

# Meetinghouse Creek- Main Road Wetland:

## *Introduction:*

The purpose of the project is to provide a 0.6 acre stormwater treatment wetland to receive flow from an existing outlet structure. The wetland is proposed to treat the water quality volume from a 1.2 inch rainfall with flows exceeding this rain event will transverse an emergency spillway to the existing NYSDEC-regulated Phragmites marsh. Our team shall collect following environmental data and obtain the following available GIS-data:

- Topographic data required to prepare conceptual plan for recommended sediment forebay
- GPS locations of existing stormwater drainage infrastructure;
- Location, dimensions, materials, and condition of existing stormwater outfall;
- Locations of existing utility infrastructure;
- GPS locations of freshwater wetland boundary;
- GPS locations of upland and wetland community boundaries and invasive plant stands;
- LIDAR or digital elevation model data to assess general site topography, and;
- Suffolk County real property records



## Meetinghouse Creek- Main Road Wetland:

*Background:* A 2.61 acre Town of Riverhead property bordered by the Aquebogue Cemetery (to the west) and private property to east & south including the Crescent Duck Farm downstream of the site.





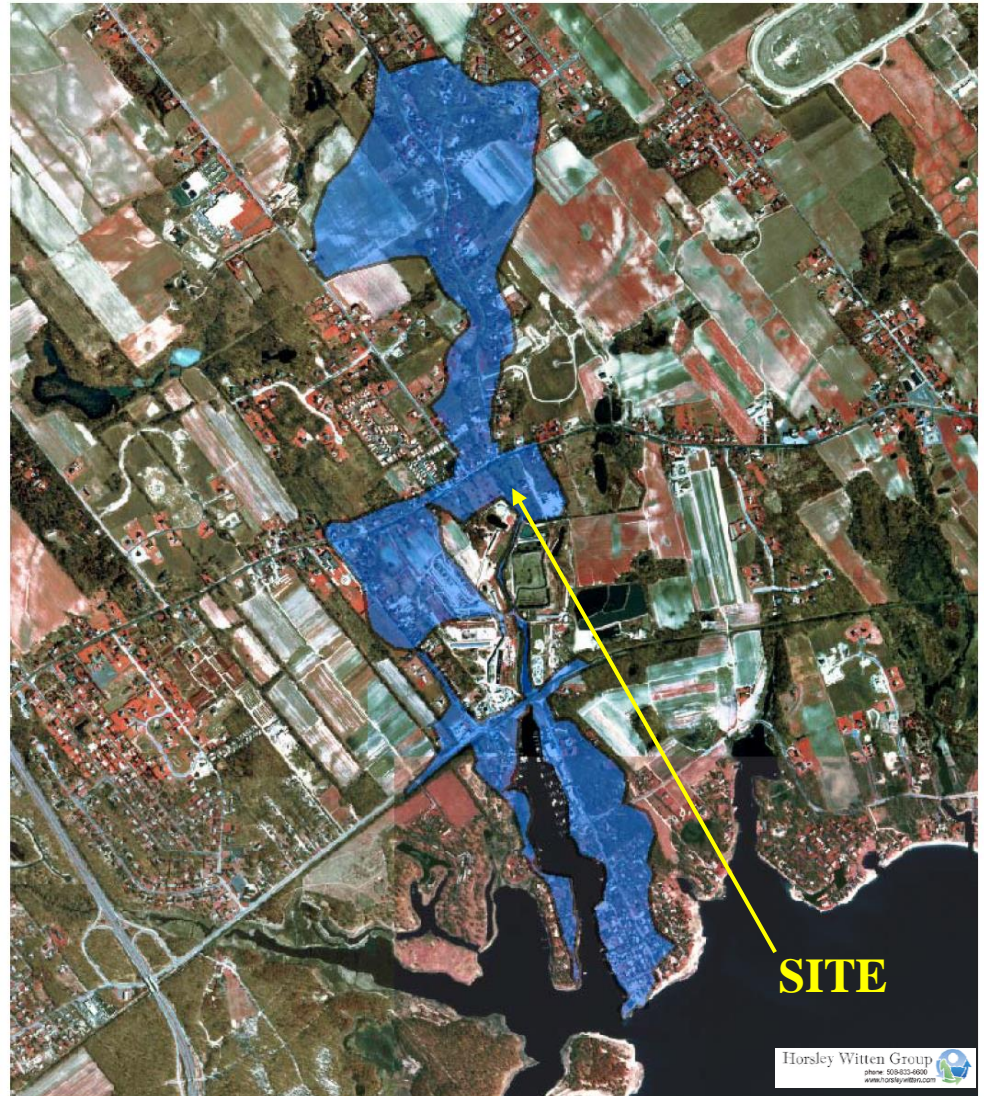
## Meetinghouse Creek- Main Road Wetland:

