NORMANDEAU ASSOCIATES
Environmental Consultants

PSNH Seacoast Reliability Project
Supplemental Information
Permittee-Responsible Compensatory Wetland Mitigation Proposals

January 11, 2017

Normandeau Associates, Inc. (Normandeau) is providing updated information regarding updates to the proposed wetland mitigation plan that have occurred since the April 12 filing of an Application for a Certificate of Site and Facility by Public Service Company of New Hampshire d/b/a Eversource Energy for the Seacoast Reliability Project (SRP).

Since the SRP SEC permit application was submitted, the Towns of Durham and Newington have developed permittee-responsible mitigation projects, summarized below. Both concepts have merit for compensation for different aspects of wetland resource impacts by the SRP if the regulatory agencies concur. This information updates that included in the April 12, 2016 Application, specifically Section 301.07(b)(1)(c), the DES Wetland Permit Application (Appendix 13, Section 7) and the Natural Resource Impact Assessment (Appendix 34).

Wagon Hill Farm, Durham

Introduction and Site Description

The Town of Durham has proposed a shoreline stabilization project to reduce the amount of erosion from the Wagon Hill Farm shoreline bordering the Great Bay Estuary and the Oyster River and restore salt marsh that has already eroded. Wagon Hill Farm is Town-owned conservation land consisting of 139 acres with 1,100 feet of tidal frontage on the Little Bay, Oyster River and Smith Creek, and 8.5 acres of tidal and freshwater wetlands. PSNH proposes to stabilize a portion of the existing eroded shoreline, which is partially the result of uncontrolled foot and pet traffic along the shoreline. The erosion has been exacerbated by rising sea level; wind, wave and ice action; and shading from mature trees on the bank. This erosion is continuing to degrade shoreline and salt marsh habitats and has negative impacts on wildlife, shellfish, and fish habitats. The erosion reduction plan proposes to stabilize and restore the shoreline using a living shoreline concept, as well as measures to halt foot traffic in the sensitive areas by re-designing nearby walking paths to discourage off-path travel, using fences and viewing platforms on the adjacent upland, and installing clear signage along the shoreline area.

Proposed Project

The proposed project has two primary objectives: (1) design and build a living shoreline that has both structural and biological elements to minimize erosion, and (2) re-establish the degraded salt marsh to further protect the shoreline. The resulting

stabilized and restored shoreline will help to protect the water quality and aquatic habitats of the Oyster River and the Great Bay Estuary including the adjacent Salt Marsh and Sparsely Vegetated Intertidal systems, both of which are Exemplary Natural Communities documented by NHNHB. Preliminary estimates suggest that approximately 10,000 square feet of salt marsh, plus approximately 1,100 linear feet of adjacent shoreline could be restored. The Town of Durham has partnered with University of New Hampshire (UNH) coastal ecologists (Dr. David Burdick and Dr. Greg Moore) and coastal engineer (Dr. Tom Ballestero) and NHDES Coastal Program staff (Kirsten Howard and Kevin Lucey) to secure funding, collect baseline data, and design the living shoreline solution. This solution will likely include a combination of nearshore deflectors and energy dissipaters to protect against wave and ice action, enhancement of the existing salt marsh, and restoration of salt marsh previously lost to erosion, as well as protection of an upland area preserved for marsh migration as sea level rises. A 5-year monitoring program is proposed to study and assess the results of the project. Performance criteria will be established for evaluating the project with respect to the primary objectives (e.g., minimizing erosion and salt marsh development). Erosion and vegetation development criteria will be based on current erosion rates, salt marsh conditions and the design that is chosen for the site. The partnership between the town, UNH and NHDES will bring innovative techniques for addressing shoreline erosion and protection from human-caused destabilization. A successful project would serve as an example solution for addressing similar erosion problems elsewhere in the Great Bay Estuary. The details of the UNH proposal are provided in Appendix A.

SRP Mitigation Proposal for Durham

The Wagon Hill Farm shoreline stabilization project provides the opportunity for the SRP to compensate for unavoidable wetland impacts in Durham. These impacts include permanent impact caused by SRP structures in freshwater wetlands, potential permanent impact from concrete mattresses on tidal flats, and conversion of forested wetlands and stream buffers as a result of tree removal within the SRP project corridor. The shoreline stabilization project at Wagon Hill Farm will restore deteriorated or fully eroded salt marsh, and will reduce the loss of shoreline habitats and the associated sediment loading into critical estuarine habitats. Direct functional benefits to wetland habitats will include restoration and enhancement of Sediment and Shoreline Stabilization, Wildlife Habitat, Fish and Shellfish Habitat, and Production Export functions.

The Wagon Hill Farm project has been divided into phases for funding sources and milestones: Data Collection, Permitting, Engineering and Design, Construction, and Monitoring. Data collection and conceptual design under Engineering and Design are currently underway and are being funded by a matching grant from the NHDES Coastal Program and Durham ($40,000). These tasks are expected to be complete by early 2017. The Permitting and remaining Engineering and Design costs have been funded with a second matching grant from NHDES Coastal Program and town monies for $42,500. Completion of these tasks is scheduled for mid-2017.

The Construction, Monitoring, and Maintenance components are broken into two phases: Phase 1 is proposed for 2017 and will restore 700 linear feet of shoreline and

approximately 10,000 square feet of salt marsh; Phase 2 is projected for 2018 based on the results of Phase 1and will restore an additional 410 linear feet of eroding shoreline and potentially additional salt marsh. The total cost for construction, 5 years of monitoring and maintenance is currently estimated as $200,000 for Phase 1, and $175,000 for Phase 2 for a total of $375,000. Final costs will vary depending on the final design. The costs for construction, monitoring and maintenance will be funded through a mix of money from the Lois Brown Trust, the Town of Durham general fund, and the SRP compensatory mitigation contribution for unavoidable wetland resource impacts in the town. The Lois Brown Trust has up to $100,000 available for this project. The Town of Durham voted to approve up to $84,000 for this project as part of the 2016 annual budget, pending regulatory permit approval for the PSNH contribution. This money will presumably be available in 2017. PSNH proposes to contribute the dollars calculated for the In-Lieu Fee contribution for wetland impacts in Durham towards construction costs. Under the current proposal, the value of that contribution is approximately $213,000, although that may change during final design and the SEC permitting progress. Table 1 depicts the cost allocation by contributor for construction.

Table 1. Cost allocation by contributing partners for construction of the Wagon Hill Farm Shoreline Stabilization Project.

Contributing Partner	Amount
Lois Brown Trust	$100,000
Town of Durham	$62,000
PSNH	$213,000
Total	$375,000

Newington Conservation Easement

Introduction and Site Description

The Newington Conservation Commission ("NCC") is pursuing a 10-acre conservation easement on a 13-acre parcel on Old Post Road (Map 17 Lot 15) that borders an existing conservation parcel and encompasses a section of the Knights Brook Prime wetland (See Figure B-1 in Appendix B). PSNH is working with the Town of Newington to develop a permittee-responsible compensatory mitigation project that would offset the wetland functional impacts of the Seacoast Reliability Project, and meet the town's goal of protecting this valuable parcel for wetland and wildlife habitat.

The Knights Brook system has been a top priority for conservation in Newington, and is listed as such in their 2009 Master Plan. The 10 acres proposed for easement support approximately 3.7 acres of wetland including a 200-foot section of Knights Brook, several springs, forested wetlands, shrub wetlands, wet meadow, and emergent marsh. The adjacent uplands are a mix of mowed fields and upland forest. A more detailed

habitat description is provided in the Knights Brook Watershed Protection ARM Fund Pre-proposal in Appendix B.

The landowners are retaining three acres of upland which contain their house, gardens and most outbuildings. They want to continue to maintain and use a set of walking paths through the easement lands. The walking paths are mowed grasses in the fields and a mix of cleared ground and bark mulch in the woodlands. Several wetland crossings have boardwalks and low bridges that were permitted in 2008.

A large portion of the parcel is ranked as Tier 1 habitat (Highest Ranked Habitat in NH) under the 2015 Wildlife Action Plan, with Knights Brook and its wetlands ranked as Supporting Landscape (Figure B-2 in Appendix B). The Tier 1 ranking is assigned to the mowed fields, in recognition of their habitat value for a number of bird species with declining populations in NH. The landowners have stated their intention to continue mowing the fields under the conservation easement.

The parcel is adjacent to, or in close proximity to, existing protected lands along the Knights Brook corridor totaling approximately 100 acres. These include the Frink Farm, a 38-acre parcel under an agricultural easement that is predominantly hay fields and pasture, and contains considerable riparian habitat and a tributary to Knights Brook. Abutting the proposed parcel is a 36-acre conservation easement that contains a mix of wetland and forested upland and approximately 1,600 linear feet of Knights Brook. North of, and adjacent to, the 36-acre lot is a 26-acre parcel owned by the Town, also under a conservation easement. This parcel abuts approximately 700 linear feet of Knights Brook and protects its riparian wetland as well as additional upland buffer. The acquisition of a conservation easement on the proposed parcel would increase the size of this block of protected lands, which also increases its value as watershed protection and wildlife habitat.

Project Status

With the help of the Rockingham County Conservation District, the NCC submitted an ARM Fund pre-proposal on April 22, 2016, to secure additional funds for the purchase of the conservation easement. The NHDES response indicated that the project needs to develop a functions and values assessment, a stewardship plan that addresses the use of the existing trails, puts limits on construction of new trails, and creates vegetative buffers to protect aquatic habitat. Since that time, the NCC has gotten a formal appraisal of the value of the easement, a full functions and values assessment, and is currently negotiating the terms of the easement with the landowners using the NHDES conservation easement template. This easement commits the landowners to no new trail construction and limits the use of the existing trails for their private purposes only.

The NHDES had originally requested that a natural vegetative buffer be restored along the edges of all wetlands to protect water quality and wildlife habitat. After reviewing the Tier 1 designation of the mowed fields, NHDES has agreed that the value of the fields and wet meadow outweighs the benefits of the natural buffer along most of the wetlands. NHDES is requesting that a natural buffer along the wetland edge on the western edge of the mowed fields to protect the wetlands bordering Knights Brook. The landowners have agreed to allow a 100-foot natural buffer to regenerate in that area, although their footpath will remain. A Letter of Intent was signed between the

landowner and the NCC, dated September 1, 2016, to commit to the purchase of the conservation easement, and a draft of the easement has been agreed to by the NCC and the owners (both are provided in Appendix B). The NCC will be the easement holder and has committed to annual monitoring to ensure the terms of the easement are maintained.

SRP Mitigation Proposal for Newington

The Newington Conservation Easement project provides the opportunity for the SRP to compensate Newington for unavoidable permanent impacts caused by SRP structures in freshwater wetlands, up to 1,786 square feet of permanent impact from concrete mattresses on tidal flats and rocky shore, and conversion of forested wetlands and stream buffers as a result of tree removal within the SRP project corridor. Placing a conservation easement on this parcel will protect a section of Knights Brook and its Prime Wetland, and will enlarge an existing protected block of habitat in a section of town with development potential. It will also narrow a gap in protection between two existing conservation easements. Direct functional benefits to wetland habitats will include protection and enhancement of Groundwater Discharge, Floodflow Alteration, Shoreline Stabilization, Sediment/Toxicant Removal, Nutrient Removal, Wildlife Habitat, and Production Export functions.

The 2016 appraisal value of the conservation easement is $260,000. PSNH proposes to contribute the dollars calculated for the In-Lieu Fee contribution for wetland impacts in Newington towards the purchase of the easement. Under the current amended proposal, the value of that contribution is approximately $80,000, although that may change during final design and the SEC permitting progress. The NCC has committed $100,000 from their conservation fund, and will request the remaining monies (estimated as $81,000) to be raised at through a special warrant article at the 2017 Town Meeting. Table 2 depicts the cost allocation by contributor for purchase of the easement.

Table 2. Cost allocation by contributing partners for the Newington Conservation Easement Acquisition.

Contributing Partner	Amount
Newington Conservation Commission Fund	$100,000
Town of Newington*	$79,000
PSNH	$81,000
Total	$260,000

*To be requested as a warrant article in the 2017 Town Meeting.

In-Lieu Fee Reversion

PSNH will continue to work with the applicable parties to develop a mitigation package that will be acceptable to NHDES and USACE. In the event that a town proposal does not come to fruition, or develop within an acceptable schedule for the agencies, PSNH agrees that the SRP compensatory mitigation funds will revert to the State In-Lieu Fee program to be dispersed by NHDES under the general Aquatic Resource Mitigation Fund grant program for the Salmon Falls-Piscatqua Rivers Service Area.

