

# Bioengineered Waterway & Slope Stabilization Applied

Tom Benjamin  
LANDSCAPES ROOTED IN WELLNESS



RLA, LEED-AP BD+C  
+ 1 413 687-1135  
tom@wellnesscapes.com  
www.wellnesscapes.com

DESIGN  
PLANNING  
CONSTRUCTION ADMINISTRATION  
MAINTENANCE GUIDANCE  
PERMITTING

*\*Approved Federal Contractor\**





# Wellnesscapes, LLC

*Award Winning Landscape Architecture firm located in  
Northampton, MA*

*Over 30 years of Success  
Designing Resilient Ecologically Based  
Bioengineering Solutions  
for  
Site Stabilization and Restoration Projects*

*We work as effective Partners with  
the Engineering Community*



# Highlighted Waterway & Slope Projects:

- **Neponset River Daylighting, Gillette Stadium, Foxboro, MA**
- Hammond Pond Beach Stabilization, *Goshen, MA*
- JCHE Golda Meir House Wall & Slope Reconstruction, *Newton, MA*
- Fresh Pond Reservation – Northeast Sector, *Cambridge, MA*
- Blue Hills Reservoir Restoration, Milton & Quincy, MA
- Coastal Beach Dune Restoration, *S. Kingstown, RI*
- Residential Bank Reconstructions, *S. Hadley & Amherst, MA*
- Sheehy Road Landfill Capping –  
Bioswale & Roadway Embankment, *Ware, MA*

Understand What's Working Well and Do A Lot of It!!





# Understand What's *Not* Working Well and Stop It!!



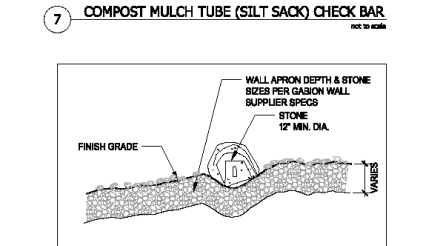
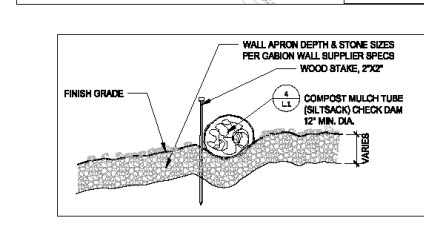
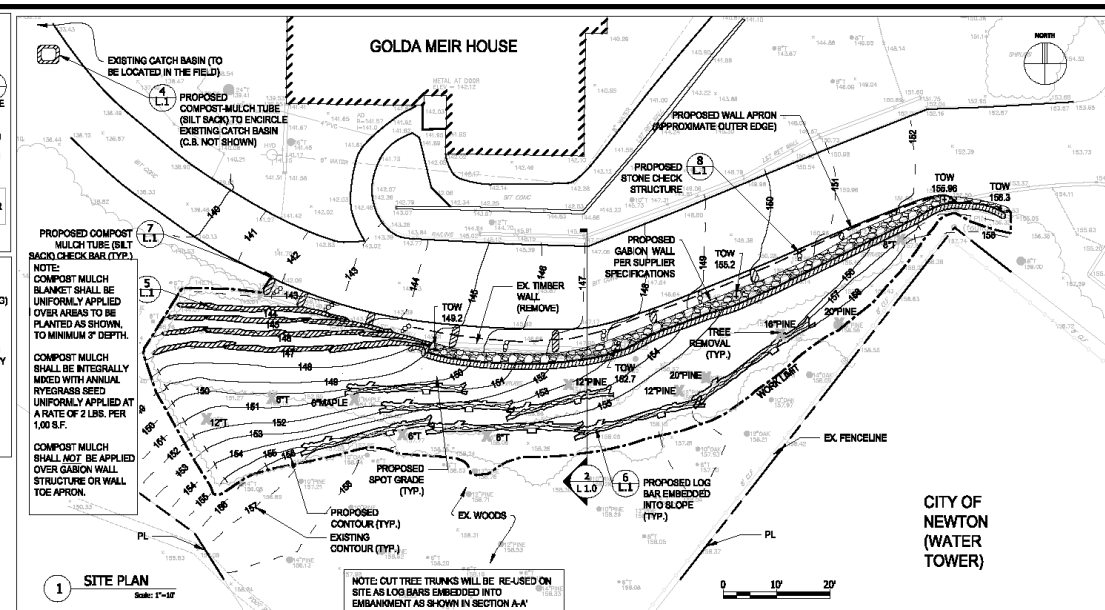
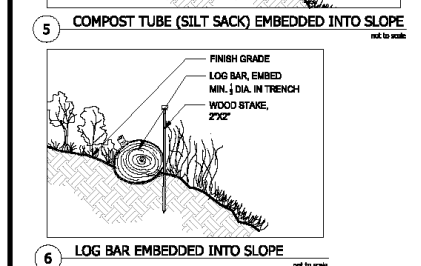
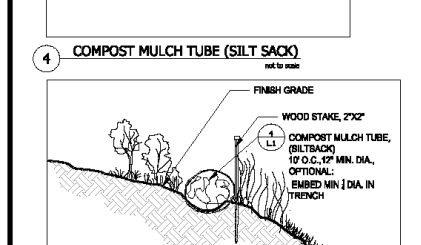
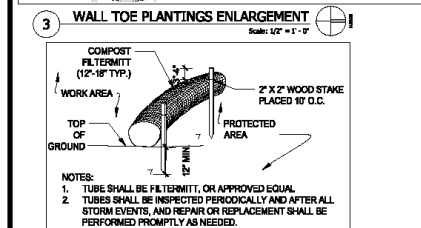
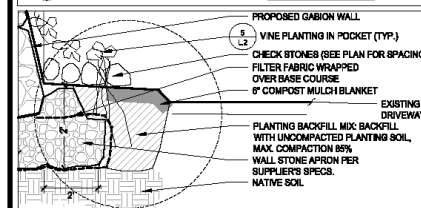
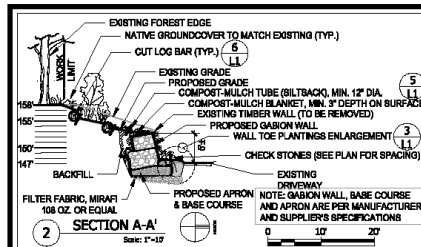


