

**Enfield Inland Wetlands and
Watercourses Agency
Public Hearing**

State Project No. 48-186

**Reconstruction of Post Office Road \\
Town Farm Road Project
Enfield, Connecticut**

PRESENTATION GOALS:

- Overview of the project design as it relates to the Environment.
- Point out current roadway and drainage features which contribute to the sediment loading of adjacent wetlands and water courses.
- Present project design elements which enhance and improve water quality as well as provide a safe corridor for transportation.

Project Purpose

The objective of this project is to improve safety along Post Office Road \ Town Farm Road within the project limits by:

- Addressing the substandard horizontal and vertical geometry
- Improving intersection alignments
- Installing a formal drainage system.

Funding Sources and Design Standards

Funding Sources:

- **ConnDOT - Connecticut Department of Transportation**
- **CRCOG – Capital Regional Council of Governments (STP Urban)**
- **ARRA – American Recovery and Reinvestment Act (Fed. Stimulus)**
- **HPP – High Priority Project (Federal)**
- **Town of Enfield**

Design Standards:

- **ConnDOT - Connecticut Department of Transportation**
 - 15 Design Units
- **Town of Enfield**
 - (Engineering, Pub.Works, IWW Agency, P&Z, E.F.D., Police Dept., etc.)
- **CTDEP – Connecticut Department of Environmental Protection**
 - Inland Water Resources
 - Fisheries Division
- **ACOE – Army Corps of Engineers**

Project has undergone extensive reviews by multiple agencies over the last several years.

Permits and Project Dates

Permits:

- ConnDOT – Flood Management Certification (MOU) – Issued
- ACOE – Section 404 – General Permit (Category II)
- CTDEP – PGP ACOE Inland Water Connecticut Addendum
- CTDEP – Stormwater Discharge Permit for Construction Activities
- Town of Enfield – Inland Wetlands and Watercourses
- Town of Enfield – Development Permit for Special Flood Hazard Areas
- CTDPH – Change in Use Permit (Hazardville Water Co.) - Issued

Project Dates:

- Advertise Project – End of December 2009
- Award Project – March 2010
- Begin Construction – Spring 2010
- Construction Duration – 2 Years

Project Overview

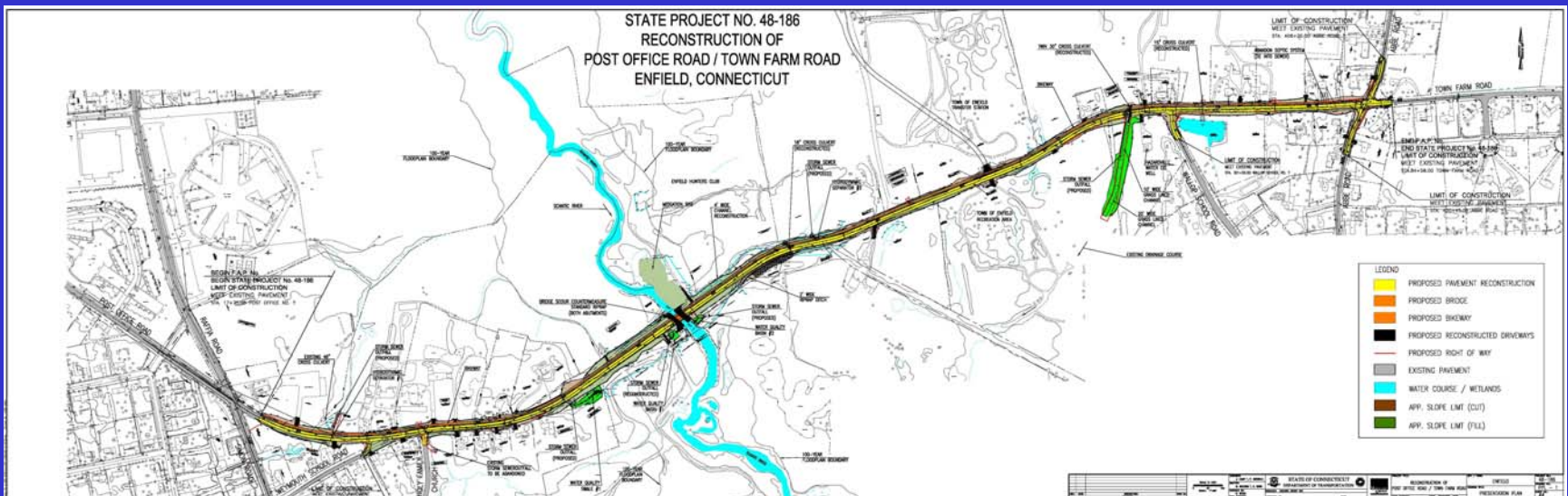
Existing Conditions:

- **Roadway Width Varies 22 FT - 32 FT**
 - No Shoulders in many areas
- **Varying Roadway Cross Slope (crown)**
 - Little or No Super-Elevation
- **Sharp Horizontal and Vertical Curves**
 - Limits Stopping Sight Distance
- **Skewed and Offset Intersections**
 - Weymouth School Road (skewed)
 - Wallop School Road (skewed)
 - Abbe Road (offset and skewed)
- **Insufficient Guiderail Protection (Bridge)**
- **No Pedestrian Access**
- **Limited Storm Drainage**
 - Erosion Problems
 - No Stormwater Treatment
 - Roadway Ponding
- **Bridge Scour (Erosion)**
 - West Abutment

Project Overview

Proposed Design:

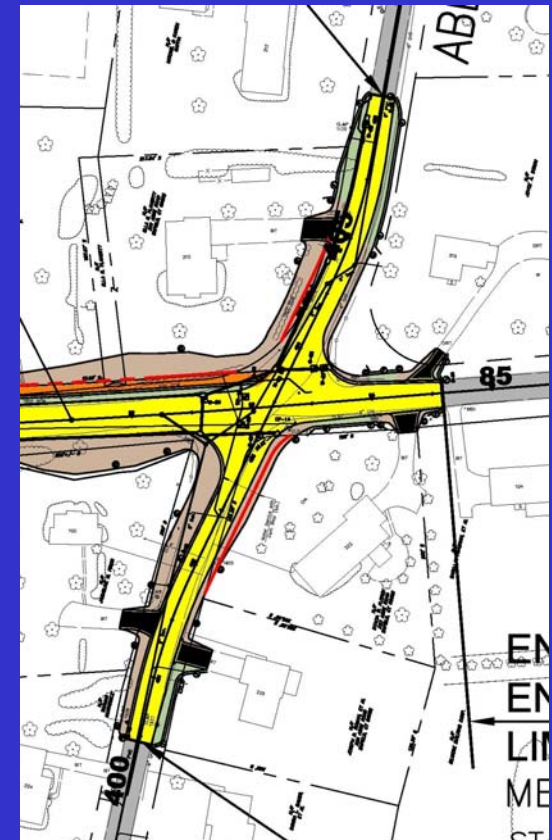
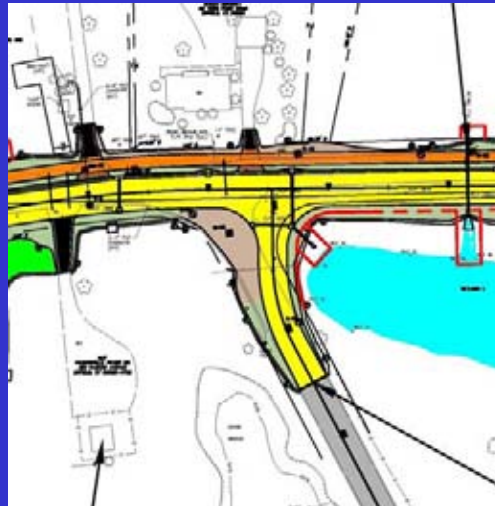
- **6700 LF of Full Depth Roadway Reconstruction**
 - 200 FT East of Raffia Road to 150 FT East of Abbe Road
- **Uniform Roadway Width of 30 FT**
 - 11 FT Travel Lanes, 4 FT Shoulders
- **Minor Adjustments to Horizontal and Vertical Curves**
 - Improve Intersection and Stopping Sight Distance
- **Uniform Roadway Cross Slope (crown) and Super-Elevation**



Project Overview

Proposed Design Cont'd:

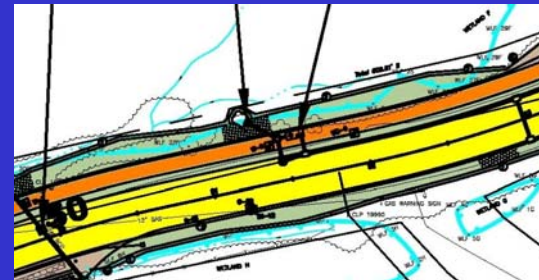
- **Realign Intersections to Improve Sight Distance and Turning Movements**
 - Weymouth School Road
 - Wallop School Road
 - Abbe Road
- **Upgrade Guiderail to Current Standards**
 - Along Fill Slopes
 - At Bridge Approaches
- **Provide Safe Passage for Pedestrians and Bicycles**
 - 10-FT Wide Bikeway



Project Overview

Proposed Design Cont'd:

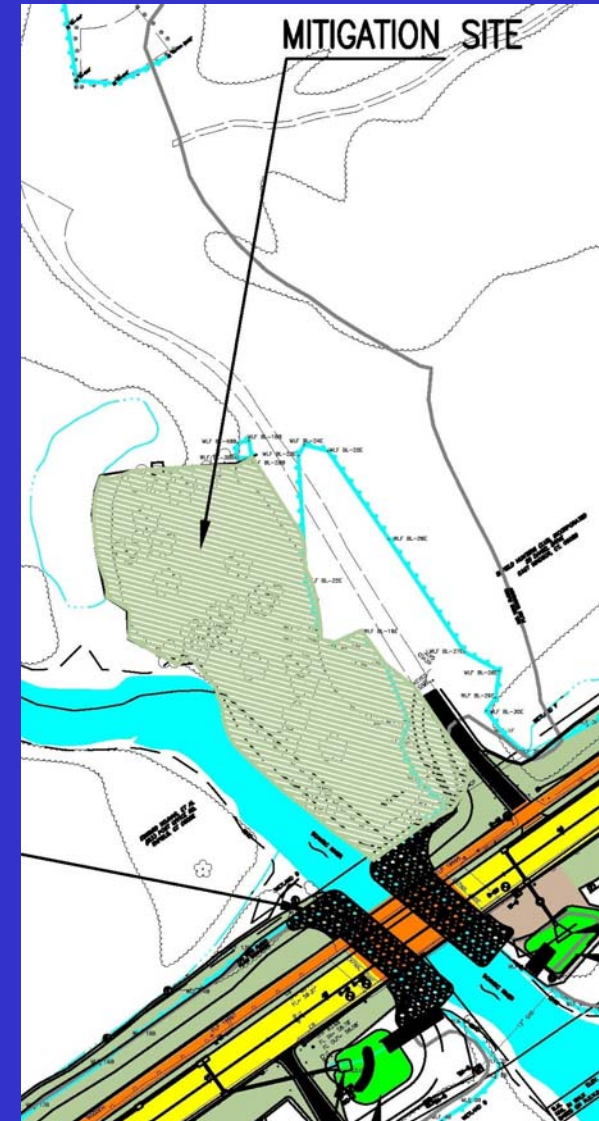
- **Bridge Modifications**
 - Widen Bridge to Accommodate Bikeway and New Roadway Section
 - Install Scour Countermeasure to Mitigate Current Stream Erosion at the Bridge
- **Improve Roadway Drainage**
 - Modify 3 Existing Storm Drainage Systems
 - Upgrade 3 Cross Culverts
 - Install 3 New Storm Drainage Systems
 - Install Stormwater Treatment Facilities at All Outfall Locations



Project Overview

Proposed Design Cont'd:

- **Environmental Benefits**
 - Mitigation Site - Invasive Species Removal \ Replant with Native Species (CTDEP Requirement)
 - Extensive Planting Plan
 - Project Wide - Stormwater Treatment Provided
- **Erosion & Sedimentation Control**
 - Designed to CTDEP 2002 E&S Guidelines
 - CTDEP Stormwater Quality Manual 2004
 - During & Post Construction BMP's
- **Maintenance and Protection of Traffic**
 - Generally done under traffic
 - 1- way Alternating Traffic During Working Hours
 - 2-way Traffic Re-established in the Evening
 - Property Access Maintained at All Times
- **Utility Coordination**
 - CL&P
 - Yankee Gas
 - Hazardville Water
 - AT&T
 - Cox



Project Overview

Proposed Design Cont'd:

- **Waste Stockpile Area (Transfer Station)**
 - **Soil Testing**
- **Construction Staging Area (Transfer Station)**
 - **Equipment Storage**
 - **Material Storage**
- **These areas will be secured with the proper erosion and sediment controls.**

Drainage Problems



Typical Erosion Along the Roadway



Erosion at Cross Culvert
(Hazardville Water Co.)



Headwall Failure
(Adjacent to Holy Family Church
Driveway)