Appendix A. Supporting Documents for Wagon Hill Farm Shoreline Stabilization, Durham, NH.

Living Shorelines as an Erosion Control and Habitat Mitigation Approach for Wagon Hill Farm, Durham, NH

David Burdick[1], Tom Ballestero[2] and Gregg Moore[1]
[1]Jackson Estuarine Laboratory [2]Environmental Research Group
University of New Hampshire

david.burdick@unh.edu

June 14, 2016

Project Summary: The Town of Durham has owned Wagon Hill Farm (WHF) and maintained public access to the shoreline at the mouth of the Oyster River estuary for more than 20 years. Over this time, officials noticed erosion along much of the shoreline of the property adjacent to the Oyster River. The shoreline along the River is naturally divided into three sections, with the area of most concern adjacent to a constructed beach. A split rail fence was erected near the beach to discourage pedestrian and pet access/disturbance to the eroding bank. The fence had to be relocated landward on two occasions to prevent it from eroding into the water. The beach has been periodically re-nourished with sand and small stones were added to a small section (as rip-rap) to reduce stormwater runoff erosion. Other sections of shoreline extending westward also have erosion issues exhibiting bank collapse and loss of several large trees falling into the River.

The Town would like to manage the shoreline to minimize erosion using best management practices representing the state-of-the-science. With increases in the rate of sea level rise expected over the next several decades and the successful use of living shorelines elsewhere along the mid-Atlantic, we would like to design, pilot, and monitor a living shoreline for WHF. To begin, we established a team of Town officials (Todd Selig, Mike Lynch and Rachel Gasowski), UNH researchers (David Burdick, Tom Ballestero and Gregg Moore) and NH DES Coastal Program staff (Kevin Lucey and Kirsten Howard) who have agreed to work collaboratively on this project.

There are a variety of possible reasons for increased erosion of WHF shorelines over the past twenty years. Therefore our first step is to monitor the erosion rate and causative factors in 2016 to assess the various possible reasons for shoreline erosion. Subsequent to a better understanding of causative factors, erosion control using living shorelines will be proposed as a series of alternatives of cross sections and materials for the three priority locations identified at past meetings. The section of shoreline between the beach and the historic crib wharf is a priority because: 1) rapid erosion has already been demonstrated; 2) site is highly visible to the public; 3) site is easily accessible; and 4) design can tie into existing shoreline structures (marsh and wharf). Our team will be working to resolve the technical issues and develop a set of plans by the end of this summer based upon new surveys, wetlands delineation, and functions and values assessment using a grant from the NH DES Coastal Program.

Project Design: Living shoreline alternatives will be presented as a series of cross sections and materials for three potential restoration locations with the understanding that one site will be chosen as a pilot project for restoration. A conceptual design plan will be developed for the tidal shoreline section targeted for restoration (pilot project), including project site data, specified design criteria, relevant design guidelines, and other key information. An itemized construction cost will be developed for the pilot project; currently an estimate for the project construction and post construction monitoring is $200,000.

Project Objectives: There are two primary objectives for this project that fit well with the proposed mitigation. First, we will design and build a new shoreline that has both structural and biological elements, a living shoreline, that will minimize erosion. Second, the salt marsh that once protected the shoreline will be re-established. Salt marshes have a variety of ecosystem services and some of these might be chosen as secondary objectives for the project (e.g., wildlife habitat, nitrogen cycling, carbon storage).

Monitoring Objectives: A monitoring plan will be prepared this summer that describes critical parameters and associated criteria for measuring the effectiveness of a proposed living shoreline project. Baseline data of erosion rates will be measured using erosion pins and a current survey will be compared to a previous survey in 2002 to estimate erosion rates. Following construction of the living shoreline, erosion pins will continue to be used to measure erosion and the structural elements and marsh plants will be evaluated over time to determine performance with respect to Objective #1 Minimizing erosion. The development of a healthy salt marsh is Objective #2. We will assess the vegetation development of both high and low salt marsh from planted and rehabilitated areas and compare to a reference site. Other monitoring metrics will be used to assess specific secondary objectives requested by stakeholders and indicative of changes to the functions and values of the habitat restored.

Project Evaluation: We are planning a five-year monitoring program to assess the pilot project. An assessment of the functions and values under current conditions will form the baseline from which to measure progress following shoreline construction. Performance criteria will be established for evaluating the project with respect to the primary objectives (e.g., minimizing erosion and salt marsh development). Erosion and vegetation development criteria will be based on current erosion rates, salt marsh conditions and the design that is chosen for the site. In addition, other metrics may be used and compared with performance criteria to evaluate the project relative to secondary objectives.

Living Shorelines as an Erosion Control Approach for Wagon Hill Farm, Durham, NH

Overview

Planning

Next Steps

A. Data Collection: Because there is a wide array of techniques and materials from which to develop a living shoreline and some materials may be more or less appropriate depending upon site conditions, as series of measurements are planned. Measures include short and longer-term information gathering.

1) Collect and annotate existing data for Wagon Hill Farm, including weather. This is often a cost-effective approach to data collection.

2) Tidal heights and wave climate will be measured using an array of pressure transducers with a weather station. These water level recorders will be installed and programmed to obtain wave heights from winds and boat wakes.

3) Shoreline elevation and slopes will be measured using a total station RTK for the entire shoreline, but detailed information will be gathered for the shoreline sections where restoration appears to be needed. Sunlight reaching the sediment surface will also be assessed at specific locations.

4) Long term direct measurement of erosion at the site using available overhead images is made difficult by trees and their shadows, so erosion pins will be installed and measured monthly. A wildlife camera will be trained on the visitors who inadvertently exacerbate erosion by damaging marsh peat. We also may need to set out some short-term sediment catching structures to plan for restoration of marsh and shoreline. This may be a series of sediment traps or a larger structure for correct scaling to the site.

B. Restoration Design: Erosion control using living shorelines will also be proposed as a series of alternatives considering cross sections and materials for three locations prioritized at past and future meetings. The section of shoreline between the beach and the historic crib wharf is a priority because:

1) Rapid erosion has already been demonstrated

2) Highly visible to the public

3) Site is easily accessible

4) Can tie into existing shoreline structures (marsh and wharf)

A second area of concern for the Town of Durham is the freshwater drainage that runs into the Oyster River towards the north point of the shoreline. This area was identified by Mike and may need a drainage plan incorporated into shoreline restoration.

C. Immediate Actions Summer 2016: Actions that can be accomplished without a state wetlands permit include tree trimming to increase light reaching the marsh surface. To reduce foot traffic in sensitive areas, signage and fences could be installed. . . .

Statement of Work for UNH Living Shorelines Team

Collect data, report on conditions and develop 3 designs for living shorelines at WHF using data and submitting some portion for 2016 ARM funding (August deadline).

1) Collect and annotate existing data for Wagon Hill Farm, including weather. [Time: 2 weeks]

2) Tidal heights and wave climate will be measured using an array of [3?] vented pressure transducers and an associated weather station. These water level recorders will be installed and programmed to obtain wave heights from winds and boat wakes from May 15 to August 1. [Eq: 6k and time: 2 weeks]

3) Shoreline elevation and slopes will be measured using a total station RTK for specific, prioritized locations. Sunlight reaching the sediment surface will also be assessed at specific locations. [Eq: 1 k and time: 4 weeks]

4) Long term direct measurement of erosion at the site using available overhead images is made difficult by trees and their shadows, so erosion pins will be installed and measured monthly for 1 year (2016-2017). A wildlife camera will be trained on the visitors who inadvertently exacerbate erosion by damaging marsh peat (May through July). We also need to set out some short-term sediment catching structures to plan for restoration of marsh [Eq 2k and time: 6 weeks]

5) Living Shoreline Concepts and Alternatives for three sites based on priorities of the partnership (Town of Durham, UNH, and NHCP, DES). A living shoreline will be framed out in concept for the section between the town beach and the historic wharf or landing. Up to two alternative conceptual designs will be presented for the shoreline to develop a plan with strong buy-in for this highly visible section. Conceptual designs will be presented for two more shoreline sections as indicated by the priorities of the partnership. [Time: 4 weeks]

				2016								2017												Responsible party
			COST	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
1.0	**DATA COLLECTION**																							
	1.1	Review Existing Data																						
	1.2	Tidal Range and Wave Action Measurements																						
	1.3	Topographical Survey																						
	1.4	Erosion Classification (Pins)																						
	1.5	Sediment Deposition																						
	1.6	Human Use Impact Characterization																						
	1.7	Light Characterization																						
	1.8	Wetland Delineation																						
2.0	**MONITORING**																							
	2.1	Monitoring Plan (5 year post)																						
	2.2	Functions and Values Assessment																						
	2.3	Pre Monitoring for flora and fauna																						
	2.4	As-built Survey																						
3.0	**PERMITTING**																							
	3.1	Natural Heritage Bureau Report																						
	3.2	Wetlands Permit																						
	3.3	Shoreland Permit																						
4.0	**SECTION 106 COMPLIANCE**																							
	4.1	Request for Project Review																						
	4.2	Phase IA																						
	4.3	Phase IB																						
5.0	**ENGINEERING/ DESIGN**																							
	5.1	Alternative Analysis (3 cross-sections/material)																						
	5.2	Preliminary Construction Cost Estimate																						
	5.3	Design Basis Technical Memo (draft and final)																						
	5.4	50% Complete Design & Design Basis Memo																						
	5.5	100% Complete Designs & Design Basis Memo																						
6.0	**MEETINGS & OUTREACH**																							
	6.1	Stakeholder Meeting																						
	6.2	Pre-Permitting Meeting																						
	6.3	Partner Meetings																						
	6.4	Durham Day (9/17)																						
7.0	**CONSTRUCTION**																							
	7.1	Competitive Bid																						
	7.2	Implementation																						

Appendix B. Supporting Documents for Acquisition of a Conservation Easement along Knights Brook, Newington, NH.

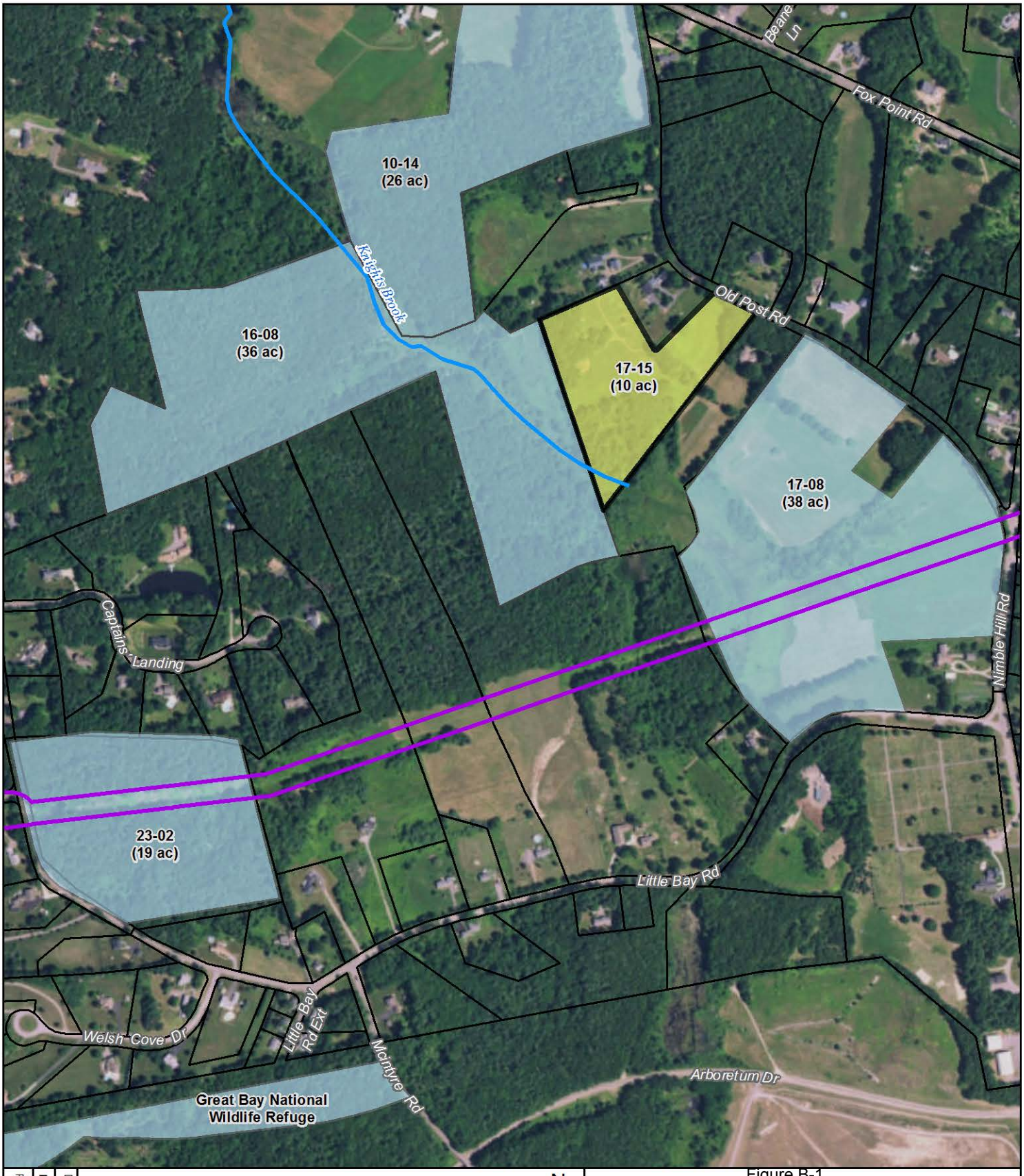

Figure B-1
Seacoast Reliability Project
Existing and Proposed Conservation Lands
Newington, New Hampshire