*Background:* A site is the upstream limit of surface waters associated with Meetinghouse Creek (which empties in Flanders Bay approximately 1.2 miles to the south).

Watershed extends much farther north encompassing 32.1 acres north of Main Road.

The stormwater wetland is intended to reduce sedimentation and improve water quality in stormwater generated by a 5.6 acre section of the Meetinghouse Creek watershed.

Meetinghouse Creek Watershed Management Plan completed by Horsley Witten Group (2006).





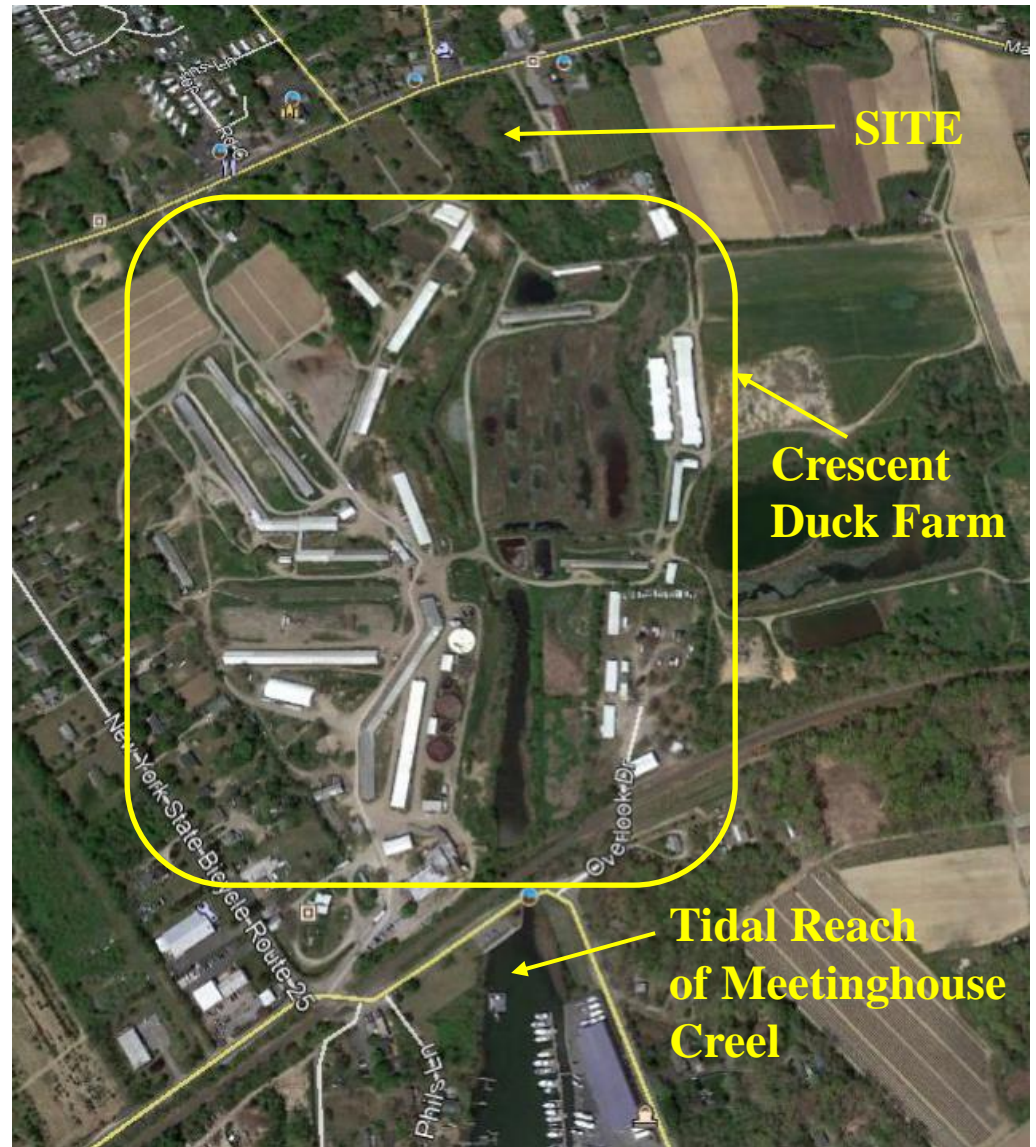
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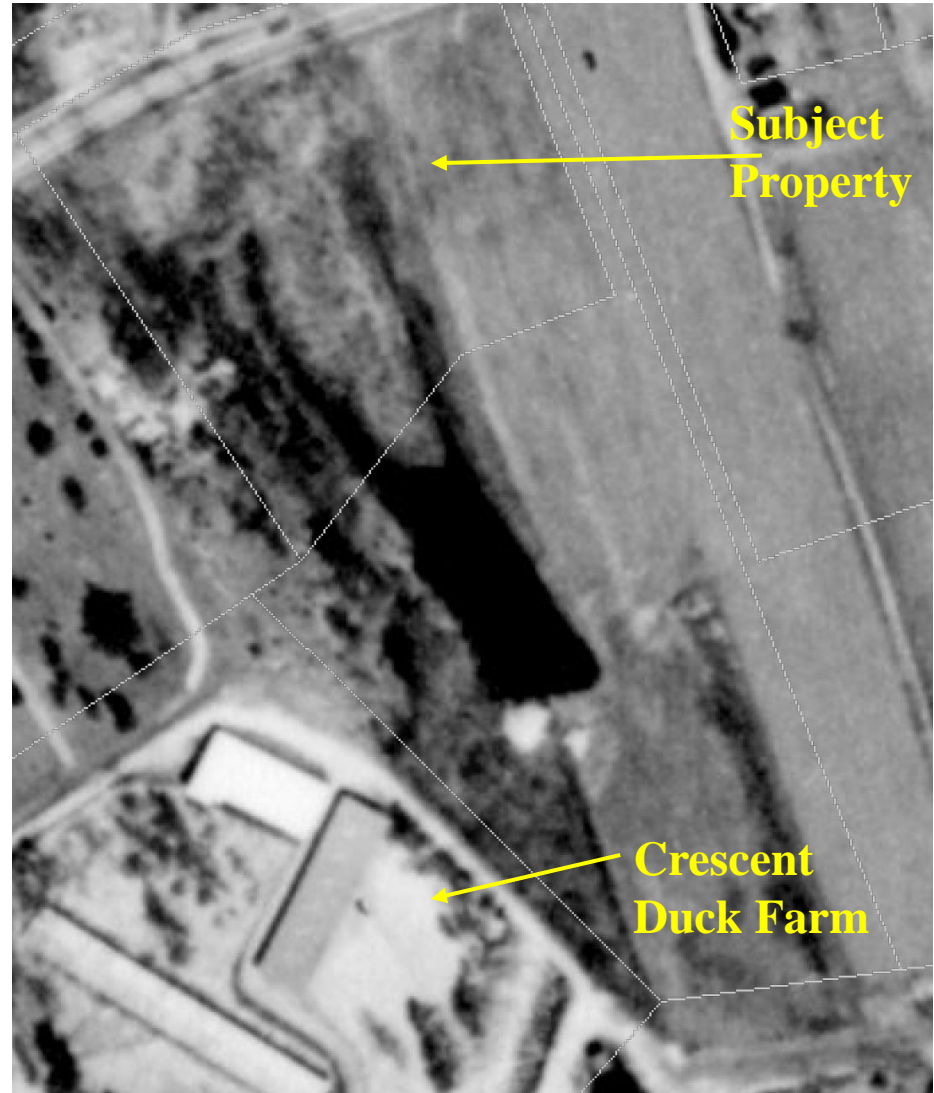
## Meetinghouse Creek- Main Road Wetland:

### *Background:*

In 1962, the pond appears highly manipulated with a channelized approach to the duck farm.

