BEEN OBSERVED AND ARE SHOWN APPROXIMATELY HEREON AS DERIVED FROM A COMBINATION OF SURFACE MARKINGS BY OTHERS AND/OR RECORD INFORMATION. ALL UNDERGROUND UTILITIES SHOULD BE LOCATED IN THE FIELD PRIOR TO COMMENCEMENT OF ALL SITE WORK. CALL DIG SAFE 1–888–344–7233 A MINIMUM OF 72 HOURS PRIOR TO PLANNED ACTIVITY.

   [FOLLOWING TEXT FROM CLD PLAN, REFERS TO RESERVOIR DOWNSTREAM OF PREVIOUS BRIDGE] THIS DRAWING [CLD PLAN] IS BASED ON THE ARMY CORP OF ENGINEERS BASE PLAN. THE CLD SURVEY AND ACOE BASE PLAN WAS MERGED ONTO THE ACOE DATUM AND RECONTOURED TO 1' INTERVALS WITH MIXED RESULTS. THE DATA COLLECTED FOR THE CLD SURVEY WAS INTENDED TO BE USED FOR 2' CONTOUR INTERVALS. THE ACOE BASE PLAN IS OF UNKNOWN STATUS. THERE IS A LACK OF TOPO SHOTS BETWEEN THE ACOE LAST LINE OF SHOTS AND CLD'S SHOTS ALONG THE SOUTHERLY BRIDGE FACE. ACOE CONTOUR DATA WAS USED IN THIS AREA FOR REMODELING OF THE COMBINED BASE PLANS. ACTUAL TOPOGRAPHY OF THE RIVER BED IN THIS AREA IS UNKNOWN AND CAUTION SHOULD BE EXERCISED WHEN INTERPRETING THIS DATA.

Horizontal Datum:
NAD 1983
(See MSA Note 6)

Vertical Datum:
NAVD 1988
(See MSA Note 7)

Graphic Scale
0 30 60 ft.

Original Drawing Size = 22 x 34 in.

OWNER
TOWN OF DURHAM
15 Newmarket Road
Durham, NH 03824

CLIENT
TOWN OF DURHAM
Department of Public Works
100 Stone Quarry Drive
Durham, NH 03824

By:	NAO	Date:	12/21/2010
Checked By:	JET	Date:	12/21/2010
Checked By:	RSS	Date:	12/21/2010
Checked By:		Date:	

Revisions:
1. By: Date:
   Checked By: Date:
2. By: Date:
   Checked By: Date:
3. By: Date:
   Checked By: Date:

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Phone (603)772-1417; Fax (603)772-1418
668 Main Street, Ste. 250, Wilmington, MA 01887
Phone (978)988-2115; Fax (978)988-2117

Project: Sheet 5 of 31
Number: 075-05-001
Name: **Wiswall Dam Upgrades and Repairs Durham, New Hampshire**
Subject: **Existing Conditions**

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PRELIMINARY CONSTRUCTION SCHEDULE, WISWALL DAM UPGRADES

TASK WEEK BEGINNING (2011)	4/4	4/11	4/18	4/25	5/2	5/9	5/16	5/23	5/30	6/6	6/16	6/20	6/27	7/4	7/11	7/18	7/25	8/1	8/8	8/15	8/22	8/29	9/5	9/12	9/19	9/26
Mobilization, preparation, submittals etc.																										
Construct water control dike downstream of gates, perpendicular to Dam																										
Open gates, drain reservoir						←	Reservoir dewatered									→										
Breach dam at gate structure (i.e. demolish gate structure)																										
D/S migration notch, rock anchors, repair spillway and right D/S training wall																										
Construct upstream cofferdam at left abutment																										
Fill reservoir; water flow through D/S migration notch and over main spillway																										
Reconstruct left abutment and gate structure, and construct Denil fishway																										
Construct outboard upgrades like dikes, earth berms, punchlist, closeout, etc.																										

NOTES:

Schedule is prelminary and prepared for purpose of discussion regarding reservoir drawdown

SA Project No. 075-05-001

10/29/2010

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ASFE PEER REVIEWED 2007

MINUTES OF MEETING

Wiswall Dam, State ID 071.04, Durham, New Hampshire
SA Project No. 075-05-001
Meeting Date: July 12, 2010

Attendees:

- David Cedarholm, Town of Durham
- Don Keirstead, NRCS
- Robert Stephens, SA
- James Turner, SA

Purpose of meeting was to coordinate permitting efforts and schedule.

NRCS Archeology report by PAL nearly finalized and ready for submission to SHPO. SHPO review is then up to 90 days.

SA SA summarized recent meeting by SA with NHDES Wetlands (Dori Wiggin and Lori Sommer). SA invited NHF&G to that meeting at NHDES request. Cheri Patterson and Mike Dionne attended on behalf of NHF&G..

SA According to NHDES, Wetlands jurisdiction extends to top of bank and, according to NHDES, shoreland permit is needed for work beyond top of bank. SA will provide Town with plan showing wetland and shoreland. Town will apply for shoreland permit.

SA/NRCS Discussion of where top of bank is defined: Wetlands regulations are not clear where there are retaining walls. Issue tabled – SA/NRCS to review wetlands regs, discuss by phone, and contact Dori Wiggin if needed.

Wetlands Permit Review

SA According to NHDES, wetlands permit will be reviewed by USACE, Lamprey River Advisory Committee (LRAC), Town Con-Com, and NHF&G. NHDES recommended obtaining preliminary comments from these organizations before submitting wetlands permit. Town will set up meeting.

SA Other parties may need to be consulted. SA will send list of other parties consulted from the Wiswall Road Bridge permit to NRCS. Some of this consulting may have been completed during the historical process. Other such consulting to be by NRCS/Town.

All Final review of plans by Dick Quinn (DQ) should be done before plans are transmitted to others (particularly NHF&G). Don Keirstead indicated that review by DQ is required by NRCS statute. SA to check with DQ on timing for his review.

Schedule

SA NHDES and NHF&G are concerned about construction schedule and requested construction schedule in wetlands permit submission.

Town Completion of construction needed by September 30, 2011 according to NRCS grant. NRCS will check for possible extension.

All Review by SHPO, wetlands and others will likely extend to end of 2010. Goal should be to bid in January 2011. SA to prepare idealized schedule for permitting, bidding and construction as requested. Schedule to be included with plan set to be sent to other parties for preliminary review and comment.

SA Construction will likely require dam left abutment/gate structure to be breached to lower impoundment and allow installation of rock anchors and spillway repairs. Breach might occur in April before fish migration season, then fish can migrate through breach. Lowered impoundment might be maintained until after turtle eggs hatch, possibly through end of construction in September, or as allowed by NHF&G.

