





# Commonwealth of Massachusetts

Governor

**Charles D. Baker**

Lieutenant Governor

**Karyn Polito**

Energy and Environmental Secretary

**Matthew A. Beaton**

Department of Conservation and Recreation Commissioner

**John P. Murray**

# DCR Mission Statement

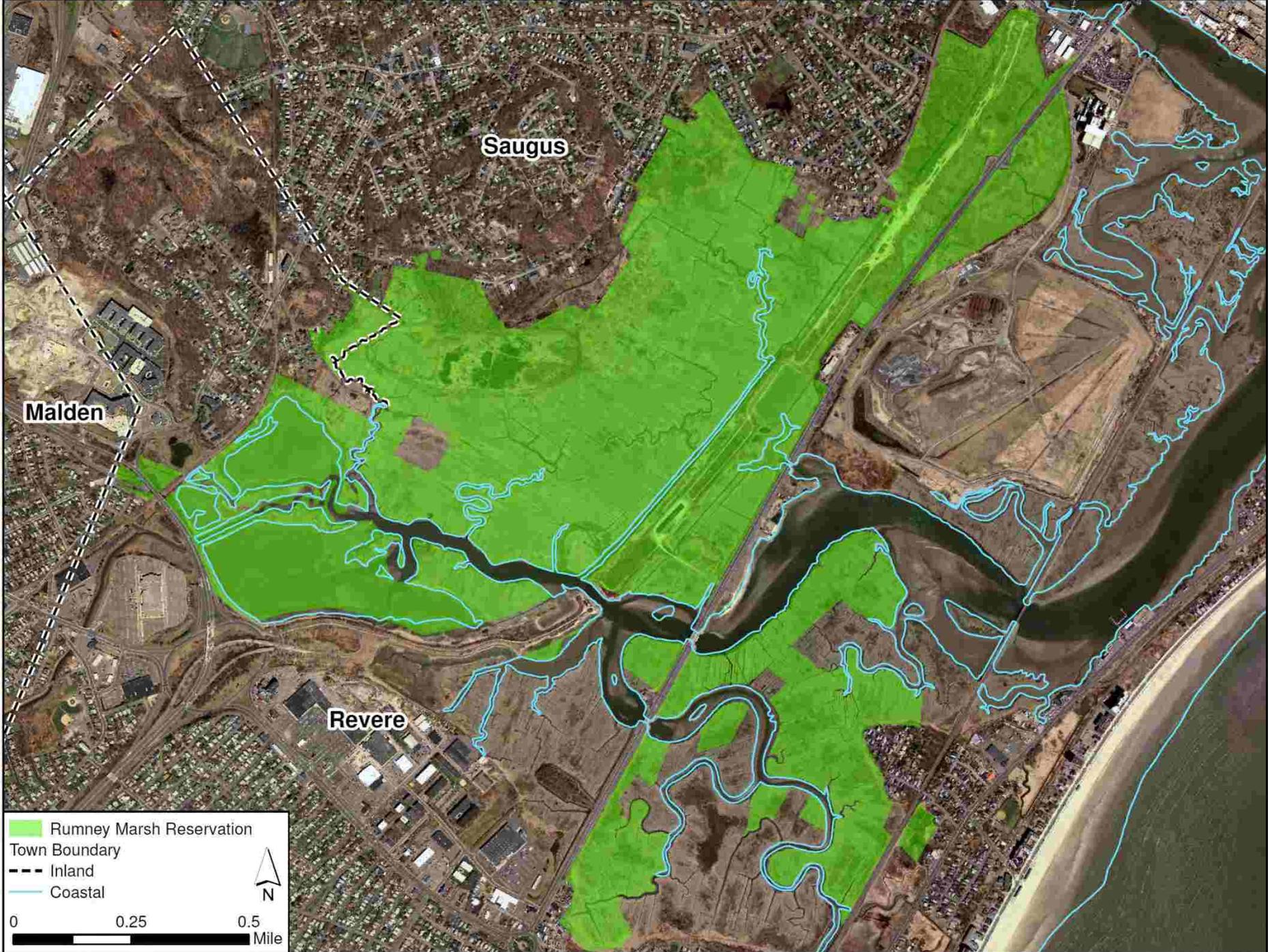


*To protect, promote and enhance our common wealth of natural, cultural and recreational resources for the well being of all*

## Tonight's Meeting - Purpose

- Provide Project Status Update
- Review the Project Components
- Answer Questions





Saugus

Malden

Revere

Rumney Marsh Reservation  
Town Boundary  
--- Inland  
--- Coastal

0 0.25 0.5  
Mile

N

## Project Background

1999 & Prior: Investigation /  
Project Development

1999 –2006: Design &  
Permitting, Fundraising

2011 – 2015: Additional  
Investigation / Project  
Development



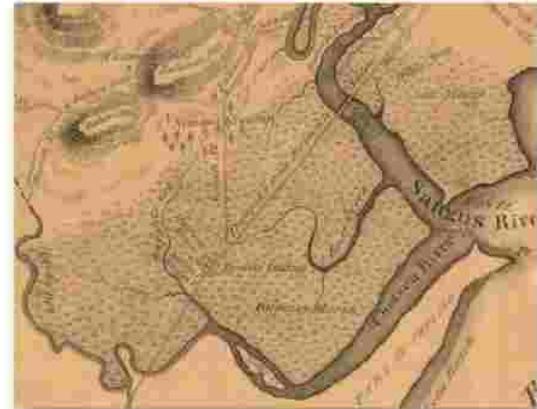
## Work to Date

- Tidal Monitoring, Surveying
- Hydrodynamic modeling
- Development of potential solutions
- Extensive Consultation
- EENF

EXPANDED ENVIRONMENTAL NOTIFICATION FORM  
MEPA MGL c. 30A § 61-62I

Ballard Street Salt Marsh Restoration  
Eastern Avenue and Ballard Street  
Saugus, MA

March 16, 2015



Prepared for:  Department of Conservation and Recreation.