The two existing flow paths for water in the current marsh are relics of the upper branches of this pond.

Source: Suffolk County GIS Mapper





# Meetinghouse Creek- Main Road Wetland:

*Existing Conditions:* Upland Area (1.6 acres); Freshwater Wetland (1.0 acres)





**Concept Meeting** (*Peconic Estuary Habitat Restoration Conceptual Design Planning Services*)

**Meetinghouse Creek- Main Road Wetland:**

*Existing Conditions:*



Main Road looking  
towards wetland.

**Concept Meeting** (*Peconic Estuary Habitat Restoration Conceptual Design Planning Services*)

**Meetinghouse Creek- Main Road Wetland:**

*Existing Conditions:*

Main Road Stormwater Outfall Culvert:



Existing 24” reinforced concrete  
pipe outfall and headwall



## Meetinghouse Creek- Main Road Wetland:

*Existing Conditions:*

Main Road Stormwater Outfall Culvert:



Flow path to wetlands  
from outfall.



## Meetinghouse Creek- Main Road Wetland:

*Existing Conditions:*



Successional forest between  
Main Road and wetland.



## Meetinghouse Creek- Main Road Wetland:

*Existing Conditions:*



Successional forest located to east of wetland.



## Meetinghouse Creek- Main Road Wetland:

*Existing Conditions:*



Successional forest located to east of wetland.



## Meetinghouse Creek- Main Road Wetland:

*Existing Conditions:*



Successional forest located to east of wetland.



## Meetinghouse Creek- Main Road Wetland:

*Existing Conditions:*



‘Stream’ flowing from  
*Phragmites* marsh (Southwest  
corner of marsh)



## Meetinghouse Creek- Main Road Wetland:

*Existing Conditions:*



Downstream end of eastern  
ditch in *Phragmites* marsh  
(Southeast corner of marsh)



## Meetinghouse Creek- Main Road Wetland:

*Existing Conditions:*



Saturated, mucky soils with watercress where flow paths converge (to south of marsh)