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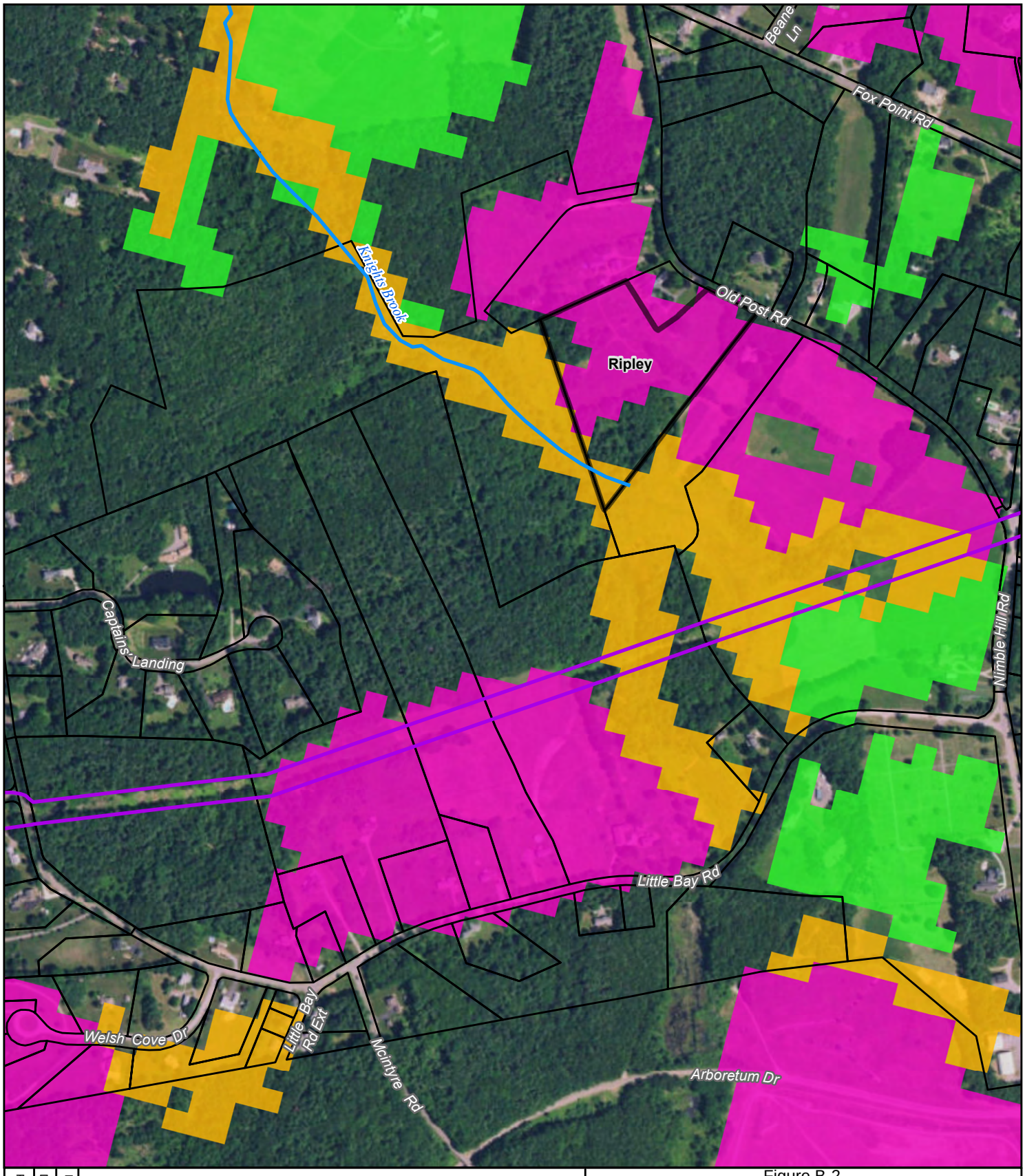

Project No: 22860.003

Drawn By: dpelletier

Date : 8/15/2016

Knights Brook
SRP Project Area
Parcel Boundaries

Wildlife Action Plan Tiers

Highest Ranked Habitat in NH
Highest Ranked Habitat in Biological Region
Supporting Landscape

N

Data Sources: NH Fish & Game, NH GRANIT and ESRI

0 300 600 Feet

Figure B-2
Seacoast Reliability Project
NH Wildlife Action Plan Highest Ranked Habitats
Newington, New Hampshire

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NEW HAMPSHIRE DEPARTMENT OF Environmental Services

ARM FUND APPLICATION FORM AND PROJECT WORKSHEET

Water Division/ Shoreland Program
Land Resources Management

RSA 482-A:28-32 / Env-Wt 800

1. SHORT TITLE FOR PROPOSED PROJECT		
Knight's Brook Watershed Protection Phase I		
2. PROPOSED PROJECT LOCATION INFORMATION		
Street/Road: Old Post Road	Town/City: Newington	Service Area: Salmon Falls-Piscataqua
3. APPLICANT INFORMATION		
Applicant Name: Newington Conservation Commission		
Applicant Mailing Address: 205 Nimble Hill Road		
Contact Individual: Jane Hislop and/or Gerald Coogan, AICP, Interim Town Planner		
Daytime Telephone: 436-7640	Email (if any): gcoogan@townofnewingtonnh.com/jhislop@fs.fed.us	
4. GRANT AMOUNT REQUESTED; MATCHING FUNDS		
Total Amount Requested:$ 80,000	**Total Project Cost:** $300,000-400,000 +/-	
Source(s) And Amount(s) of Matching Funds: Source: NRCS $ 48,500 Source: Conservation Fund $100,000	Source: NAWCA $75,000 Source:	
5. RESOURCE WORKSHEET		
Aquatic Resources Involved in Project: See Table Below.		
Total preservation proposed: Upland: 6.24+/- Acres	Wetland: 3.76 +/- Acres	
Total length of stream(s) on property: 200 +/- Linear Feet % upland: 62%	% having 100-ft wooded zone: 200'- 300' +- in North direction 200'-300' +/- in South direction	
# confirmed vernal pools: N/A	# potential vernal pools: Undocumented	
Area of wetland restoration proposed: 1-2 +/- acres	Area of wetland creation proposed: acres	
Area of wetland enhancement proposed: acres	Area of upland enhancement proposed: acres	

6. SIGNATURE AND CERTIFICATION

I hereby certify that:

- The information contained in or otherwise submitted with this application is true, complete, and not misleading to the best of my knowledge and belief;
- I understand that
  - Submitting false, incomplete, or misleading information is grounds for denying the application or revoking any award of ARM Funds that is made based on such information; and
  - I am subject to the penalties for making unsworn false statements specified RSA 641:3 or any successor New Hampshire statute.

Signature: Jane E. Hislop	Date: 4/26/16
Name, Title: Jane E. Hislop Co-Chair of ConCom	

Lori.Sommer@des.nh.gov or (603) 271-4059
NHDES Wetlands Bureau, Concord, NH 03303-0095
www.des.nh.gov

Summary of Aquatic Resource(s) Involved in Project

The following information is required to be provided about the aquatic resources found on the proposed ARM Fund site. This information is necessary to maximize the mitigation program goal of compensating for impacts lost through the payment projects for each grant round. The New Hampshire RSA 482-A:3 requires a wetland permit for any proposed project that involves dredging or filling of a wetland or stream resource. Before NHDES will issue a permit, applicants must show that their proposed project will avoid adverse impacts to aquatic resources and will minimize and mitigate those impacts which are unavoidable. A component of this analysis is to record the wetland resource type that will be lost through the development project and evaluate the functions and values it serves. With this information, NHDES can keep a record of those areas and functions lost and review ARM Fund projects with the goal to replace or protect those types and important functions lost.

Wetland Resources: Wetlands shall be classified by US Fish and Wildlife Service Manual WS/OBS-79/31 Classification of Wetlands and Deepwater Habitats of the United States, Cowardin et al, 1979, reprinted 1992.

Stream Resources: For funding requests to restore or improve stream systems, the streams on the project site shall be reviewed and the following information collected to the best extent possible:

Stream order according to New Hampshire Hydrography Dataset (NHHD)	Geomorphology including degradation
Rosgen stream type	Position within the surrounding landscape
Impacts to upstream and downstream flooding	Connectivity improvement for aquatic organism passage
Stream bed materials	Fisheries presence
Sediment Transport capacity	Characterization of the adjacent buffers in terms of vegetative coverage
Channel form	Floodplain connectivity

These general principals are described within the New Hampshire Stream Crossing Guidelines, University of New Hampshire, May 2009, found at:
http://des.nh.gov/organization/divisions/water/wetlands/documents/nh-stream-crossings.pdf

Wetland Functions & Values: A wetland evaluation is the process of determining the values of a wetland based on an assessment of the functions it performs. The evaluation of wetland functions and values should be determined through use of the Method for Inventorying and Evaluating Freshwater Wetlands in New Hampshire, 2015 edition (2015 New Hampshire Method), available at http://nhmethod.org *OR* US Army Corps of Engineers, New England District highway methodology workbook supplement, 1999 edition (1999 US ACE Highway Workbook Supplement). The evaluation should focus on the following: Ecological Integrity, Wetland-Dependent Wildlife Habitat, Fish and Aquatic Habitat, Scenic Quality, Educational Potential, Wetland-based Recreation, Flood Storage, Groundwater, Sediment Trapping, Nutrient Trapping/Retention/Transformation, Shoreline Anchoring, Noteworthiness.

Please note a request for funds can be used for projects that protect or produce habitat improvements so as to provide enhancement of functions within a degraded wetland or improved connectivity in a riparian system. Possible improvements include water quality improvements, tidal flow manipulations, culverts and dam removal, as well as stream or river restoration/enhancement activities. The NHDES Coordinator should be contacted relative to information on deficient culvert crossing locations and analyses available for assessing geomorphic compatibility and aquatic organism passage.