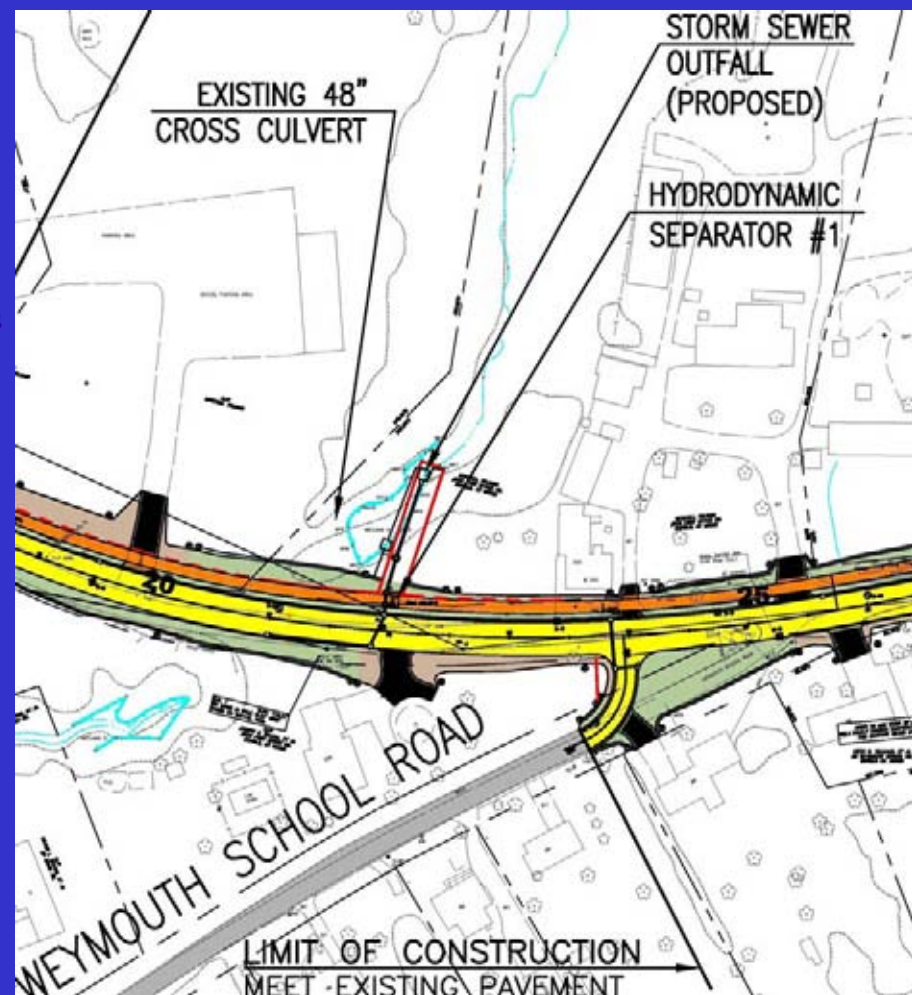


Scantic River Scour
Along Bridge West Abutment

Drainage Design

Existing System #1 Modification:

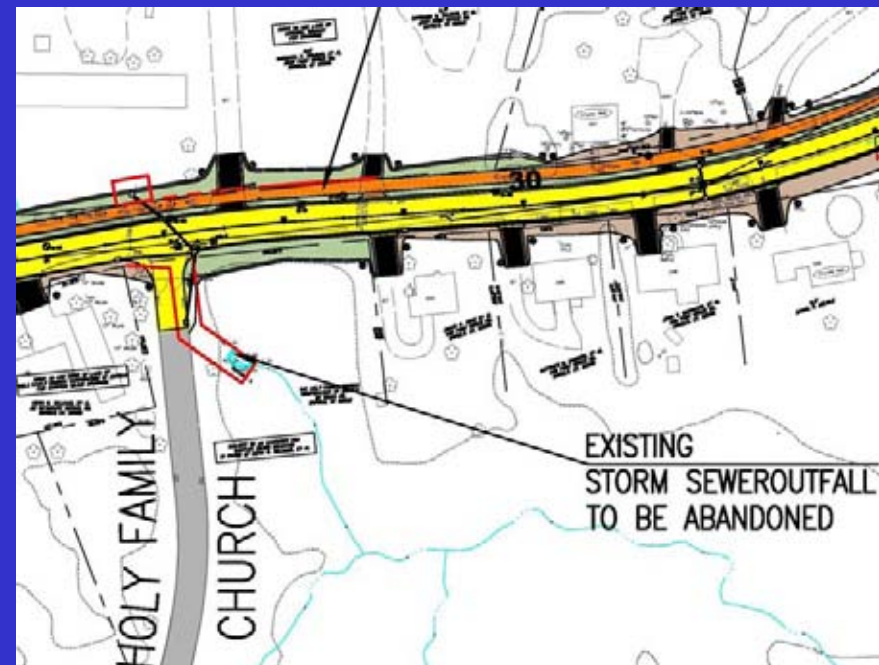
- **Separate Stream Flow From Roadway Drainage Flow**
 - Install New Storm Sewer Outfall
- **Install Hydrodynamic Separator**
 - Conventional Treatment Not Possible Due to Steep Slopes
 - Remove Sediment, Oils and Floatables
 - Designed to Treat First 1" of Rainfall
 - External Bypass for Larger Storms
- **Install Outlet Protection to Minimize Erosion**



Drainage Design

Existing System Abandoned:

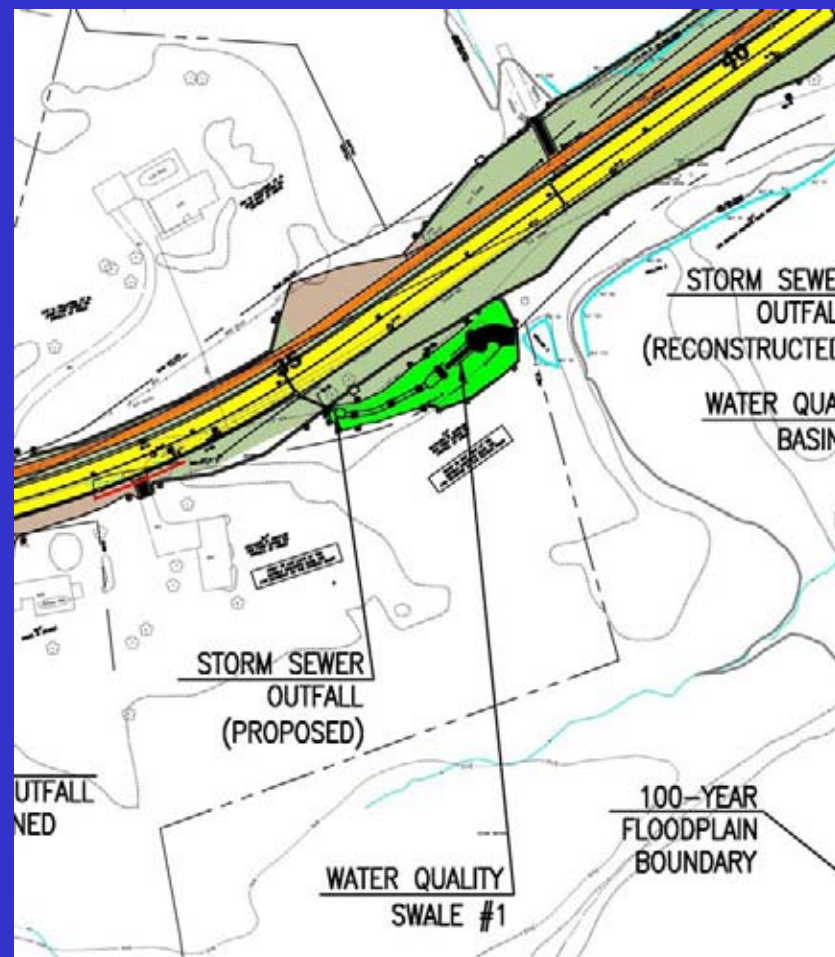
- Outlet Headwall Failed
- Piping Separated 8-FT +
- Downstream Watercourse Banks Are Sliding



Drainage Design

Existing\Proposed System #2 Modification:

- Remove Existing Drainage Ditch
- Install New Outlet and Drainage Channel
- Water Quality Swale
 - Remove Sediment
 - Promote Infiltration
- Install Outlet Protection to Minimize Erosion



