

# Route 1 Town Line Brook Flood Control and Marsh Restoration Project Revere, Massachusetts

**Corps permit 1997-00838, DEP 61-294**

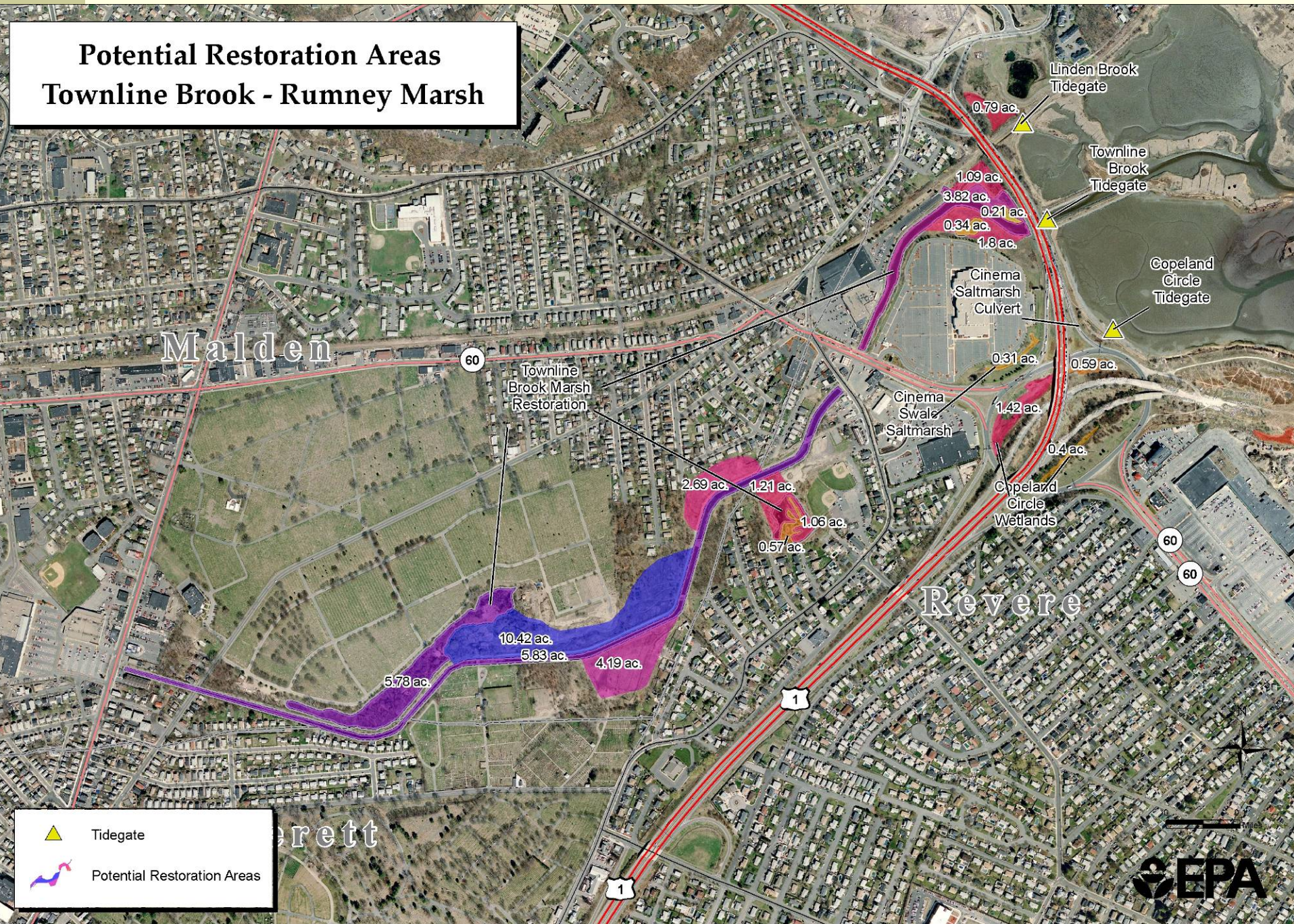
Action items to remedy noncompliance  
with permit conditions