Town Town may prefer to breach dam, perform work that needs lowered impoundment, then construct cofferdam and fill impoundment for summer, constructing left abutment in-the-dry.

Contractor Selection

SA Dick Quinn indicated during our previous meeting the importance of hiring a good contractor.

NRCS Selection of the contractor is up to the Town – NRCS does not require using lower bidder.

Town Town can qualify contractor and does not need to select low bidder. This should be addressed in bid documents.

Miscellaneous

NRCS Observed Lamprey eels downstream of dam when on-site for survey in May. Eels were long and fat (perhaps ~2-2.5 ft. long, ~4in. diameter).

United States Department of Agriculture

NRCS

Natural Resources Conservation Service
The Concord Center
10 Ferry Street, Box 211, Suite 211
Concord, NH 03301-5081 (603) 223-6023 Fax: (603) 223-6030 www.nh.nrcs.usda.gov

January 31, 2011

Don Richard
USDA NRCS
10 Ferry Street, Box 211, Suite 211
Concord, NH 03301

Re: Wiswall Dam Aquatic Organism Passage, Durham, NH

Don,

I have completed Form NRCS-AD-1006, the Farmland Conversion Impact Rating (enclosed). The soil in the project area has a Relative Value of 62. The site is Locally Important Farmland.

The total point score is 117. Since the score is less than 160, the project is in full compliance with (FPPA) and no further action is required. Additional information about completing the form NRCS-AD-1006 and the Farmland Protection Policy Act can be found at the following web site: http://www.nrcs.usda.gov/programs/fppa/

Please review and provide a final copy of the completed NRCS-AD-1006 to me for NRCS records and retain a copy for your records.

If you have any questions, please do not hesitate to contact me.

Peter Whiteomb
Soil Scientist
USDA, NRCS
10 Ferry St., Suite 211
Concord, NH 03301
Ph: (603) 223-6024

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request 1/31/2011
Name Of Project WINGATE DAM AQUATIC ORGANISM PASSAGE	Federal Agency Involved USDA - NRCS
Proposed Land Use FISH LADDER	County And State STRAFFORD NH
PART II *(To be completed by NRCS)*	Date Request Received By NRCS

Does the site contain prime, unique, statewide or local important farmland? *(If no, the FPPA does not apply -- do not complete additional parts of this form).*	Yes ☐	No ☐	Acres Irrigated / Average Farm Size
Major Crop(s)	Farmable Land In Govt. Jurisdiction Acres: %		Amount Of Farmland As Defined In FPPA Acres: %
Name Of Land Evaluation System Used	Name Of Local Site Assessment System		Date Land Evaluation Returned By NRCS

PART III *(To be completed by Federal Agency)*	Alternative Site Rating			
	Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	0.3			
B. Total Acres To Be Converted Indirectly				
C. Total Acres In Site	0.3	0.0	0.0	0.0
PART IV *(To be completed by NRCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland	0			
B. Total Acres Statewide And Local Important Farmland	0.3			
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted	<0.01			
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value	26			
PART V *(To be completed by NRCS)* Land Evaluation Criterion Relative Value Of Farmland To Be Converted *(Scale of 0 to 100 Points)*	62	0	0	0

PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5(b).)*	Maximum Points				
1. Area In Nonurban Use		15			
2. Perimeter In Nonurban Use		10			
3. Percent Of Site Being Farmed		0			
4. Protection Provided By State And Local Government		0			
5. Distance From Urban Builtup Area		15			
6. Distance To Urban Support Services		10			
7. Size Of Present Farm Unit Compared To Average		0			
8. Creation Of Nonfarmable Farmland		0			
9. Availability Of Farm Support Services		5			
10. On-Farm Investments		0			
11. Effects Of Conversion On Farm Support Services		0			
12. Compatibility With Existing Agricultural Use		0			
TOTAL SITE ASSESSMENT POINTS	160	55	0	0	0
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland *(From Part V)*	100	62	0	0	0
Total Site Assessment *(From Part VI above or a local site assessment)*	160	55	0	0	0
TOTAL POINTS *(Total of above 2 lines)*	260	117	0	0	0

Site Selected:	Date Of Selection:	Was A Local Site Assessment Used? Yes ☐ No ☐

Reason For Selection:

(See Instructions on reverse side)

Form AD-1006 (10-83)

This form was electronically produced by National Production Services Staff

NEW HAMPSHIRE NATURAL HERITAGE BUREAU
DRED - DIVISION OF FORESTS & LANDS
PO BOX 1856 -- 172 PEMBROKE ROAD, CONCORD, NH 03302-1856
(603) 271-2214

To: Nathanial Olsen-Stephens Associates Consulting Engineers, LLC
Donald Kierstead-USDA, NRCS

From: Melissa Coppola, NHB-Environmental Information Specialist

Date: November 3, 2010

Subject: NHB10-0921-Wiswall Dam

This memo is a follow-up to NHB10-0921 which had indicated a population of state-threatened knotty pondweed (Potamogeton nodosus) in the vicinity of the proposed fish ladder at Wiswall Dam. The Natural Heritage Bureau (NHB) requested further information about the project to determine if there is a potential for impacts. Because populations of knotty pondweed are known to occur both upstream and downstream of the project, NHB also requested a site survey to determine if knotty pondweed occurs within the zone of impact.

NHB staff visited the site on 22 October 2010 and focused survey efforts on this species. No stems of knotty pondweed were found within the footprint of the project area. A population was observed about 350 ft downstream of the project site, where the powerline corridor crosses the river. The plants occur in a small side channel at this location. NHB requests that all construction machinery stay out of this area to avoid impacts to this population.

NHB focuses solely on rare plants and exemplary natural communities and therefore cannot address concerns for wildlife species listed on the initial review memo. Coordination with NH Fish and Game Department is required to address potential impacts to wildlife species.

Should you have any further questions, contact me at 603-271-2215 ext. 323 or at Melissa.Coppola@dred.state.nh.us.

United States Department of Agriculture
NRCS Natural Resources Conservation Service
Federal Building, 2 Madbury Road, Durham, NH 03824-2043 (603) 868-7581 Fax: (603) 868-5301 www.nh.nrcs.usda.gov

December 24, 2008

Notice of Scoping
for
Wiswall Dam, Durham, New Hampshire
Fish Passage Environmental Assessment

Dear Lamprey River Abutter,

The United States Department of Agriculture-Natural Resources Conservation Service (USDA-NRCS), is preparing an Environmental Evaluation (EA) in support of providing fish passage at Wiswall Dam in Durham, New Hampshire. The EA is needed to evaluate potential impacts to the natural, cultural and socio-economic resources the Wiswall Dam supports. The USDA-NRCS is soliciting comments from the public to help identify issues and evaluate alternatives which will be evaluated in the EA.

