

**THE STATE OF NEW HAMPSHIRE
BEFORE THE
NEW HAMPSHIRE
SITE EVALUATION COMMITTEE**

DOCKET NO. 2010-01

**APPLICATION OF GROTON WIND, LLC
FOR A CERTIFICATE OF SITE AND FACILITY**

**SUPPLEMENTAL PREFILED TESTIMONY OF
NANCY B. RENDALL AND PETER J. WALKER
ON BEHALF OF GROTON WIND, LLC**

October 12, 2010

Qualifications of Peter J. Walker

Q. Please state your name and business address.

A. My name is Peter J. Walker. My business address is 6 Bedford Farms Drive, Suite 607, Bedford, New Hampshire, 03110.

Q. Who is your current employer and what position do you hold?

A. I am employed by Vanasse Hangen Brustlin, Inc. ("VHB"). I hold the position of Director of Environmental Services.

Q. What are your background and qualifications?

A. I am a New Hampshire native, with more than 19 years of experience in the environmental field. I hold a Bachelor's Degree from Williams College in Biology and Environmental Studies and a Master's Degree in Ecology and Evolutionary Biology from the University of Vermont. Prior to joining VHB in 2002, I served as an administrator for the Permitting and Resources Sections of the New Hampshire Wetlands Bureau. At VHB, I am responsible for all

1 environmental analysis for VHB's projects in northern New England including
2 natural resources, water quality, air and noise engineering, oil and hazardous
3 materials and cultural resources. Outside of VHB, I have previously served on
4 the Board of Directors of the NH Association of Natural Resource Scientists, and
5 currently serve as a Director of the NH Corporate Wetlands Restoration
6 Partnership and as a representative on the General Court's Study Commission to
7 Study Issues Relating to Land Development in New Hampshire. A copy of my
8 curriculum vitae is attached.

9 **Q. Are you familiar with the Project that is the subject of the above-**
10 **captioned docket?**

11 A. Yes. I serve as the Project Manager for VHB's work on behalf of Groton
12 Wind. In this role, my responsibilities have included overseeing the
13 environmental and engineering teams to ensure that VHB's work on the Project
14 has been conducted thoroughly and competently and that the teams have had the
15 resources they need to conduct their technical work. Because of my background
16 as a natural resource scientist, I have also assisted with the natural resource and
17 regulatory technical analysis including development of the wetland mitigation
18 package.

19 **Qualifications of Nancy B. Rendall**

20 **Q. Please state your name and business address.**

21 A. My name is Nancy B. Rendall and my business address is 6 Bedford
22 Farms Drive, Suite 607, Bedford, New Hampshire, 03110. My qualifications

1 were included in my prefiled direct testimony which was submitted with the
2 Groton Wind, LLC Application on March 26, 2010 and have not changed.

3 **Purpose of Supplemental Prefiled Testimony**

4 **Q. What is the purpose of your supplemental prefiled testimony?**

5 A. The purpose of our testimony is to provide updated information
6 concerning the potential impacts of the Groton Wind, LLC Project (“Groton
7 Wind” or “the Project”) on wetlands and the proposed plan for mitigating those
8 potential impacts. Because of Peter’s involvement with the revised site plans as
9 well as the development of the revised mitigation package, we are submitting this
10 testimony jointly.

11 **Q. Please describe any changes to the Project’s plans since March 2010
12 which relate to the Project’s wetlands impacts.**

13 A. The general layout of the improvements remains the same since prefiled
14 direct testimony was submitted. However, revised Site Plans were prepared by
15 VHB and submitted to the New Hampshire Department of Environmental
16 Services (“DES”) on July 22, 2010 in response to comments contained in a letter
17 from the Wetlands Bureau dated June 28, 2010, and a site walk with
18 representatives from DES and other agencies including the US Army Corps of
19 Engineers (“the Corps”).

20 Minor changes were made to the Site Plans in response to review
21 comments received from DES Wetlands Bureau and NHDES Alteration of
22 Terrain Bureau. These revisions included: adding a culvert on the East Access

1 Road (at roadway Sta. 11+50); adding a culvert on the West Access Road (Sta.
2 69+50); adding a retaining wall along the North Access Road adjacent to Old
3 Coach Road to move the road fill farther away from a drainage ditch at this
4 location; modifying the locations of stone drainage mattresses, relocating staging
5 area along West Access Road to avoid wetlands; revising the alignment of the
6 private portion of Groton Hollow Road located on the site (near Sta. 152+00) to
7 be located further away from Clark Brook and adding additional temporary
8 erosion control measures. Taken together, these changes resulted in a total
9 increase in wetland impact of 440 square feet so that the total wetland impacts as
10 a result of the Project are now 1.65 acres (71,680 square feet).