Prepared by:  Parsons Brinckerhoff, Inc.  
Applied Coastal Research & Engineering, Inc.  
Boelter & Associates



# Opportunities and Project Goals

## Opportunities

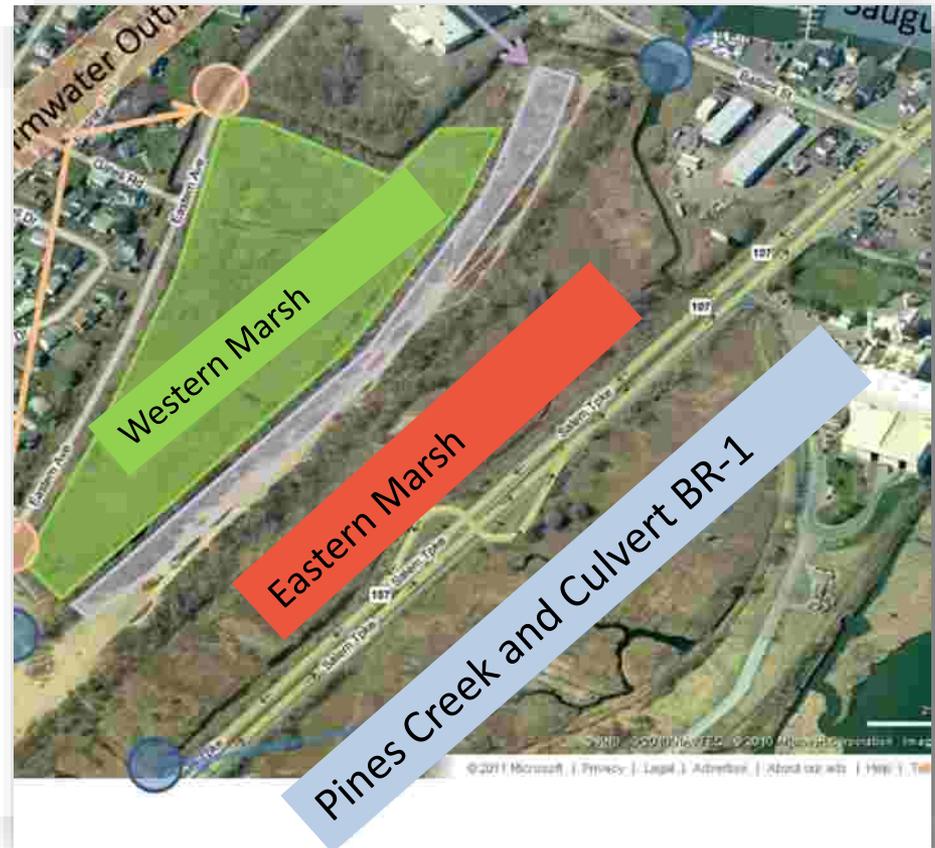
- Funding: USFWS Grant, State Funding
- Restoration: Restore formerly degraded / historically filled salt marsh
- Sand Extraction: Restore salt marsh directly lost through fill removal
- Flood Control: Enhance flood control for adjacent neighborhood

## Intersection of Two goals:

- Extraction of sand for shore protection at Winthrop Beach
- Restoration of adjacent Western and Eastern Marshes

# Project Objectives

- Western Marsh:
  - Restore viable salt marsh habitat
  - Provide enhanced flood control
  - Maximize restoration area by including the I-95 embankment extraction area
- Eastern Marsh:
  - Restore viable salt marsh habitat



## Values and Functions of Salt Marsh

ACEC, shellfish/finfish habitat, waterfowl/shorebird habitat, storm damage/flood control, water quality protection



- Biodiversity
- Examples of healthy vegetation
- Tidal range
- Salinity
- High marsh vs. low marsh

# Unhealthy Marsh Systems



- Insufficient salinity
- Invasive species

# Mixed Healthy & Unhealthy Marsh Systems



# Marsh during Restoration



# Marsh After Restoration



# Existing Ecological Conditions: Western Marsh



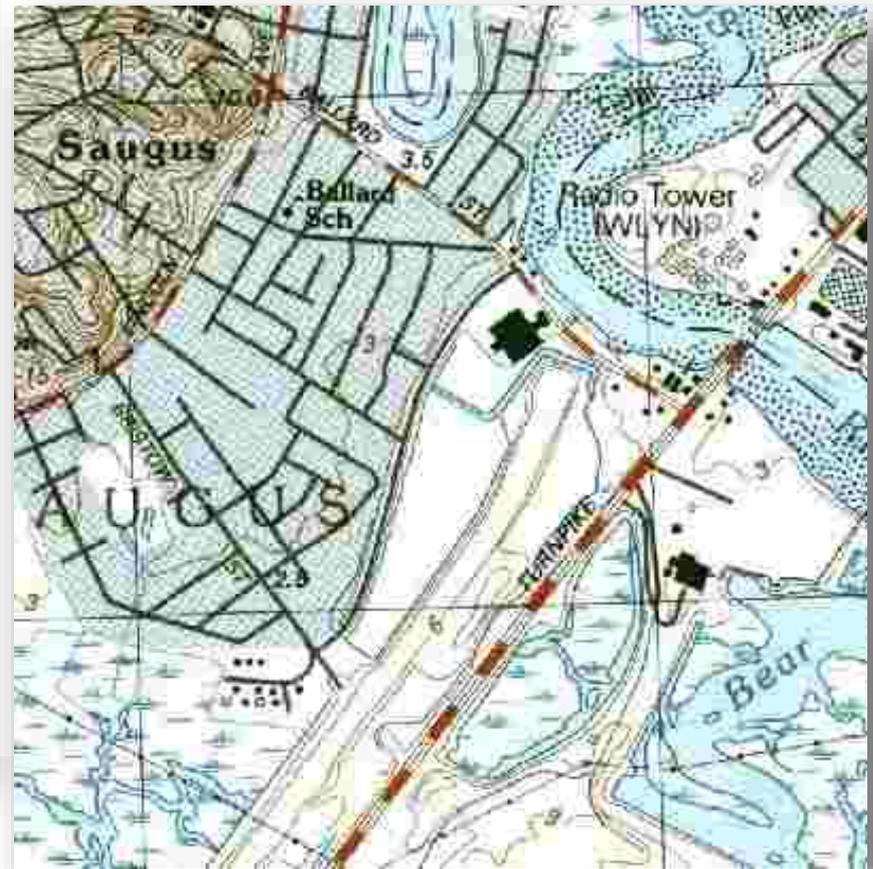
## Invasive Species:

- *Phragmites* (common reed)
- Sumac

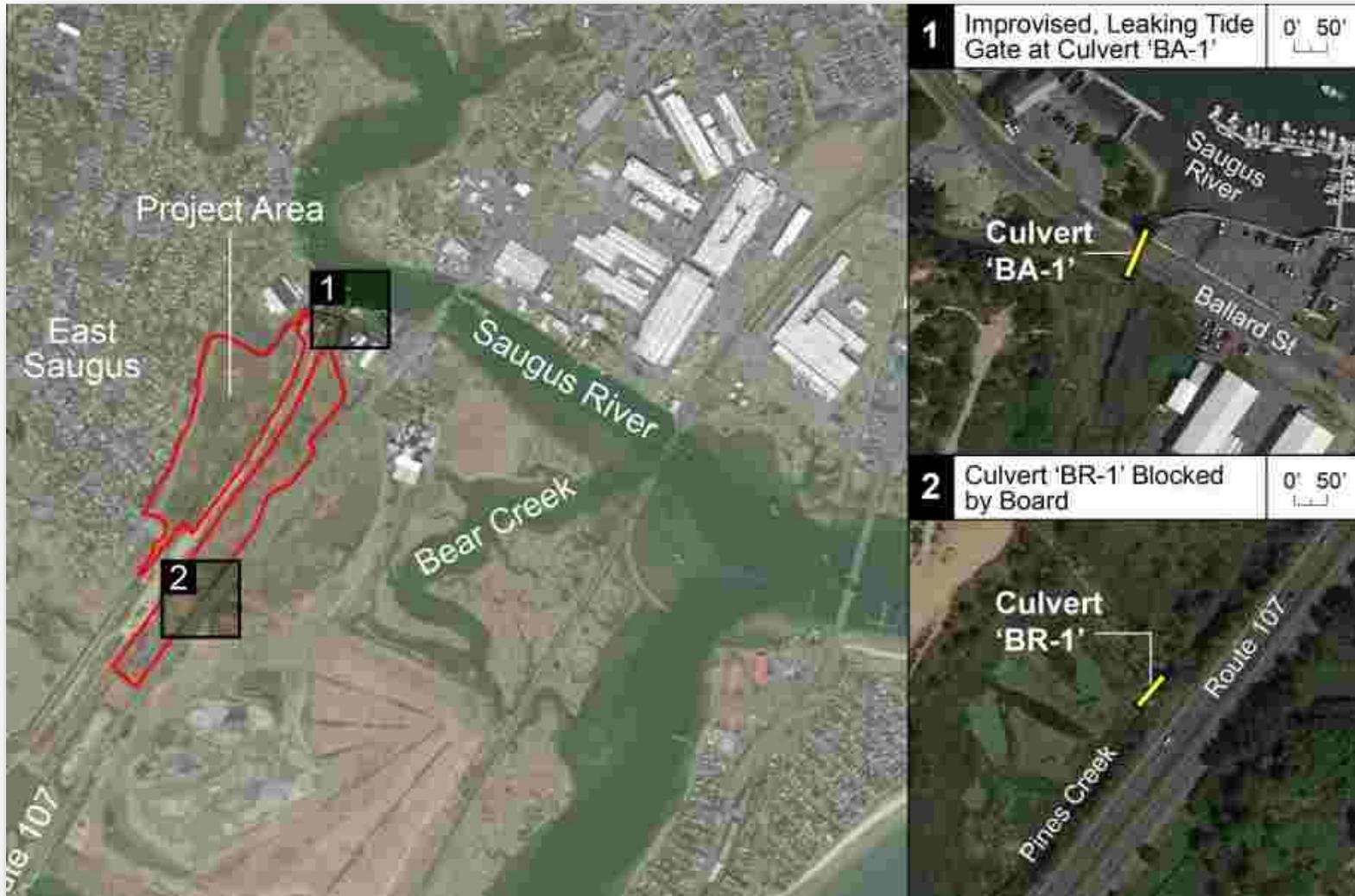


## Succession to upland forest

## Ballard Street Marsh – 1872 & 1982



# Existing Hydrological Conditions



# Principal Culverts

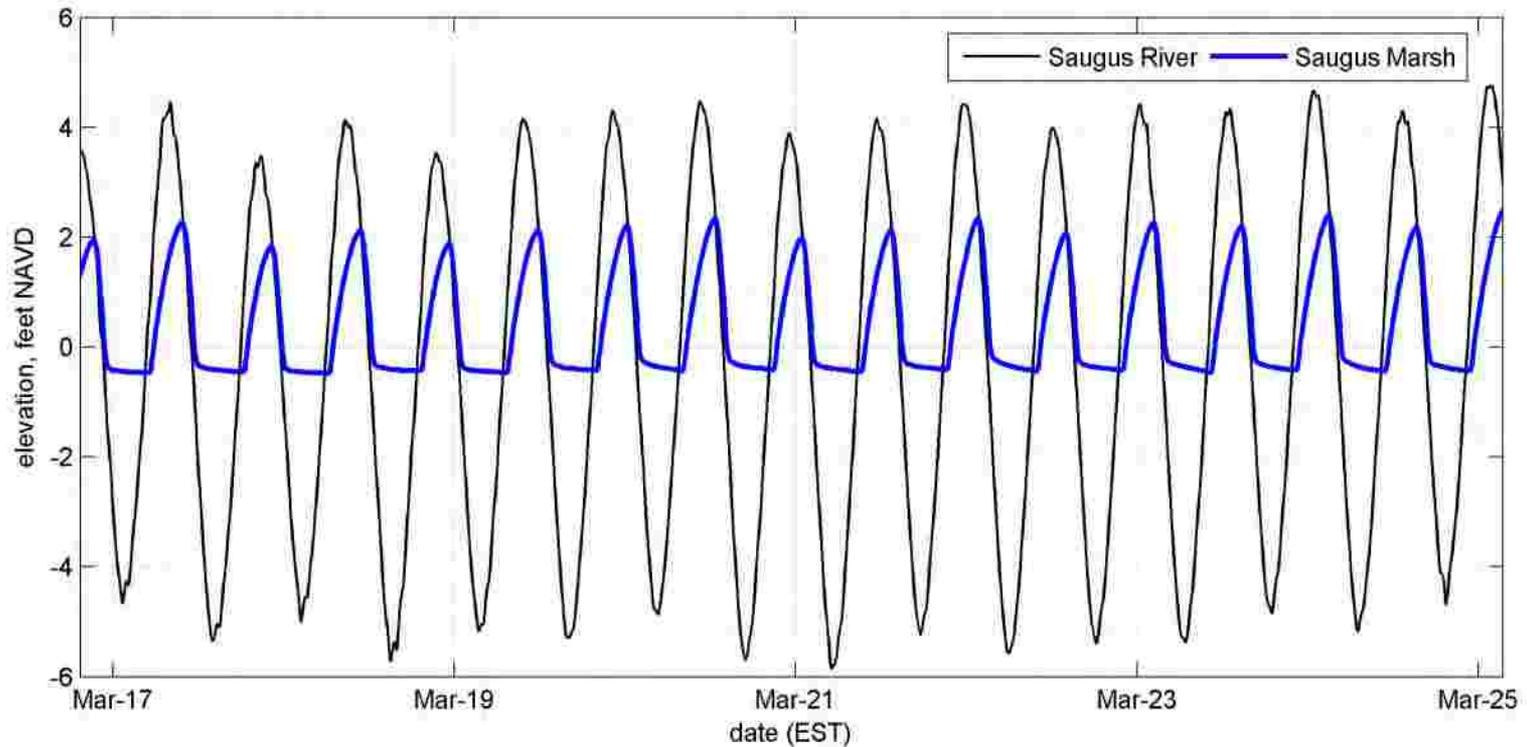
Ballard Street Culvert ("BA-1")



