Public Boat Ramp Stormwater Project

Improving water quality by treating stormwater pollution at public boat ramps

Willimantic Drive Landing, Barnstable

25% Design Public Meeting

March 26, 2024

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MASSACHUSETTS OFFICE OF COASTAL ZONE MANAGEMENT

EPA

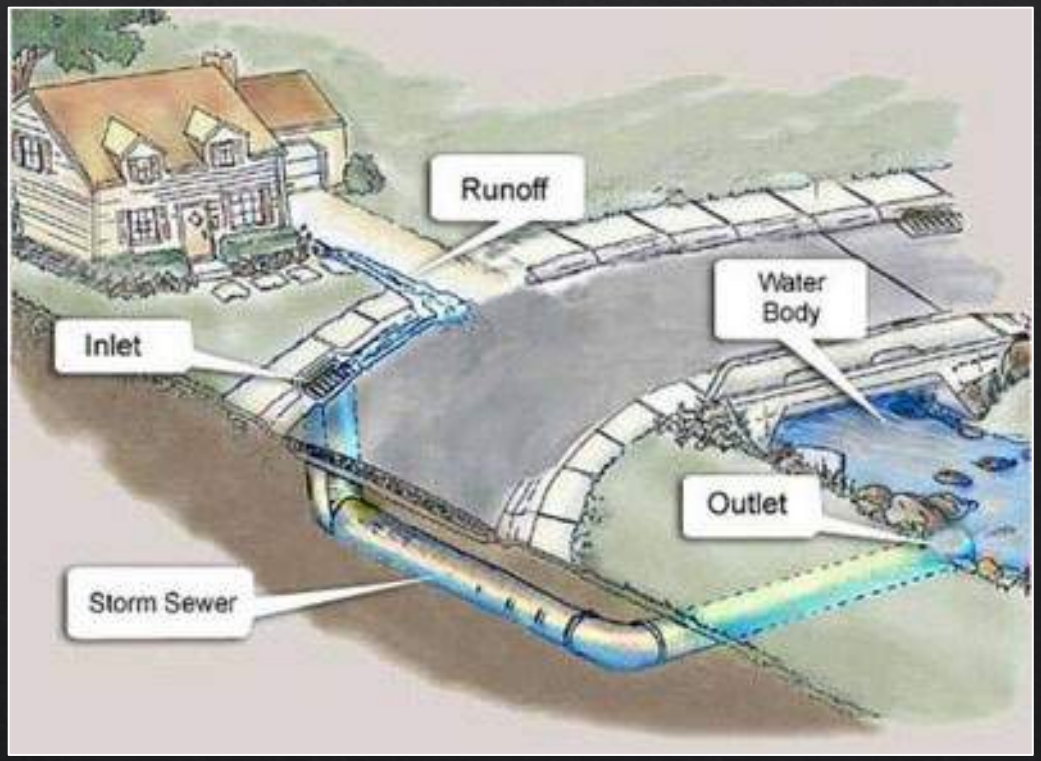
APCC Association to Preserve Cape Cod

RESTORE AMERICA'S ESTUARIES

SNEP Southeast New England Program

What is stormwater?

Water from rain or melting snow that flows across the land instead of being absorbed into the ground.



Why is it a problem?

- Impaired Water Quality: Freshwater and Coastal
- Untreated Stormwater Contributing Source to Problem
  - Nutrient impairment
  - Bacterial contamination
- Why public boat ramps?
  - Locations of direct discharge with little to no treatment of stormwater

Project Overview

Short-term Goals:

- Develop concept designs for twenty public boat ramps
- Advance plans for seven sites through design and permitting to align for construction

Long-term Goals:

- Improve water quality
- Reduce shellfish bed and beach closures

Funded By:

SNEP Southeast New England Program

MASSACHUSETTS OFFICE OF COASTAL ZONE MANAGEMENT

Private Foundation

Project Partners

APCC
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SEAL OF THE TOWN OF BARNSTABLE, MASS. 1639. ADOPTED MAY 4, 1889

TOWN OF BOURNE INCORPORATED APRIL 2ND 1884 MANOMETT 1627

TOWN OF BREWSTER, MASS. CHAIR OF ELDER BREWSTER INCORPORATED FEB. 19, 1803

SEAL OF TOWN OF DENNIS, MASS. INCORPORATED 1793.

TOWN OF FALMOUTH SUCKANESSET 1602 INCORPORATED 1686

SEAL OF THE TOWN OF HARWICH INCORPORATED SEPT 14, 1694 ADOPTED SEPT. 4, 1897.