As the owner of Wiswall Dam, the Town of Durham has accepted a Wildlife Habitat Incentive Program (WHIP) award from the USDA-NRCS to fund a fish passage alternative. This specific award is aimed at removing barriers to important fish populations. Currently, migratory fish such as river herring and Atlantic salmon are unable to reach 43 miles of upstream habitat beyond Wiswall Dam for spawning. In the last two decades, populations of migratory fish have experienced sharp declines partially due to the lack of access to important spawning habitat.

As an abutter of the Lamprey River, we are inviting you to a scoping meeting at **Durham Town Hall Friday, January 23rd at 7pm** at which time state, local and federal experts can answer questions you may have. Included with this letter is a detailed agenda for the meeting.

We hope you will consider attending this meeting and we look forward to your questions and feedback. If you are unable to attend this meeting you may make your comments in writing by February 27, 2009 using the attached form or by email to Don Keirstead at donald.keirstead@nh.usda.gov.

Sincerely,

GEORGE CLEEK, IV
State Conservationist- New Hamphire

The USDA Natural Resources Conservation Service is an equal opportunity provider and employer.

United States Department of Agriculture
NRCS Natural Resources Conservation Service
Federal Building, 2 Madbury Road, Durham, NH 03824-2043 (603) 868-7581 Fax: (603) 868-5301 www.nh.nrcs.usda.gov

December 24, 2008

Notice of Scoping
for
Wiswall Dam, Durham, New Hampshire
Fish Passage Environmental Assessment

Dear Lamprey River Partner,

The United States Department of Agriculture-Natural Resources Conservation Service (USDA-NRCS), is preparing an Environmental Evaluation (EA) in support of providing fish passage at Wiswall Dam in Durham, New Hampshire. The EA is needed to evaluate potential impacts to the natural, cultural and socio-economic resources the Wiswall Dam supports. The USDA-NRCS is soliciting comments from the public to help identify issues and evaluate alternatives which will be evaluated in the EA. As the owner of Wiswall Dam, the Town of Durham has accepted a Wildlife Habitat Incentive Program (WHIP) award from the USDA-NRCS to fund a fish passage alternative.

By receipt of this letter we are inviting you to take part in the EA process as a consulting party and we are inviting you to a scoping meeting at **Durham Town Hall Friday, January 23rd at 7pm.** Included with this letter is a detailed agenda for the meeting.

We hope you will consider attending this meeting and we look forward to your comments and feedback. If you are unable to attend this meeting you may redirect this request to someone else on your staff. Also, you may make your comments in writing by February 27, 2009 using the attached form or by email to Don Keirstead at donald.keirstead@nh.usda.gov.

Sincerely,

GEORGE CLEEK, IV
State Conservationist- New Hamphire

The USDA Natural Resources Conservation Service is an equal opportunity provider and employer.

Invited!

Jamie Fosburgh
Rivers Program Manager
U.S. Dept. of the Interior
National Park Service, Northeast Region
15 State St
Boston MA 02109

Doug Grout
New Hamphire Fish and Game
Marine Division
225 Main St
Durham NH
03824

Brian Giles,
Lamprey River Advisory Committee
22 Lamprey Lane, Lee, NH 03861

Ms. Elizabeth Muzzey, SHPO & Director
New Hampshire Division of Historical Resources
19 Pillsbury Street
2nd Floor
Concord, NH 03301-3570

Edna M. Feighner
Archaeologist and Review & Compliance Coordinator
New Hampshire Division of Historical Resources
19 Pillsbury Street
2nd Floor
Concord, NH 03301-3570

Ted Diers
New Hampshire Coastal Program
Dept. of Environmental Services
50 International Drive, Suite 200
Pease Tradeport
Portsmouth, NH 03801

Deborah Loiselle. River Restoration Coordinator
NHDES Dam Bureau
29 Hazen Drive; PO Box 95
Concord, NH 03302-0095

Frank Richardson
NHDES Wetlands Bureau
29 Hazen Drive; PO Box 95
Concord, NH 03302-0095

Richard Roach
Army Corps of Engineers
696 Virginia Rd
Concord Ma
01742

Deb Cox
PAL
210 Lonsdale Avenue
Pawtucket, Rhode Island 02860

Joseph McKeon
Central New England Anadromous Fish Coordinator
US Fish and Wildlife Service
Central New England Fishery Resources Complex
151 Broad St, Nashua NH 03060

Dr. David Burdick
UNH Jackson Lab
85 Adams Point Rd
Durham, NH 03824

Dr. Gregg Moore
UNH Jackson Lab
85 Adams Point Rd
Durham, NH 03824

Dr. Ray Grizzle
UNH Jackson Lab
85 Adams Point Rd
Durham, NH 03824

Alyson Eberheart
UNH Jackson Lab
85 Adams Point Rd
Durham, NH 03824

Dr. Ray Konisky
112 Bay Road.
Newmarket NH 03857

Sharon Meeker
Lamprey River Advisory Committee
203 Wadley Falls Rd
Lee, NH 03861

Richard Lord
Lamprey River Advisory Committee
203 Wadley Falls Rd
Lee, NH 03861

Eric Hutchins
Fisheries Biologist
NMFS, Habitat Conservation Division
55 Great Republic Drive
Gloucester, MA 01930

Jamie Fosburgh
Rivers Program Manager
U.S. Dept. of the Interior
National Park Service, Northeast Region
15 State St
Boston MA 02109

Doug Grout
New Hamphire Fish and Game
Marine Division
225 Main St
Durham NH
03824

Agenda for Wiswall Fish Passage Scoping Meeting
Durham Town Hall January 23, 2009 7pm

Welcome
Presenter: David Cedarholm, PE, Town of Durham Engineer

Introduction to the National Environmental Policy Act (NEPA)
Presenter: George Cleek, NRCS

This presentation with provide a brief overview of NEPA to help the public understand the scoping process.

Project Background, Fish passage at Wiswall Dam, and USDA-NRCS Wildlife Habitat Incentives Program (WHIP) Award.
Presenter: Sue Hoey, NRCS

This session will offer some background on 10 years of work leading up to the NRCS award to fund a fish passage alternative at Wiswall dam.