# Project: Hammond Pond Beach Stabilization, Goshen, MA





# Be Redundant! It's *not* Boring!



- NOTES:**
1. Prior to commencing work on site, Contractor shall ensure any outstanding permits required to conduct the work shown on the Plans.
  2. Contractor shall submit to writing proposed work schedule and equipment; including scheduling any layout plan to Owner and Engineer or Owner's Representative not less than ten (10) days prior to the start date of work.
  3. Any proposed work schedule and/or scheduling shall be submitted in writing to the Owner and Engineer or Owner's Representative not less than ten (10) business days prior to original start date.
  4. Contractor shall correct delays prior to commencing any work at the site. No work shall proceed until delays are corrected.
  5. In the event that Ogeon Investigation shows presence of underground utilities on site that may affect proposed site work, the Contractor shall immediately notify Owner and Engineer or Owner's Representative. No work shall proceed until any utility conflicts are resolved.
  6. No work on existing wall or related site work shall proceed during wet weather conditions or when soil conditions are substantially wet beyond four (4) feet depth below surface.
  7. If wet weather is predicted then work shall be postponed until dry weather and soil conditions return.
  8. Contractor shall close barrier safety above all other concerns and prevent public access into the work area.
  9. Contractor shall clearly define the work area with, at minimum, construction tape freely attached to immovable objects and safety cones.
  10. Contractor shall immediately notify the Owner of any safety concerns and assess work until safety concerns are resolved.
  11. Contractor shall conduct work safely within the bounds of the delineated work area.
  12. Contractor shall be held responsible for any damage to existing surface or subsurface utilities and/or infrastructure resulting from the work.
  13. No work on existing wall or related site work shall proceed until erosion control measure has been placed and secured as shown on the Plans.
  14. Prior to installing catch basin, located in driveway down slope from the work site, shall be secured and secured as shown on the Plans.
  15. Compost mulch tubes for erosion and sediment control shall be filtermitt or approved equal, as specified by the manufacturer.
  16. Prior to installing garrison wall structure, Contractor shall remove existing wall and related site work. Existing wall and related site work shall be disposed of in a legally acceptable location at a facility that legally accepts such materials.
  17. In addition to removal of wall and related site work that has been in contact with the existing wall and shall be excavated to a minimum depth of twelve (12) inches from the site, and disposal of a legally acceptable facility at a facility that legally accepts such materials. The removed area behind the proposed garrison wall alignment shall be filled with stone apron or other free-draining granular material as specified by the wall supplier.
  18. Contractor shall submit written request of work to be performed to Owner and Engineer or Owner's Representative.
  19. GARRISON WALL STRUCTURE INSTALLATION:
    - a. Gables will be installed and shall be gabled by garrison wall specifications and guidelines.
    - b. Wall height and stone sizes shall be installed during construction to meet or exceed all applicable requirements to the garrison wall and the Engineer or Owner's Representative.
    - c. Gables and apron and stone sizes shall be installed and dimensions shall be as shown on Plans.
    - d. Wall height and stone sizes shall be installed during construction to meet or exceed all applicable requirements to the garrison wall and the Engineer or Owner's Representative of any proposed adjustments to wall design during construction.
  20. TREE REMOVAL, RE-USE AND SOIL STABILIZATION:
    - a. Prior to commencing garrison wall structure, Contractor shall remove existing wall and related site work of greater than six (6) feet diameter or slope above existing proposed wall alignment as shown on Plans.
    - b. Prior to commencing garrison wall structure, Contractor shall remove existing wall and related site work of greater than six (6) feet diameter or slope above existing proposed wall alignment as shown on Plans.
    - c. Prior to commencing garrison wall structure, Contractor shall remove existing wall and related site work of greater than six (6) feet diameter or slope above existing proposed wall alignment as shown on Plans.
    - d. Prior to commencing garrison wall structure, Contractor shall remove existing wall and related site work of greater than six (6) feet diameter or slope above existing proposed wall alignment as shown on Plans.
  21. First acceptance of work will be provided in writing from the Owner to the Contractor.



997 Millbury Street  
Worcester, MA 01607  
phone: 508-756-0151  
fax: 508-757-7063

PREPARED FOR:  
**Jewish Community  
Housing for the  
Elderly**

**GOLDA MEIR HOUSE  
RETAINING WALL REPLACEMENT/SLOPE RESTORATION**

160 Stanton Avenue  
Newton, MA

**SITE GRADING  
AND  
STABILIZATION**

ISSUANCE DATE: Progress Plan 3012-13-04

DRAWN BY: 118

DATE: REVISIONS:

UNAUTHORIZED ALTERATION OF THIS DOCUMENT IS A VIOLATION OF PROFESSIONAL ETHICS

SCALE: AS NOTED

DRAWING # **L-1.0** 10/27/2012 1:45 PM



Be Redundant! It's is *not* Boring!