TOWN OF MASHPEE INC. 1870 KUWNEE PUYÖMUW MÁSEEPEEUT

INCORPORATED MAR. 3, 1797 ORLEANS, MASSACHUSETTS

TOWN OF SANDWICH INCORPORATED 1639 MASSACHUSETTS

TOWN OF YARMOUTH MATTACHEESE INCORPORATED 1639

MASSACHUSETTS DEPARTMENT OF FISH AND GAME FISHING & BOATING ACCESS

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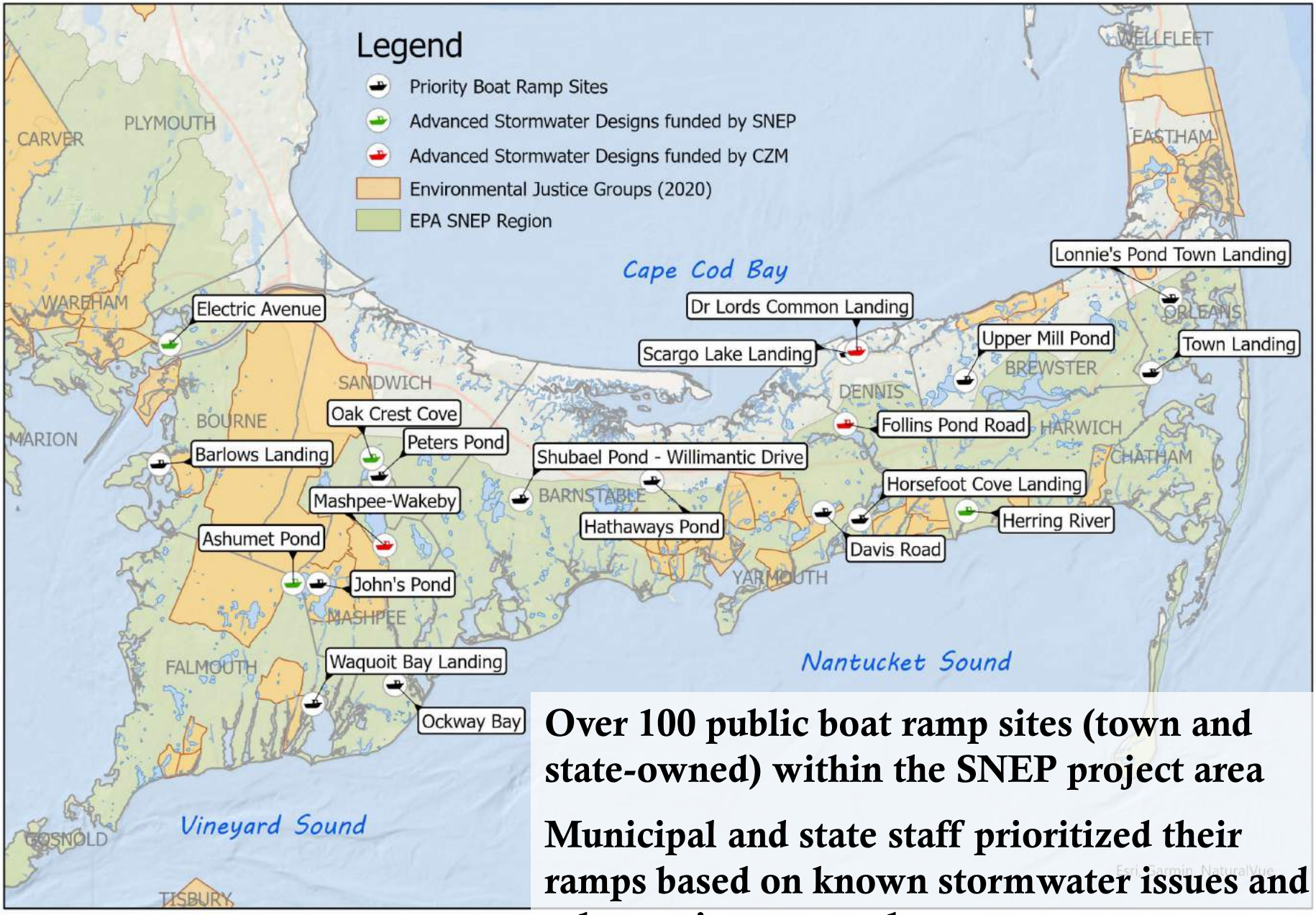
Cape Cod Conservation District

USDA United States Department of Agriculture
Natural Resources Conservation Service



Over 100 public boat ramp sites (town and state-owned) within the SNEP project area

Municipal and state staff prioritized their ramps based on known stormwater issues and other maintenance plans.