Biology of migratory fish species on the Lamprey River
Presenter: Cheri Patterson, NH Fish and Game

Background information about migratory and resident fish species and various levels of benefit from different alternatives.

Historic Resources
Presenter: Dick Lord, Durham Historical Society

PAL will offer a description of key historic resources at the Wiswall Dam site and potential impacts based on dam removal or installation of a fish ladder.

Recreation
Presenter: Sharron Meeker Lamprey River Advisory Committee

Recreation at Wiswall Falls: How activities such as boating, swimming and wildlife viewing may be impacted with either alternative.

Fishing
Presenter: Sean Smith, Great Bay Chapter of Trout Unlimited

The impacts of fish passage on the sport fishery along the Lamprey River.

Engineering
Presenter: David Cedarholm and Bob Stephens PE, Stephens Engineering

- State Mandated Wiswall Dam Repairs
- Operation and Maintence of Denil Fish Ladder
- Pros & Cons of Dam Removal - Denil Fish Ladder
- Changes in Town Taxes based on either alternative
- New Groundwater Source Supply at the Spruce Hole Aquifer and Possible NH Coastal Program Assistance/ Artificial Recharge Potential
- UNH-Durham Water System Emergency Water Supply
- Drinking Water Quantity and Quality

NAME	Organization	Email
Suzanne Petersen	LRAC	rgrims@gwi.net
JULIAN SMITH	DURHAM TC/WHIC	WHALEROCK@smith-family.net
Sharon + Dave Meeker	LRAC	S-meeker@comcast.com
Howard Burrows		ghburrows@comcast.net
Dick Lord	DHA/LRAC/WHIC	rnlord@comcast.net
HENRY M. SMITH	DHA/INTERP. COMM.	hmsmith@unh.edu
Dave Cedarholm	Town of Durham	dcedarholm@ci.durham.nh.us
ANDREA BODO	HDC	afbodo@comcast.net
Nadine Petersen	DHR	nadine.petersen@dcr.nh.gov
Edna Feighner		edna.feighner@dcr.nh.gov
BOB STEPHENS	SA	rsstephens@stephensengineers.com
Don Richard	NRCS	
Edna Feighner	NHDHR	edna.feighner@dcr.nh.gov
Dan IL		

Agenda for Wiswall Dam Renovations and Fish Passage Public Scoping Meeting Durham Town Hall March 16th, 2010 6:30pm

Introduction: 12 Years of Planning at Wiswall Dam- Fish Passage and Dam Renovations including: Alternatives Analysis, Overview of Preferred Alternatives and Conceptual Plans
Presenter: David Cedarholm, P.E., Town of Durham Engineer

Cultural Resources: Section 106 Initiation and Proposed Archeological Investigations
Public Archeology Laboratory

Amending an Existing Environmental Assessment
Kim McCracken, NH NRCS

Timeline for Project Review, Comment, and Installation
Presenter: David Cedarholm, P.E., Town of Durham Engineer

Wiswall public meeting Sign In - March 16th 630pm

NAME	ORGANIZATION	EMAIL
Don Keirstead	USDA - NRCS	donald.keirstead@nh.usda.gov
Robbi Woodburn	PRESIDENT	robbi@woodburnandcompany.com.
Edna Feighner	NHDHR	edna.feighner@dcr.nh.gov
DOUGLAS KARO	Resident	dkaro@comcast.net
Jim Turner	Stephens Assoc.	jeturner@stephensengineers.com
Don Richard	NRCS	donald.richard@nh.usda.gov
Matthew Hotz	abutter	mhotz@comcast.NET
KRISTEN HEITERT	PAL	kheitert@palinc.com
Kim McCracken	NRCS	kimberly.mccracken@nh.usda.gov
Virginia Lyons	resident	
Richard Lyons	resident	
Janet G. Wall	N.H Legislature / SRPC	janet.wall@leg.nh.state.us
Bill Hall	Durham	868-7400
Howard Burrows	Durham	ghburrows@comcast.net
Judith Spang	Abuttor Durham	jspang@kestrelnet.net

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
NORTHEAST REGION
55 Great Republic Drive
Gloucester, MA 01930-2276

Don Keirstead
Natural Resources Conservation Service
U.S. Department of Agriculture
Federal Building
2 Madbury Rd
Durham, NH 03824-2043

MAR 9 2010

RE: Wiswall Dam Scoping Comments

Dear Mr. Keirstead:

NOAA's National Marine Fisheries Service (NMFS) is in receipt of the Natural Resources Conservation Service's (NRCS) Notice for Scoping for the Wiswall Dam in Durham, NH. The NRCS is preparing an Environmental Assessment (EA) in support of providing fish passage at the Wiswall Dam on the Lamprey River. The EA will evaluate potential impacts to the natural, cultural and socio-economic resources associated with the Wiswall Dam and the fish passage action. The Notice for Scoping indicates a public meeting will be held on March 16, 2010. NMFS staff are unable to attend; therefore we are providing written scoping comments.

The Lamprey River provides habitat for anadromous Atlantic salmon, alewife, blueback herring, and American shad, as well as catadromous American eel. Fish passage at the Wiswall Dam will greatly improve migratory, spawning, and nursery habitat for these and other residential species. However, the various options for fish passage do not have equivalent short and long term benefits for migratory fish and aquatic habitat. Therefore NMFS recommends the NRCS consider a full suite of fish passage options, including:

(a) Structural fish ladder(s) for anadromous species (e.g. Denil, steeppass, vertical slot, pool/weir)

(b) Structural passage for American eel (e.g. ramp, pipe, netting, etc)

(c) Nature-like bypass to accommodate anadromous and catadromous species

(d) Partial dam breach

(e) Full dam removal

(f) Potential actions for safe downstream passage

(g) No action

For each of these alternatives, the EA should consider long-term maintenance and operations requirements; effects to fish migration, habitat alteration, water quality, sediment transport; and potential need for mitigative measures to offset project related impacts. Further, the EA will need to consider the cumulative impacts associated with each alternative, including activities that may occur in the foreseeable future upstream and downstream of the site.

Essential Fish Habitat and Fish and Wildlife Coordination Act
The Magnuson-Stevens Fishery Conservation and Management Act (MSA) and the Fish and Wildlife Coordination Act (FWCA) require federal agencies such as the NRCS to consult with NMFS on projects such as this. This process is guided by the requirements of our EFH regulation at 50 CFR 600.905, which mandates the preparation of EFH assessments and generally outlines each agency's obligations in this consultation procedure. Information provided in the EA can be the basis for an EFH Assessment, which NRCS should complete as part of their National Environmental Policy Act (NEPA) documents.