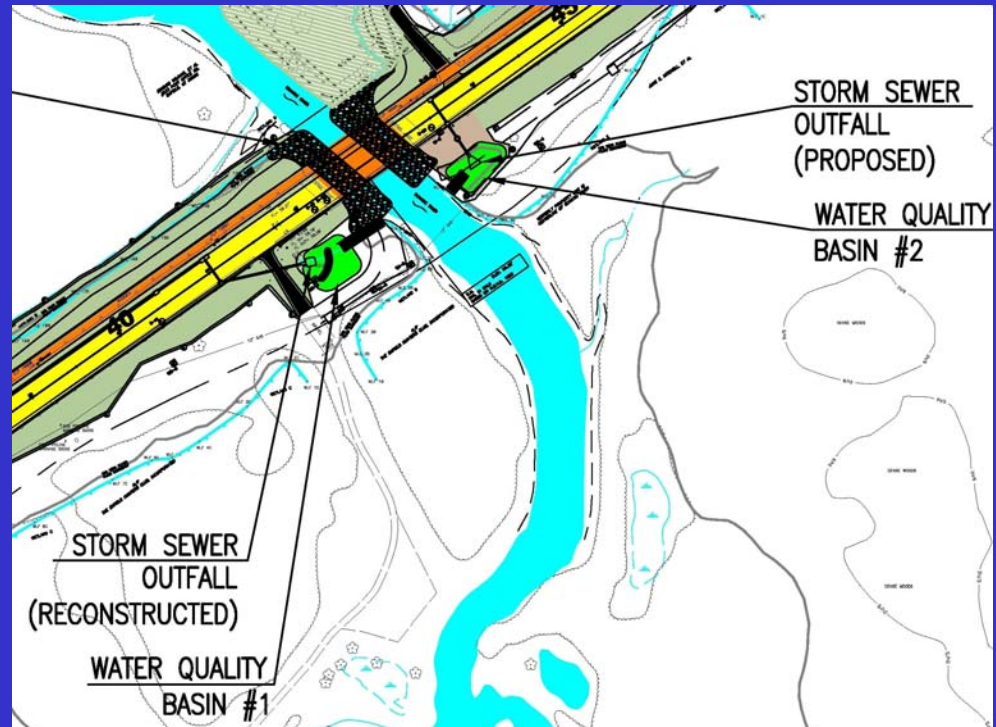
Drainage Design

Existing System #3 Modification:

- Reconstruct Outlet
- Water Quality Basin
 - Remove Sediment
 - Promote Infiltration
- Install Outlet Protection to Minimize Erosion

Proposed System #4:

- Install New Storm Sewer Outfall
- Water Quality Basin
 - Remove Sediment
 - Promote Infiltration
- Install Outlet Protection to Minimize Erosion



Drainage Design

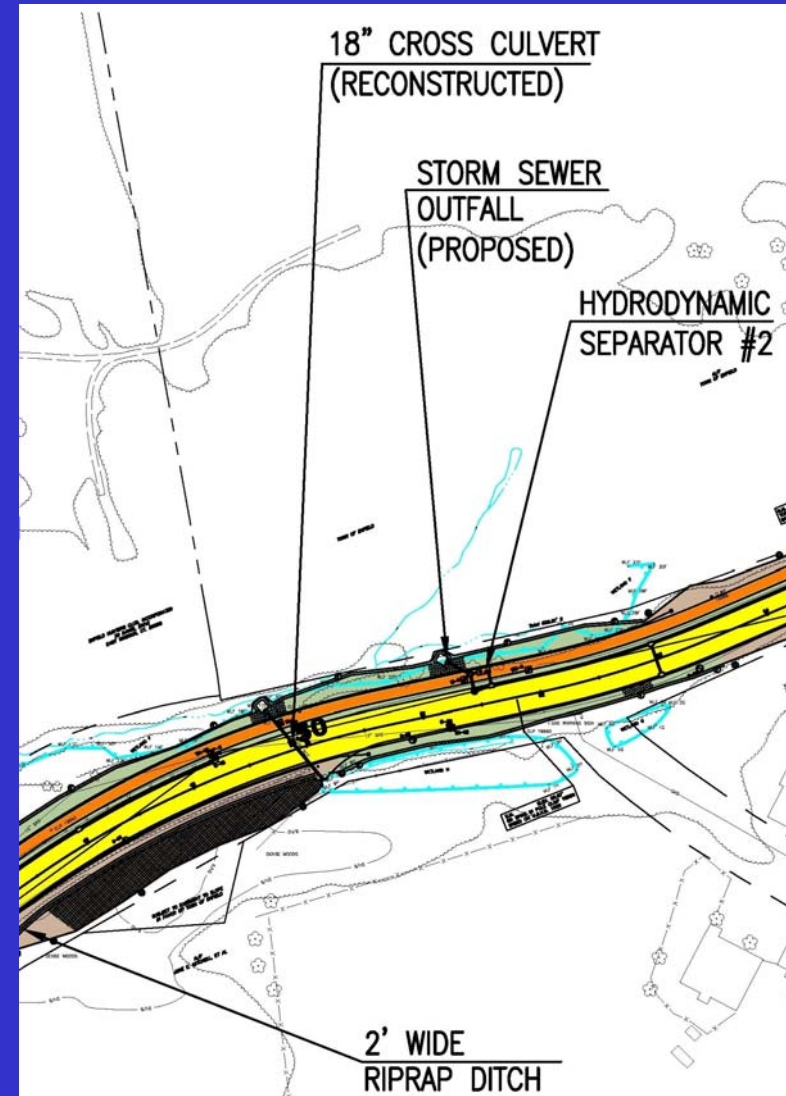
Proposed System #5:

- **Install New Storm Sewer Outfall**
- **Install Hydrodynamic Separator**
 - Conventional Treatment Not Possible Due to Steep Slopes
 - Remove Sediment, Oils and Floatables
 - Designed to Treat First 1" of Rainfall
 - External Bypass for Larger Storms
- **Install Outlet Protection and Level Spreader Weir to Spread Out Discharge and Minimize Erosion and Point Discharge to Stream**

Existing Culvert Reconstruction

- **Reconstruct Headwall, Culvert and Culvert End**
- **Install Outlet Protection and Level Spreader Weir**