# Project: JCHE Golda Meir House









# Log Bars & Cut Brush Barriers







Blue Hills Reservoir Restoration, Milton & Quincy, MA







# Reuse On Site Resources!



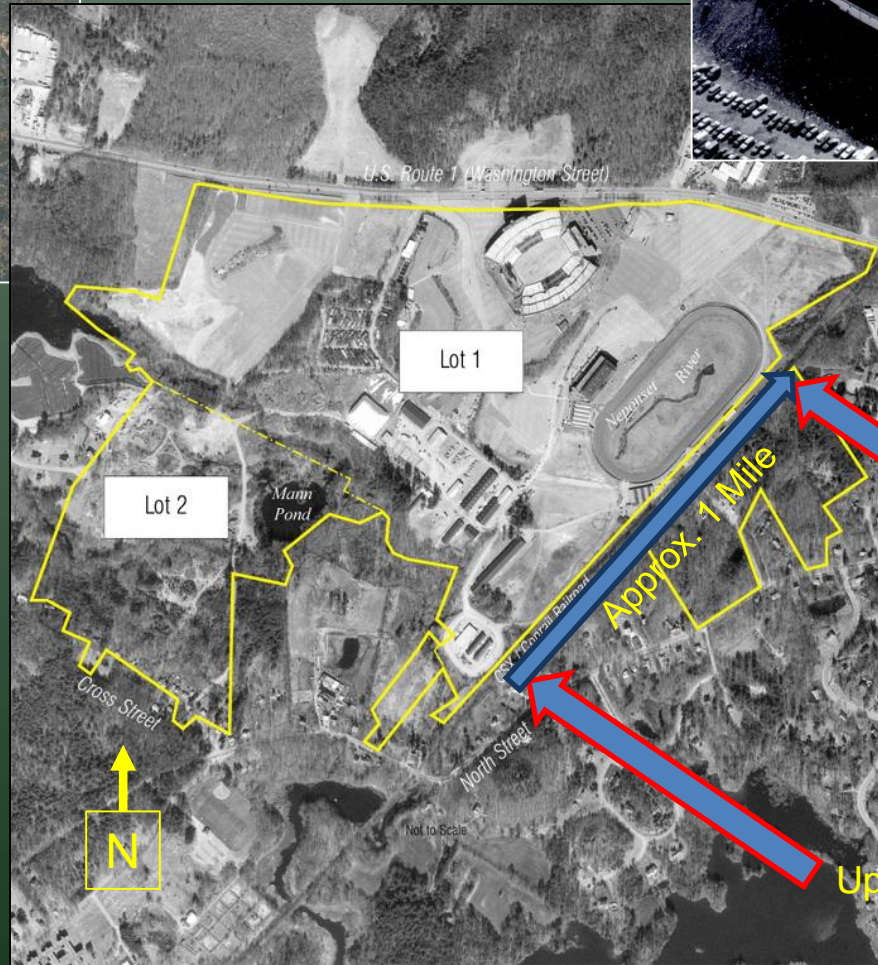
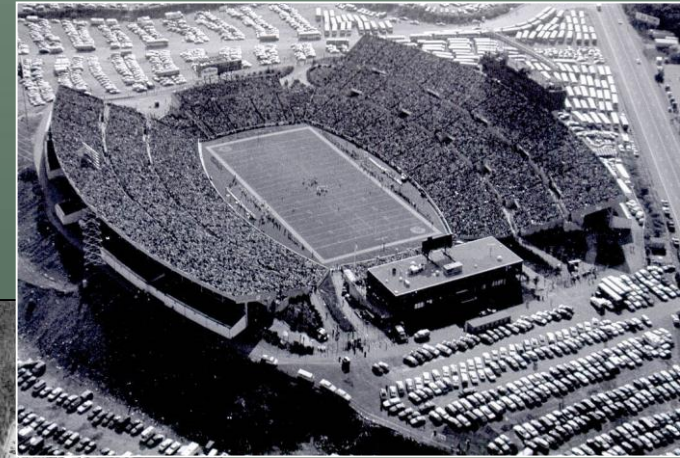
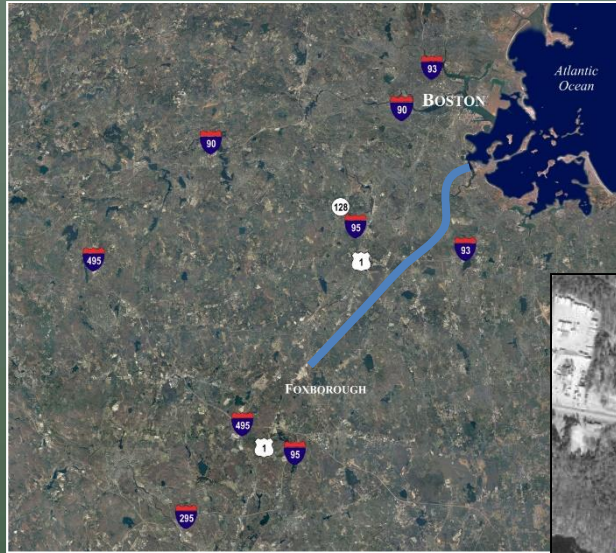