Edward Reiner US EPA, February, 2010



06.11.2009

# Potential Restoration Areas Townline Brook - Rumney Marsh

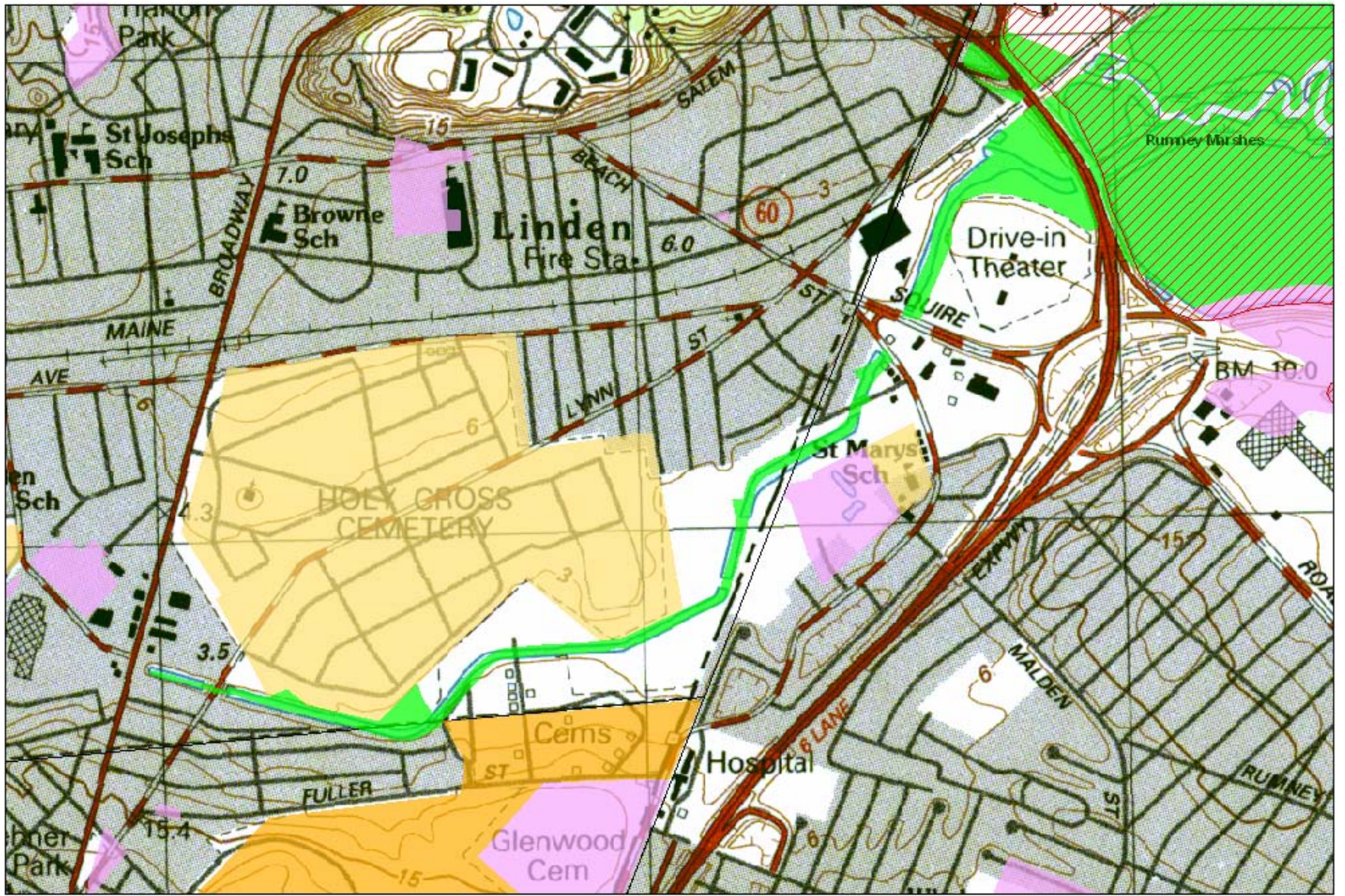


 Tidegate  
 Potential Restoration Areas





Flooded wetlands  
prior to 2001  
tidegate repair



# Action items

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- Repair interior tide gauge
- Clean exterior tide gauge
- Install automatic water level readers
- Obtain base line plant survey from 2000
- Perform new plant survey
- Supplement wetland & flood plain elevation information as needed
- Obtain professional services to adjust SRTs

# Action items (cont.)

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- Incrementally adjust SRTs to determine appropriate tidal water level settings
- Monitor and evaluate water level changes on wetlands and flood concerns
- Meet with permit and resource agencies to evaluate data and potential changes to permit requirements
- Develop SRT operational protocol
- Evaluate additional mitigation