TABLE OF RESOURCES

Wetland ID or Number	**Resource Type** (list all that apply such as PFO, PSS, PEM, M1, M2, E2, RUB, etc.)	**Acreage** (by resource type)	**Wetland Functions** (List all that apply, and if possible, according to wetland ID or number)
1	PEM1E	.5	Flood flow Alteration, Groundwater Recharge/discharge, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention Transformation, Production Export, Sediment/Shoreline Stabilization Wildlife Habitat
2	PFO1/EM1E	.3	Groundwater Recharge/discharge, Wildlife Habitat
3	PFOI/SS1/EM1E	.62	Groundwater Recharge/discharge, Sediment/Shoreline Stabilization, Wildlife Habitat
4	PFO1/SS1E	1.14	Flood flow Alteration, Groundwater Recharge/discharge, Sediment/Toxicant/Pathogen Retention, Wildlife Habitat
5	PFO1E	0.4	Groundwater Recharge/discharge, Sediment/Toxicant/Pathogen, Nutrient Removal/Retention Transformation, Wildlife Habitat
6	PEM1Ed	.8	Groundwater Recharge/discharge, Sediment/Toxicant/Pathogen

			Retention, Wildlife Habitat

NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES
2016 AQUATIC RESOURCE MITIGATION FUNDS
SALMON FALLS-PISCATAQUA RIVER WATERSHED

TITLE

KNIGHT'S BROOK WATERSHED PROTECTION
PHASE I

PREPROPOSAL

SUBMITTED BY:
NEWINGTON CONSERVATION COMMISSION
205 NIMBLE HILL ROAD
NEWINGTON, NH 03801

APRIL 22, 2016

KNIGHT'S BROOK WATERSHED PROTECTION
PHASE I

PROJECT DESCRIPTION

Introduction:

The intention of this project is to permanently protect 10 acres of critical aquatic resources and their upland buffers, located off of Old Post Road in Newington, NH. The property is owned by the Ripley's for nearly three decades. They have been interested in the conservation potential for this property, but have also been approached by developers. The potential degradation of the high quality aquatic resources and their upland buffers from development here would be detrimental for the Knight's Brook, its riparian corridor, and the entire watershed. The Newington Conservation Commission is now negotiating for its permanent protection.

Goals:

To permanently protect 10 acres of critical aquatic and riparian resources and adjacent buffers within Newington's second largest freshwater wetland, and designated Prime Wetland. We propose to utilize NH DES, ARM funds to assist with permanent protection of the parcel that contains approximately 37% +/- wetland cover, with mostly scrub-shrub, wet meadow, shallow marsh, red maple swamp, and associated upland buffers.

Aquatic and Habitat Resource Protection:

The Knight's Brook is the second largest freshwater wetland complex in Newington (31 +/- acres) and includes a diverse stream corridor. This area has been a top priority for conservation for a number of years, and was specifically listed in the 2009 Newington Master Plan.

The site has gently sloping topography, and has 200+/- linear feet along Knight's Brook. Knight's Brook was designated a Prime Wetland in 2005, and is the second largest designated Prime Wetland in Newington.

The wetlands on-site include two small springs, and support wetland functions including: groundwater recharge/discharge; flood flow alteration; groundwater recharge/discharge; sediment/toxicant/ pathogen retention; nutrient removal/retention transformation; product export; sediment/shoreline stabilization and wildlife habitat.

Habitats here include abundant wet meadows, shallow marsh, scrub-shrub, and red maple forested wetlands and associated upland buffers. Upland habitats on site include approximately 5 acres +/- of managed fields, and a smaller amount of mixed forest dominated by mixed age canopy and sapling layers of white pine, red oak, black cherry, and gray birch. Highbush blueberry, staghorn sumac and some buckthorn and multiflora rose are also found in the shrub layers. No vernal pools have been verified on site, but a more in-depth review will occur later in the spring to complete a full wetland inventory for the site.

Other species found on site include: American elm, black birch, red maple, hemlock, grey birch, beech, red spruce, as well as speckled alder, and red-oiser dogwood. Plants found on site include:

Canada mayflower, winterberry, meadow sweet; bayberry; tussock sedge, cinnamon fern, royal fern, Jack-in-the-pulpit, wild geranium, Pink Lady's Slippers, Chicory, and Poison ivy.

There is a variety of wildlife that have been found throughout the stream corridor including; beaver, otter, mink, muskrat, raccoon, porcupine, fisher, weasel, skunk, red and grey fox, as well as a significant deer population. Wetlands and upland habitat with considerable undisturbed acreage also provide valuable habitat for birds of prey, song birds, migratory and ground nesting birds and include on-site viewings of woodcock, swallows, herons and other wading birds, barred owls, and a variety of duck species. It is likely that several threatened and endangered species may be included within this riparian corridor. The NH DRED, Natural Heritage Bureau will soon provide an up-to-date list for the site.

This parcel has 100 acres of protected lands adjacent or nearby making this a significant wildlife corridor. This area includes a large unfragmented block of riparian lands that serve as important wildlife habitat and water quality protection. This block of protected lands includes a 37.9 acre (Map 17 lot 10) protected farmland located just upstream of this site, another 25.95 acres in conservation easement (former mitigation) (Map 10, lot 14) located downstream, and directly adjacent is another 36 +/- acres in easement of a 43 acre parcel (Map 16, lot 8). The protection of this parcel enlarges existing protected lands, and is located within a large contiguous block of open lands. The majority of this area is identified in the 2015 NH WAP as Highest Ranked Habitat in New Hampshire.

Restoration at this site may likely be proposed by NRCS and may include restoration of former ditching, invasive plant control, and trail stabilization. To this end we plan to work with the NRCS, Wetland Restoration Easement (WRE) program on easement and restoration opportunities.

Supporting Documents:

The *Town of Newington Master Plan* (2009) specifically referenced this parcel, and the Planning Board endorsed it for open space protection. It is the largest freshwater wetland that is designated Prime Wetland under Newington's jurisdiction. It is an area of great natural beauty and if permanently protected will contribute to the health, significance, and diversity of an invaluable freshwater wetland complex in town.

The NH Fish & Game's *Wildlife Action Plan* (WAP) (2015) includes this parcel within the Highest Ranked Habitat in New Hampshire with supporting landscapes.

Possible Partnerships and Timeframe:

A conservation easement holder for this land will likely depend upon funding options and timing, but the intent is that this eligible parcel will rank highly with the NRCS/WRE program, and NRCS will be the easement holder in perpetuity. The Town of Newington has $100,000 available for conservation purposes within its conservation fund for this protection effort. Values of land extend far beyond the available funds from the conservation fund, so additional partners will be needed to ensure its permanent protection. The ability to leverage state and federal funds for permanent protection is essential to ensure the success of this conservation project. The following is proposed for funding, partners, and estimated timeframes:

NH DES, ARM	Fall/Winter 2017	$80,000
NRCS, WRE	Winter/Spring 2017	$48,500 (with easement)
Newington Conservation Fund	Spring 2017	$100,000 +/-
NAWCA small grant	Winter/Spring 2017	$75,000

By permanently protecting this site, the integrity of the high value aquatic resources will not be compromised. The prospect for protection and restoration of wetland functions and values and contiguous upland buffers offers considerable watershed protection and signifies the importance of immediate permanent protection.

Newington, NH

WEST ENVIRONMENTAL Inc.

NEATLINE ASSOCIATES
www.nhgis.com

Data Sources: Background image is a 2010 1-foot resolution aerial photograph acquired by NHDOT and distributed by NH GRANIT. Road names from NH DOT. Town boundaries from NH GRANIT. All other features from West Environmental. All features and locations are approximate.

0 200 Feet

Tax Map 17 Lot 15, Newington

Legend

- Newington_17-15
- Ripley_Wetlands

Total Area: 12.98 acres
Exclusion Area: 2.98 acres
Total Inclusion Area: 10 acres
Wetland Area: 2.94 acres
Upland Area: 7.06 acres

0 1,000 2,000 Feet

1 inch = 2,000 feet

N

Compiled by the Rockingham County Conservation District, 2016.

The Town Of Newington
New Hampshire
Established 1713

OFFICE OF
SELECTMEN

September 1, 2016

Mr. and Mrs. John Ripley
50 Old Post Road
Newington, NH 03801

Re: Letter of Intent (LOI) regarding a Conservation Easement

Dear Mr. and Mrs. Ripley

The Town of Newington Conservation Commission (aka NCC) confirms the substance of the recent discussions with you (aka "Landowner") regarding our mutual interest in a potential purchase by the Town of Newington (acting through the Conservation Commission aka NCC) of a conservation easement on your property, consisting of approximately 10 acres in the Town of Newington, County of Rockingham and known as Tax Map 17, Lot 15. The Property is of part of the Knights Brook Watershed and is located in an area that satisfies the criteria established by the NCC as part of its Open Space Preservation Plan for conservation easements. The NCC is interested in the eventual acquisition of a conservation easement (aka "Easement") on the Property. This letter will serve as a Letter of Intent (LOI) setting forth the understanding of the parties regarding the preliminary steps for undertaking this easement project.

Both the Landowner and the NCC agree to the following:

1. The property interest to be acquired through a conservation easement consists of the parcel of land known as Tax Map 17, Lot 15 (aka 50 Old Post Road) on the Town of Newington, NH official Tax Map;

2. Mr. and Mrs. Ripley (aka "Landowner") and the NCC agree on a purchase price of $260,000 for the acquisition of the "Easement" which is the appraised value of the property. See Appraisal Report, Proposed Conservation Easement on 10.00 acres prepared by Knight Appraisal (Peter Knight), July 1, 2016. A copy of the appraisal is available at the Town office for inspection;

3. The following sources would provide the funds for the acquisition of the conservation easement:

    a) Town of Newington Conservation Fund - $100,000

b) Seacoast Reliability Project Mitigation funds	$ 80,000 (est)
c) Town of Newington 2017 Town Meeting special article	$ 80,000[1]
Total	$260,000

4. If the required funding is secured, the Landowner and NCC will enter into an **Agreement to Purchase the Development Rights,** to which both parties would agree;

5. Both the Landowner and the NCC agree that this Letter of Intent (LOI) is not a contractually binding agreement on the parties and is only an expression of the intent of the parties to pursue a conservation easement agreement. This LOI does not obligate either party to proceed to the completion of a purchase and sale of an Easement.

6. The Landowner acknowledges and fully understands that a conservation easement transaction and agreement can be a complex undertaking and can require some time to complete. The NCC advises you to seek legal and/or tax advice to assist you in carrying out this potential conservation easement project.

If this LOI accurately reflects the present understanding with respect to the above, please sign the enclosed copy of this letter and return it to the above address. The NCC looks forward to working with you on this conservation easement.

Please call Gerald Coogan, AICP, Interim Town Planner at 436 – 7640 or 748 – 5580 or by e mail at gcoogan@townofnewingtonnh.com if you have any questions regarding the above or the process moving forward to the completion of a conservation easement.

Sincerely,

Jane E. Hislop

Jane Hislop,
Co-Chair, NCC

Jim Weiner

Jim Weiner,
Co-Chair, NCC

As the Landowner of Tax Map 17, Lot 15, we have read and agree to the above LOI:

John C. Ripley

John Ripley

Dated: 09/01/16

Margaret Ripley

Margaret Ripley

Dated: 09/01/16

[1] This is a special warrant article that requires favorable action at the March 2017 Town Meeting. At present, the $80,000 is an estimate.

This easement language has been reviewed and approved by the Grantors and representatives from the Newington Conservation Commission. The final conservation easement will utilize the content of this easement but will likely be crafted by the Town of Newington and may include modifications in the language but not the intent.

September 8, 2016

DEPARTMENT OF ENVIRONMENTAL SERVICES
CONSERVATION EASEMENT DEED
For the Aquatic Resource Mitigation Fund Program

[Name of Grantor(s)], with a principal mailing address of [street name and number], Town/City of [town/city name], County of [county name], State of New Hampshire, (hereinafter referred to as the "Grantor," which word where the context requires includes the plural and shall, unless the context clearly indicates otherwise, include the Grantor's executors, administrators, legal representatives, devisees, heirs, successors and assigns), for consideration paid, with WARRANTY COVENANTS, grant[s] in perpetuity to [name of grantee] , with a principal mailing address of _____ [street name and number], County of [county name], State of New Hampshire, (hereinafter referred to as the "Grantee" which shall, unless the context clearly indicates otherwise, include the Grantee's executors, administrators, legal representatives, devisees, heirs, successors and assigns), this CONSERVATION EASEMENT (herein referred to as the "Easement"), and with a Third Party Right of Enforcement therein granted to the STATE OF NEW HAMPSHIRE acting through its DEPARTMENT OF ENVIRONMENTAL SERVICES**,** an administrative agency duly organized and existing under the laws of the State of New Hampshire, with a principal place of business at 29 Hazen Drive, City of Concord, County of Merrimack, State of New Hampshire, 03302, (the "Third Party Holder"), over the parcel of land (herein referred to as the "Property") with any and all buildings, structures, and improvements thereon/being unimproved land situated on _____ in the Town/City of, County of [county name] , State of New Hampshire, with said Property and Easement more particularly bounded and described in Appendix "A" attached hereto and made a part hereof and on a plan set dated [plan date] prepared by [name of preparer of plan], titled "[title of plan] ", Sheets __ through __ inclusive (the "Overlay Plan") on file with the Town and with the N.H. Department of Environmental Services.

