

NH DOT Rt. 101 Squamscott River Bridge

File No.: 199010710

City and State: Exeter-Stratham, NH

General Impacts: 3.7 acres tidal emergent (however, the Project Manager reports the impacts were actually to 3.3 acres of PFO/SS/EM)

Functions and Values Lost:

- Wildlife Habitat
- Flood Storage
- Water Quality Renovation
- Fish Habitat

Year(s) Mitigation Constructed: 1996

Size and Type of Mitigation as Proposed: 3.7 acres tidal emergent on site

Proposed Functions and Values of Mitigation:

- Wildlife Habitat
- Flood Storage
- Water Quality Renovation

Mitigation Special Condition(s):

5. Mitigation:

The NH DOT shall restore approximately 3.7 acres of wetlands as called for in phase I & II of the mitigation plan. Final plans for the wetlands restoration shall be provided and approved by the Corps before a construction contract is awarded. The purpose of the mitigation work is to compensate for the loss of functions and values provided by those wetlands which will be destroyed by the project. The permittee by agreeing to this special condition commits to undertake the construction, landscaping, monitoring, and remedial actions necessary to restore (over a period of 5 to 10 years) a functioning wetland capable of providing flood storage, water quality renovation, and habitat values similar to those of the adjacent estuarine marsh.

Remedial measures if necessary may include but are not limited to replanting with different wetland species, relocating plantings to a more suitable location within the mitigation area, removal of invasive, weedy species such as *Lythrum salicaria*, *Phragmites australis*, changing soil composition and depth, changing the elevation of the wetland surface, changing the hydraulic regime and undertaking further hydrological and biological analysis as required and approved by the Corps.

Point of Contact:

The NH Department of Transportation shall designate a person who will have sufficient responsibility and authority to assure that the mitigation area is constructed in accordance with the mitigation plan, and that monitoring and any necessary remedial actions are taken expeditiously.

Interdisciplinary Team:

The NH Department of Transportation shall employ an interdisciplinary team with the necessary engineering and environmental skills to assess the success of the mitigation and formulate recommendations for remedial measures.

Pre-construction Conference:

A pre-construction conference shall be held at the site prior to the start of construction to insure that the contractor and DOT construction supervisor are aware of the desired result and the actions necessary to achieve it. A Corps of Engineers representative will be included in this pre-construction conference.

Monitoring, Reports of Remediation:

The NH Department of Transportation shall monitor the initial construction regularly to assure that the work is accomplished in accordance with the plan, and that the necessary soil, water and vegetation are present at the mitigation site upon completion of the work.

The condition of the site will be photo documented (panoramic photographs taken which shall depict the lay of the land and the vegetative cover type or lack thereof etc.) prior to, during, and after construction. An as-built survey of the mitigation areas will be prepared and provided to the Corps with the initial follow-up inspection report.

Initial Follow-up, Inspection, Report and Remediation:

A follow-up inspection and conference will be undertaken immediately upon the completion of the initial mitigation work. Following this, New Hampshire Department of Transportation will prepare a report outlining what follow-up actions will be necessary to assure a successful mitigation area. The report will contain a schedule for accomplishing any needed remedial actions and be submitted to the Corps within 30 days of the initial follow-up inspection. Remedial actions will be taken at the earliest possible time consistent with achieving success.

First Spring Follow-up Inspection, Reports and Remediation:

In June of the first year following initial construction, a follow-up inspection will be performed to assess the success of the mitigation effort and to plan and schedule

remedial actions, indicated. A Corps of Engineers representative will be included on the inspection team. New Hampshire Department of Transportation will prepare a report outlining necessary follow-up action, and provide a schedule for completing the remedial work. This report will be submitted to the Corps within 30 days of the follow-up inspection.

In conducting the follow-up inspection the health and vigor of planted and seeded vegetation will be visually assessed. If less than 60% of planted stock survive in the first year (or 70% in subsequent years) in areas receiving good sunlight the area will be replanted to the original density (propagules on 4' staggered triangular centers). Vegetation shall be sampled in plots along transects across each mitigation area during each growing season for which inspections are required.

At least one 10' radius sample plot shall be located within each proposed wetland cover type. Vegetation shall be identified to species when possible. Percent aerial cover for each species shall be estimated. Permanent photographic stations shall be established and a panoramic photograph depicting each mitigation area shall be taken for inclusion in each report.

Surface or ground water elevation observation stations will be established to characterize the level of surface or groundwater in each mitigation area.

Wildlife using the site shall be recorded if directly observed or evidence of their presence is found in the mitigation area.

Subsequent Follow-up Inspections, Reports and Remediation:

Similar inspections, reports and remedial actions will be undertaken in at least the second, third, fifth and tenth year following the initial completion of the mitigation area. A Corps representative will be included in the interdisciplinary inspection team. The inspections will be made in a timely manner, the report prepared and remedial actions taken expeditiously. Each report will be sent to the Corps Regulatory Division no later than July 1st of each year a follow-up inspection is required.