# Neponset River Restoration (Daylighting) Project for New England Patriots Foxborough, Massachusetts





# Neponset River Daylighting Project – Site Context



Downstream End

Upstream End

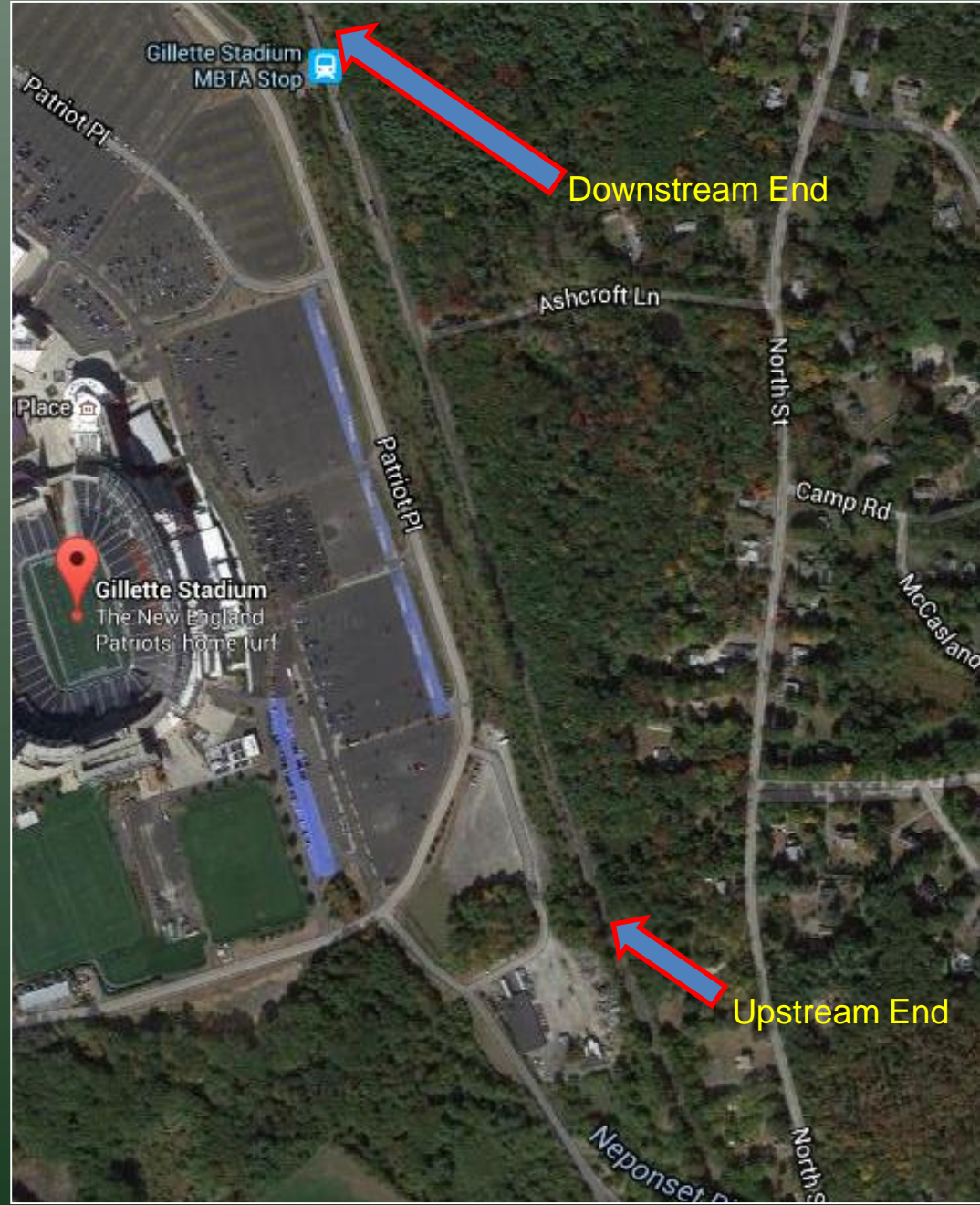


# Neponset River Daylighting Project – Before





# Neponset