The Grantee has identified the Property as critical wildlife habitat, which includes fields, wetland, riverine and upland habitats that provide significant habitat for numerous species of wildlife and possesses the following attributes:

1. The Property includes lands that are ranked "Highest Ranking Habitat by Ecological Condition in the State" in New Hampshire in the New Hampshire Wildlife Action Plan.

1. CONSERVATION PURPOSES

The Easement hereby granted is pursuant to NH RSA 477:45-47, and in compliance with the New Hampshire Aquatic Resources Mitigation Fund Final In-lieu Fee Program Instrument (U.S. Army Corps of Engineers, New England District, Regulatory Division, File Number NAE-2005-1142), exclusively for the following conservation purposes:

A. To conserve and protect in perpetuity the natural vegetation, soils, hydrology and habitat as

documented in the baseline documentation report dated [report date] entitled "[report title]" (the "Report"), which Report is on file at the office of the Grantee and the Department of Environmental Services and is incorporated herein in full.

B. To restore, protect, manage, maintain, and enhance the functional values of wetlands, vernal pools, streams, riparian areas and other lands, and for the conservation of natural values including fish and wildlife and their habitat, ecological integrity of the water resources, water quality improvement, flood water retention, groundwater recharge, and open space.

C. To prevent any future development, construction, or use that will negatively impair or interfere with the conservation values of the Property as documented in the baseline documentation report while accommodating the reserved rights of Grantor as allowed under Section 5.

All of the purposes set forth herein are consistent and in accordance with the U.S. Internal Revenue Code, Section 170(h).

2. DEFINITIONS

A. Agriculture and Forestry: For the purposes of this Easement, "agriculture" and "forestry" shall include animal husbandry, floriculture, and horticulture activities; the production of plant and animal products for domestic or commercial purposes; the growing of food crops: or forest trees of any size capable of producing timber or other forest products; the construction of roads or other access ways for the purpose of removing forest products from the Property; and the sale of products produced on the Property (such as firewood and maple syrup), all as not detrimental to the Purposes of this Easement.

B. Ecological Integrity: For the purposes of this Easement, "Ecological Integrity" describes a condition in which natural processes (e.g., floods, fire, drought, seed dispersal, nutrient cycling, and maintenance of microclimates) are allowed to occur within their natural variation over time without human manipulation or suppression (i.e., the timing, duration and extent of a flood is allowed to run its course). These natural processes influence the structure and composition of habitats that support native plants, animals and other organisms in groupings appropriate to the natural landscape. This dynamic and changing environment provides opportunities for biological evolution.

C. Riparian/Wetland Buffer: ~~The 100' and 200' buffers are preferred but these may be discussed according to the property and site conditions.~~ For the purposes of this Easement, "Riparian/Wetland Buffer" shall be the areas within 100 feet of intermittent streams and wetland areas, 200 feet of perennial streams, and 200 feet of Significant Wetland Areas as defined below. The Riparian/Wetland Buffer edge shall be measured from the edge of the normal high water mark of the stream or the wetland boundary. In cases where the top of an embankment is less than 50 feet from the stream or wetland edge, the riparian or wetland edge shall be measured from the top of embankment which shall be defined as a break in slope. In cases where wetlands surround a stream beyond 50 feet from the stream edge, the Riparian/Wetland Buffer shall be measured from the boundary of the upland edge of the wetland area.

D. Significant Wetland Areas: For the purposes of this Easement, "Significant Wetland Areas" are those areas that, by virtue of their unspoiled condition, unique physical or biological features, rarity, and/or exemplary nature, have [special value] in a particular locale. This value is reflected in a [high degree of functioning relative to its ecological integrity], wildlife and aquatic life habitat, flood storage,

groundwater interactions, and/or sediment and toxicant attenuation, and special social values such as education, scenic quality, and recreation. Significant wetlands are typically identified and evaluated by wetland scientists, wildlife biologists, or Natural Heritage Bureau ecologists through fieldwork and/or high resolution aerial photograph interpretation. Significant wetlands include, but are not necessarily limited to:

1. Wetland communities or systems that are classified as exemplary due to their high quality as determined by their size, condition, and the condition of the surrounding landscape. See Sperduto, D.D. and William F. Nichols. 2011. Natural Communities of New Hampshire. 2nd Ed. NH Natural Heritage Bureau, Concord, NH. Pub. UNH Cooperative Extension, Durham, N.H. for further explanation of the characteristics of an exemplary wetland.
2. Wetland communities or systems that are classified as exemplary (S1 and S2) due to their rarity in the State of New Hampshire by the NH Natural Heritage Bureau. Rare wetland types need not be of high quality to qualify as exemplary, but they must be considered viable in light of their size, condition, and landscape context. See Sperduto, D.D. and William F. Nichols. 2011. Natural Communities of New Hampshire. 2nd Ed. NH Natural Heritage Bureau, Concord, NH. Pub. UNH Cooperative Extension, Durham, NH. for further explanation of S rankings.
3. New Hampshire Wildlife Action Plan [include current reference] Tier 1 and Tier 2 wetlands.
4. Wetlands providing habitat for endangered, threatened and special concern plants and wildlife as identified by the State and US Fish and Wildlife Service.

Examples of significant wetland types in New Hampshire include, but are not limited to cedar swamps, black gum swamps, vernal pools, exemplary natural communities tracked in the Natural Heritage Bureau ("NHB") database, any wetland community type ranked by the NHB as critically imperiled/or imperiled, bogs, fens (peat lands), and floodplain forests.

E. Wildlife Habitat Management: For the purposes of this Easement, "Wildlife Habitat Management" shall include, but not be limited to, alteration of vegetation and soil and the placement of structures to provide habitat for a wide range of wildlife species; the construction or modification of roads or other access ways for the purpose of performing such activities; the use of farm or forest equipment; the sale of agricultural or forest products produced in association with such management; all as not to be detrimental to the Purposes of this Easement and guided by a stewardship plan.

3. USE LIMITATIONS

Subject to the exceptions specified in Section 4 and reserved rights specified in Section 5 below:

A. No use shall be made of the Property, and no activity shall be permitted thereon, which is inconsistent with the purposes of this Easement, as stated in Section 1.

B. The Property shall not be subdivided and none of the individual tracts that together comprise the Property shall be conveyed separately from one another.

C. Except as described in Section 4, no structure or improvement, including, but not limited to, a dwelling, any portion of a septic system, tennis court, swimming pool, dock, aircraft landing strip, tower, commercial facility, conduit or utility line, billboard or other means of advertising display, driveway or

road, mobile home or other temporary or permanent structure or improvement, shall be constructed, placed, or introduced onto the Property.

D. No advertising signs shall be displayed on the property.

E. Except as described in Section 4, there shall be no mining, quarrying, excavation, or removal of rocks, minerals, gravel, sand, topsoil, or other similar materials on the Property. No rocks, minerals, gravel, sand, topsoil, or other similar materials shall be removed from the Property.

F. There shall be no dumping, injection, burning, or burial of refuse, trash, rubbish, debris, junk, waste, man-made materials or materials then known to be environmentally hazardous, including vehicle bodies or parts, or other similar substances.

G. There shall not be conducted on the Property any industrial or commercial activities.

4. EXCEPTIONS to Section 3, Use Limitations.

A. New ancillary structures and improvements such as a road, fence or bridge, may be constructed, placed, or introduced onto the Property only as necessary for the accomplishment of conservation, wildlife habitat management, or noncommercial pedestrian outdoor recreational uses of the Property and provided that they are not detrimental to the purposes of this Easement. Such structures and improvements may be allowed only if the impacts to wetland soils, intermittent or perennial streams, vernal pools, or other hydrology is temporary, and subject to Section 10, Discretionary Consent.

B. Existing ancillary structures or improvements shall be maintained in a manner which is the least detrimental to the conservation purposes of this Easement and may remain in their current state on the Easement as depicted on the Use Limitations Map to be included in the Baseline Documentation Report on file with the Grantor, Grantee and Third Party Holder(s).

C. Certain activities such as the removal, filling, or other disturbances of soil surface, or any changes in topography, or natural habitat shall be allowed if the following applies to the activity:

i. Is commonly necessary in the accomplishment of the conservation, habitat management, or noncommercial pedestrian outdoor recreational uses of the Property specifically reserved by Grantor and as allowed under Section 5, Reserved Rights, of this Easement; and

ii. Does not harm state or federally recognized threatened, endangered, or species of conservation concern, such determination of harm to be based upon information from the New Hampshire Natural Heritage Bureau and the New Hampshire Fish & Game Department, Non game and Endangered Species Program or the agency then recognized by the State of New Hampshire as having responsibility for identification and/or conservation of such species; and

iii. The activity only temporarily impacts wetland soils, intermittent or perennial streams, vernal pools, or other hydrology unless allowed under this section of this Easement.

D. Outdoor signs shall be displayed on the Property, but not in a water, wetland, or Riparian/Wetland Buffer unless they are to identify plants or provide other information related to the ecosystem, if desirable

or necessary in the accomplishment of conservation or noncommercial pedestrian outdoor recreational uses of the Property, and provided such signs are not detrimental to the purposes of this Easement.

Prior to commencement of any such activities, all necessary federal, state, and local permits and approvals shall be secured and such notices as may be required under Section 6 of this Easement shall be delivered to the Grantee and Third Party Holder(s).

5. RESERVED RIGHTS

A. The Grantee reserves the right to control or remove non-native or invasive species - Only with written permission from the Grantor.

B. The Grantor reserves the right to conduct Forest Management Activities on the Property under the supervision of a licensed forester in emergency situations such as combating active fires or threats from active fires or other immediate safety reasons without a Stewardship Plan.

C. Subject to written approval from the Grantee and in accordance with a written plan approved by DES, the Grantor reserves the right to construct, re-construct, and maintain structures or make other improvements intended to restore wetland functions and values and/or to make wildlife habitat improvements so as to provide enhancement of functions within degraded wetland or riparian systems on the Property, provided that such construction and required maintenance are not detrimental to the Purposes of this Easement. Prior to commencement of any such activities, all necessary federal, state, local, and other governmental permits and approvals shall be secured and such notices as may be required under Section 6 of this Easement shall be delivered to the Grantee and Third Party Holder(s).

D. The Grantor must notify the Grantee in writing at least thirty (30) days before any exercise of the aforesaid reserved rights.

6. NOTIFICATION OF TRANSFER, MAINTENANCE OR OTHER ACTIVITIES

A. The Grantor agrees to notify the Grantee and DES in writing 10 days before the transfer of title to the Property [or any division of ownership thereof permitted hereby].

B. This deed creates a perpetual conservation easement that can be modified only in accordance with the provisions of this instrument, including Section 14, Extinguishment & Condemnation. The Grantor and the Grantee shall together notify the DES and the New England District of the U.S. Army Corps of Engineers sixty (60) days prior to taking any action under these sections.

C. The Grantee shall be under no obligation to maintain the Property or pay any taxes or assessments thereon.

D. Except as otherwise specifically stated in this Easement, Grantor shall notify Grantee and Third Party Holder in writing 30 days before exercising any right reserved herein. The notice shall describe the nature, scope, design, location, timetable and any other material aspect of the proposed activity in sufficient detail to permit Grantee to evaluate the proposed activity with the purposes of this Easement.

7. BENEFITS, BURDENS, AND ACCESS

A. The burden of the Easement conveyed hereby shall run with the Property and shall be enforceable against all future owners and tenants in perpetuity; the benefits of this Easement shall not be appurtenant to any particular parcel of land but shall be in gross and assignable or transferable only to the State of New Hampshire, the U.S. Government, or any subdivision of either of them, consistent with Section 170(c)(1) of the U.S. Internal Revenue Code of 1986, as amended, or to any qualified organization within the meaning of Section 170(h)(3) of said Code, which organization has among its purposes the conservation and preservation of land and water areas and agrees to and is capable of enforcing the conservation purposes of this Easement. Any such assignee or transferee shall have like power of assignment or transfer.

B. The Grantee and Third Party Holder shall have access to the Property and all of its parts for such inspection as necessary to determine compliance with and to enforce this Easement and exercise the rights conveyed hereby and fulfill the responsibilities and carry out the duties assumed by the acceptance of this Easement. Third Party Holder meaning NHDES, and walking access on easement will be allowed following REASONABLE notice – may want to allow access to adjacent backland for same purpose (monitoring).