## Meetinghouse Creek- Main Road Wetland:

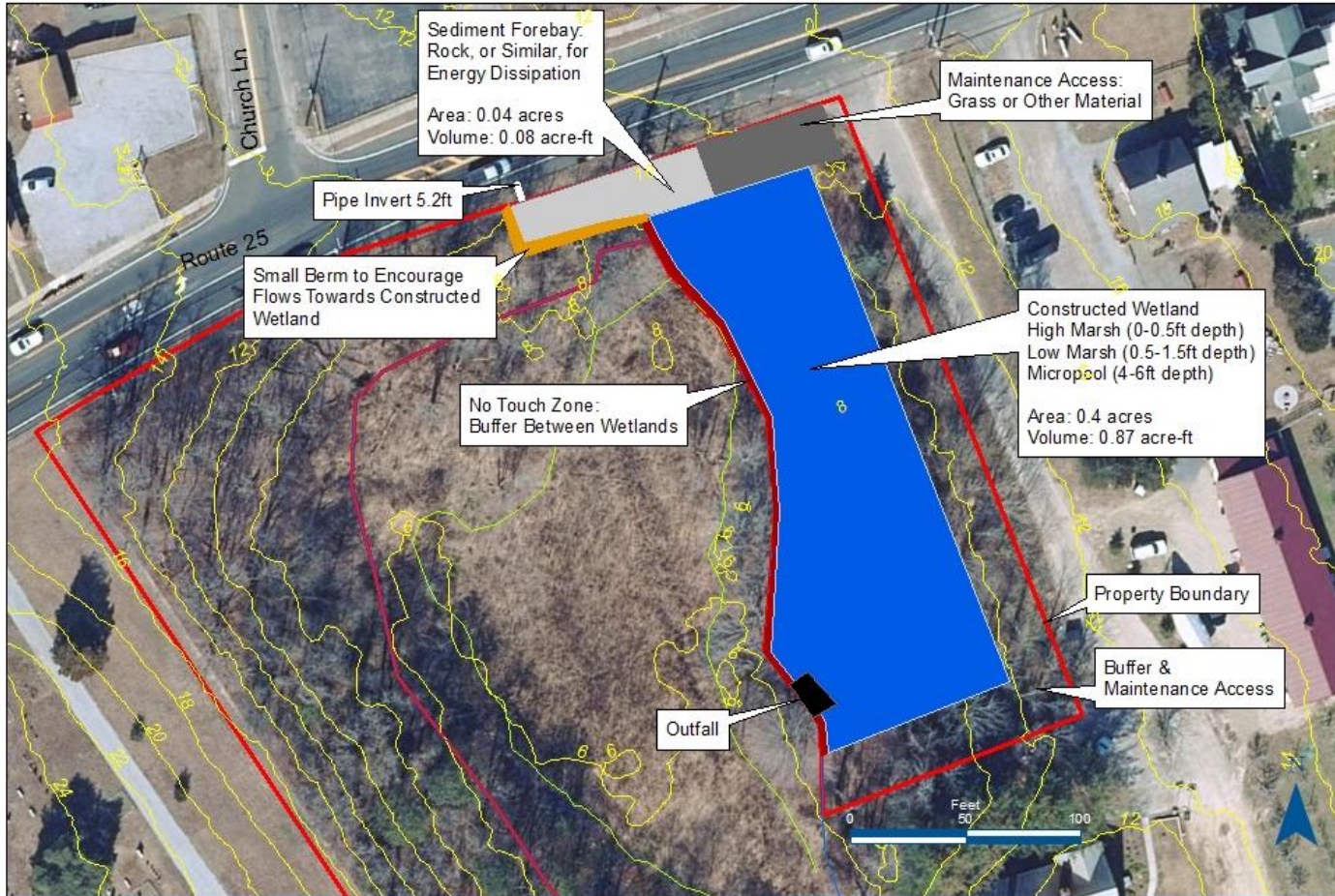
*Existing Conditions:*



‘Stream’ exiting *Phragmites* marsh to pond on adjacent property to south.



# Meetinghouse Creek- Main Road Wetland:



## Peconic Estuary Assessment



Meetinghouse Creek

- Edge Phragmites Marsh
- FWW Boundary
- Contour (ft)
- Parcel

### Notes:

1. Contours (2 ft intervals) created from 2014 Lidar (USGS)
2. Aerial imagery from NYGIS, 2017



## Meetinghouse Creek- Main Road Wetland:

### *Critical Questions or Assumptions Impacting Project Feasibility:*

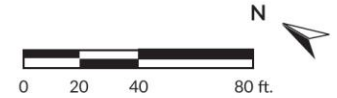
- How much upland area is located on the site (if regulatory agencies will not authorize using an existing wetland for stormwater treatment)?
- Shallow water zones of the stormwater wetland will be highly susceptible to colonization by *Phragmites*. Creation of additional wetland area is environmentally beneficial and the adjacent uplands do not feature high-quality native plant communities. However, over the long-term, the stormwater wetland will likely not provide high quality wetland habitat for plants or wildlife.
- The 0.4 (0.87 acre-feet) acre stormwater wetland with sediment forebay (not including buffer) will not meet all NYSDEC Design Standards, but may accommodate standard Water Quality Volume.