11 Some additional minor changes to the Project site plans are in progress,
12 including a minor realignment of approximately 500 linear feet of the private
13 portion of Groton Hollow Road located on the site (approximately Sta. 169+00 to
14 Sta. 174+00) to move the road to the west side of an existing old stone foundation
15 to avoid an area of potential archaeological interest. There may also be minor
16 adjustments to the roadway slope and finish grades to better balance project
17 earthwork cuts and fills. These changes should not have any additional direct
18 impacts on streams or wetland areas.

19 **Q. Has DES completed its review of the Project's Alteration of Terrain**
20 **and Wetland Permit Applications and made any recommendations to the Site**
21 **Evaluation Committee?**

1 A. Yes. The New Hampshire Department of Environmental Services Water
2 Division has indicated in a letter dated October 8, 2010 to SEC Chairman Burack
3 that the Division has completed its technical review of the Groton Wind
4 Application and has made a final decision recommending approval of the
5 Application with certain conditions described in detail in an attachment to that
6 letter. The letter and conditions are submitted with the Applicant's supplemental
7 filing as Appendix 51.

8 **Q. Please describe any changes to the Project's plan for mitigating**
9 **impacts on wetlands.**

10 A. The proposed wetland mitigation package has been revised based on
11 feedback from the US Army Corps of Engineers ("the Corps"), the US
12 Environmental Protection Agency ("EPA") and others.

13 As explained in Nancy's prefiled direct testimony, the mitigation package
14 included in the SEC Application contained several components including: 1)
15 technical and financial assistance to the Society for the Protection of NH's Forests
16 ("the Forest Society") to help their project to conserve almost 6,600 acres of the
17 "Green Acre Woodlands" in Groton, Hebron, Rumney, Dorchester and Plymouth;
18 and 2) upgrading a number of stream crossings along Groton Hollow Road
19 following the approach of the *New Hampshire Stream Crossing Guidelines* which
20 will benefit riparian conditions in the Clark Brook watershed. Information
21 regarding the mitigation package was shared with the Corps and EPA, both of

1 whom recommended that the Applicant add payment of an “in-lieu fee” to
2 augment the mitigation proposal.

3 On June 29, 2010, we toured the Project site with representatives of the
4 Corps, EPA, DES, the US Fish and Wildlife Service and the NH Natural Heritage
5 Bureau. During this site walk, EPA and the Corps clarified their position on the
6 Project, stating that the mitigation package should account for both the direct and
7 indirect impacts of the Project, and reiterating that the Project mitigation package
8 should be revised. In discussions with the agencies, it became clear that the Corps
9 and EPA favored the alternative of providing an in-lieu fee payment to the NH
10 Aquatic Resource Mitigation Fund (“ARM Fund”), even though the mitigation
11 package as originally proposed seemed to have the support of DES. The ARM
12 Fund was established a few years ago to provide an additional means for wetland
13 mitigation, and seems to have become a preferred method for some of the federal
14 agencies. The in-lieu fees are pooled by DES to form a grant fund which supports
15 wetland preservation and restoration projects.

16 Following those discussions, Groton Wind, LLC revised the mitigation
17 package to respond to the federal agencies’ request. The most significant change
18 in the package relates to the direct financial payment made by Groton Wind, LLC
19 and to whom this payment would be made. Rather than a donation to the Forest
20 Society to support the Green Acre Woodlands Project, Groton Wind, LLC now
21 proposes a \$150,000 donation to the NH ARM Fund to support the preservation
22 and restoration of wetlands in the Pemigewasset River Watershed.

1 The mitigation plan still includes providing technical assistance to the
2 Forest Society in the form of property survey maps, title research and ecological
3 mapping and data on approximately 3,385 acres of the total 6,578 acre Green
4 Acre Woodlands project. Additionally, Groton Wind, LLC continues to propose
5 plans to upgrade nine existing stream crossings along the private portion of
6 Groton Hollow Road located on the site to benefit riparian conditions in the Clark
7 Brook watershed. Based on discussions with DES staff, the revised mitigation
8 package appears to exceed DES guidance on mitigation and seems acceptable to
9 the Department.