Bristow Street East Culvert ("BR-1")



## Existing Tides



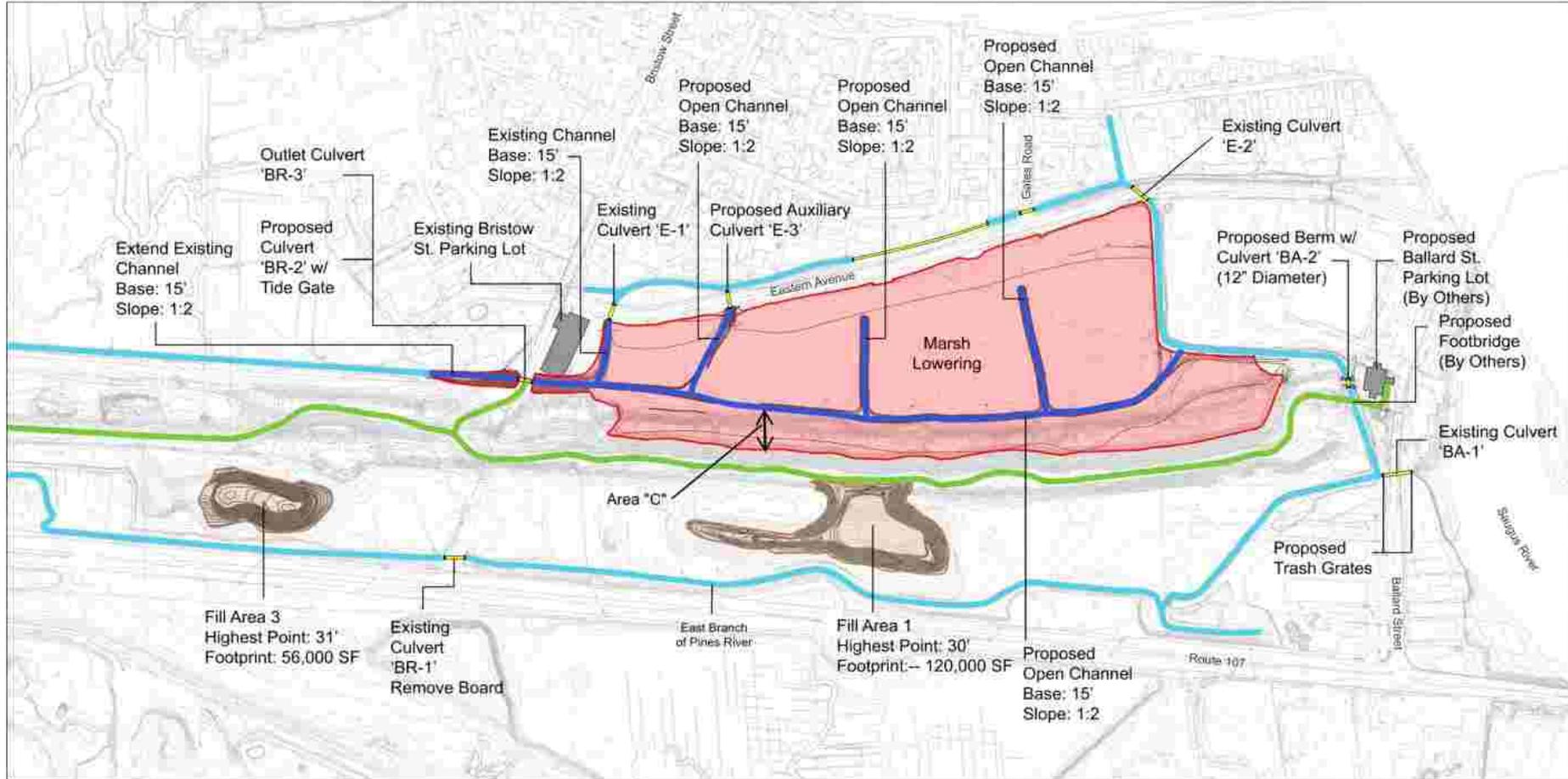
**Ballard Street Culvert Severely Restricts Tide  
(Tide Range in Marsh ~2 feet)**

## Engineering Design Considerations

- Public Safety
- Marsh Restoration
- Stormwater Protection
- Sea Level Rise
- Simplified  
Maintenance