Stormwater solutions

- Green system infrastructure best management practices (BMPs)
  - Mimic natural processes to remove pollutants and improve water quality and overall ecosystem health.
    - Porous surfaces
    - Vegetated "bioretention area"
  - Improve existing infrastructure
    - Regrading pavement
    - Underground infiltration chambers

Bioretention Areas

- Mimic natural landscapes and wetlands
  - Native plants
  - Slow infiltration for stormwater
  - Erosion control
  - Sized for site needs

For more information

https://apcc.org/stormwater-management-at-public-boat-ramps/

Cape Cod Boat Ramp Stormwater Retrofit Project

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Willimantic Drive Landing Boat Ramp

Public Meeting

March 26, 2024

agenda

- Green Stormwater Infrastructure
- Existing Conditions
- Site Assessments/Resource Areas
- Proposed Conditions
- Q/A

Green Stormwater Infrastructure (GSI) Mimic Nature

Structural Practices

- Infiltration
- Filters
- Wet Practices
- Rainwater Harvesting

Non-structural Practices

- Pavement Removal
- Revegetation
- Source Control
- Public Education

Green Stormwater Infrastructure (GSI) Mimics Nature

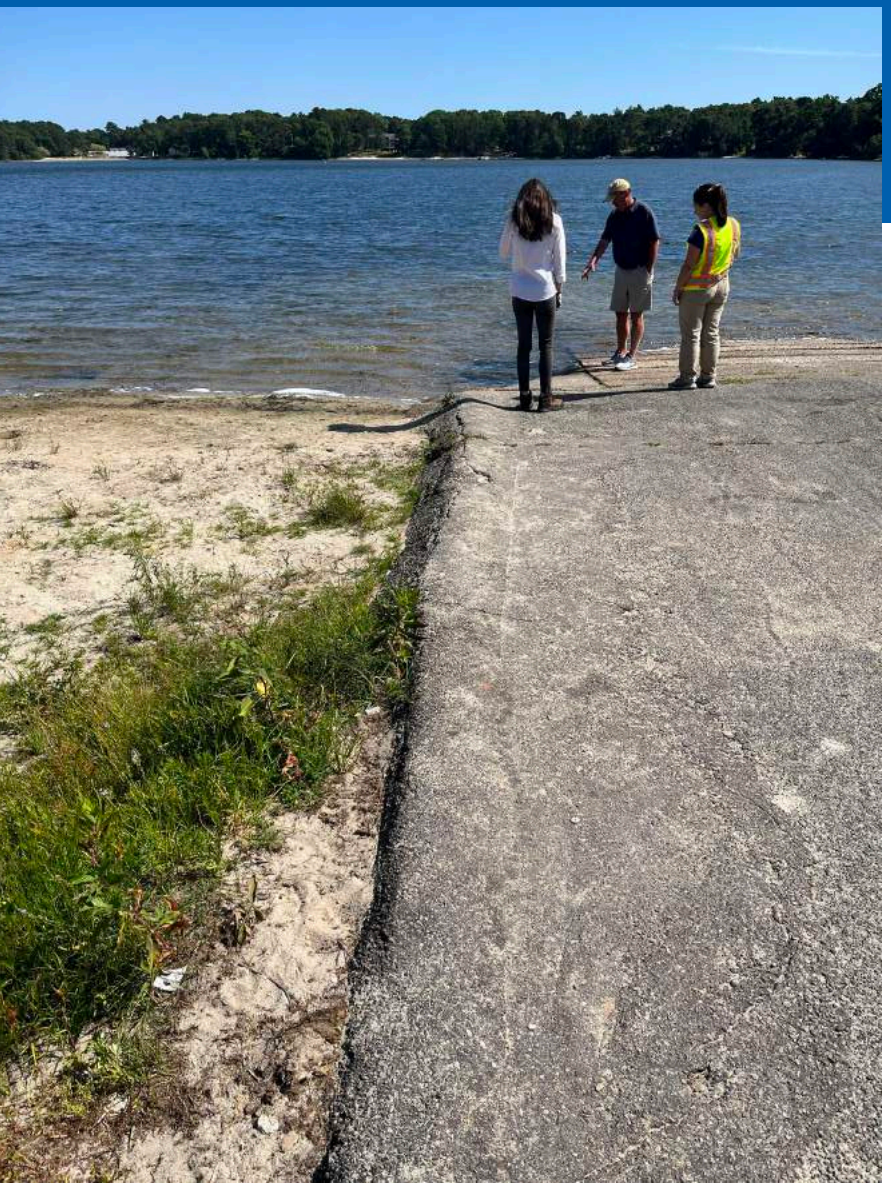
Existing Conditions

- Total Drainage Area = 1.62 acres
- 16% Impervious (0.26 acres)