10 **Q. Do the revised site plans or the revised mitigation plan cause either**
11 **of you to disagree with the conclusion in Ms. Rendall's prefiled direct**
12 **testimony that the Project will not have an unreasonable adverse effect on**
13 **wetlands and wildlife resources?**

14 A. No. The changes to the site plans have improved the overall design by
15 adding culverts and moving the road design away from Clark Brook in an area
16 recommended by DES. The mitigation plan has been modified as recommended
17 by the federal resource agencies to address indirect impacts to wetlands and
18 vernal pools as well as direct impacts. The net result is an improvement in the
19 design with respect to potential impacts to aquatic resources and in the overall
20 wetland mitigation package.

21 **Q. Does this conclude your supplemental prefiled testimony?**

22 A. Yes.

Mr. Walker directs VHB's northern New England Environmental Services. He applies his 19 years of environmental expertise in the analysis of project impacts, in the development and presentation of mitigation measures, and in interactions with federal and state environmental agencies. His professional experience includes the following projects and programs:

Energy and Utilities

Iberdrola Renewables, 50-MW Wind Farm, Groton, NH

Principal-in-Charge and Project Manager for development of a 50-MW commercial wind farm in central New Hampshire. Overseeing development of site engineering, natural resource studies and environmental permitting. Since the project involves the construction of a renewable energy facility, compliance with RSA 162-H - the state law that regulates energy facility evaluation, siting, construction and operation- will drive the engineering and regulatory process at the state and local levels. Obtaining approval under this regulatory process requires demonstration that the project complies with all of the applicable state and local laws and regulations. This will include the requirements of the Town of Groton, the NH Department of Transportation, the NH Department of Environmental Services, the NH Fish and Game Department, and the NH Natural Heritage Bureau.

Iberdrola Renewables, 24-MW Wind Farm, Lempster, NH

Served as Principal-in-Charge for environmental and engineering work in support of Iberdrola's development of a 24-MW wind farm on Lempster Mountain. Specific tasks included developing a GPS survey work flow to stake roadway centerline and turbine foundation locations, assisting with bridge design necessary to eliminate wetland impacts from the project, completion of updated ASTM Phase 1 Hazardous Materials Environmental Site Assessments and completion of limited construction site inspections.

30-MW Biomass Co-Generation Facility, Merrimack, NH

Conducted environmental due diligence and developed permitting strategy for a 30-MW biomass fired co-generation plant in Merrimack, NH. Key issues involved site engineering, NH Energy Facility Site Evaluation Committee (NHSEC) jurisdiction, wetlands impacts, cooling water supply analysis and compliance with the Comprehensive Shoreland Protection Act.

Proposed Marine LNG facility, Calais, ME

Served as Principal-in-Charge and Project Manager for a proposed LNG Terminal and pipeline on Passamaquoddy Bay, Maine. The proposed facility includes development of a 330-acre site to support a marine pier, berthing and unloading facility that will support a proposed maximum normal throughput of 1.0 billion standard cubic feet per day. The LNG terminal will be connected to the existing Maritimes and Northeast interstate pipeline facility at its Baileyville Compressor station via a 24-mile, 36-inch high pressure natural gas pipeline. VHB's work included completion of terrestrial ecological studies including vegetation cover type mapping, freshwater wetlands mapping, vernal pools inventories, significant wildlife habitat surveys, freshwater shoreland bird surveys, and bald eagle surveys. VHB drafted FERC Resource Report 2 and 3 relatively to terrestrial ecological resources, and is providing on-going technical support for the US Army Corps of Engineers and the Maine DEP permitting of the project.

Algonquin Gas Transmission Company, Massachusetts, Connecticut and Rhode Island

Mr. Walker is the Director of Environmental Services for northern New England. Previously, he was an administrator with the NH Department of Environmental Services Water Division. In that role, Mr. Walker oversaw the technical review of projects affecting streams and rivers throughout the state, including supervising wetlands and shoreland protection permitting and resources staff. Since joining VHB, Mr. Walker has directed and led a number of projects including NEPA Environmental Impact Statements, natural resource and planning investigations, stream and wetland restoration studies.