These comments are in response to your request for scoping information , and not a federal permit application. Initiation of an EFH consultation and development of EFH or FWCA conservation recommendations will be provided upon the receipt of a completed EFH Assessment along with the draft NEPA documents.

Thank you for the opportunity to provide comments in this process. Questions pertaining to these comments should be directed to Sean McDermott (978-281-9113).

Sincerely,

Louis A. Chiarella
New England Field Office
Supervisor for Habitat
Conservation

cc: Cheri Patterson, NHDFW
John Catena, NERO/RC

United States Department of the Interior

U.S. Fish and Wildlife Service

Eastern New England Fishery Resources Complex
151 Broad Street
Nashua, New Hampshire 03063

Mr. Don Keirstead
Natural Resources Conservation Service
U.S. Department of Agriculture
Federal Building
2 Madbury Road
Durham, NH 03824-2043

April 26, 2010

Dear Mr. Keirstead:

This letter is in response to your notice of opportunity to provide comments regarding the United States Department of Agriculture-Natural Resources Conservation Service (USDA-NRCS) intent to prepare an Environmental Evaluation (EA) in support of fish passage at Wiswall Dam on the Lamprey River in Durham, New Hampshire. The EA will evaluate potential impacts to the natural, cultural and socio-economic resources that are supported by the dam, and impacts associated with fish passage alternatives considered at the site.

The U.S. Fish and Wildlife Service has been engaged in discussions with the Town of Durham, owner of the dam; state and federal resource agencies; the Lamprey River Watershed Association; numerous non-government organizations and committees; and individuals about the benefits of an aquatic ecosystem restoration project that would include provisions for fish passage at this site. As you are aware, considerable fact finding, information gathering, and analyses have occurred to quantify the aquatic and riparian habitat benefits associated with providing fish passage in the Lamprey River at Wiswall Dam, and the alternatives for accomplishing this action.

We applaud the USDA-NRCS for its interest in this project, and for its technical, financial and planning support that will move this project, with its anticipated benefits for fish and aquatic resources in the Lamprey River, forward. Whereas alternatives examined in past assessments and those likely to be considered in this proposed EA will include no action, construction of fish passage facilities, and dam removal, we recommend implementing measures at this site that accomplish the key objective of fish passage. We also recommend that the EA include evaluation and consideration of alternative measures that accomplish fish passage and restore and enhance ecosystem functions. Ecosystem components affected by actions at the site include lacustrine

habitat located in the impoundment, riverine habitat located upstream from the impoundment and downstream of the dam, and wetland habitat associated with the impoundment and riverine reaches.

Alternatives that offer the broad benefits of fish passage and restored or enhanced ecosystem function include a dam breach, complete dam removal, and various bypass/channel configurations. These alternatives would allow passage of anadromous fish including alewife, blueback herring, American shad, sea lamprey, Atlantic salmon and the catadromous American eel, as well as most resident fish. Construction of a fish ladder would benefit some resident fish species and allow passage of the mentioned anadromous fish. To provide effective and efficient passage for American eel, additional unique features would be necessary in conjunction with the construction of a fish ladder. The Service will assist in providing technical support in preparation of the EA as well as design and engineering expertise as plans for development at this project emerge.

The project need at this site has been well vetted. The New Hampshire Fish and Game Commission cites the Lamprey River as the most significant river for migratory fish species in New Hampshire. The Lamprey River was designated a Wild and Scenic River in 1996, in part, due to habitat importance for migratory fish. In conjunction with Wild and Scenic Designation, the National Park Service and the Town of Durham endorsed a Lamprey River Management Plan that recommended fishway construction at Wiswall Dam.

Consider that dams have posed impediments to the passage of migratory and resident fish in the Lamprey River in Durham, New Hampshire for 175 years. Opportunities to provide fish passage at the dam were considered in the 1970s and early 1980s during years of hydroelectric facility development. Interest in providing fish passage at this site heightened in 1998 when the U.S. Department of the Interior, celebrating the anniversary of the Wild and Scenic Rivers Act, offered additional support to restore migratory fish in the river. With continued public and private interest; federal, state, municipal, and partner support; and project implementation at Wiswall Dam, migratory fish in the Lamprey River may soon populate 45 additional miles of accessible habitat.

If you have questions, or if you are in need of additional information, please contact me at your convenience.

Sincerely,

Joseph F. McKeon
Complex Manager

Keirstead, Donald - Durham, NH

From: Mike Johnson [Mike.R.Johnson@noaa.gov]
Sent: Thursday, September 30, 2010 12:13 PM
To: Keirstead, Donald - Durham, NH
Cc: Chiarella, Lou ; McDavitt, Bill; McDermott, Sean
Subject: Re: [Fwd: FW: Wiswall Fish Ladder Design Plan Review Meeting INVITATION]
Attachments: Mike_R_Johnson.vcf

Don,

We've had some discussions regarding your request below to attend a meeting, either Oct. 15 or 27, for the Wiswall Fish Ladder design plan review. It doesn't appear that we are able to send anyone to such meeting at this time. I understand that you spoke to Bill McDavitt regarding NMFS review of the fishway design. If you would like to send a copy of the design plans to us as the address at the bottom of this email, we will review the plans and provide comments, as needed.

Let me know if you have any questions.

Thanks,

Mike
>
> Louis,
>
> Our local partner sent out the below email to partners for
> consultation on our fish ladder project on the Wiswall Dam in Durham NH.
>
> I'm hoping that someone from your staff will be able to attend the
> meeting below here in Durham.
>
> Please don't hesitate to call me with questions or concerns.
>
> Thanks,
>
> Don Keirstead
> USDA-NRCS
> 2 Madbury Rd
> Durham, NH 03824
> 603-868-9931 ext. 128
> 603-868-5301 fax
>
> *From:* David Cedarholm [mailto:dcedarholm@ci.durham.nh.us]
> *Sent:* Friday, September 24, 2010 3:23 PM
> *To:* Joe McKeon@fws.gov; Dick Quinn@fws.gov;
> Cheri.Patterson@wildlife.nh.gov; douglas.grout@wildlife.nh.gov;
> Nadine.Peterson@dcr.nh.gov; Edna.Feighner@dcr.nh.gov;
> s-meeker@comcast.net; rhlord@comcast.net; bdesfosses@des.state.nh.us;
> Dori.Wiggin@des.nh.gov; KHeitert@PALINC.COM; Keirstead, Donald -
> Durham, NH; Michael Lynch
> *Cc:* rsstephens@stephensengineers.com; jeturner@stephensengineers.com
> *Subject:* Wiswall Fish Ladder Design Plan Review Meeting INVITATION
>
> Hi All,