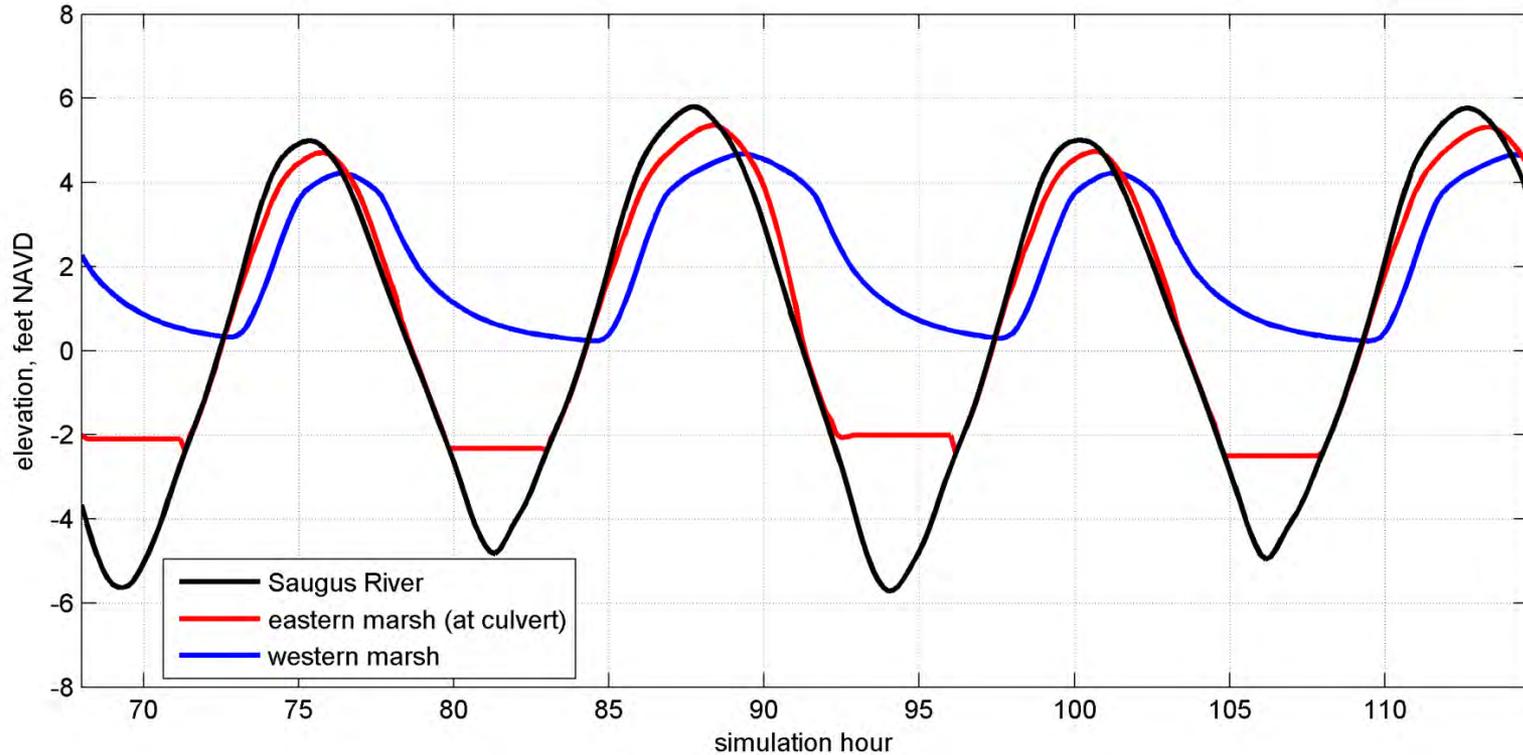


# Project Design



<p>Ballard Street Salt Marsh Restoration</p>		<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #f08080; border: 1px solid black; margin-right: 5px;"></span> Limit of excavation</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #f0f0f0; border: 1px solid black; margin-right: 5px;"></span> Fill area</li> <li><span style="display: inline-block; width: 15px; border-bottom: 2px solid blue; margin-right: 5px;"></span> Channel, inside limit of work</li> <li><span style="display: inline-block; width: 15px; border-bottom: 2px solid cyan; margin-right: 5px;"></span> Existing Channel</li> <li><span style="display: inline-block; width: 15px; border-bottom: 2px dashed green; margin-right: 5px;"></span> Culvert</li> <li><span style="display: inline-block; width: 15px; border-bottom: 2px solid green; margin-right: 5px;"></span> Pathway (By Others)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #cccccc; border: 1px solid black; margin-right: 5px;"></span> Parking Lot</li> </ul>
<p>dcr</p> <p>PERSONS BRANCKENHOFF</p>	<p>0 250 500'</p> <p>Last modified: 2/17/15</p>	

## Restored Tides



Three Inlets Improves Tidal Exchange  
(Tide Range – Eastern Marsh = 7 feet, Western Marsh = 4 feet)

# Tidal Cycles and Response to 50-Yr. Storm Event



# Project Components





# Project Features

New Channels

Bristow Street

parking lot

New 4' Open Top Culvert "BR-2" with SRT  
&  
New 4' Culvert "BR-3" with Duck Bill

Pines River Channel



Pines River Channel

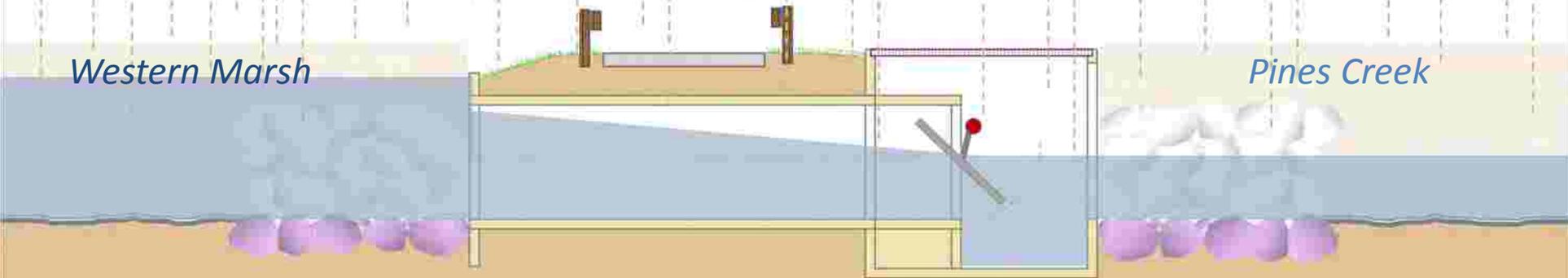
# Self-Regulating Tide Gates



# Rainstorm With Incoming Tide

## Incoming tide:

- Tide flows in until it reaches Elev. +5.0
- Float on tide gate then closes the tidegate
- No additional flow will enter the Ballard St. Marsh (west cell)



## Duckbill Type Tide Valves



# Project Permitting

<b>Regulatory Permits and Reviews</b>	
Agency	Permit or Review
<b><u>Federal Permits</u></b>	
Army Corps of Engineers	Amendment or modification to existing Massachusetts Programmatic General Permit II – Section 404 of the Clean Water Act for the Winthrop Shores Reservation portion of the Project Area Individual Permit– Section 404 of the Clean Water Act.
Environmental Protection Agency	National Pollutant Discharge Elimination System (NPDES) Stormwater Permit for Construction Activities
<b><u>State Permits and Reviews</u></b>	
Mass. Environmental Policy Act (MEPA)	Expanded Environmental Notification Form (EENF)
Mass. Office of Coastal Zone Management	Federal Consistency Certification
Dept. of Environmental Protection – Waterways Regulation Program	Chapter 91 Waterways License and Permit (not anticipated); Dredging Permit
Dept. of Environmental Protection – Division of Wetlands and Waterways Office of Watershed Management	401 Water Quality Certification (WQC)
Mass. Historical Commission	Project Notification
Mass. Underwater Archaeological Research Board	Project Notification
Mass. Department of Transportation	Temporary Access Permit (Existing Permit 4-2014-128 will be extended)
Dept. of Environmental Protection – Wetlands Program	Order of Conditions: Wetlands Protection Act
MA Department of Conservation and Recreation	Access and Construction Permit