19 years of professional experience

In-line inspection of natural gas pipelines presents special problems to the analysis of environmental impacts. Mr. Walker completed wetland survey of a 20-mile natural gas pipeline corridor, using aerial photograph interpretation. This information was used to secure environmental permits from the Massachusetts Department of Environmental Protection, the Rhode Island Department of Environmental Management, the US Environmental Protection Agency, the US Army Corps of Engineers, and the Town of Blackstone, Massachusetts. Mr. Walker also performed wetland delineations, permitting analysis, and environmental inspection for several pipeline projects in southern New England including a 7.5-mile, 16-inch replacement in Connecticut, the construction of the Canal Lateral in Bourne, Massachusetts and a 36-inch construction project in Berlin, Middleton, and Cromwell, Connecticut.

National Grid Spicket River #13 Substation, Salem, NH

Served as VHB's Principal-in-Charge for permitting with the NHDES Wetlands Bureau and USACE. Classified as a Major Project by NHDES, the project consists of upgrades to existing substation and construction of utility duct bank within Prime Wetland buffer and within Protected Shoreland Area.

National Grid Comerford 230kV Substation/HVDC Converter Terminal Retirement, Monroe to Lisbon, NH

VHB Principal-in-Charge for permitting with NHDES Wetlands Bureau and USACE. Classified as a Major Project by NHDES, the project consists of retiring an HVDC Converter Terminal Facility and 12-mile Ground Electrode Feeder line and involves temporary wetland impacts.

Public Sector Utility Project Experience

As a former official of the NH Department of Environmental Services, Mr. Walker coordinated the Department's review of energy facility projects and provided testimony to the NH EFSEC during their review of several energy projects. For projects not subject to EFSEC review, Mr. Walker supervised review of the projects under the NH Dredge and Fill Act (RSA 482-A). Examples of Mr. Walker's utility project review experience at DES includes:

- PSNH Manufactured Gas Plant Remediation, Keene, NH
- PSNH 115kV Line 326 Reconstruction, Pelham, NH
- PSNH 34.5 kV transmission line 326 construction, Hudson, NH
- PNGTS North pipeline construction - Coos County, NH
- PNGTS/M&N Joint Facilities pipeline - Rockingham County, NH

National Environmental Policy Act

EIS, Spaulding Turnpike and Little Bay Bridge, Newington-Dover, NH

Environmental Task Manager and Chief Editor for the preparation of a Draft and Final EIS for upgrade of a 3.5-mile section of the Spaulding Turnpike extending north from Exit 1 (Gosling Road) in Newington to the Dover Toll Plaza just north of Exit 6. The Spaulding Turnpike in this location spans the confluence of the Little Bay and Great Bay system with the Piscataqua River, one of NH's most sensitive environments. Mr. Walker directed the development of detailed engineering and environmental studies conducted within the framework of the EIS. Key issues include stormwater quality, marine habitat, historic properties, and effects on navigation, in addition to the preservation of adjacent

Hilton Park, a popular public recreational resource. Developed a comprehensive mitigation strategy to offset the impact to approximately 20 acres of freshwater and tidal wetlands.

Draft and Final EIS for Interstate 93 Improvements, Salem to Manchester, NH

Environmental Task Manager for the preparation of the Draft and Final EIS for approximately 20 miles of the main highway corridor in rapidly growing southern New Hampshire. Major environmental issues included wetlands and aquatic resources, floodplains, noise, and secondary effects. Directed preparation of US Army Corps of Engineers Section 404 permit application, including functional evaluation of wetland resources. Coordinated with the NH Department of Transportation and state and federal resource agencies to develop a strategy to mitigate for 85 acres of wetland impacts.

Pingree Bridge, Mountain Road over Blackwater River, Salisbury, NH

Environmental Task Manager for ongoing replacement of a 75' long town-owned steel truss superstructure on stone and concrete abutments under the NHDOT Municipally-Managed Bridge Aid Program. The project includes the design of a new, wider, single span, concrete deck on steel girder superstructure resting on concrete abutments and wingwalls set back from the existing abutments. A temporary bridge will be used during construction to minimize impacts.

Redington Street Bridge over Ammonoosuc River, Littleton, NH

Environmental Task Manager for ongoing replacement of a single span, steel, through truss (Pratt-type) of 120' center to center of bearing under the NHDOT Municipally-Managed Bridge Aid Program. The project includes developing an engineering report to investigate a variety of bridge replacement alignments and types to find the best fit for the Town of Littleton. Once the optimal option has been determined, VHB will move to final design which will include environmental permitting and required preparation of plans and specifications.