# Action items (cont.)

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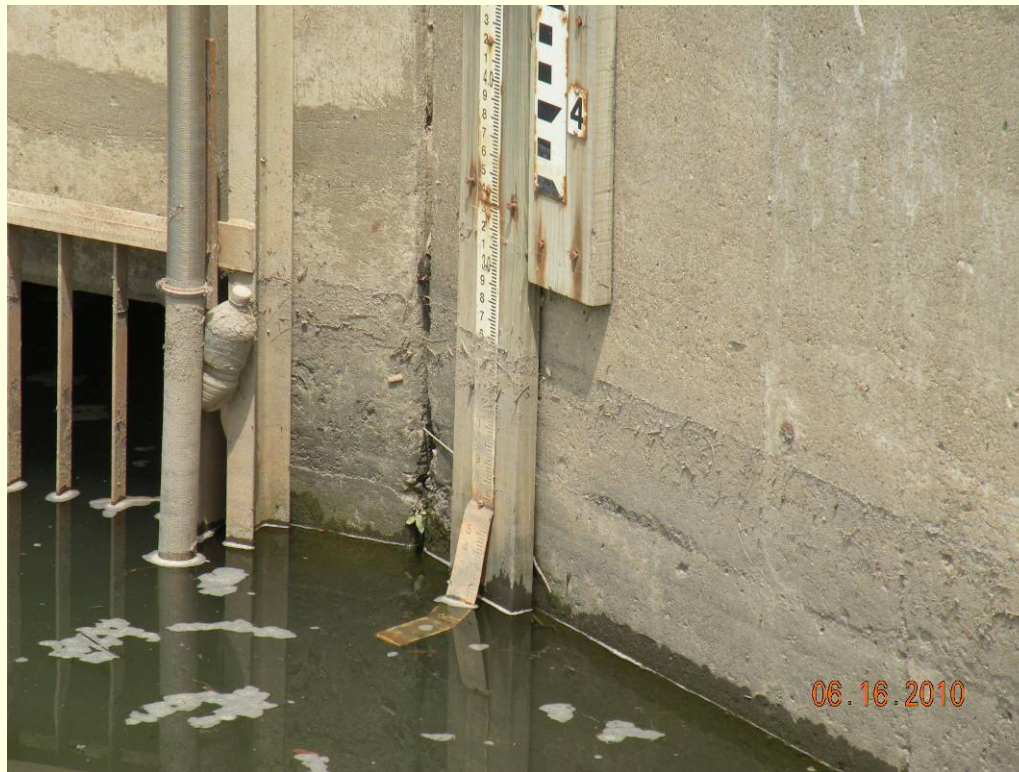
- Evaluate maintenance needs
- Sediment removal
- Trash rack debris removal
- Grout seals on SRTs
- SRTs
- Standard flap gates
- Stop logs



# Repair interior tide gauge

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- Large type
- To 0 feet MSL NGVD 1929



# Clean exterior gauge

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# Install automatic water level readers

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- Interior and exterior of culvert



**Green Harbor River, Marshfield**

# Obtain base line plant survey

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- Coastal Wetland Inventory previously done by ENSR (July 22, 1998 updated in 2000)
- 1" = 100' scale with two-foot contour interval and additional spot grades at roughly 100' spacing.
- Wetland cover types shown
- Approximate elevation of low salt marshes 2-3' NGVD base.
- Distribute to agencies.

# New plant survey

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- This is necessary in order to document current conditions of the wetlands
- Compare to base line plant survey results

# Document presence of invasive species

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- Perennial Pepperweed
- Phragmites
- Others



# Obtain elevation survey of upstream wetland/floodplains

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- Baseline survey included spot elevations
- Supplement as needed
- Correlate elevation with vegetation and condition of wetland and floodplain areas