>
> After an extensive review and revision process with the US Fish &
> Widlife, the design plans for the Wiswall Fish Ladder project has
> reached a 90% design stage. As an interested consulting party of the
> Wiswall Fish Ladder project, I would like to invite you to a design
> plan review meeting at the USDA NRCS Office, 2 Madbury Rd, Durham
> (2nd floor of the Post Office building) on either Friday October 15,
> or Wednesday October 27th from 9 AM to noon. Please respond ASAP and
> let me know if you or someone from you organization are available on
> one of these dates and your preference. After I hear back from the
> group next week I will reply with the confirmed date. I will also
> forward a PDF of the Wiswall Fish Ladder 90% design plans for your
> review by the end of next week. If I have missed anyone, please let me
> know.
>
> Following this meeting, our goal will be to submit the project Wetland
> Permit Application to NHDES Wetland Bureau. I am very excited that the
> design plans have reached this stage and look forward to seeing you
> next month.
>
> Regards,
>
> Dave
>
> David Cedarholm, P.E.
>
> Town Engineer
>
> Dept. of Public Works
>
> 100 Stone Quarry Drive
>
> Durham, NH 03824
>
> (603) 868-5578
>
> dcedarholm@ci.durham.nh.us
>

--
Michael Johnson
National Marine Fisheries Service
Northeast Regional Office
Habitat Conservation Division
55 Great Republic Drive
Gloucester, MA 01930
978-281-9130- voice
978-281-9301- fax

Keirstead, Donald - Durham, NH

From: David Cedarholm [dcedarholm@ci.durham.nh.us]
Sent: Monday, October 04, 2010 5:32 PM
To: David Cedarholm; Joe_McKeon@fws.gov; Dick_Quinn@fws.gov; Cheri.Patterson@wildlife.nh.gov; douglas.grout@wildlife.nh.gov; Nadine.Peterson@dcr.nh.gov; Edna.Feighner@dcr.nh.gov; s-meeker@comcast.net; rhlord@comcast.net; bdesfosses@des.state.nh.us; Dori.Wiggin@des.nh.gov; KHeitert@PALINC.COM; Keirstead, Donald - Durham, NH; Michael Lynch; James.Houle@unh.edu; totographs@comcast.net; Richard, Donald - Concord, NH
Cc: rsstephens@stephensengineers.com; jeturner@stephensengineers.com
Subject: RE: Wiswall Fish Ladder Design Plan Review Meeting INVITATION
Attachments: 075-05-001 Wiswall Dam 90 Percent Issue sheets 13-31.pdf

Attached is the remaining 20 plan sheets for you review to accompany the previous email (see below).

David Cedarholm, P.E.
Town Engineer
Dept. of Public Works
100 Stone Quarry Drive
Durham, NH 03824
(603) 868-5578
dcedarholm@ci.durham.nh.us

From: David Cedarholm
Sent: Monday, October 04, 2010 5:28 PM
To: David Cedarholm; 'Joe McKeon (Joe_McKeon@fws.gov)'; 'Dick Quinn (Dick_Quinn@fws.gov)'; 'Cheri Patterson (Cheri.Patterson@wildlife.nh.gov)'; 'Doug Grout (douglas.grout@wildlife.nh.gov)'; 'Nadine Peterson (Nadine.Peterson@dcr.nh.gov)'; 'Edna Feighner (Edna.Feighner@dcr.nh.gov)'; 'Sharon Meeker (s-meeker@comcast.net)'; 'Dick Lord (rhlord@comcast.net)'; 'Brian DesFosses (bdesfosses@des.state.nh.us)'; 'Dori Wiggin (Dori.Wiggin@des.nh.gov)'; 'Kristen Heitert (KHeitert@PALINC.COM)'; 'Don Keirstead (donald.keirstead@nh.usda.gov)'; Michael Lynch; James.Houle@unh.edu; Leslie Schwartz (totographs@comcast.net); Don Richard (donald.richard@nh.usda.gov)
Cc: 'Bob Stephens (rsstephens@stephensengineers.com)'; 'Jim Turner (jeturner@stephensengineers.com)'
Subject: RE: Wiswall Fish Ladder Design Plan Review Meeting INVITATION

Hi All,

The Wiswall Fish Ladder Design Plan Review Meeting will be held on Wednesday October 27th starting at 9 AM at the NRCS office, 2 Madbury Rd, Durham (2nd floor of the Post Office building). I need to conclude the meeting by 11:30. Attached is a PDF containing the first 12 sheets of the Preliminary (90%) Design Plans for the Wiswall Dam Improvements and Fish Ladder. Another email will be follow with the remaining 20 sheets. Please review the plans and arrive with questions. If you have question prior to the meeting please feel free to call me or send an email.

Looking forward to seeing you all on October 27th.

Dave

David Cedarholm, P.E.
Town Engineer
Dept. of Public Works
100 Stone Quarry Drive
Durham, NH 03824

(603) 868-5578
dcedarholm@ci.durham.nh.us

From: David Cedarholm
Sent: Friday, September 24, 2010 3:23 PM
To: Joe McKeon (Joe_McKeon@fws.gov); Dick Quinn (Dick_Quinn@fws.gov); Cheri Patterson (Cheri.Patterson@wildlife.nh.gov); Doug Grout (douglas.grout@wildlife.nh.gov); Nadine Peterson (Nadine.Peterson@dcr.nh.gov); Edna Feighner (Edna.Feighner@dcr.nh.gov); Sharon Meeker (s-meeker@comcast.net); Dick Lord (rhlord@comcast.net); Brian DesFosses (bdesfosses@des.state.nh.us); Dori Wiggin (Dori.Wiggin@des.nh.gov); Kristen Heitert (KHeitert@PALINC.COM); Don Keirstead (donald.keirstead@nh.usda.gov); Michael Lynch
Cc: Bob Stephens (rsstephens@stephensengineers.com); Jim Turner (jeturner@stephensengineers.com)
Subject: Wiswall Fish Ladder Design Plan Review Meeting INVITATION

Hi All,

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Following this meeting, our goal will be to submit the project Wetland Permit Application to NHDES Wetland Bureau. I am very excited that the design plans have reached this stage and look forward to seeing you next month.