Cotton Transfer Bridge Rehabilitation, Nashua, NH

Directed pre-construction studies, wetlands permitting and NEPA compliance for the rehabilitation of this 19th century historic bridge across the Nashua River. Key issues included prime wetlands impacts, potential fisheries impacts and effects to historical resources. The bridge was listed on the National Register as a contributing element to the Nashua Manufacturing Historic District. Coordinated with NHDOT and the NH Division of Historical Resources under Section 106 of the NHPA, resulting in a finding of No Adverse Effect.

Baboosic Brook Bridge Replacement, Merrimack, NH

Served as environmental task manager for the replacement of an existing 1923 single span concrete/steel bridge over Baboosic Brook, including realignment of a small portion of Bedford Road. The environmental resources present within the project area relate primarily to the brook and its associated wetlands, floodplain, and habitat. VHB conducted a historical survey of the bridge and several adjacent homes, eventually finding that the bridge itself was eligible for the National Register of Historic Places. VHB coordinated with the NH State Historic Preservation Office (NH Division of Historical Resources) to make a Determination of Effect and develop a Memorandum Of

Understanding that stipulated mitigation for the Adverse Effect of the project on the historic bridge.

Environmental Assessment of the UNH Marine Science Laboratory, New Castle, NH

Managed preparation of an Environmental Assessment and a formal consultation under Section 106 of the National Historic Preservation Act for a proposed new marine science laboratory for UNH. The new lab will house the University's marine science faculty, contain classroom space and an aquaculture facility, and will provide docking for a new research vessel. Due to funding by the NOAA, construction must comply with NEPA. Key issues of analysis include potential impacts to historic resources, water quality, aesthetic impacts, and traffic impacts.

Manchester-Boston Regional Airport, R/W 6-24 Environmental Assessment (EA), NH

With completion of R/W 17-35, and a tremendous growth in enplanements, MHT was required under FAA Order 5200.8 to implement improvements to Runway 6-24, the crosswind runway at MHT, to conform to runway end safety area standards. VHB recently prepared an Environmental Assessment in accordance with the National Environmental Policy Act (NEPA) because MHT will use FAA funding for any proposed RSA improvements. Wetlands work is an important component of the overall project since important wetlands associated with Cohas Brook are just east of the existing Runway 24, including a state-designated Exemplary Natural Community. Because wetland impacts will likely result from the project, the consultant team coordinated with the NH Department of Environmental Services and US Army Corps of Engineers, the US EPA, US Fish and Wildlife Service, and even the National Marine Fisheries Service at the federal level and the NH Fish and Game Department, the NH Natural Heritage Bureau and the NH Division of Historical Resources at the state level.

Manchester Airport, ADF System Design-Build, Manchester, NH

Directed development of an alternatives analysis and design-build performance specification for operational and structural solutions to manage water quality at the rapidly expanding Manchester Airport. Developed an RFP on behalf of the Airport to solicit design-build proposals to construct the recommended stormwater system. Assisted the Airport in the selection process, including coordination of pre-proposal meetings and correspondence and evaluation of proposals.

NHDES Wetlands Bureau, Environmental Land Resources Technical Assistance

Principal-in-Charge for a recently awarded contract with the NH Department of Environmental Services to provide technical and management support for the review and processing of wetland dredge and fill applications. Work includes determination of application completeness, assessing impacts of the proposed construction activities, coordination with others within the NHDES and its sister agencies as well as the public, identification of permit conditions and other findings appropriate to each site or project, and assistance with drafting of permit decisions. The work will be performed in accordance with RSA 482-A and Wetland Rules (Env-Wt 100-800) in support of the agency's review and action on wetlands permit applications.

Restoration/Watershed/Environmental Science

Suncook River Avulsion Geomorphic Analysis, Epsom, NH

Retained by the Town of Epsom and the NH Department of Environmental Services (NHDES) to provide analysis of the major avulsion event on the Suncook River. During the May 2006 floods, the Suncook River changed course. The new channel cut through a gravel pit and adjacent wetlands, bringing 150,000 cubic yards of sediment into the river. The VHB team: Completed fluvial geomorphological surveys to characterize the watershed and the current and former river channels; Developed an analysis of options for the future including leaving the river in its current location or restoring the river to its former channel; Developed conceptual designs for those alternatives using a natural channel design approach; and Communicated the study findings to the public in a way that facilitated the decision making process. The study was completed under a very aggressive schedule, given the urgency of the situation. Ultimately, the analysis was well received by the public, and led to the decision to leave the river in its new valley, although with substantial measures designed to stabilize the river and minimize property damage.