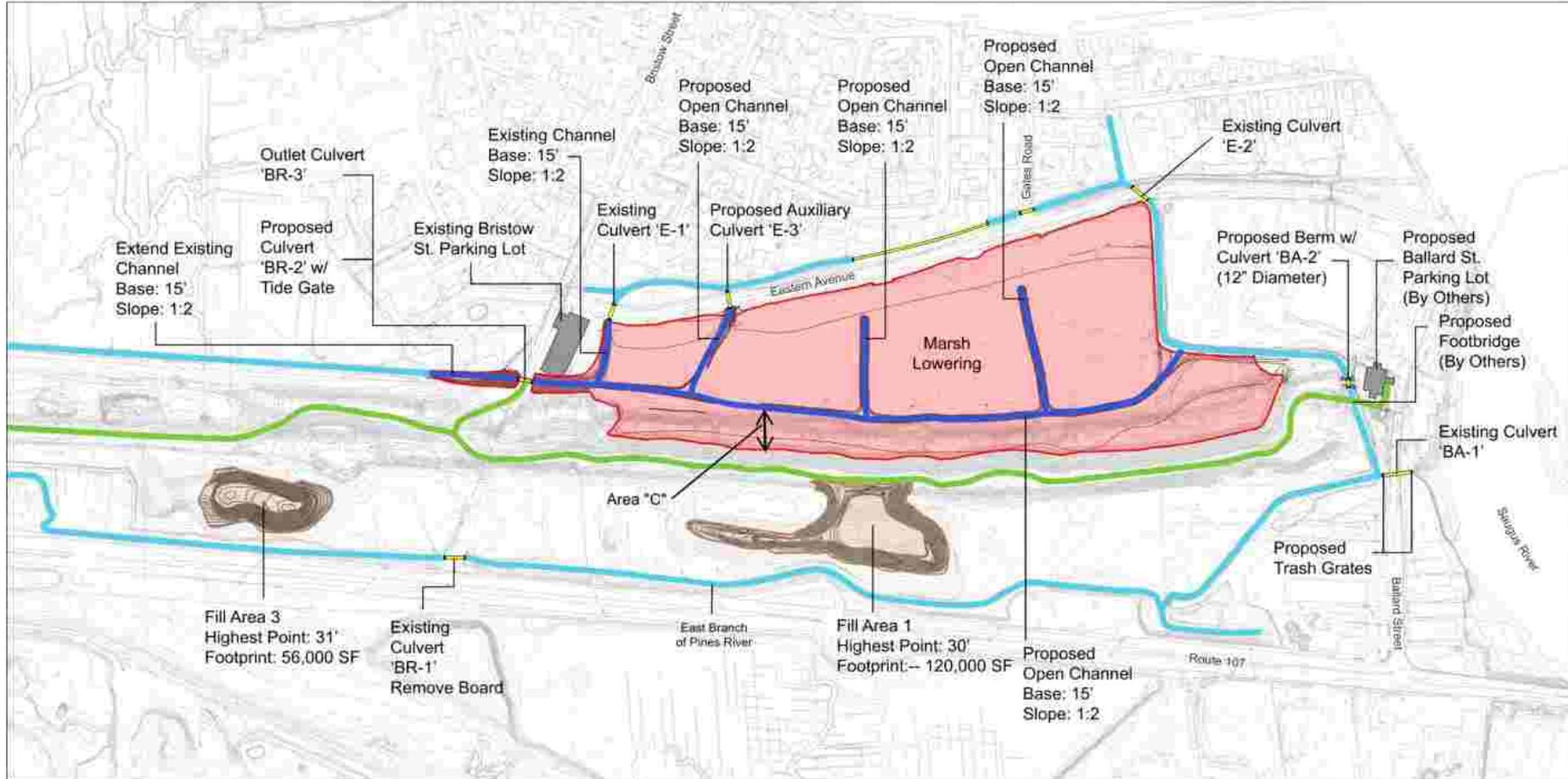
## Project Benefits

- Acreage
  - Current: 3.0
  - Post-Restoration: 36.9
- Improved Public Safety
- Improved storm water protection
- Simplified Maintenance
- Responsive to Sea Level Rise
- Maintains Hydrological Connections

## Work on Site

- Construction access from Route 107
- Staging on the I-95 Berm
- Limited construction traffic on Eastern Ave.:
  - Construct new culvert
  - Install duck bills on culverts
- Clearing (tree removal) in western marsh
- Transporting excavated material from western marsh to locations on the berm
- Construction hours: 7 am to 6 pm
- Duration: 18 months