C. Members of the general public [~~shall~~/shall not] have access to the Property for outdoor recreation and education activities.

D. The Grantor is allowed to maintain existing walking trails for personal use, including mowing, boardwalk repair, and minor brush clearing as necessary. No new trails will be constructed without permission from the Grantee.

E. AGRICULTURE LIMITATIONS

For the purposes of this Easement, agriculture for ~~industrial or~~ commercial purposes shall be performed, to the extent reasonably practicable, in accordance with a coordinated management plan for the site and the soils of the Property but not in a water, wetland, or Riparian/Wetland Buffer. Said agriculture shall not be detrimental to the Purposes of this Easement. Said agricultural management activities shall be in accordance with the then-current scientifically-based practices recommended by the University of New Hampshire's Cooperative Extension Service, by the U.S. Department of Agriculture's Natural Resources Conservation Service, by the New Hampshire Department of Agriculture, Markets, and Food, including but not limited to recommended practices in said NH Department's "Manual of Best Management Practices (BMP's) for Agriculture in New Hampshire" as may be revised, updated, or superseded from time to time, or by other successor governmental natural resource conservation and management agencies then active.

Agriculture as defined in Section 2 A shall be limited to the area designated as the Agricultural Use Area defined on the Use Limitations Map (Figure 1) included in the Baseline Documentation Report and on file with the Grantor, Grantee and Third Party Holder(s). Agricultural use in the designated area shall be limited to the following:

i. Agricultural Use Area 1: Allowed uses include: Annual mowing after July 30 to protect breeding field species.

ii. The Grantor shall not apply for nor receive any depredation permits associated with agricultural use within the Agricultural Use Area as defined above.

8. LEGAL REMEDIES OF GRANTEE

A. When a breach of this Easement, or conduct by anyone inconsistent with this Easement, comes to the attention of the Grantee, it shall notify the Grantor in writing of such breach or conduct, delivered in hand or by certified mail, return receipt requested.

B. The Grantor shall, within thirty (30) days after receipt of such notice or after otherwise learning of such breach or conduct, undertake those actions, including restoration, which are reasonably calculated to cure swiftly said breach, or to terminate said conduct, and to repair any damage. The Grantor shall promptly notify the Grantee of its actions taken under this section.

C. If the Grantor fails to take such proper action under the preceding paragraph, the Grantee shall, as appropriate to the purposes of this Easement, undertake any actions that are reasonably necessary to cure such breach or to repair any damage in the Grantor's name or to terminate such conduct. The cost thereof, including, but not limited to, the Grantee's reasonable expenses, expert fees, court costs, and legal fees, shall be paid by the Grantor, provided that the Grantor is directly or primarily responsible for the breach.

D. Nothing contained in this Easement shall be construed to entitle the Grantee to bring any action against the Grantor for any injury to or change in the Property resulting from causes beyond the Grantor's control, including, but not limited to, unauthorized actions by third parties, natural disasters such as fire, flood, storm, and earth movement, or from any prudent action taken by the Grantor under emergency conditions to prevent, abate, or mitigate significant injury to the Property resulting from such causes.

E. The Grantee and the Grantor reserve the right, separately or collectively, to pursue all legal remedies against any third party responsible for any actions detrimental to the conservation purposes of this Easement.

F. No delay or omission by Grantee in the exercise of any right or remedy upon any breach by Grantor shall impair Grantee's rights or remedies or be construed as a waiver.

G. Grantee shall have the right to enforce this Easement by appropriate legal means and to obtain injunctive and other equitable relief against any violations, including without limitation, relief requiring restoration of the Property to its condition prior to the time of the violation, and shall be in addition to, and not limitation of, any other rights and remedies available to the Grantee.

H. Grantee, by its acceptance of this Easement, does not undertake any liability or obligation relating to the condition of the Property.

I. The State of the New Hampshire shall have the ability to enforce the terms of this Easement including through any civil, injunctive, or equitable action or through other relief against Grantee and/or Grantor as may be necessary in the event Grantee and/or Grantor has not, in the State's opinion, taken steps necessary under this section to adequately preserve and protect the conservation purposes of this Easement. Both the Grantor and Grantee hereby waive any defense with respect to standing or

jurisdiction. All reasonable costs of such enforcement shall be paid by the party against whom relief is obtained. The interests held by the Third Party Holder are assignable or transferable to any party qualified to become the Grantee's assignee or transferee as specified in Section 7**.** above. Any such assignee or transferee shall have like power of assignment or transfer.

9. DISCRETIONARY CONSENT

Grantee's consent for an activity otherwise prohibited under Section 3, Use Limitations, may be given only: if, owing to unforeseen or changed circumstances, such an activity is deemed desirable by Grantor, Grantee and Third Party Holder; and at the Grantee's sole discretion if the activity: (1) is non-commercial and not for economic benefit; (2) does not impair the conservation values of the Property; and (3) is consistent with the Purposes of this Easement as defined in Article 1 above and does not place at risk any rare flora or fauna, exemplary natural communities, critical wildlife habitat, and unique ecological features. Such requests for permission shall be in writing and shall describe the proposed activity in sufficient detail to allow the Grantee to make the judgments listed above. Notwithstanding the foregoing, neither the Grantee nor Grantor have the right or power to agree to any activity that runs counter to the Purposes of this Easement or that would result in the Easement's termination, nor to allow commercial recreational or educational activities that could be deemed more than *de minimus*, nor to allow any residential, commercial, or industrial structures or activities other than those specifically permitted under the terms of this Easement.

10. NOTICES

All notices, requests and other communications, required or permitted to be given under this Easement shall be in writing, except as otherwise provided herein, and shall be delivered in hand or sent by certified mail, postage prepaid, return receipt requested to the appropriate address set forth above or at such other address as the parties may hereafter designate by notice given in accordance herewith. Notice shall be deemed to have been given when so delivered or so mailed.

11. SEVERABILITY

If any provision of this Easement, or the application thereof to any person or circumstance, is found to be invalid by a court of competent jurisdiction, by confirmation of an arbitration award or otherwise, the remainder of the provisions of this Easement or the application of such provision to persons or circumstances other than those to which it is found to be invalid, as the case may be, shall not be affected thereby.

12. EXTINGUISHMENT & CONDEMNATION

A. Extinguishment. The Grantor acknowledges that, at the time of the conveyance of this Easement to the Grantee, this Easement gives rise to a real property right, immediately vested in the Grantee. If a change in conditions takes place which makes it impossible or impractical for the continued protection of the Property for conservation purposes and the restrictions contained herein are extinguished by judicial proceeding, the parties agree upon a subsequent sale or exchange of the Property, the Grantee shall be entitled to a portion of the net proceeds. For this purpose, the Grantee's interest shall be the amount by which the fair market value of the Property immediately prior to the

execution of this Easement is reduced by the use limitations imposed hereby. The values of the interest of the Grantor and Grantee's interests shall be determined by an appraisal prepared by a qualified appraiser at the time of extinguishment. The Grantee shall use its share, if any, of the proceeds in a manner consistent with the conservation Purposes of this Easement.

B. Condemnation. Whenever all or part of the Property is taken in in exercise of eminent domain by public, corporate, or other authority so as to abrogate the restrictions imposed by this Easement, the Grantor and the Grantee shall join in appropriate actions at the time of such taking to recover the full value of the taking and all incidental or direct damages resulting from the taking. In such event, the proceeds shall be divided between the Grantor and the Grantee in the same manner as described in the preceding paragraph, Extinguishment. The values of the interest of the Grantor's and Grantee's shall be determined by an appraisal prepared by a qualified appraiser at the time of condemnation. The Grantee shall use its share, if any, of the proceeds in a manner consistent with the conservation Purposes of this Easement.

13. ADDITIONAL EASEMENT

Should the Grantor determine that the expressed purposes of this Easement could better be effectuated by the conveyance of an additional easement, the Grantor may execute an additional instrument to that effect, provided that the conservation purposes of this Easement are not diminished thereby and that a public agency or qualified organization, described in Section 7.A. above, accepts and records the additional easement. Any additional easements shall contain a provision that they are subject to this easement.

14. SEPARATE PARCEL

The Grantor agrees that for the purpose of determining compliance with any present or future bylaw, order, ordinance, or regulation (within this section referred to as "legal requirements") of the Town/City of [town or city name], the State of New Hampshire or any other governmental unit, the Property shall be deemed a separate parcel of land and shall not be taken into account in determining whether any land of the Grantor, other than the Property, complies with any said legal requirements. The Property shall not be taken into account to satisfy in whole or in part any of said legal requirements or any area, density, setback or other dimensional standard applicable to such land.

15. MERGER

The Grantor and Grantee explicitly agree that it is their express intent, forming a part of the consideration hereunder, that the provisions of the Easement set forth herein are to last in perpetuity, and that to that end no purchase or transfer of the underlying fee interest in the Property by or to the Grantee or any successor or assign shall be deemed to eliminate the Easement, or any portion thereof, granted hereunder under the doctrine of merger or any other legal doctrine.

16. THIRD PARTY RIGHT OF ENFORCEMENT

A. If the Easement Holder ceases to enforce the Easement conveyed hereby or fails to enforce it within thirty (30) days after receipt of written notice from the Third Party

Holder requesting such, then the notifying Third Party Holder shall have all the rights heretofore granted to the Easement Holder to enforce this Easement. All reasonable costs of such enforcement shall be paid by the Easement Holder.

B. The interests held by the Third Party Holder are assignable or transferable to any party qualified to become the Easement Holder's or Third Party Holder's assignee or transferee as specified in Section 7 above. Any such assignee or transferee shall have like power of assignment or transfer. Any holder of an interest in this Easement desiring to transfer or assign its interest shall send written notice describing said intention to all other holders of any interest in this Easement at least thirty (30) days prior to such transfer or assignment taking effect.

The Grantee, by accepting and recording this Easement, agrees to be bound by and to observe and enforce the provisions hereof and assumes the rights and responsibilities herein granted to and incumbent upon the Grantee, all in the furtherance of the conservation purposes for which this Easement is delivered.

This is a conveyance to the state, a state agency, a county, a city, a town and/or village district pursuant to NH RSA 78-B:2 and is exempt from the New Hampshire Real Estate Transfer Tax.

IN WITNESS WHEREOF, I (We) have hereunto set my (our) hand(s) this _____ day of , 20__.

Name of Grantor

Name of Grantor

The State of New Hampshire
County of

Personally appeared _____ and

_____ this _____ day of _____, 20__ and

acknowledged the foregoing to be his/her/their voluntary act and deed.

Before me,

Justice of the Peace/Notary Public

My commission expires:

ACCEPTED: [Name of Grantee]

By:

Title:
Duly Authorized

Date:

The State of New Hampshire
County of

Personally appeared
Title

of the [Name of Grantee] , this _____ day of _____, [month and year] and acknowledged the foregoing on behalf of the [Name of Grantee]

.

Before me,
Justice of the Peace/Notary Public

My commission expires:

ACCEPTED: [Name of Third Party Enforcement Holder]

By:

Title:
Duly Authorized

Date:

The State of New Hampshire
County of

Personally appeared
Title

of the [Name of Grantee] , this _____ day of _____, [month and year] and acknowledged the foregoing on behalf of the [Name of Grantee]

.

Before me,
Justice of the Peace/Notary Public

My commission expires:

Optional Items ARM Fund Easement Deed

If appropriate, insert at the language at the end of Section 1 prior to the sentence referring to the Internal Revenue Code.

These purposes are consistent with the clearly delineated open space conservation goals and/or objectives as stated in the [date] Master Plan of the Town/City of [town/city name] , which states "_____" and with New Hampshire RSA 79-A which states: "It is hereby declared to be in the public interest to encourage the preservation of open space, thus providing a healthful and attractive outdoor environment for work and recreation of the state's citizens, maintaining the character of the state's landscape, and conserving the land, water, forest, agricultural and wildlife resources.".