# Obtain professional services to adjust SRTs

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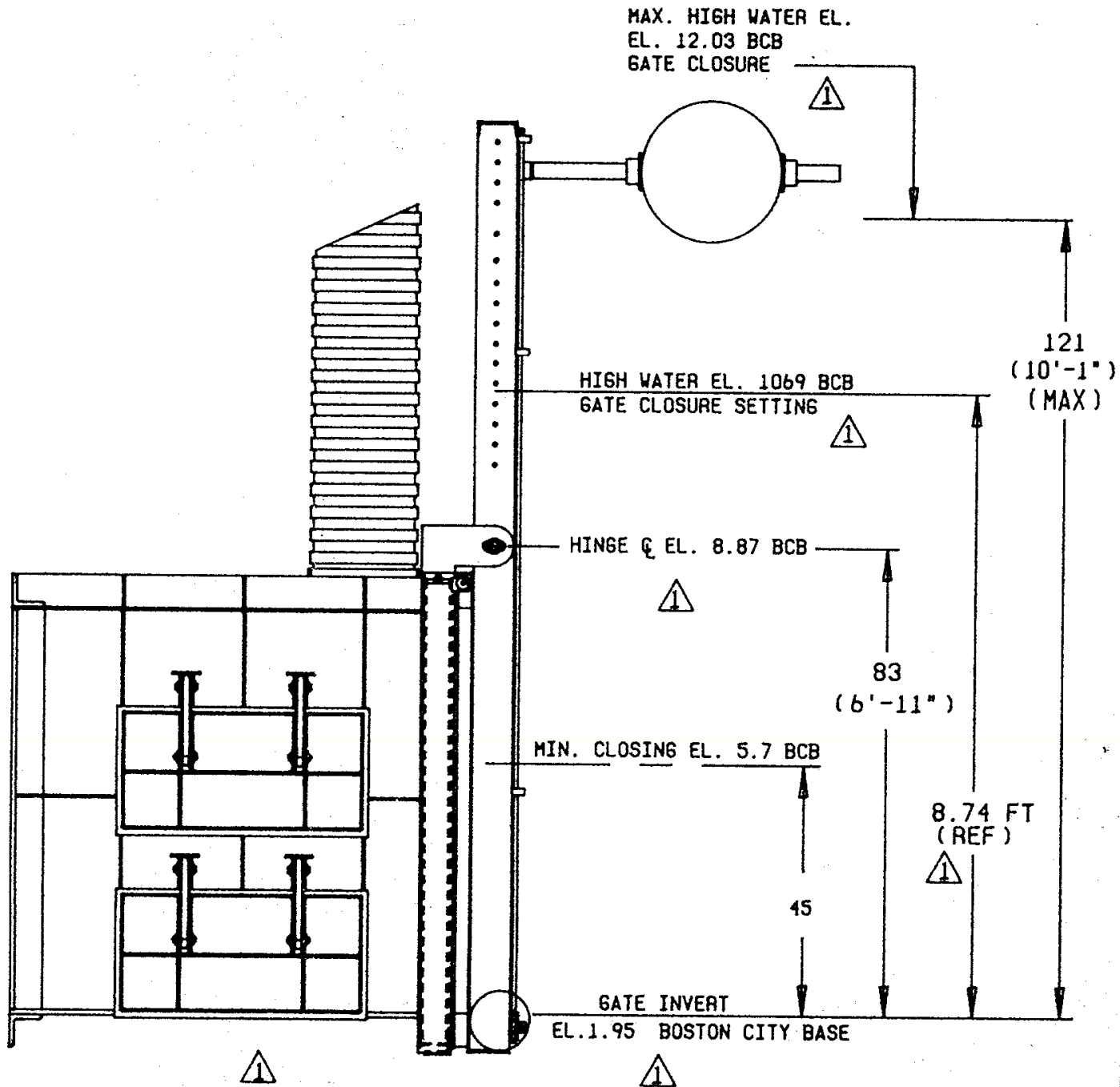




# Purchase necessary parts

- Six shorter float arms may be needed to allow side installations on all three SRTs without interference





# Incrementally adjust SRTs

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- Current setting: SRTs are closing near elevation 1.0 NGVD
- Determine the maximum water levels consistent with flood protection needs
- Need to survey upstream drainage features and wetlands as water levels are increased
- Previous operation had SRTs closing at elevation 3.0 – 4.0

# Incrementally adjust SRTs (cont.)

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- All three SRTs may need to be set initially with the back floats on the side arms to read water levels lower than the SRT hinge point.
- Appropriate adjustment for higher water levels will require removal of some or all ballast fluid from bottom floats
- Fluid is alcohol based anti-freeze

# Compliance with original permits

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- Monitoring, adjustment, and reporting conditions 17-19 MA DEP WQC
- Development of Operational Protocol Condition 21 MA DEP WQC
- Maintenance obligations per condition 14 MA DEP WQC
- Review conditions and suggest changes where appropriate

# Evaluate leakage through grout seal and stop logs

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- Grout seal repair
- City was concerned high tides go over and around stop logs
- Check to see if additional height of stop logs are needed
- Coordinate inspections with MA DCR

# Maintenance needs

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- Periodic removal of trash at trash racks



# Trash problems

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# Remove past debris left on site

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# Address sediment problems

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- DOT 2001 constructed sediment basin is full
- Sediments may be moving into the culverts
- Assess need for maintenance dredging

# Additional Actions

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- Upstream channel debris removal
- Floodplain and wetland mitigation plans
- Protection of floodplain areas
- Potential impacts from Route 1 transportation improvement project on access for maintenance of trash racks and tidegates

# Propose changes to permit conditions

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- Water level changes
- Management and operation of tidegates
- Monitoring requirements

# Evaluate additional mitigation

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- Preservation of floodplain and wetlands
- Excavation for flood storage
- Excavation for wetland restoration
- Invasive species control