### NOTES LEGEND

- Edge of existing Phragmites
- Existing wetland boundary
- - - Property boundary
- ← Flow

1. Existing storm sewer outfall
2. Guard rail (proposed?)
3. Treatment area forebay (rip-rap lined)
4. Treatment area micropool
5. Outlet riser structure with trash grate
6. Spillway pipe (under embankment)
7. Outfall rip-rap pad
8. Existing flow path on private property (no improvements)
9. Emergency spillway
10. Maintenance access entry/egress
11. Potential turn-around



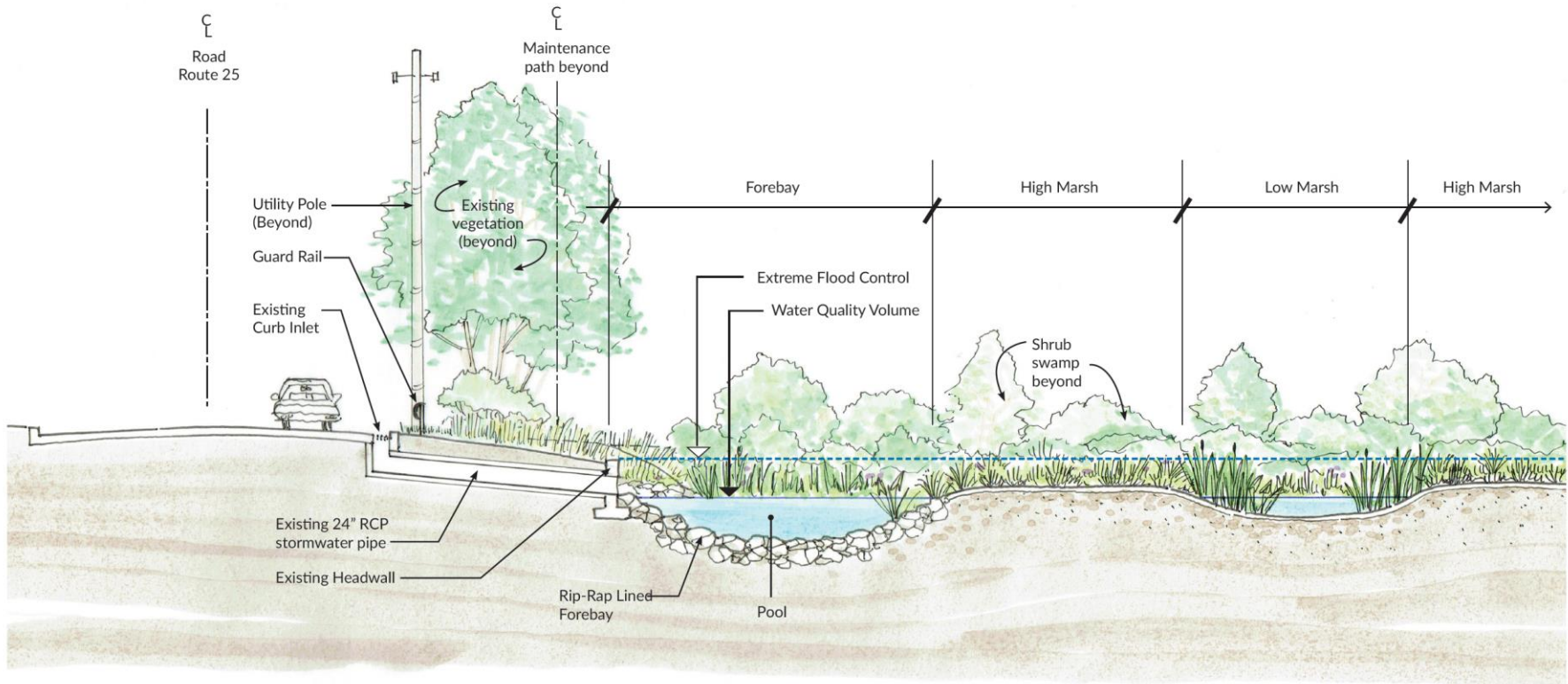
**B1**

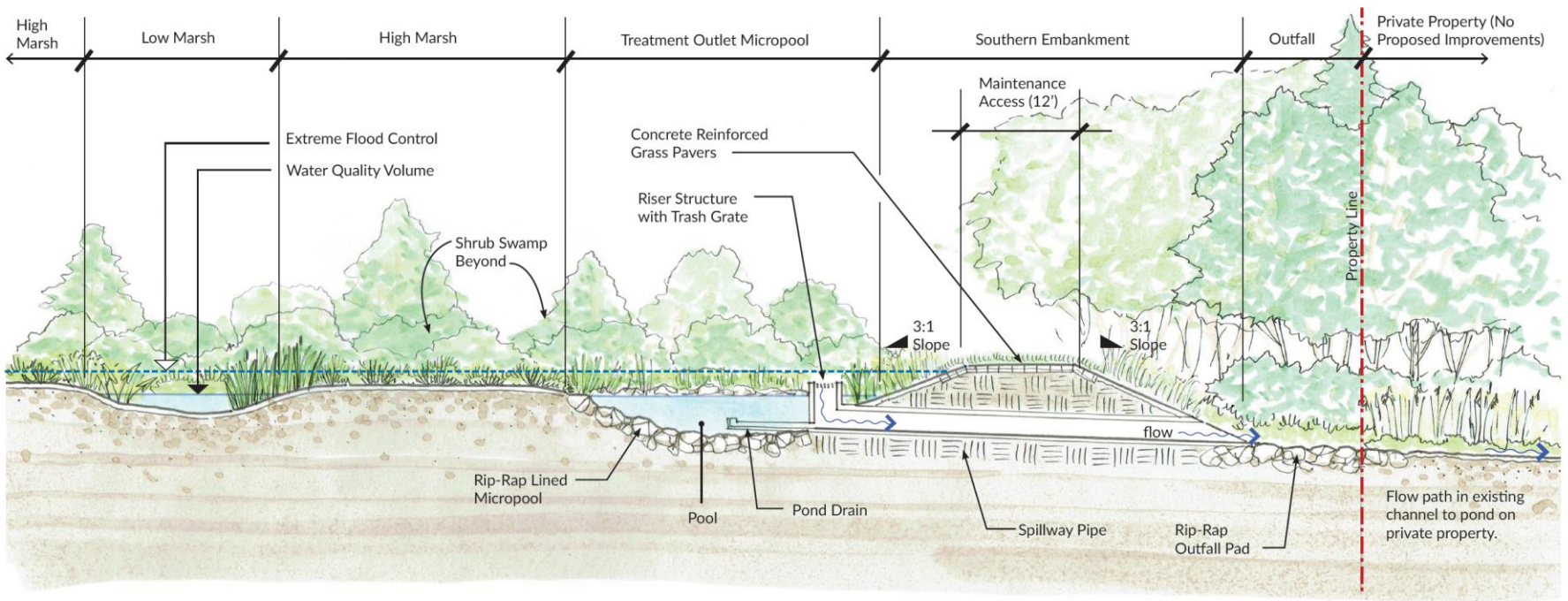
**PECONIC ESTUARY PROGRAM** June 19, 2019

**DRAFT - Conceptual Restoration Plan**  
Main Road 1.2 acre Stormwater Wetland (Aquebogue, NY)













Utility Pole (LIPA)  
 Catch Basin  
 Freshwater Wetland Point (Note 1)  
 Freshwater Wetland Boundary (Note 1)  
 Edge of *Phragmites* Marsh  
 Contour (ft)  
 Subject Parcel

**Proposed Pocket Wetland Conceptual Design**

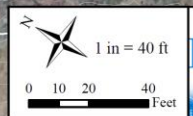
Forebay (755 sq ft)  
 Wetland (53,050 sq ft)  
 Micropool (850 sq ft)  
 Sluiceway (200 sq ft)  
 Outfall (260 sq ft)  
 Emergency Spillway (2,550 sq ft)  
 Maintenance Access 12' Wide  
 Embankment Slope (7 ft wide, 1V:3H)  
 Top of Embankment 6' Wide

**DESIGN NOTES**

1. Wetland

- Low Marsh Zone - 10,000 sq ft
- High Marsh Zone - 10,000 sq ft
- Shrub Swamp - 33,050 sq ft

2. Flow Path through high and low marsh areas must have a ratio of 1.5L:1W. Recommend placing these areas within the existing wetland. Shrub swamp would then be in the east area that is currently Successional Forest.