Project No: 22860.003

Drawn By: athompson

Date : 9/8/2016

Knights Brook
Ripley Wetlands
Proposed Conservation Land
Existing Conservation Land
Parcel Boundaries

Data Sources: NH GRANIT and ESRI

N

0 75 150 Feet

Figure 1. Agricultural Use Area and Natural Wetland Buffer on Ripley Parcel

Seacoast Reliability Project
Newington, New Hampshire

NORMANDEAU ASSOCIATES
Environmental Consultants
25 Nashua Road Bedford, NH 03110
(603) 472-5191 www.normandeau.com

Path: J:\Projects\PSNH_F107\MXD\SRP_NewingtonConservation_RipleyWetlands_090816.mxd

WEST ENVIRONMENTAL INC.
48 Stevens Hill Road, Nottingham, NH 03290
603-734-4298 ♦ mark@westenv.net

Lori Sommer
NHDES Wetlands Bureau
PO Box 95
Concord, NH 03302

September 15, 2016

RE: Ripley Wetland Evaluation

Dear Lori,
At your request, West Environmental, Inc. (WEI) completed Functional Assessment data forms(attached) which coincide with the wetland identified on our preliminary wetland map. The attached map was prepared by WEI and is based on aerial photo interpretation and a field inspection on March 1, 2016. This map is a 2010 aerial ortho photo map prepared with Neatline Associates. There are six wetlands including a wet meadow (6), two forested wetlands (4 & 5), two scrub shrub wetlands (2 & 3) all draining into Wetland 1 the 21 acre Knights Brook Prime Wetland.

The Knights Brook wetland complex is one of the largest wetland systems in Newington. This wetland has seven principle functions and includes shallow marsh, scrub shrub and forested wetland habitat.

Wetlands 2 and 3 are both springs in small emergent areas that feed thick scrub-shrub wetlands. These wetland provide groundwater discharge, production export and wildlife habitat.

Wetlands 4 and 5 are forested wetlands that border the Knights Brook wetland complex. These wetlands provide sediment toxicant pathogen retention and wildlife habitat.

Wetland 6 is a wet meadow with an unmaintained ditch/swale system. this wetland provides floodflow alteration, sediment toxicant pathogen retention, sediment shoreland stabilization and wildlife habitat.

The diversity of these wetlands and their connection to Knights Brook make them important to protect.

This completes our report at this time. If you have any further questions, please call our office at (603) 734-4298. Thank you.

Sincerely,
West Environmental, Inc.

Mark C. West, President
NH Certified Wetland Scientist

cc: Sarah Allen and Jane Hislop

Map 17 Lot 15

Newington, NH

N

WEST ENVIRONMENTAL INC.

NEATLINE ASSOCIATES
www.nhgis.com

Data Sources: Background image is a 2010 1-foot resolution aerial photograph acquired by NHDOT and distributed by NH GRANIT. Road names from NH DOT. Town boundaries from NH GRANIT. All other features from West Environmental. All features and locations are approximate.

0 200
Feet

Ripley Wetland 1

West Environmental, Inc.
Town of Newington Wetland Inventory Functional/Value Assessment Data Form

Wetland ID: 30 Size: 21± Date: 10/8/02 WEI Project # 01-064NH
Classification: PFO1/SS1/EM1EB
Film Roll #: MW1 Photograph #: 1 – 12 Aerial Photograph #: 4.-5.

Wetland Functions

beaver dams have created very poorly drained marshes on Pescans silt loam.

Groundwater Recharge/Discharge

Geology Scitico
Restrictive layer present (y) n
Subsoil type clay
Other geologic features
Function Present (y) n

Hydrology
Groundwater relationship present (y) n
Variable water levels observed (y) n
Springs or seeps observed (y) n
Contains only inlet or outlet y n

Principal Function
Discharge.
(Yes) No

Floodflow Alteration

Watershed Information
Land cover in catchment area? Ag fields Forest.
Watershed position H M (L)
Other catchment storage y (n)
Watercourse associated (y) n
Contains hydric soils (y) n
Function Present (y) n

Topographic Information
Topography of watershed Moderate to gentle slopes
Topography of wetland flat to gentle slop.
Constricted outlet (y) n beaver dams
High degree of impervious surfaces in wetland watershed y (n)
Land uses downstream protected by this wetland (y) n (Yes) No

Sediment/Toxicant/Pathogen Retention

Soils
Organic Soils (y) n
Broad boundary transition (y) n
Vegetation
Herbaceous vegetation (y) n
Dense vegetation (y) n
Function Present (y) n

Setting & Hydrology
Upstream sources of pollution (y) n Ag fields
Erosion/sedimentation observed y (n)
Difuse flow/slow moving water (y) n
Does wetland flood (y) n
Long water retention (y) n (Yes) No

Nutrient Removal/Retention Transformation

Hydrology
Open water present (y) n in places
Slow moving water (y) n
Nutrients upslope (y) n
Function Present (y) n

Transformers
Organic soils (y) n
Aquatic vegetation (y) n
Abundant vegetation (y) n
(Yes) No

Production Export

Vegetation
Density (H) M L
Interspersion (H) M L
Diversity (H) M L
Food source (y) n
Function Present (y) n

Export
Detritus (y) n
Aquatic plants (y) n
Berry producing shrubs (y) n
Nectar sources (y) n
Seed/mast sources (y) n (Yes) No

shrubs N. arrowood. swamp rose meadowsweet

old Beaver Impoundment PFO5/EM1/SS1E6
Bluejoint Reed canary grass purple loosestrife sedges.

Wet meadow w/ pockets of shallow marsh
used as pasture Dom veg. T RM S Speckled alder huckleberry bayberry

EM. grasses sedges rushes

Wetland 30

Sediment/Shoreline Stabilization

Is wetland associated with surface water? (if no, stop), Perennial or intermittent yes

Characteristics of Stream

Elevation change present (y) n
High seasonal flows (y) n
Channelized flow (y) n
Open water fetch (y) n

Function Present (y) n

Description of Bank

Bank present (y) n
Bank vegetated (y) n
Bank eroded y (n)
Steep bank (y) n
Stabilized Bank (y) n

(Yes) No

Wildlife Habitat

Diversity

Aquatic insect habitat (y) n
Amphibian habitat (y) n
Fisheries habitat y n ?
Cavity trees (y) n
Vernal pool y (n)
Defined stream channel (y) n
Food sources (y) n
Cover/nesting sources (y) n
Function Present (y) n

Connections

Corridor
Wetland connections (y) n
Upland connections (y) n
Islands (y) n

(Yes) No

Buffer

Type Ag/Raised
Width 200+
Buffer stream or wetland (y) n
Does buffer provide shade (y) n in places

Degradation

Present
Type (y) n minor. some reed canary grass areas.

Yes ~~No~~

Wetland Values

Recreational Value

Parking available (y) n
Watercraft access y (n)
Fishing available y n ?
Hunting permitted (y) n
Walking/biking trails y n ?
Value H (M) L

Restoration Stabilization Potential

y n
Restoration area size:

Educational/Scientific Value

Unique habitats/plant species (y) n probable. New England cottontail habitat.
Diverse wildlife habitat (y) n extensive scrub shrub lots of migratory warblers
Parking/access (y) n
Value (H) M L woodcock Michael
Wild Turkey

Comments/Wildlife Notes

Uniqueness/Heritage

Urban upland/proximity y (n)
Rapid development upland y (n)
Critical habitat/threatened or endangered species (y) n NE cottontail
Archaeological sites y n ?
Stonewalls present (y) n
Historic sites (y) n – historic Ram.
Ecological health/vigor (y) n
Value (H) M L

Wetland Evaluation Data Form

WETLAND ID: 2+3	Ripley Newington	Page 1

GROUNDWATER RECHARGE/DISCHARGE

Geology
Restrictive Layer? ☑Yes ☐No
Subsoil Type Present: clay/silt.
Other Geologic Features: -

Hydrology
Groundwater Relationship? ☑Yes ☐No
Variable Water Levels? ☑Yes ☐No
Springs/Seeps Observed? ☑Yes ☐No springs in both wetlands
Contains Only Inlet/Outlet? ☑Yes ☐No outlet only Discharge.

Function Present	Principal Function
☑ Yes ☐ No	☑ Yes ☐ No

FLOODFLOW ALTERATION

Watershed Information
Size: 1 acre each.
Adjacent Land Cover
shrub/ Forest 70%
Residential
Comm/Industr.
~~Agricultural~~ Fields 30%
Assoc. w/ Water Course? ☑Yes ☐No
Other Catch. Storage? ☐Yes ☑No
Contains Hydric A Soils? ☐Yes ☑No
Watershed Position ☑H ☐M ☐L

Topographic Information
Topography of Watershed: gentle slopes.
Topography of Wetland: → sloping
Constricted Outlet? ☐Yes ☑No
High Degree of Impervious Surfaces in Wet. Watershed? ☐Yes ☑No
Downstream Protection? ☑Yes ☑No seep not channel.

Function Present	Principal Function
☐ Yes ☑ No	☐ Yes ☑ No

SEDIMENT/TOXICANT/PATHOGEN RETENTION

Soils
Organic Soils? ☐Yes ☑No
Broad Boundary Trans.? ☑Yes ☐No

Vegetation
Dense Vegetation? ☑Yes ☐No
Herbaceous Vegetation? ☑Yes ☐No

Setting & Hydrology
Upstream Sources of Poll.? ☐Yes ☑No
Erosion/Sed. Observed? ☐Yes ☑No
Diffuse Flows/Slow Water? ☐Yes ☑No
Does Wetland Flood? ☐Yes ☑No
Long Water Retention? ☐Yes ☑No

Function Present	Principal Function
☑ Yes ☐ No	☐ Yes ☑ No

NUTRIENT REMOVAL/RETENTION TRANSFORMATION

Hydrology
Open Water Present? ☐Yes ☑No
Slow Moving Water? ☐Yes ☑No
Nutrients Upslope? ☑Yes ☐No

Transformers
Organic Soils? ☐Yes ☑No
Aquatic Vegetation? ☐Yes ☑No
Abundant Vegetation? ☑Yes ☐No

Function Present	Principal Function
☐ Yes ☑ No	☐ Yes ☑ No

PRODUCTION EXPORT

Vegetation
Food Source? ☑Yes ☐No
Density: ☐H ☑M ☐L
Interspersion: ☐H ☑M ☐L
Diversity: ☐H ☑M ☐L

Export
Vernal Pool? ☐Yes ☑No
Aquatic Plants? ☐Yes ☑No
Berry Producing Shrubs? ☑Yes ☐No
Nectar Sources? ☑Yes ☐No
Seed/Mast Sources? ☑Yes ☐No

Function Present	Principal Function
☑ Yes ☐ No	☑ Yes ☐ No

SEDIMENT/ SHORELINE STABILIZATION

Assoc. w/ surface water? ☐Yes ☑No
Perennial or Intermittent
If No, STOP, if yes, stream characteristics:
Elev. Change Present? ☐Yes ☐No
High Flows Present? ☐Yes ☐No
Channelized Flow? ☐Yes ☐No
Open Water Fetch? ☐Yes ☐No

Description of Stream Setting
Stream Course in Wetland? ☐Yes ☐No
Stream Course in Upland? ☐Yes ☐No
Bank Vegetated? ☐Yes ☐No
Bank Eroded? ☐Yes ☐No
Steep Bank? ☐Yes ☐No
Stabilized Bank? ☐Yes ☐No

Function Present	Principal Function
☐ Yes ☑ No	☐ Yes ☑ No

WEST ENVIRONMENTAL

Wetland Evaluation Data Form

WETLAND ID: 2+3.	Ripley Newington	Page 2

WILDLIFE HABITAT

Existing Critical Habitat ☐Yes ☑No **Type:** **Function Present** ☑Yes ☐No **Principal Function** ☑Yes ☐No

Critical Habitat Features ☐Yes ☑No **Specific Habitat Features:**

Diversity

Aquatic Insect Habitat?	☑Yes ☐No
Amphibian Habitat?	☑Yes ☐No
Fisheries Habitat?	☐Yes ☑No
Cavity Trees?	☑Yes ☐No
Food Sources?	☑Yes ☐No
Cover?	☑Yes ☐No

Connectivity

Corridor (through or adj.)?	☑Yes ☐No
Wetland Connectivity?	☑Yes ☐No
Upland Connectivity?	☑Yes ☐No

Strengths of Upland Habitat: adjacent to several conservation parcels.

Vegetated Buffer
Type: shrub/Forest Fields
Width: 100+

Buffer Provides Shade to Stream? ☐Yes ☑No (No)

Buffer Safeguards Wetland? ☑Yes ☐No

Habitat Degradation
% of Buffer w/Encroachment: 0%
Activities Adversely Affecting Wildlife Function:

Significant Disturbance?	☐Yes ☑No
Structures Obstructing Wildlife Movement?	☐Yes ☑No
Prox. to Beaver/Mink/Otter?	☑Yes ☐No beaver.