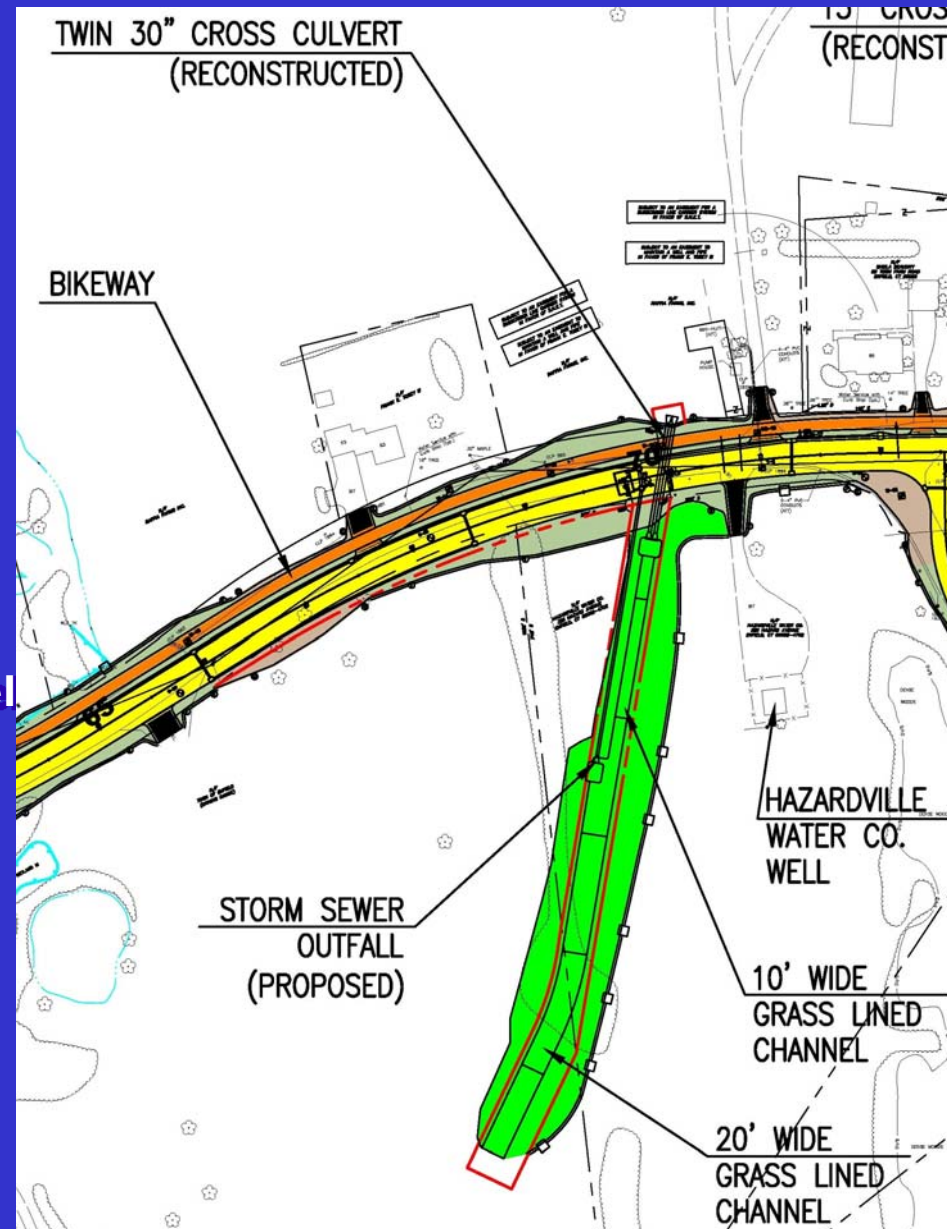
- **Reconstruct Existing Riprap Ditch Along South Side of Road**



Drainage Design

Proposed System #6:

- **Install Hydrodynamic Separator**
 - Conventional Treatment Not Possible Due to Public Well Watershed
 - Remove Sediment, Oils and Floatables
 - Designed to Treat First 1" of Rainfall
 - External Bypass for Larger Storms
- **Install Outlet Protection to Minimize Erosion**
- **Discharges to Vegetative Channel To Spread Out Flows.**
- **Positive Drainage Away From Water Company Well**
 - (Design Coordinated with Water Co.)