Homestead Dam Feasibility Study & Final Design, Ashuelot River, West Swanzey, NH

On behalf of a state and federal interagency task force, directed analysis of options for restoration of the Ashuelot River through removal or modification of the Homestead Woolen Mills Dam. Oversaw a full scope of environmental studies including survey, hydraulic and sediment modeling, hydrogeological studies, historical investigations, and habitat assessment. The project resulted in a decision-making document to help determine the fate of the Homestead Dam and the restoration of anadromous fish to the Ashuelot River basin. The project also involved a significant public coordination effort through the direction of public information meetings and coordination with a project advisory group.

Merrimack River Watershed Wetland Restoration Master Plan, Northfield to Pelham, NH

Working on behalf of the NH Department of Environmental Services (NHDES) to manage the development of a GIS model to identify and rank wetland and riparian restoration in New Hampshire's largest and most populous watershed. The plan will help the NHDES and the state's newly-created Aquatic Resource Mitigation Fund board of directors in their mission to cost-effectively restore and protect the state's natural resources. More than 15,800 contiguous wetland systems, excluding lacustrine environments, are located within the Merrimack River Watershed, comprising approximately 65,000 acres. The GIS-based study developed a method of identifying which of these wetlands has characteristics which make them a good candidate for restoration. A second component of the model developed a functional evaluation based on the *NH Method for Comparative Evaluation of Non-tidal Wetlands*, as well as other factors, to rank the candidate sites. From the study set, 30 sites were studied in the field, with conceptual restoration plans developed for each.

Upper Merrimack River Management Plan Update, Northfield to Bow, NH

Served as Principal-in-Charge for the development of an update to the River Management Plan for the Upper Merrimack River, which begins at the confluence of the Pemigewasset and Winnepesaukee Rivers and flows for approximately 30 miles through the communities of Franklin, Northfield, Boscawen, Canterbury, and Concord, to Garvins Falls in the town of Bow. This segment of the river was among the first

designated for protection under the authority of the NH Rivers Management and Protection Act (RSA 483) in 1990. A Management Plan (required by RSA 483) was developed and adopted by the Upper Merrimack River Local Advisory Committee ("UMRLAC"). The existing management plan dates to 1994 and, in the opinion of the UMRLAC, enough changes have occurred in the last decade that the plan needs a complete rewrite. Under contract with the NH Department of Environmental Services Rivers Management and Protection Program ("NHDES RMPP") to update the Upper Merrimack River Management and Implementation Plan on behalf of the UMRLAC. VHB was contracted by the Central NH Regional Planning Commission to integrate existing materials into a new Management Plan for the Upper Merrimack River and to facilitate public involvement in the update process. The project will be a collaboration between the consultant, the CNHRPC and the UMRLAC members who, although volunteers, are dedicated to completion of the project and will assist VHB and the CNHRPC in meeting the project goals and timeline.

Prime Wetlands Studies, Goffstown, Bedford, Chichester, and Hudson, NH

Directed analysis of wetland systems in this community following the NH Comparative Methodology. Oversaw development of GIS-based analysis, including innovative aerial photography data acquisition on custom developed ArcPad application with integrated GPS. Analysis and mapping formed the basis for community designation of prime wetland systems and revisions to local ordinances, voted on by the communities of Goffstown and Bedford, at town meetings in March 2005 and 2006.

Railway Brook Restoration Master Plan, Newington, NH

Currently managing the development of a conceptual design study for the restoration of Railway Brook, a highly impacted urban stream in the Great Bay coastal watershed. The stream was severely altered, straightened and diverted during development of the former Pease AFB in Newington, NH in the 1950s. Historic aerial photographs and USGS maps show that the stream once discharged to the tidal portion of the Piscataqua River, but it was diverted into Little Bay. Mr. Walker oversaw the biological assessment of the brook, which found poor water quality and habitat and aquatic life that lacks diversity. He also oversaw the development of a geomorphological assessment that determined that large parts of the former channel and its floodplain and riparian wetlands are still intact. VHB has developed a conceptual plan for restoration of a 3,100 linear ft reach of the stream that would create a "B/C" Stream Type (Rosgen, 1996). Restoration of stream morphology including incorporation of a variety of natural rock/boulder structures, adjacent wetlands and improved water quality thereby enhancing habitat for aquatic life and diadromous fish; Permanent protection of the riparian corridor through a conservation easement for the 3,400 foot length of the restored brook.