Then and Now



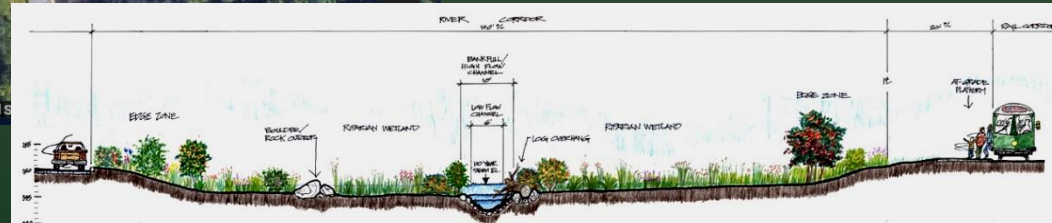
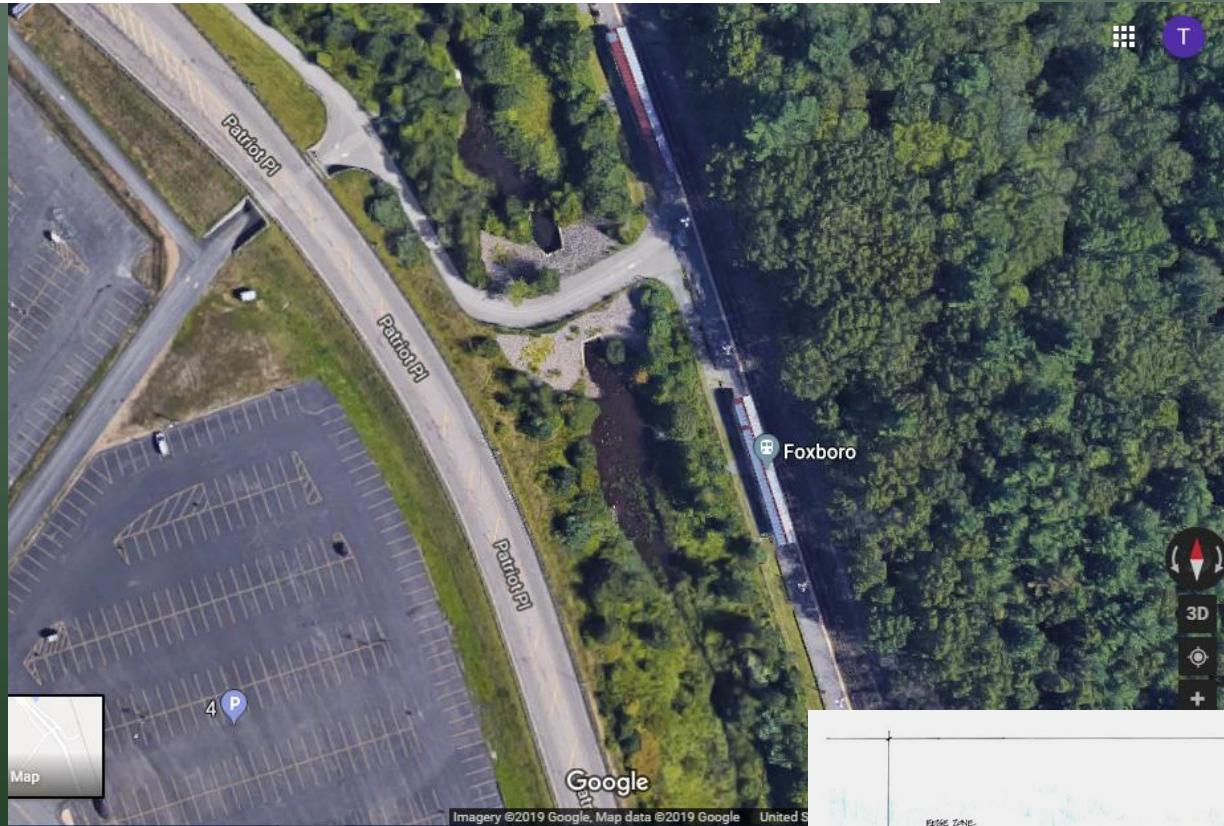
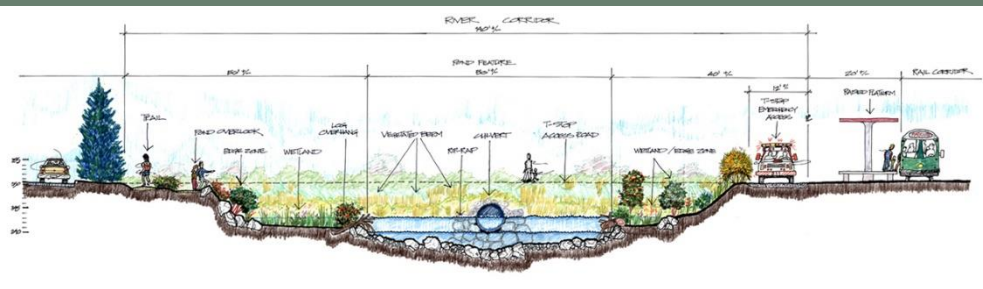


# Neponset River Daylighting – Upper Narrow Section (Upstream: South End)



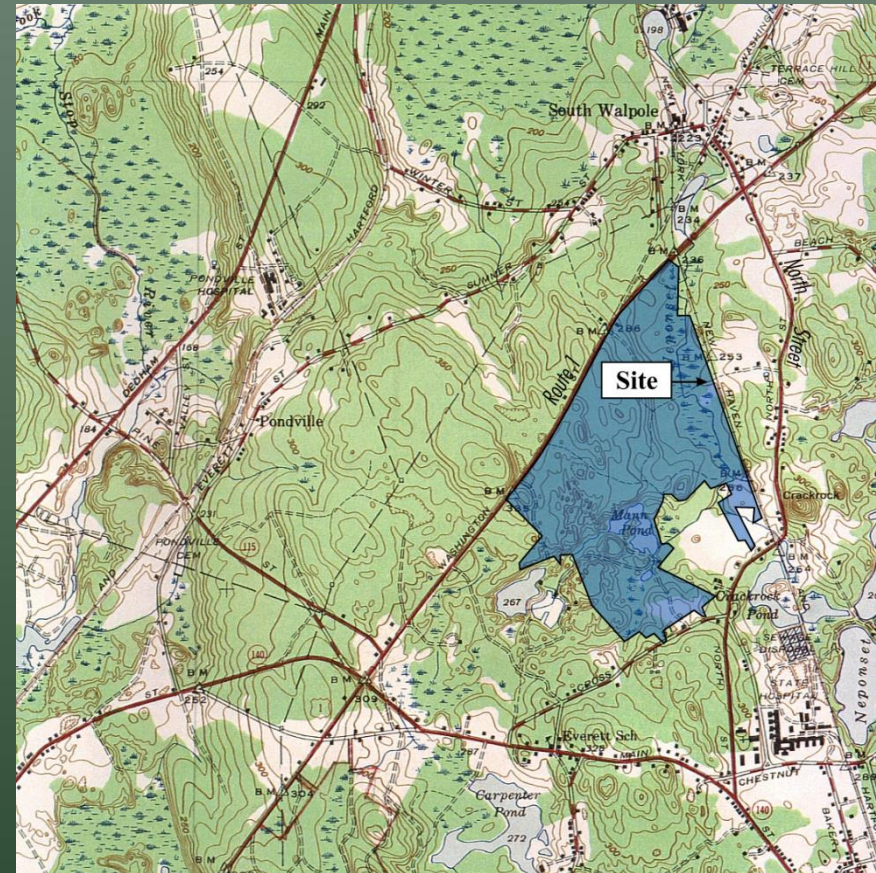
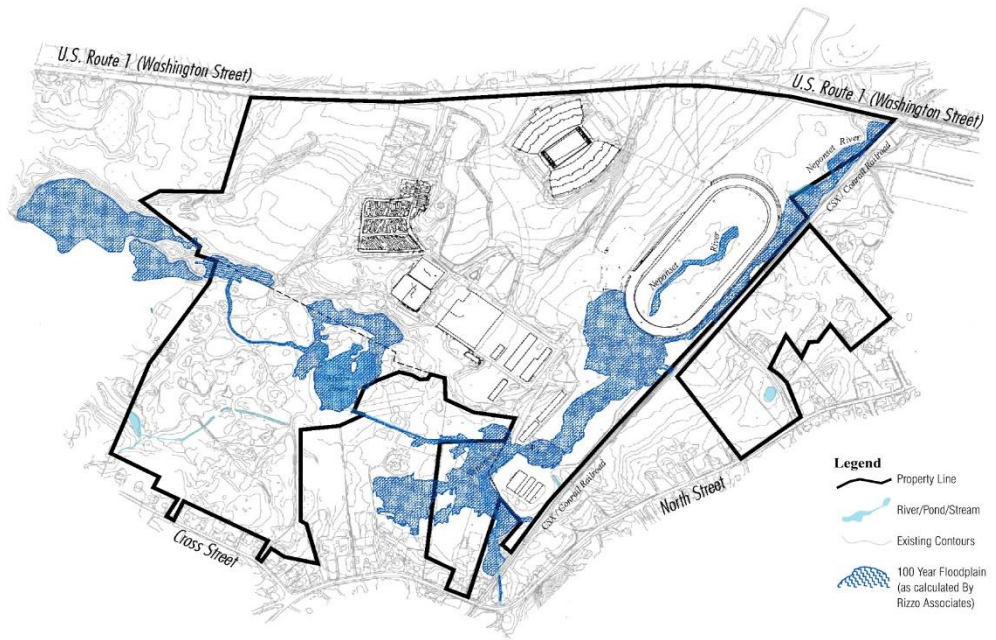