Existing Conditions

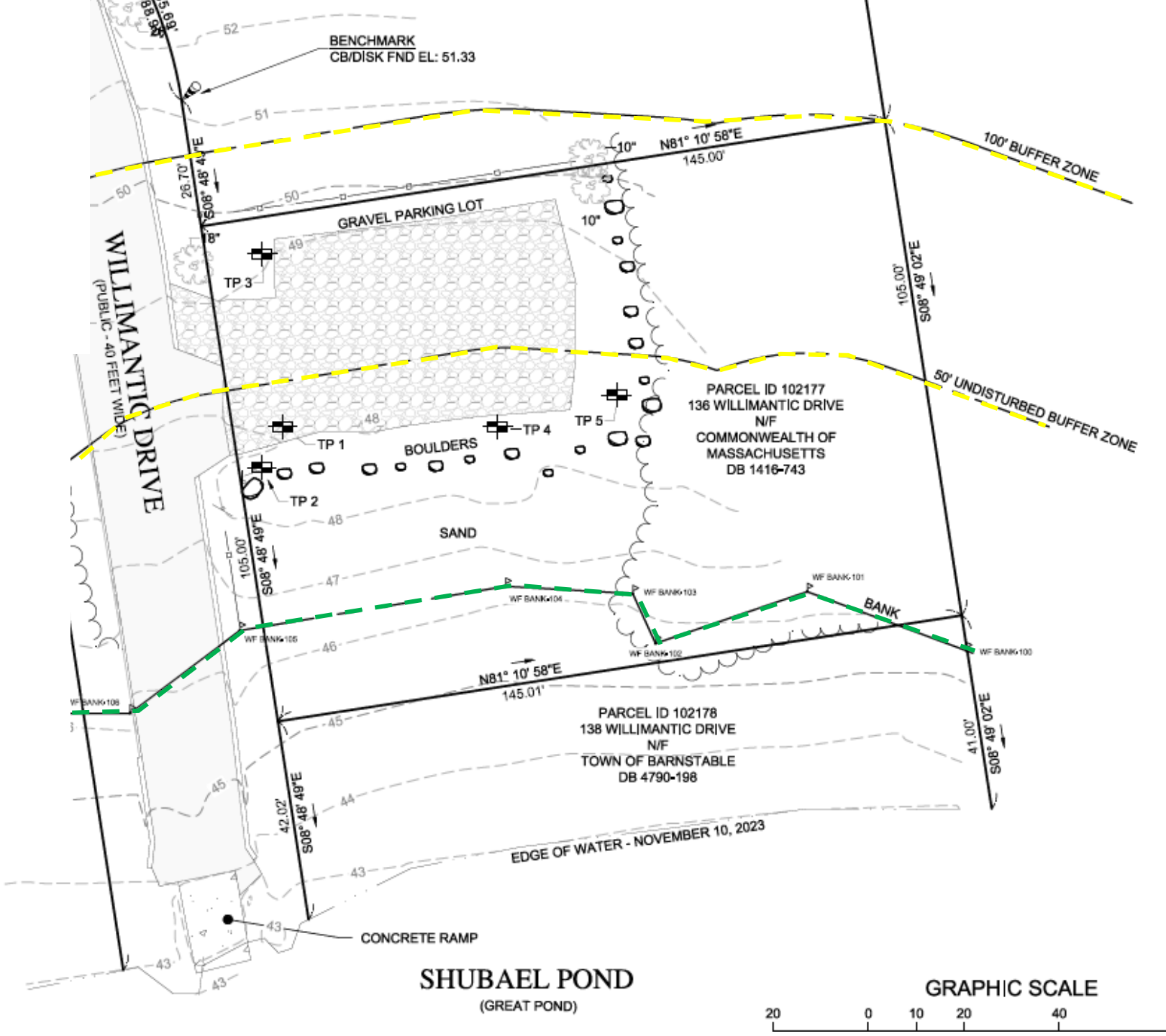
- Town Road and Boat Ramp
- State Parking Lot
- No existing stormwater infrastructure/management