# Project Design



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## Next Steps

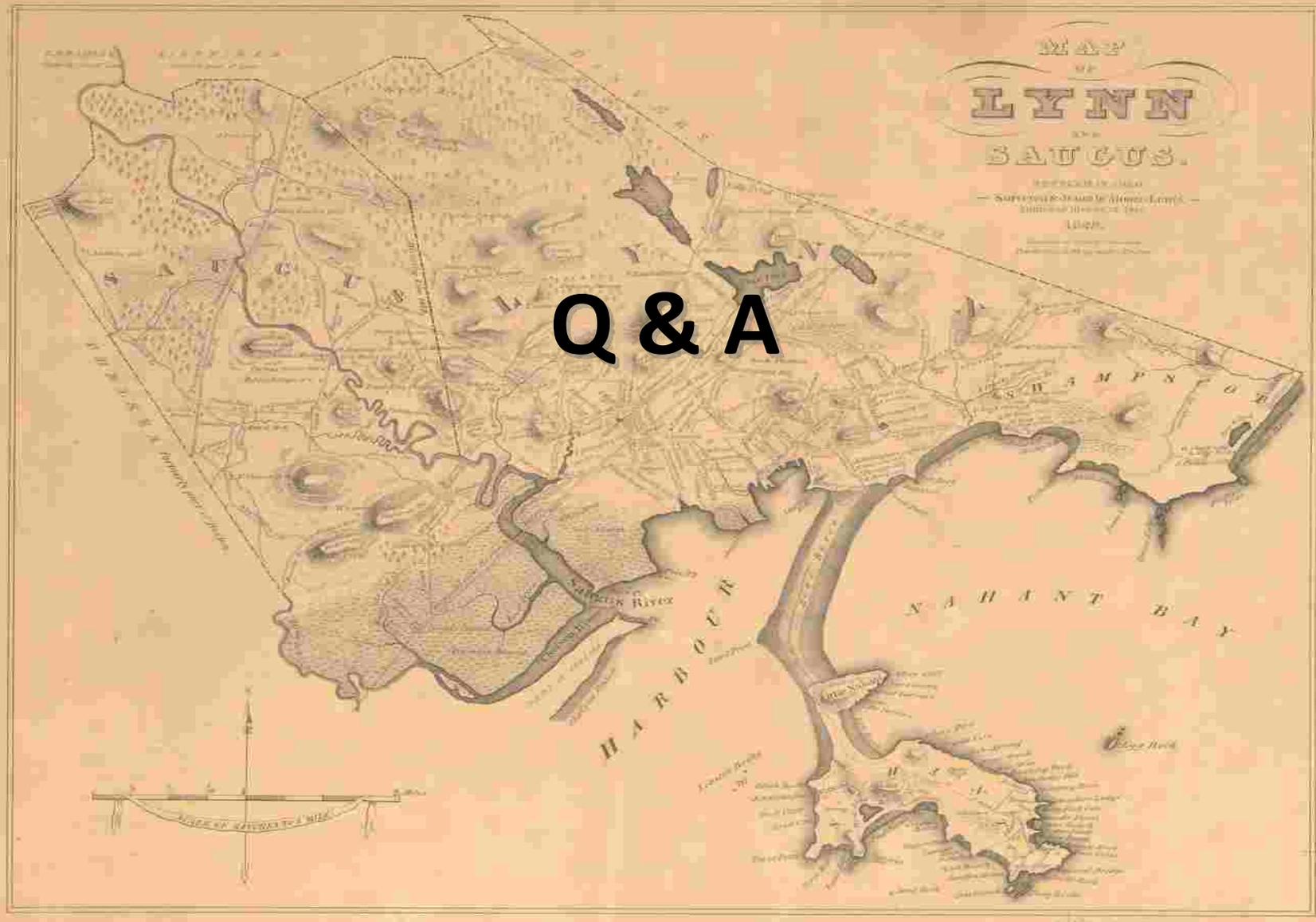
- Expanded Environmental Notification Form (EENF)      Filed 3/26/15
- File Permits      Spring 2015
- Completion of Design      Spring 2015
- Obtain Permits      Summer 2015
- Begin Construction      Fall 2015

Link to EENF: \_\_\_\_\_

MAP  
OF  
**LYNN**  
AND  
**SAUGUS.**

— SURVEYED BY GEORGE B. ALDEN, U.S. GEOLOGICAL SURVEY, 1870. —

**Q & A**



W. H. RAY, Boston, Mass.



## Additional Information

**For more information:**

<http://www.mass.gov/eea/agencies/dcr/public-outreach/public-meetings/>

If you have questions or concerns or would like to be added to an email list to receive DCR general announcements or DCR updates specific to this project , email [MassParks@state.ma.us](mailto:MassParks@state.ma.us), noting your interest in subscription to either:

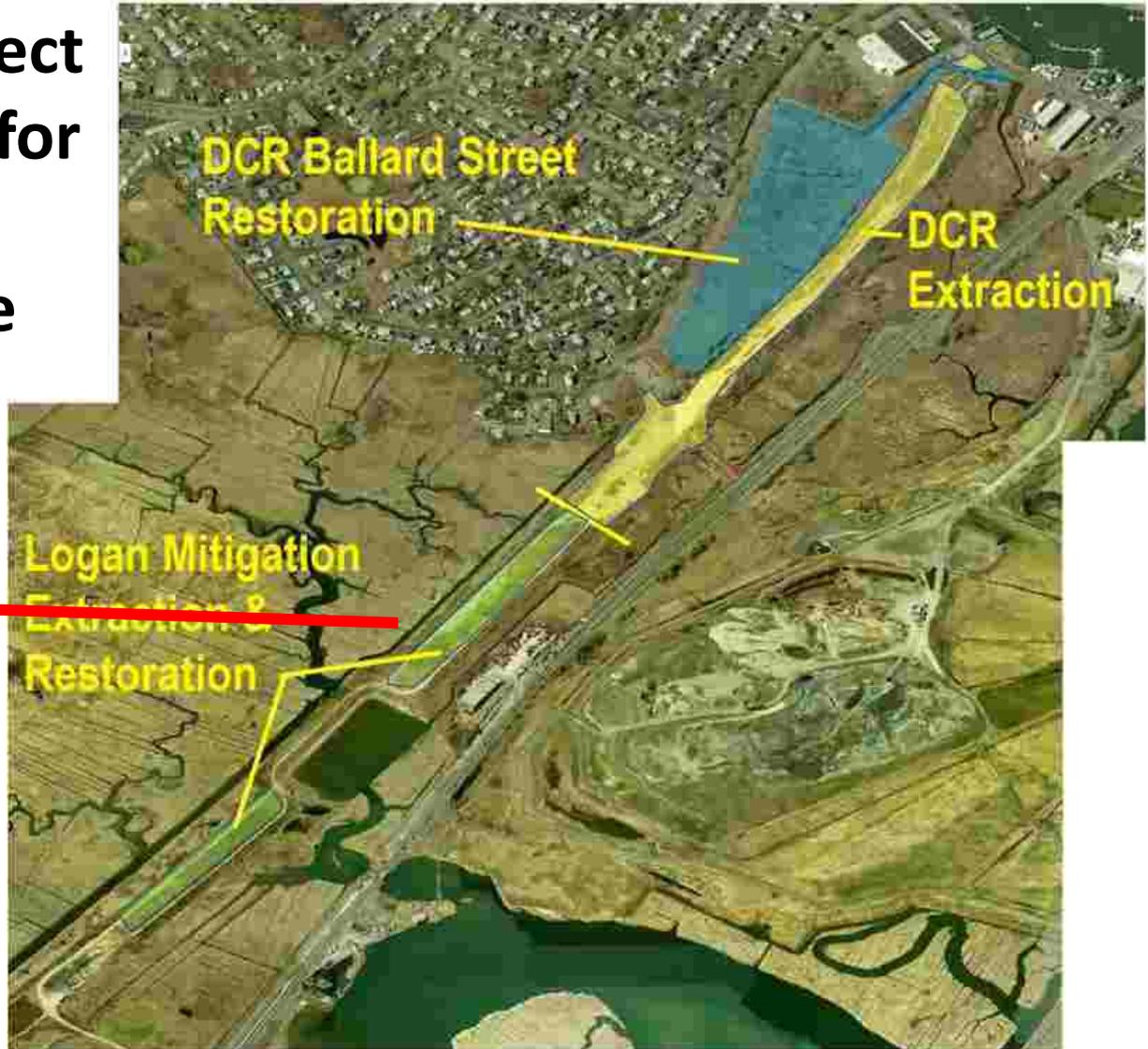
- DCR General Announcements
- Ballard Street Salt Marsh Restoration Project