# Neponset River Daylighting – Lower Wide Section (Downstream: North End)



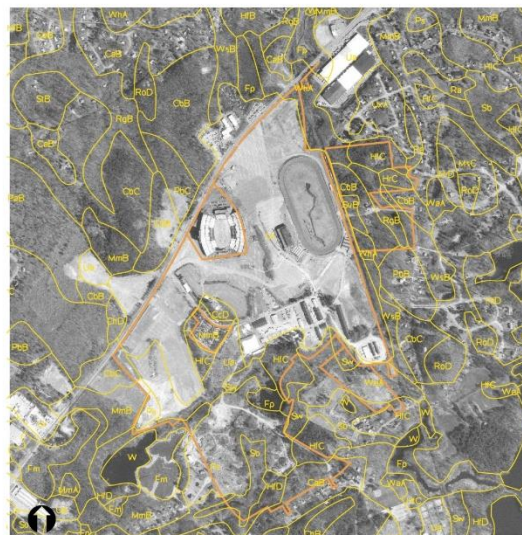


# Neponset River – Soils & Hydrology



1945 Topographic Map

## Floodplains



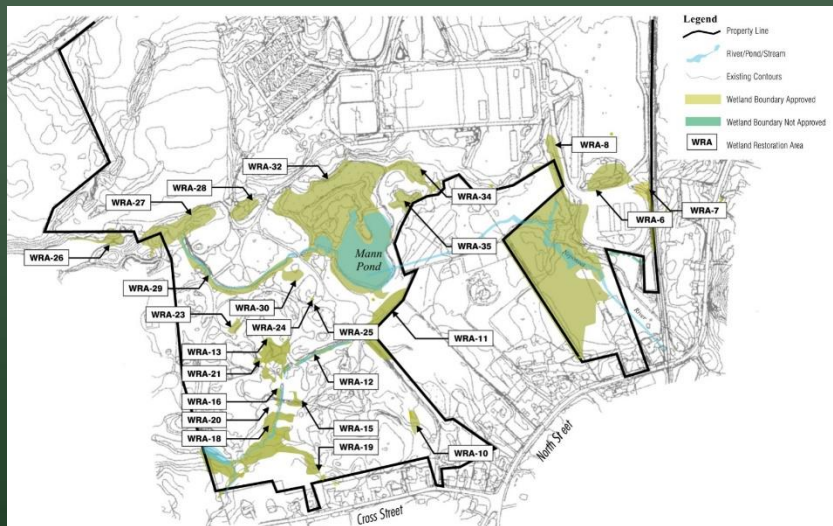
## Soils



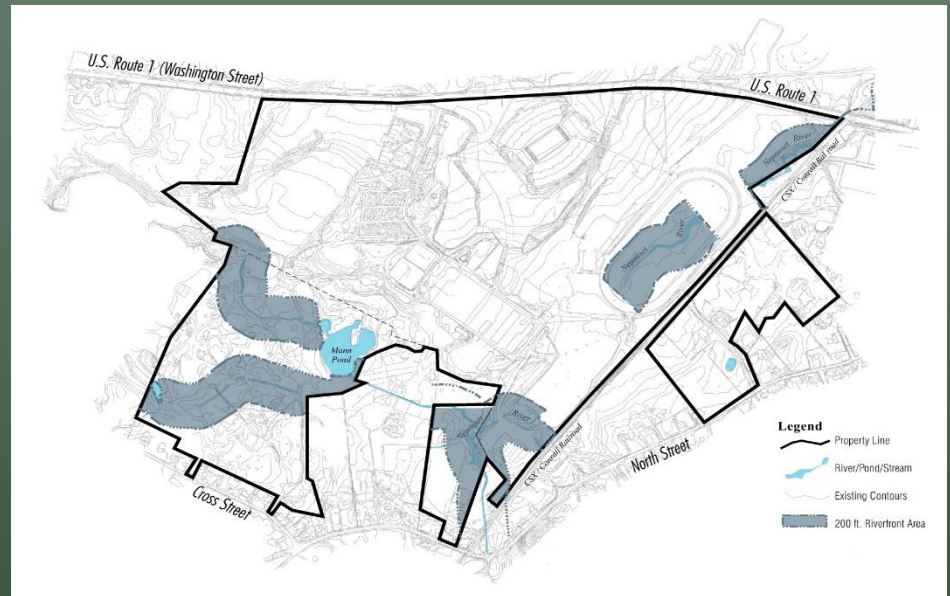
# Neponset River – Wetlands & Riverfront