Site Assessments



Resource Areas

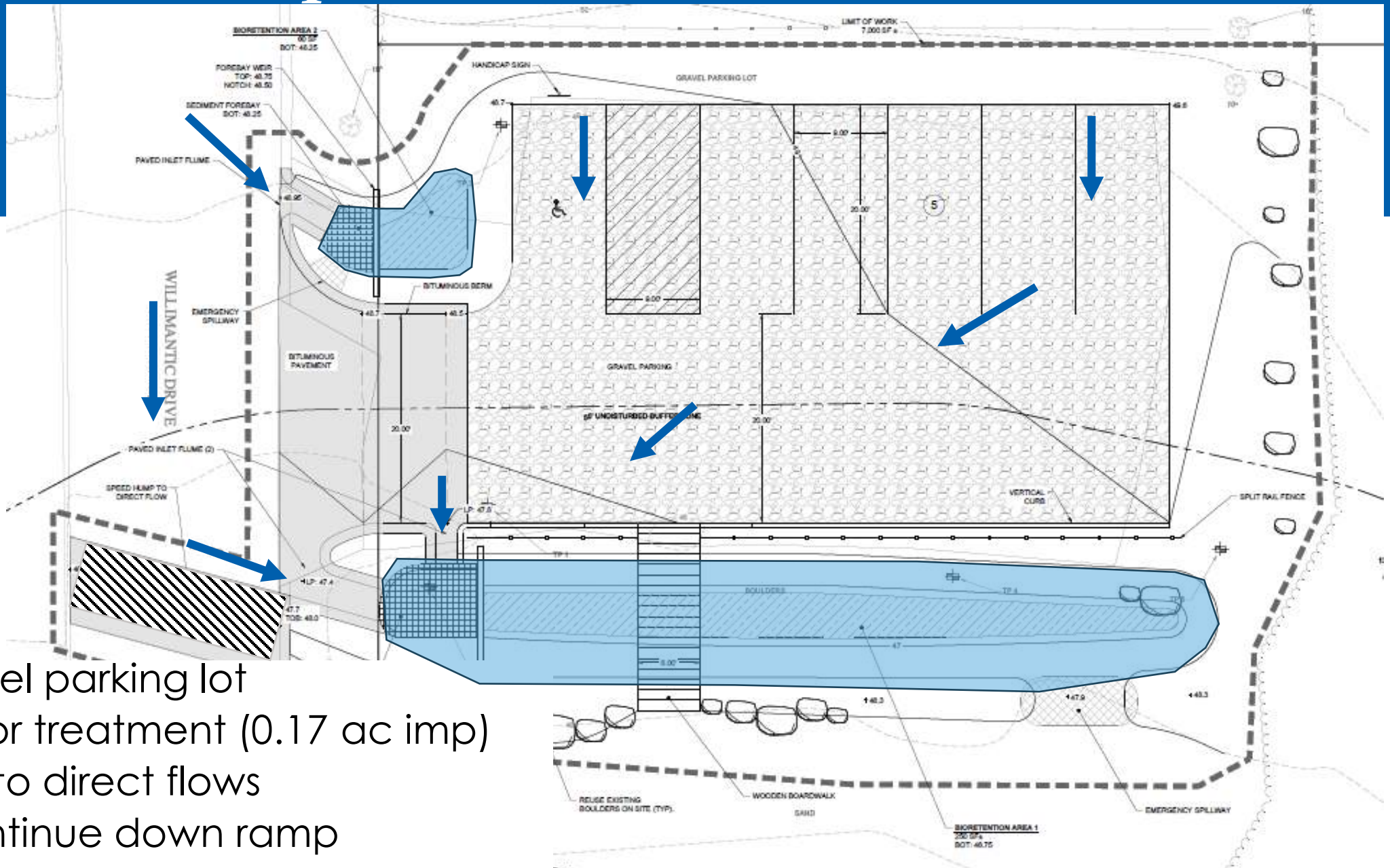
- Bank (green)
- 50-ft and 100-ft Buffer Zones to Bank (yellow)