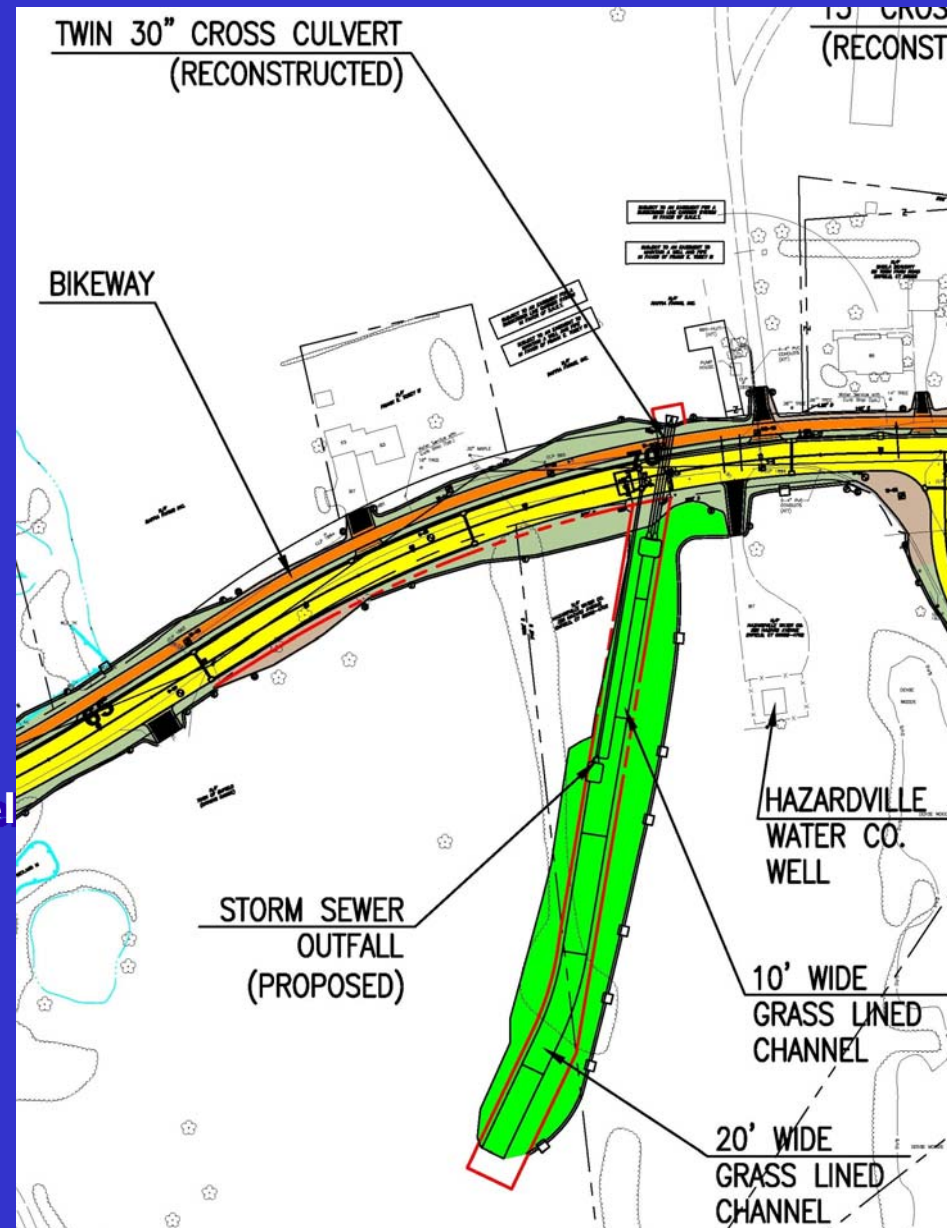


Drainage Design

Existing Cross Culvert

Reconstructed:

- **Existing 24" Culvert Undersized**
 - Roadway Overtops Several Times Throughout Year
 - Significant Erosion Along South Side of Roadway
- **Upgrade To Twin 30"**
- **Install Outlet Protection to Minimize Erosion**
- **Discharges to Vegetative Channel To Spread Out Flows**
- **Positive Drainage Away From Water Company Well**
 - (Design Coordinated with Water Co.)



Drainage Design

Existing Cross Culvert

Reconstructed:

- **Existing Culvert Undersized**
 - Erosion Along North and South Side of Roadway
- **Upgrade To 15"**
- **Install Outlet Protection to Minimize Erosion**
- **Outlet From Pond Reconfigured To Discharge Back to Storm Sewer System.**
 - Currently Discharges under Wallop School Road to Water Co. Land
- **Routing Computations Performed and Outlet Sized to Maintain Current Levels in Pond**



Drainage Design

Summary:

- Provide Proper Roadway Drainage
- Eliminate Erosion Problems Along Corridor
- Provide Stormwater Treatment to Improve Water Quality
- Drainage is Designed to Maintain Existing Drainage Patterns and Utilize Existing Drainage Outfall Locations as Practical

Wetlands Overview

THANK YOU...

**FOR YOUR TIME AND
ATTENTION**