North Area Wetlands



South Area Wetlands



Riverfront Area



# Neponset River – Reference Reaches





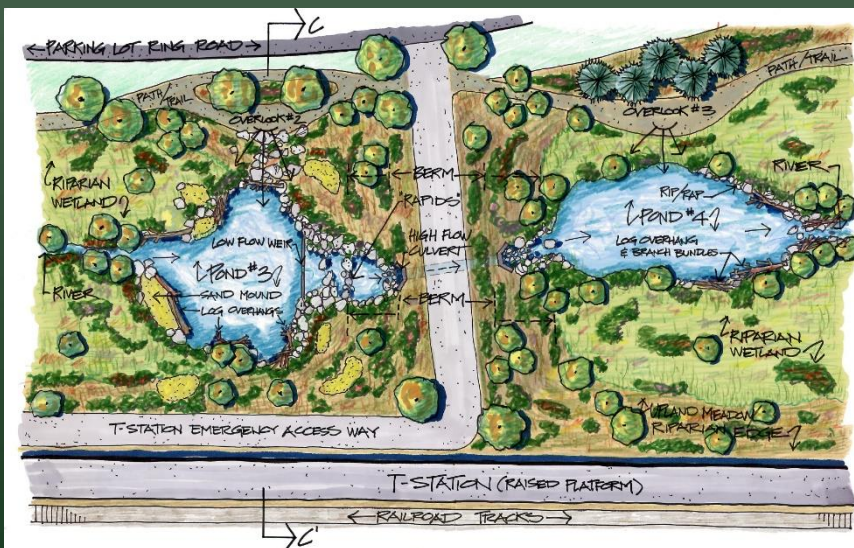
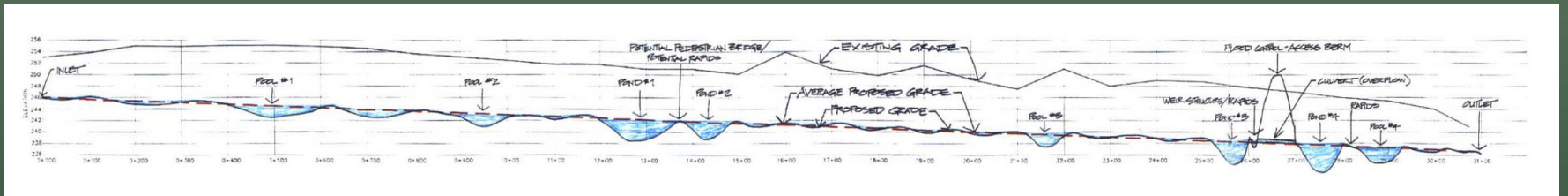
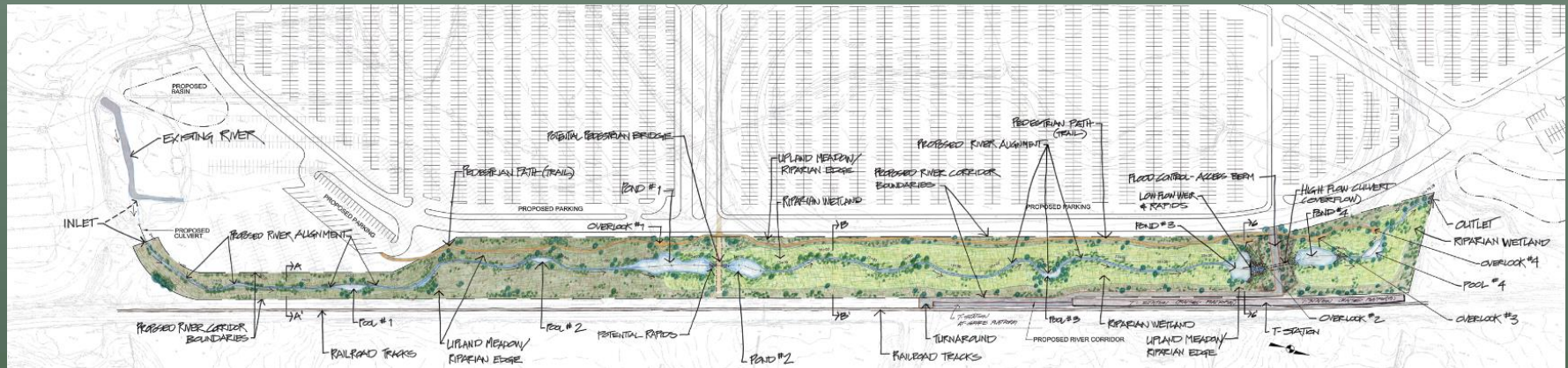
# Neponset River – Design Goals & Objectives

1. Recreate Sinuous, Irregular Channel
2. Pool-Riffle System
3. Stabilization
4. Wetland Creation
5. Upland Restoration
6. Native Biodiversity/Habitat Value
7. Flood Control-Access Berm