Proposed Conditions

- DA3 = 0.1 ac/37% imp Bioretention
- DA2 = 1.3 ac/10% imp Bioretention

Stormwater Components



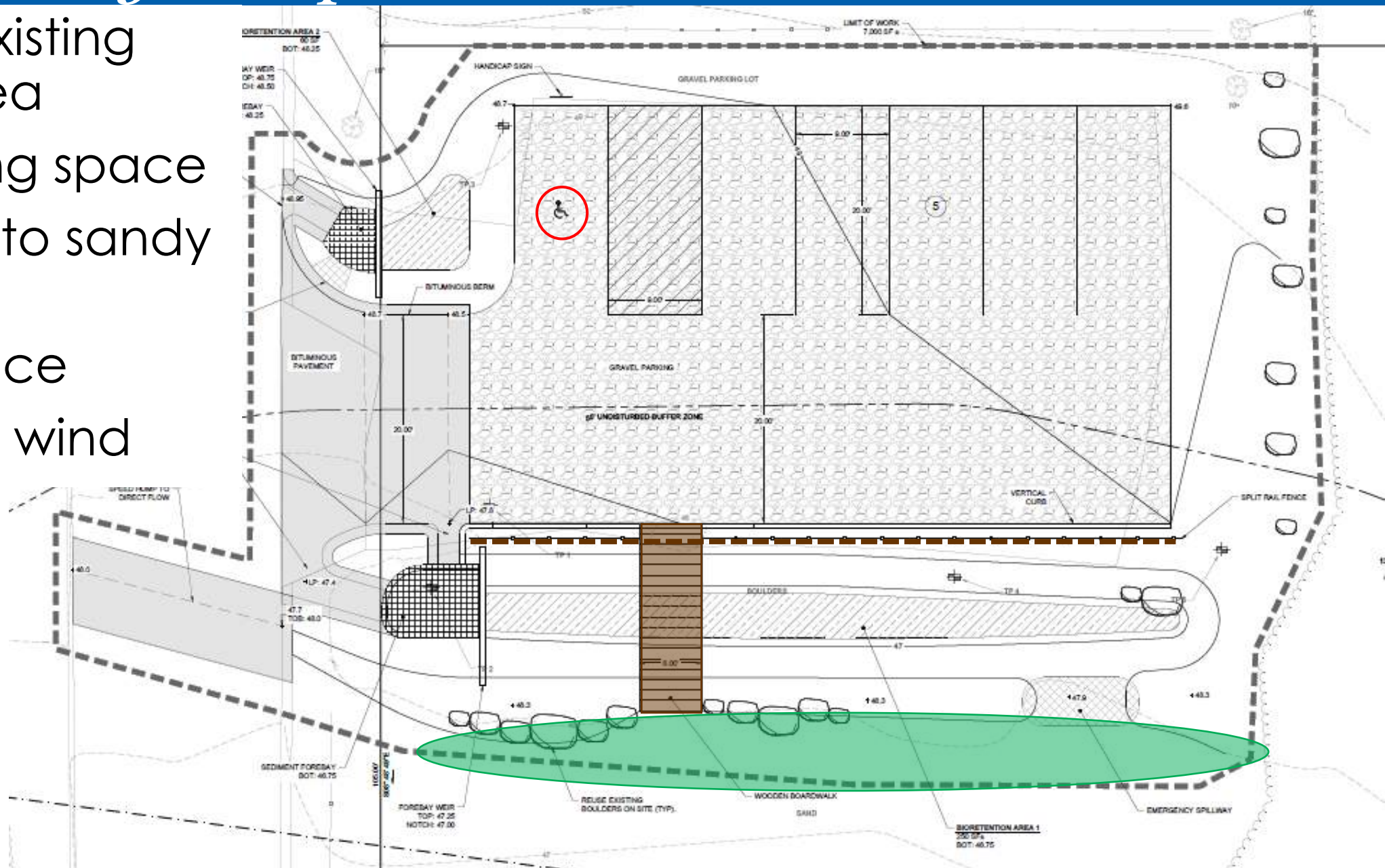
- Regrade gravel parking lot
- Bioretention for treatment (0.17 ac imp)
- Speed hump to direct flows
- Overflows continue down ramp

Bioretention

- Sediment forebay for pretreatment
- Infiltrating bioretention with native plants
- 90% TSS, 98% TP, 100% TN and Bacteria Removals

Site Amenity Components

- Maintain existing parking area
- ADA parking space
- Boardwalk to sandy area
- Split rail fence
- Vegetated wind break



Example Bioretention at Cordwood

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Questions?

Thank You!

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