Regards,
Dave

David Cedarholm, P.E.
Town Engineer
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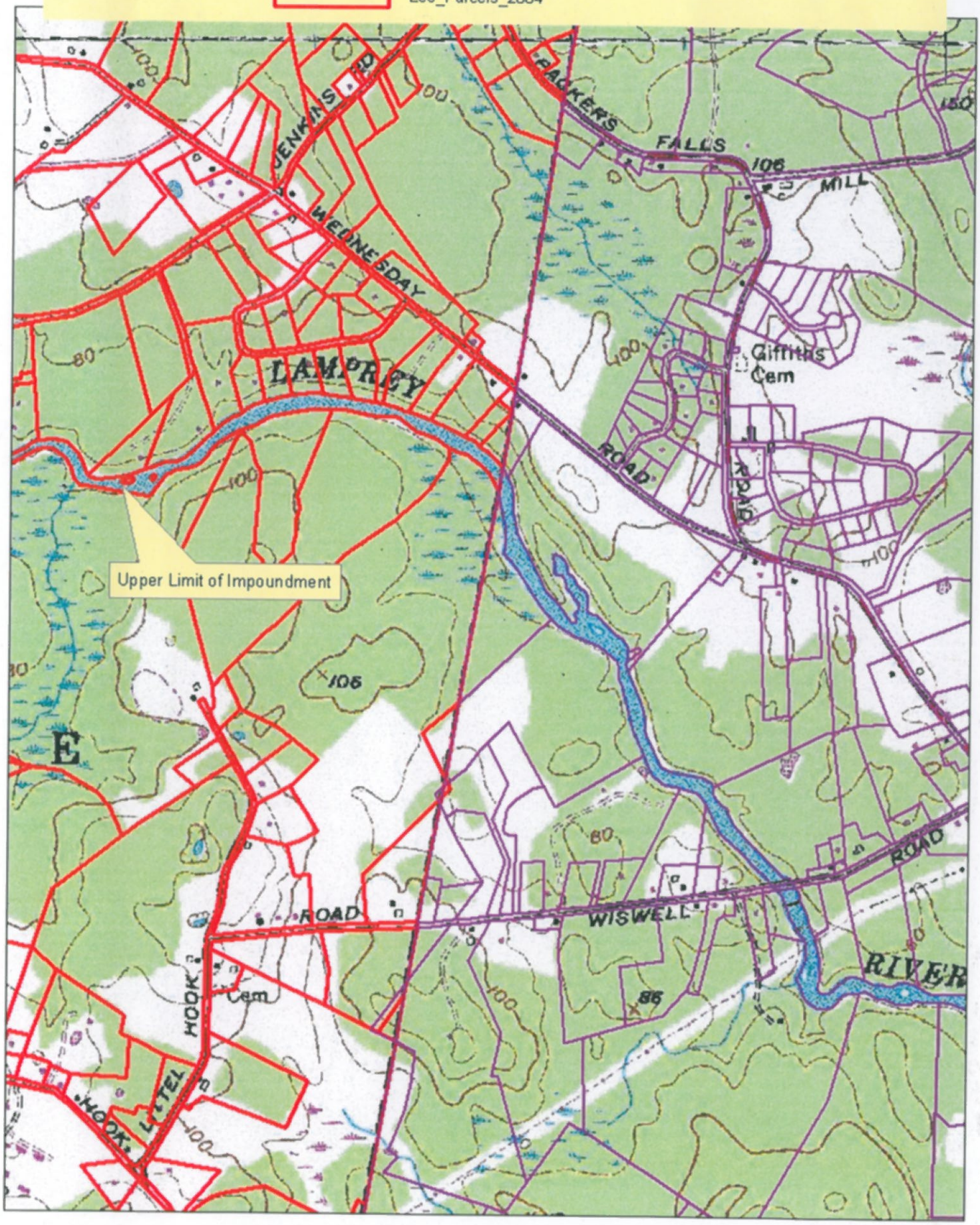
100 Stone Quarry Drive
Durham, NH 03824
(603) 868-5578
dcedarholm@ci.durham.nh.us

Lee and Durham Abutters on Wiswall Impoundment

Town_of_Durham_Parcels

Lee_Parcels_2004



United States Department of Agriculture
NRCS Natural Resources Conservation Service
Federal Building, 2 Madbury Road, Durham, NH 03824-2043 (603) 868-7581 Fax: (603) 868-5301 www.nh.nrcs.usda.gov

Scoping Comment Form
Wiswall Dam, Durham New Hampshire
Fish Passage Environmental Assessment

Please respond to the following questions in writing by April 30th, 2010. You may attach additional pages as needed.

Please be aware that names and addresses of respondents may be released if requested under the freedom of information act. Our practice is to make comments, including names and home addresses of respondents, available for public review during regular business hours of NRCS. Individual respondents may request that we withhold their home address from the record, which we will honor to the extent allowable by law. There also may be circumstances in which we would withhold from the record a respondent's identity, as allowable by law. If you wish us to withhold your name and/or address, you must state this prominently at the beginning of your written comments. We will make all submissions from organizations or businesses and from individuals identifying themselves as representatives or officials of organizations or businesses, available form public inspection in their entirety.

I have read and understand the above statement. Initial here KO

Do you have additional information, concerns, or other comments about the proposal to install a fish ladder at Wiswall Dam?

NO

Please check here X **if you would like to remain on the mailing list to receive additional information concerning this proposal.**

Name KAREN ORAM
Email: RKORAM@COMCAST.NET
Address 173 PACKERS FALLS RD
City, State, Zip DURHAM, NH 03824

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United States Department of Agriculture
NRCS Natural Resources Conservation Service
Federal Building, 2 Madbury Road, Durham, NH 03824-2043 (603) 868-7581 Fax: (603) 868-5301 www.nh.nrcs.usda.gov

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I have read and understand the above statement. Initial here S Meeker

Do you have additional information, concerns, or other comments about the proposal to install a fish ladder at Wiswall Dam?

I like Durham's idea to combine siting of the ladder near the historic stone wall adjoining the dam

Please check here ✓ **if you would like to remain on the mailing list to receive additional information concerning this proposal.**

Name Sharon Meeker
Email: sameeker@comcast.net
Address 203 Wadleigh Falls Rd
City, State, Zip Lee, NH. 03861

Sorry it's late. Am ill.

Sharon

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United States Department of Agriculture

NRCS Natural Resources Conservation Service

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I have read and understand the above statement. Initial here SAW

Do you have additional information, concerns, or other comments about the proposal to install a fish ladder at Wiswall Dam?

We are in favor to the fish ladder at Wiswall Dam for spawing of migratory fish. We will not be able to attend the March 16th meeting.