# Neponset River – Design: Pools & Riffles



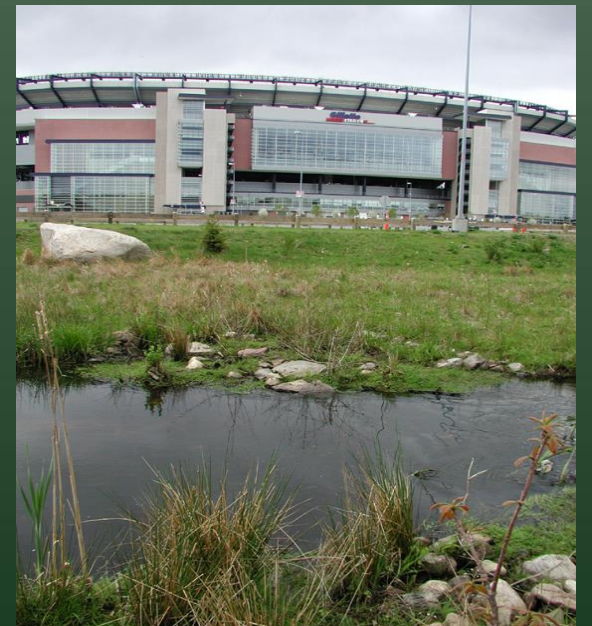
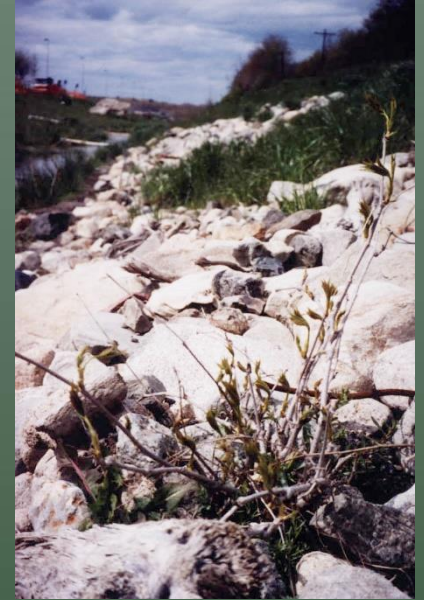


# Neponset River Design: Earthmoving & Stability



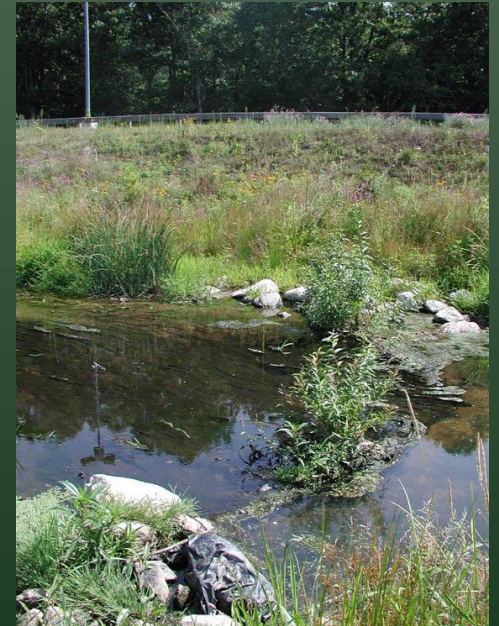


# Neponset River Design: Stability & Habitat Benefits





# Neponset River Design: Planting Strategies





# Neponset River Design: Planting Strategies





# Neponset River Establishment: Ecosystem Matrix



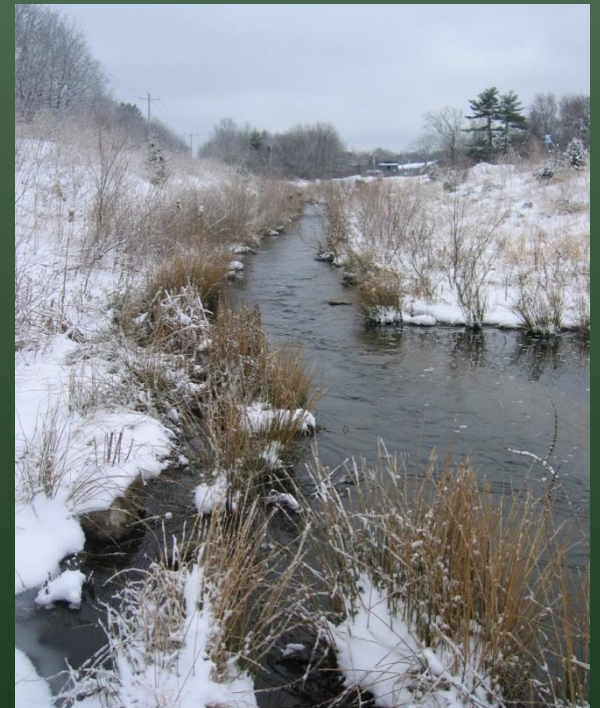
2001



2003



2005





# Neponset River Establishment: Ecosystem Matrix



2006





# Neponset River Establishment: Ecosystem Matrix

2015









# Residential Bank Reconstruction, S. Hadley, MA













# Residential Bank Reconstruction, Amherst, MA





# Residential Bank Reconstruction, Amherst, MA





# Project: Coastal Beach Stabilization, S. Kingstown, RI







Let's Work Together!  
Thank You!!

Tom Benjamin  
LANDSCAPES ROOTED IN WELLNESS



RLA, LEED-AP BD+C  
+ 1 413 687-1135  
tom@wellnesscapes.com  
www.wellnesscapes.com

DESIGN  
PLANNING  
CONSTRUCTION ADMINISTRATION  
MAINTENANCE GUIDANCE  
PERMITTING

*\*Approved Federal Contractor\**