Restoration Stabilization Potential ☐Yes ☑No

Describe:

H20 Quality Degradation ☐Yes ☑No

Invasive Species Present ☑Yes ☐No
Type: glossy buckthorn. purple loosestrife.

Comments:

WEST ENVIRONMENTAL INC.

Wetland Evaluation Data Form

WETLAND ID: 4 & 5. | Ripley Newington | Page 1

GROUNDWATER RECHARGE/DISCHARGE

Geology
- Restrictive Layer? ☑ Yes ☐ No
- Subsoil Type Present: silt/clay
- Other Geologic Features:

Hydrology
- Groundwater Relationship? ☑ Yes ☐ No
- Variable Water Levels? ☑ Yes ☐ No
- Springs/Seeps Observed? ☑ Yes ☐ No minor seeps. discharge.
- Contains Only Inlet/Outlet? ☑ Yes ☐ No outlet.

Function Present	Principal Function
☑ Yes ☐ No	☐ Yes ☑ No

FLOODFLOW ALTERATION

Watershed Information
- Size: 2 acres.
- Adjacent Land Cover
  - Forest/Fields 100%
  - Residential
  - Comm/Industr.
  - Agricultural
- Assoc. w/ Water Course? ☐ Yes ☑ No
- Other Catch. Storage? ☐ Yes ☑ No
- Contains Hydric A Soils? ☐ Yes ☑ No
- Watershed Position ☑ H ☐ M ☐ L

Topographic Information
- Topography of Watershed: gentle slopes
- Topography of Wetland: very gentle slope
- Constricted Outlet? ☐ Yes ☑ No
- High Degree of Impervious Surfaces in Wet. Watershed? ☐ Yes ☑ No
- Downstream Protection? ☐ Yes ☑ No

Function Present	Principal Function
☑ Yes ☐ No	☐ Yes ☑ No

SEDIMENT/TOXICANT/PATHOGEN RETENTION

Soils
- Organic Soils? ☐ Yes ☑ No
- Broad Boundary Trans.? ☑ Yes ☐ No

Vegetation
- Dense Vegetation? ☑ Yes ☐ No
- Herbaceous Vegetation? ☑ Yes ☐ No

Setting & Hydrology (possible fertilizer)
- Upstream Sources of Poll.? ☑ Yes ☐ No
- Erosion/Sed. Observed? ☐ Yes ☑ No
- Diffuse Flows/Slow Water? ☑ Yes ☐ No
- Does Wetland Flood? ☑ Yes ☐ No very shallow.
- Long Water Retention? ☑ Yes ☐ No

Function Present	Principal Function
☑ Yes ☐ No	☑ Yes ☐ No

NUTRIENT REMOVAL/RETENTION TRANSFORMATION

Hydrology
- Open Water Present? ☐ Yes ☑ No
- Slow Moving Water? ☐ Yes ☑ No
- Nutrients Upslope? ☑ Yes ☐ No

Transformers
- Organic Soils? ☐ Yes ☑ No
- Aquatic Vegetation? ☐ Yes ☑ No
- Abundant Vegetation? ☑ Yes ☐ No

Function Present	Principal Function
☑ Yes ☐ No	☐ Yes ☑ No

PRODUCTION EXPORT

Vegetation
- Food Source? ☑ Yes ☐ No
- Density: ☐ H ☑ M ☐ L
- Interspersion: ☐ H ☑ M ☐ L
- Diversity: ☐ H ☑ M ☐ L

Export
- Vernal Pool? ☐ Yes ☑ No
- Aquatic Plants? ☐ Yes ☑ No
- Berry Producing Shrubs? ☑ Yes ☐ No
- Nectar Sources? ☑ Yes ☐ No
- Seed/Mast Sources? ☑ Yes ☐ No

Function Present	Principal Function
☑ Yes ☐ No	☐ Yes ☑ No

SEDIMENT/ SHORELINE STABILIZATION

Assoc. w/ surface water? ☐ Yes ☑ No
Perennial or Intermittent

If No, STOP, if yes, stream characteristics:
- Elev. Change Present? ☐ Yes ☐ No
- High Flows Present? ☐ Yes ☐ No
- Channelized Flow? ☐ Yes ☐ No
- Open Water Fetch? ☐ Yes ☐ No

Description of Stream Setting
- Stream Course in Wetland? ☐ Yes ☐ No
- Stream Course in Upland? ☐ Yes ☐ No
- Bank Vegetated? ☐ Yes ☐ No
- Bank Eroded? ☐ Yes ☐ No
- Steep Bank? ☐ Yes ☐ No
- Stabilized Bank? ☐ Yes ☐ No

Function Present	Principal Function
☐ Yes ☑ No	☐ Yes ☑ No

WEST ENVIRONMENTAL

Wetland Evaluation Data Form

WETLAND ID: 4+5	Ripley Newington	Page 2

WILDLIFE HABITAT

Existing Critical Habitat ☐ Yes ☑ No **Type:**

Function Present ☑ Yes ☐ No **Principal Function** ☑ Yes ☐ No

Critical Habitat Features ☐ Yes ☑ No **Specific Habitat Features:**

Diversity

Aquatic Insect Habitat?	☐ Yes ☑ No
Amphibian Habitat?	☑ Yes ☐ No
Fisheries Habitat?	☐ Yes ☑ No
Cavity Trees?	☑ Yes ☐ No
Food Sources?	☑ Yes ☐ No
Cover?	☑ Yes ☐ No

Connectivity

Corridor (through or adj.)?	☑ Yes ☐ No
Wetland Connectivity?	☑ Yes ☐ No
Upland Connectivity?	☑ Yes ☐ No

Strengths of Upland Habitat: part of conservation block.

Vegetated Buffer
Type: Forest + Field
Width: 100+

Habitat Degradation
% of Buffer w/Encroachment: 10% fields
Activities Adversely Affecting Wildlife Function:

Buffer Provides Shade to a Stream?	☐ Yes ☑ No
Buffer Safeguards Wetland?	☑ Yes ☐ No
Significant Disturbance?	☐ Yes ☑ No
Structures Obstructing Wildlife Movement?	☐ Yes ☑ No
Prox. to Beaver/Mink/Otter?	☐ Yes ☑ No

Restoration Stabilization Potential ☐ Yes ☑ No

Describe:

H20 Quality Degradation ☐ Yes ☑ No

Invasive Species Present ☑ Yes ☐ No
Type: glossy buckthorn.

Comments:

WEST ENVIRONMENTAL INC.

Wetland Evaluation Data Form

WETLAND ID: 6	Ripley Newington	Page 1

GROUNDWATER RECHARGE/DISCHARGE

Geology
- Restrictive Layer? ☑ Yes ☐ No
- Subsoil Type Present: silt/clay
- Other Geologic Features:

Hydrology
- Groundwater Relationship? ☑ Yes ☐ No
- Variable Water Levels? ☑ Yes ☐ No
- Springs/Seeps Observed? ☐ Yes ☑ No
- Contains Only Inlet/Outlet? ☑ Yes ☐ No — outlet

Function Present	Principal Function
☑ Yes ☐ No	☐ Yes ☑ No

discharge.

FLOODFLOW ALTERATION

Watershed Information
- Size: 4 acres
- Adjacent Land Cover: Forest, Residential, Comm/Industr., Agricultural — Fields/Roads 20% 80%
- Assoc. w/ Water Course? ☑ Yes ☐ No
- Other Catch. Storage? ☐ Yes ☑ No
- Contains Hydric A Soils? ☐ Yes ☑ No
- Watershed Position ☑ H ☐ M ☐ L

Topographic Information
- Topography of Watershed: gentle slopes
- Topography of Wetland: depression.
- Constricted Outlet? ☑ Yes ☐ No
- High Degree of Impervious Surfaces in Wet. Watershed? ☐ Yes ☑ No
- Downstream Protection? ☑ Yes ☐ No — intermittent.

Function Present	Principal Function
☑ Yes ☐ No	☑ Yes ☐ No

reduced by ditching

SEDIMENT/TOXICANT/PATHOGEN RETENTION

Soils
- Organic Soils? ☐ Yes ☑ No
- Broad Boundary Trans.? ☑ Yes ☐ No

Vegetation
- Dense Vegetation? ☑ Yes ☐ No
- Herbaceous Vegetation? ☑ Yes ☐ No

Setting & Hydrology
- Upstream Sources of Poll.? ☑ Yes ☐ No
- Erosion/Sed. Observed? ☐ Yes ☑ No
- Diffuse Flows/Slow Water? ☑ Yes ☐ No
- Does Wetland Flood? ☑ Yes ☐ No
- Long Water Retention? ☑ Yes ☐ No

Function Present	Principal Function
☑ Yes ☐ No	☑ Yes ☐ No

NUTRIENT REMOVAL/RETENTION TRANSFORMATION

Hydrology
- Open Water Present? ☐ Yes ☑ No
- Slow Moving Water? ☐ Yes ☑ No
- Nutrients Upslope? ☑ Yes ☐ No

Transformers
- Organic Soils? ☐ Yes ☑ No
- Aquatic Vegetation? ☐ Yes ☑ No
- Abundant Vegetation? ☑ Yes ☐ No

Function Present	Principal Function
☑ Yes ☐ No	☐ Yes ☑ No

PRODUCTION EXPORT

Vegetation
- Food Source? ☐ Yes ☑ No
- Density: ☐ H ☑ M ☐ L
- Interspersion: ☐ H ☐ M ☑ L
- Diversity: ☐ H ☐ M ☑ L

Export
- Vernal Pool? ☐ Yes ☑ No
- Aquatic Plants? ☐ Yes ☑ No
- Berry Producing Shrubs? ☐ Yes ☑ No
- Nectar Sources? ☐ Yes ☑ No
- Seed/Mast Sources? ☑ Yes ☐ No

Function Present	Principal Function
☐ Yes ☑ No	☐ Yes ☑ No

SEDIMENT/ SHORELINE STABILIZATION

- Assoc. w/ surface water? ☑ Yes ☐ No
- Perennial or Intermittent
- If No, STOP, if yes, stream characteristics:
- Elev. Change Present? ☑ Yes ☐ No
- High Flows Present? ☐ Yes ☑ No
- Channelized Flow? ☑ Yes ☐ No
- Open Water Fetch? ☐ Yes ☑ No

Description of Stream Setting
- Stream Course in Wetland? ☑ Yes ☐ No
- Stream Course in Upland? ☑ Yes ☐ No
- Bank Vegetated? ☑ Yes ☐ No
- Bank Eroded? ☐ Yes ☑ No
- Steep Bank? ☐ Yes ☑ No
- Stabilized Bank? ☑ Yes ☐ No

Function Present	Principal Function
☑ Yes ☐ No	☑ Yes ☐ No

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Wetland Evaluation Data Form

WETLAND ID: 6	Ripley Newington	Page 2

WILDLIFE HABITAT

Existing Critical Habitat ☐Yes ☑No **Type:**

Function Present ☑Yes ☐No **Principal Function** ☑Yes ☐No

Critical Habitat Features ☐Yes ☑No **Specific Habitat Features:**

Diversity

Aquatic Insect Habitat?	☑Yes ☑No
Amphibian Habitat?	☑Yes ☐No
Fisheries Habitat?	☐Yes ☑No
Cavity Trees?	☐Yes ☑No
Food Sources?	☐Yes ☑No
Cover?	☐Yes ☑No

Connectivity

Corridor (through or adj.)?	☑Yes ☐No
Wetland Connectivity?	☑Yes ☐No
Upland Connectivity?	☑Yes ☐No

Strengths of Upland Habitat: Part of large conservation block.

Vegetated Buffer
Type: Fields 25-100'
Width:

Habitat Degradation
% of Buffer w/Encroachment: 50%
Activities Adversely Affecting Wildlife Function: Road.

Buffer Provides Shade to a Stream?	☐Yes ☑No
Buffer Safeguards Wetland?	☐Yes ☐No Somewhat.
Significant Disturbance?	☑Yes ☐No
Structures Obstructing Wildlife Movement?	☐Yes ☑No
Prox. to Beaver/Mink/Otter?	☐Yes ☑No

Restoration Stabilization Potential ☑Yes ☐No

Describe: Ditch removal?

H20 Quality Degradation ☐Yes ☑No

Invasive Species Present ☑Yes ☐No
Type: reed canary grass.

Comments:

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