Stubbs Pond Restoration, Great Bay National Wildlife Refuge, Newington, NH

Directing the assessment of management and restoration opportunities in Stubbs Pond, and the impoundment of Peaverly Brook in Newington, NH. The site was once one of the largest salt marshes on the Great Bay in coastal New Hampshire, but was dammed by the US Air Force to serve recreational needs during development of Pease Air Force Base. With closure of the base, the area was turned over to the US Fish and Wildlife Service for management as a national wildlife refuge. In Phase 1 of the project, directed a sediment analysis program to determine whether contamination from the adjacent

former base exists within Stubbs Pond. Sediment cores were collected by use of boat-mounted vibratory drilling apparatus, and sub-samples by depth were taken and analyzed for a variety of contaminants of concern. Phase 2, currently in scoping, will involve a detailed biological survey of the Pond, along with topographic and bathymetric mapping of the Pond and its vicinity. This information will be used to determine if restoration to a salt marsh environment is likely to be successful and, if so, what the ecological consequences of this management decision would be.

Browns River Restoration, Seabrook, NH

Directing restoration designs of the Browns River, under contract to the NH Coastal Program. The 42-acre Browns River marsh is one of the largest remaining tidal restriction projects in coastal New Hampshire. The marsh is located adjacent to Seabrook Nuclear Power Station and the restriction to the marsh is an undersized culvert under the old Boston and Maine Railroad embankment, now owned by the state. Directed the preparation of environmental and topographic surveys and engineering plans to remove the tidal restriction. Additionally, developed a soil sampling analysis and human health risk assessment to ensure the proper characterization and handling of potentially contaminated sediments at the construction site. Construction is expected in the summer of 2005.

Black Brook Restoration, Gilford, NH

Developed stream restoration plans to daylight approximately Black Brook, a perennial stream in Gilford, NH. The mitigation design created a riparian wetland adjacent to the new stream channel. Oversaw design of the stream channel and wetlands, as well as grading, bank stabilization, and planting plans.

Wetlands Evaluation, Chittenden County Regional Planning Commission, Burlington, VT

Through a research project funded by the Chittenden County Regional Planning Commission, assisted in the detailed evaluation of wetlands in a five town region of greater Burlington, VT. This study used the *Comparative Method for the Evaluation of Freshwater Wetlands in New Hampshire* to provide scientific information to municipal managers. Conducted field work, data analysis, and technical reporting in support of this effort.

Town of Londonderry, NH, EPA Superfund Site Wetlands Analysis and Mitigation

Designed plans to mitigate wetlands impacted by remedial activity at this site. Assisted in the functional evaluation of all on-site wetlands, and used this information to prepare a conceptual wetland mitigation design. Prepared grading and planting plans to create over five acres of wetlands to mitigate project related impacts, which is now constructed and functioning.

Endangered Species and Water Quality at Missisquoi Bay Bridge, Swanton-Alburg, VT

Directed pre-construction studies of endangered turtle species and water quality conditions, including intensive field study of turtles using radiotelemetry, associated with construction of a 3,600 linear feet multi-span bridge.

Previous Experience

NH Department of Environmental Services Wetlands Bureau

During his previous tenure at the NH Department of Environmental Services, Mr. Walker managed the Department's Wetlands and Shorelands Permitting and Resource sections, including supervision of a staff of twenty. Reviewed permit recommendations made by technical staff to ensure consistency, accuracy, and appropriate analysis of potential impacts to the natural environment. Supervised the Bureau's public outreach program to educate citizens about wetlands. Coordinated wetland policy and rulemaking with other departmental personnel, state and federal resource agencies, and with the NH state legislature. Interpreted state law and administrative rules relating to wetlands and shorelands. Represented the Bureau before the NH Wetlands Council and in Superior Court on appealed decisions. Coordinated Department review of energy facility projects. Participated in a regional EPA working group to develop biological assessment methods applicable to wetland ecosystems. Also participated in state and regional interagency working groups focused on stream restoration in the Northeast.

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Education MS, Biology – Ecology and Evolution, University of Vermont
BA, Biology and Environmental Studies, Williams College

**Affiliations/
Memberships** NH Association of Natural Resource Scientists, Board of Directors
Corporate Wetlands Restoration Partnership, Board of Directors
Society of Wetland Scientists
Society of Ecological Restoration
Soil and Water Conservation Society