Or call: 617-626-4973

# Link to EENF

- <http://www.mass.gov/eea/agencies/der/mass-parks/region-north/rumney-marsh-reservation.html>

# Companion Project - Sand Removal for Winthrop Status Update



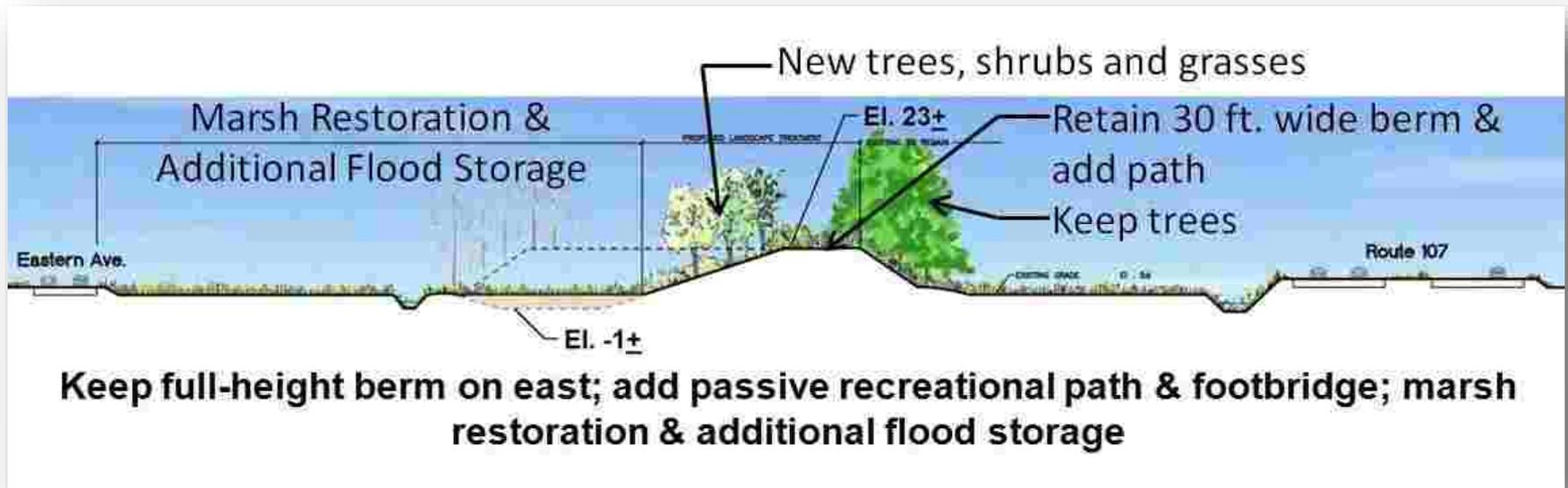
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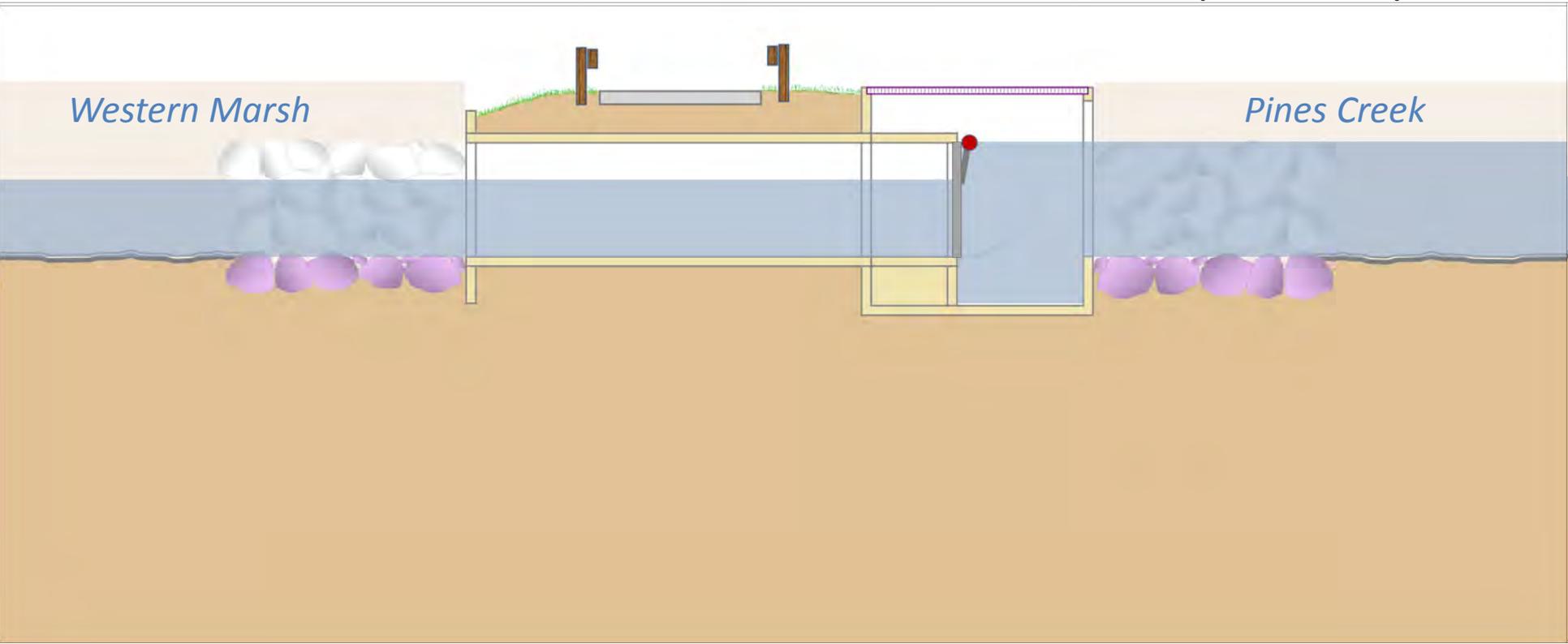
# Companion Project - Sand Removal for Winthrop Status Update



# Tidal Flow Cycle

## Incoming tide:

- Tide flows in until it reaches Elev. +5.0
- Float on tide gate then closes the tidegate
- No additional flow will enter the Ballard St. Marsh (west cell)



# Tidal Flow Cycle

## Outgoing tide:

- Tide flows out until it reaches Elev. +5.0
- Float on tide gate then opens the tidegate
- Ballard Street Marsh (west cell) drains