Prepared By: Land Use Ecological Services, Inc.  
 570 Expressway Drive South, Suite 2F  
 Medford, NY 11763

Date: 6/10/2019 Revised:

Project: Main Road Pocket Wetland  
 For: Peconic Estuary Program  
 Town of Riverhead  
 At: Main Road, Aquebogue, NY

Scale: As Noted Sheet: PW-1

## Meetinghouse Creek- Main Road Wetland:

Conceptual Design provides for the following the NYS Stormwater Manual standards:

- Provides for WQ<sub>v</sub> (runoff from 90% storm event) and 100-year storm protection.
- Flowpaths through wetland should be maximized and the flowpath shall have a minimum length to relative width ratio of 2:1.
- The surface area of the entire stormwater wetland shall be at least one percent of the contributing drainage area (e.g. recommended wetland is 21% of contributing area).
- A minimum of 35% of the total surface area (in this case of the portion of the wetland to accommodate the WQ<sub>v</sub>) can have a depth of six inches or less, and at least 65% of the total surface area shall be shallower than 18 inches. In this wetland, 46% is less than six inches and 92% is less than 18 inches.
- At least 25% of the WQ<sub>v</sub> shall be in deepwater zones with a depth greater than four feet and outlet micropool must accommodate at least 10% of the WQ<sub>v</sub>.
- A vegetated buffer extends 25 feet outward from the maximum water surface elevation.



## Meetinghouse Creek- Main Road Wetland:

### Maintenance:

Following the NYS Stormwater Manual, these maintenance practices are recommended:

- The outflow equipped with a removable trash rack and cleaned annually or as needed.
- Sediment removal in the forebay shall occur every five to six years or after 50% of total forebay capacity has been lost.
- All safety elements should be inspected and maintained on an annual basis.

### Other Maintenance:

- Herbicide Treatments of *Phragmites* will be necessary.
- Year 1-2 during construction and every 2-4 years as maintenance



## Meetinghouse Creek- Main Road Wetland:

### *NYSDEC Meeting:*

- NYSDEC Bureau of Habitat may approve stormwater wetland within *Phragmites* marsh if 1) overall wetland area increases, 2) habitat value of wetland increases, and 3) designed wetland provides better stormwater treatment than existing *Phragmites* marsh.
- NYSDEC flexibility regarding Art. 24 (Freshwater Wetlands) permitting allows the stormwater wetland to potentially comply with 2015 NYS Stormwater Manual to greater extent (WQv and Extreme Storm Protection standards).



# Main Road Wetland: Conceptual Plan for Stormwater Wetland

## Concept-level Construction Costs:

| Restoration Action          | Design Cost | Construction Cost | Notes   |
|-----------------------------|-------------|-------------------|---|
| 1.2 acre Stormwater Wetland | \$174K      | \$597K            | <ul style="list-style-type: none"><li>- 20,000 SF of high and low marsh zones and 33,050 SF shrub swamp and associated herbaceous and upland plantings.</li><li>- Assumes 2.5-ft perimeter berm to provide storage for 100-year storm event and associated fill.</li><li>- Assumes traffic control costs; erosion and sediment control, mobilization and demobilization costs</li><li>- Assumes precast concrete grass pavers for maintenance road.</li><li>- Assumes herbicide application to control <i>Phragmites</i></li><li>- Cost includes construction contingency and cost escalation</li></ul> |

# **Main Road Wetland: Conceptual Plan for Stormwater Wetland**

## **Environmental Permits Needed:**

The recommended construction of the 1.2 acre stormwater management wetland at this site will require the following environmental permits:

### *United States Army Corps of Engineers:*

Section 404 of Clean Water Act, Section 10 of Rivers and Harbors Act

### *New York State Department of Environmental Conservation:*

Article 24 (Freshwater Wetlands)

Article 15 (Protection of Waters)

SPDES/Division of Water

### *New York State Department of Transportation*

### *Town of Riverhead:*

Conservation Advisory Council Review under Section 107 (Tidal and Freshwater Wetlands) of Town Code

Building Construction



**RFP#: 10-10015** (*Peconic Estuary Habitat Restoration Conceptual Design Planning Services*)

**THANK YOU.**