Conservation Public Access and Scientific Observations:

To assure that the functions and values provided by the mitigation areas continue into the future, each mitigation area will be purchased in fee by the state or a conservation easement obtained. The mitigation areas will be accessible and available to the Federal resource agencies personnel for observation and scientific study. Evidence of fee ownership or easements and the recording of restrictive covenants shall be provided to the Corps of Engineers prior to construction beginning.

Remarks:

The mitigation plan itself is only referenced in the project description as “Wetland Mitigation Plan accompanying narrative plan prepared by Normandeau Associates” in 23 pages, plus appendices dated “May 17, 1991”.

Directions:

Take I-95 north into New Hampshire. Take exit 2, Route 101 west towards Exeter/The Hamptons. After crossing Route 108, site is on the east side of the bridge over the Squamscott River. It is under and to the north of the bridge. Access is best – and safest – if direction is reversed at the next exit. Park on the shoulder and access the site from the south side.





MITIGATION SITE FIELD DATA FORM

Site Name: NHDOT Rt 101 Squamscott River Bridge File No. 199010710

City/Town: Stratham State: NH Waterbody: Squamscott River

Monitor(s): Ruth Ladd, Paul Minkin, Keith Wright, Kathleen McKee Date: 8-7-02

Was site constructed? yes

Is site wetland? yes

Size of proposed wetland: 3.7 acres

Actual size of wetland: similar

Landscape position: tidal

Lat/Long Points: 43.00024N 70.93848W

Saved GPS Waypoint name: SWA

GPS Tracking Log Name: N/A

Perimeter: TBD

Surrounding land use:

Highway, river, tidal marsh

Is wetland function compromised by
surrounding land use?

Experiences noise, pollution and sediment from
roadway.

Plant health:

Vigorous

Invasive species:

Phragmites australis was mostly killed but there
are still remnant plants.

Plants:

Atriplex sp.

Hydrocotyle sp.

Juncus gerardii

Phragmites australis

Salicornia sp.

Scirpus americanus

Scirpus robustus

Scirpus sp.

Solidago sempervirens

Spartina cynosuroides

Spartina patens

Typha angustifolia

Typha latifolia

Wildlife use:

Deer and raccoon tracks were observed.

Soil data:

Soils data was not collected at this site.

Sketch approximate mitigation site, noting areas and types of wetlands, waters, other features, landscape position, landmarks, etc., and data and photo point(s)

See file.

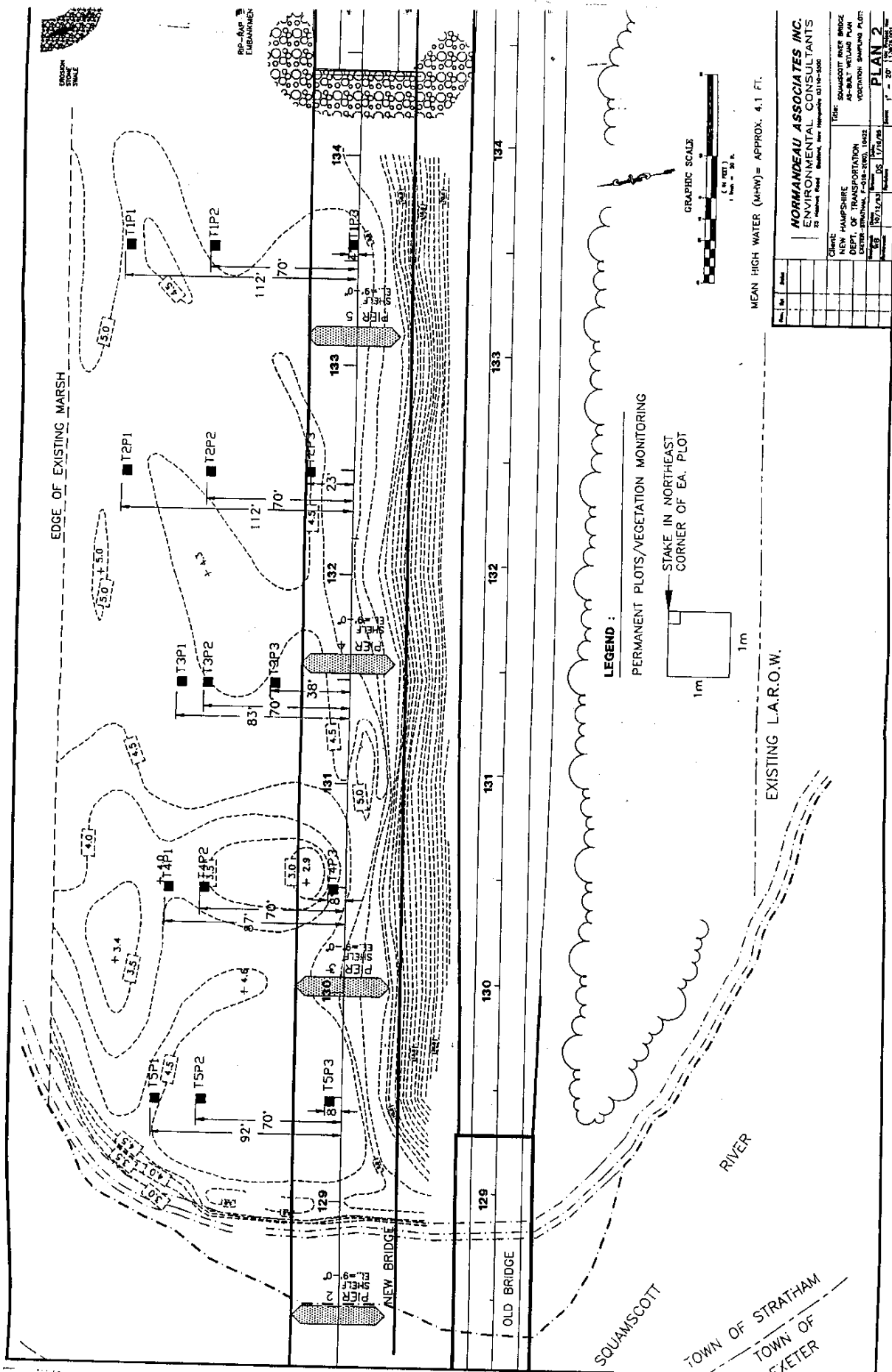
Overall Description of site:

Site is a tidal marsh that was restored after bridge construction. The site has considerable dead *Phragmites australis* that was sprayed with herbicide and very little of that species has survived. The site is accessed by walking under the bridge that goes over the Squamscott River.

Comments, problems, recommendations:

A subsequent treatment of surviving *Phragmites australis* may be necessary to prevent it from taking over the site again. While dense vegetation has established itself on much of the site, vegetation is a lot thinner in areas where the dead *Phragmites australis* still stands.

Silt fencing remains along the toe of slope on the eastern side and should be removed.



NORMANDEAU ASSOCIATES INC. ENVIRONMENTAL CONSULTANTS 22 HUNTER ROAD, SUITE 100, WILLOWDALE, ONTARIO M2H 1A1	
Client:	NEW HAMPSHIRE
Project:	TRANSPORTATION
Location:	EXETER, STRATHAM
Scale:	1" = 20'
Date:	10/1/03
Drawn by:	JS
Checked by:	JS
Project No.:	03-174/03
Sheet No.:	2
Sheet Count:	2

Wetland Function-Value Evaluation Form

Total area of wetland 3.7 ac Human made? no* Is wetland part of a wildlife corridor? yes or a "habitat island"? no
 * restoration

Adjacent land use highway, river, tidal marsh Distance to nearest roadway or other development 0'

Dominant wetland systems present EEM Contiguous undeveloped buffer zone present 50%

Is the wetland a separate hydraulic system? no If not, where does the wetland lie in the drainage basin? low—estuarine

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

NHDOT Rt 101 Squamscott

Wetland I.D. River Bridge: 199010710













Latitude N43.000024 Longitude W70.93848

Prepared by: RML Date 8/7/02

Wetland Impact:
Type PEM Area 3.7 ac

Evaluation based on:
Office _____ Field X

Corps manual wetland delineation
completed? Y _____ N N

Function/Value	Suitability Y N		Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
 Groundwater Recharge/Discharge	X				may provide some discharge from adjacent upland; adj to river
 Floodflow Alteration	X				Flat with flood storage capacity; dense vegetation
 Fish and Shellfish Habitat	X				Associated with large river
 Sediment/Toxicant Retention	X				Sources of sediment, associated wth river, no high velocities in wetland, dense veg.
 Nutrient Removal	X			X	Dense herbaceous vegetation, water moves slowly through wetland
 Production Export	X				wildlife food sources (seeds); detritus development, dense vegetation
 Sediment/Shoreline Stabilization	X			X	wide wetland bordering watercourse, dense vegetation
 Wildlife Habitat	X				contiguous with wetland system along river, food source, animal sign, function is constrained by adjacent roadway
 Recreation		X			
 Educational/Scientific Value		X			
 Uniqueness/Heritage		X			
 Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			none known
Other					

Notes:

* Refer to backup list of numbered considerations.

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Stratham, NH
8/7/02



Soils in restoration area



Looking west, north, and east from under the north edge of the new bridge towards the restoration area.



The conditions under the new bridge.



Dead *Phragmites australis* (treated with herbicide)



Looking west from center of the restoration area



Looking easterly from middle of site

USGS Exeter, New Hampshire, United States 11 Apr 1998



0 100M 0 100yd

Image courtesy of the U.S. Geological Survey
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