Please check here ✓ **if you would like to remain on the mailing list to receive additional information concerning this proposal.**

Name Edward & Shirley Williams
Email: N/A
Address 902 S.E. 167th Court Road
City, State, Zip Silver Springs, Fl. 34488

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United States Department of Agriculture

NRCS Natural Resources Conservation Service

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I have read and understand the above statement. Initial here JME

Do you have additional information, concerns, or other comments about the proposal to install a fish ladder at Wiswall Dam?

I AM IN FAVOR OF A FISH LADDER AT WISWALL DAM.

Please check here ✓ **if you would like to remain on the mailing list to receive additional information concerning this proposal.**

Name JIM EGGERS
Email: jameseggers@comcast.net
Address 4 KARA DR.
City, State, Zip CHICHESTER, NH 03258-6547

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I have read and understand the above statement. Initial here MJD

Do you have additional information, concerns, or other comments about the proposal to install a fish ladder at Wiswall Dam? As an avid fly fisherman who regularly fishes the Lamprey, I'm delighted the river will be partially recovered by this effort. I'm also a Great Bay Trout Unlimited member. If I can be of assistance in this effort, let me know.

Please check here ____ if you would like to remain on the mailing list to receive additional information concerning this proposal.

Name Matt De Angelis
Email: mjdeangelis@comcast.net
Address 171 Packers Falls Rd.
City, State, Zip Durham, NH 03824

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Kimberly Ann & Richard Laughton
131 Wednesday hill Road
Durham, NH 03824

Murell G. Thompson, Trustee
46 Mill Pond Road
Durham, NH 03824

Robert & Gail Diberto
334 Rt. 108
Madbury, NH 03823

Evelyn-Alice Pike
279 Packers Fall Road
Durham, NH 03824

James Cody & Sandra Vivolo-Cody
96 Wiswall Road
Lee, NH 03561

George & Deborah Burrows
40 Wiswall Road
Durham, NH 03824

Estate of Alfred Zych
6 Grant Road
Newmarket, NH 03857

Richard & Virginia Lyons
68 Wiswall Road
Durham, NH 03824

Stuart Curtis
56 Wiswall Road
Durham, NH 03824

Joan & Francis Carter
28 Wiswall Road
Durham, NH 03824

John & Carol Wentworth
32 Wiswall Road
Durham, NH 03824

Town of Durham
15 Newmarket Road
Durham, NH 03824

Karen Hebert
15 Old Farm Road
Bedford, NH 03110

Robert & Lorrie Pitt
30 Wiswall Road
Durham, NH 03824

Town of Durham Conservation Commission
15 New market Road
Durham, NH 03824

Bruce & Sarah Flannery
64 Wiswall Road
Durham, NH 03824

Kelly Warren
36 Wiswall Road
Durham, NH 03824

Sara Spang-Bargadda
1812 Sand Hill Road #102
Palo-Alto, CA 94304

Diana Jones & Christopher Johnson
60 Wiswall Road
Durham, NH 03824

Judith Spang
55 Wiswall Road
Durham, NH 03824

Michaele Canfield
59 Wiswall Road
Durham, NH 03824

Lisa Catherine Canfield
63 Wiswall Road
Durham, NH 03824

Christopher Huntoon
P.O. Box 851
Durham, NH 03824

Morgan Dudley
193 Packers Falls Road
Durham, NH 03824

Dewey Family Trust
191 Packers Falls Road
Durham, NH 03824

James & Barbara Eggers
7 Kara Drive
Chichester, NH 03258

Nancy & Daniel Miner
7 Packers Falls Road
Durham, NH 03824

Bette Bridle Rev Trust
187 Packers Falls Road
Durham, NH 03824

Sarah Sherman
179 Packers Falls Road
Durham, NH 03824

Amy Trafton & Daniel Gordon
175 Packers Falls Road
Durham, NH 03824

Karen & Robert Oram
173 Packers Falls Road
Durham, NH 03824

Joseph H. Vaillancourt & Ann Wicander
151 Packers Falls Road
Durham, NH 03824

Sandra & Michael Coit
2 Sullivan Falls Road
Durham, NH 03824

Fredrich-Deangelis Family Run Trust
171 Packers Falls Road
Durham, NH 03824

Paul Verrette
42 York Lane
Lee, NH 03861

Diane Byrne
121 Dearborn Road
Epping, NH 03042

Philip Boucher
41 York Lane
Lee, NH 03861

Robert Diberto
334 Durham Road
Madbury, NH 03823

Park Court Properties
P.O. Box 117
Durham, NH 03824

Eileen Trojan
132 Wednesday Hill Road
Lee, NH 03861

Edward Williams
902 SE 167th Court Road
Silver Springs, FL 34488

Babu Ranidev
164 Wednesday Hill Road
Lee, NH 03861

Frederick Kean
22 Toon Lane
Lee, NH 03861

Gael Grant
168 Wednesday Hill Road
Lee, NH 03861

Matthew Hotz
180 Wednesday Hill Road
Durham, NH 03824

Harold Henry
180 Wednesday Hill Road
Durham, NH 03824

Shirley Thompson
46 Mill Pond Road
Durham, NH 03824

John Dawson
19 Jenkins Lane
Lee, NH 03861

Barry Kane
10 Toon Lane
Lee, NH 03861

Peter Stoupas
12 Toon Lane
Lee, NH 03861

Diane Gallant
14 Toon Lane
Lee, NH 03861

William Bryan
16 Toon Lane
Lee, NH 03861

Martha McKay Nous
18 Toon Lane
Lee, NH 03861

Oscar & Elizabeth Will
P.O. Box 596
Durham, NH 03824

Name	Organization	Email
Don Kotrsgard	NRCS	
Dave Cedarholm	Town of Durham	dcedarholm@ci.durham.nh.us
Michael Bailey	FWS	michael_bailey@fws.gov
Joe McKeon	FWS	joe_mckeon@fws.gov
Dick Lord	DHA, LRAC, WHIC	rhlord@comcast.net
Jim Turner	Stephens Associates	jeturner@stephensengineers.com
Nadine Peterson	NH DHR	nadine.peterson@dcr.nh.gov
Brian Giles	LRAC	bagiles@earthlink.net
Cheri Patterson	NH F&GD	cheri.patterson@wildlife.nh.gov
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Kevin Sullivan	NHFG	Kevin.Sullivan@wildlife.nh.gov
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Leslie Schwartz	HDC/HC	totographs@comcast.net
Brian Desfosses	NH DES	bdesfosses@des.state.nh.us
Jim MacCartney	NPS	jim_maccartney@nps.gov
Bob Stephens	Stephens Associates	rsstephens@stephensengineers.com

Sign in Sheet from 90% Design Meeting OCT 27, 2010 At NRCS in Durham