Community Preservation Fund
Water Quality Improvement

Clean Water East Hampton
Improving our Water – Protecting our Future

Cove Hollow Stormwater Pipe

End of Pipe Treatment Constructed Wetland

October 19, 2022

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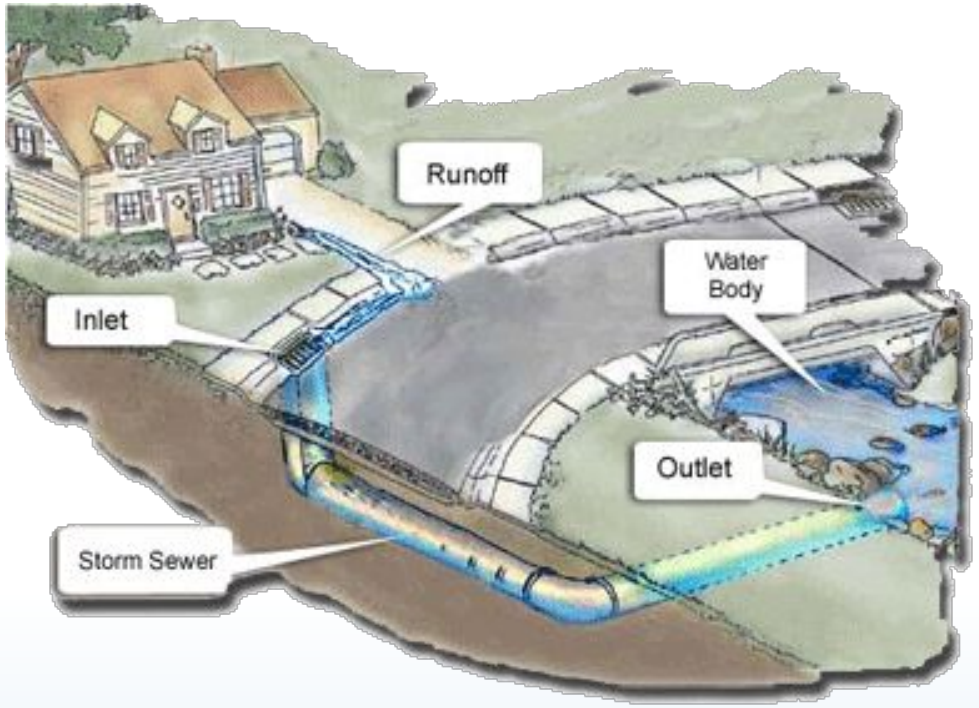
Town of East Hampton – Natural Resources Department

Town of East Hampton
Water Quality Improvement Program

- Community Preservation Fund – 20% annual revenue for Water Quality Improvement Projects
- Town prepared Water Quality Improvement Plan to focus efforts
  - Nitrogen Reduction/Removal
  - Bacteria Control
- Projects eligible for funding include;
  - Wastewater Treatment
  - Non-Point Source Abatement and Control
  - Aquatic Habitat Restoration
  - Pollution Prevention

Non-Point Source Pollution

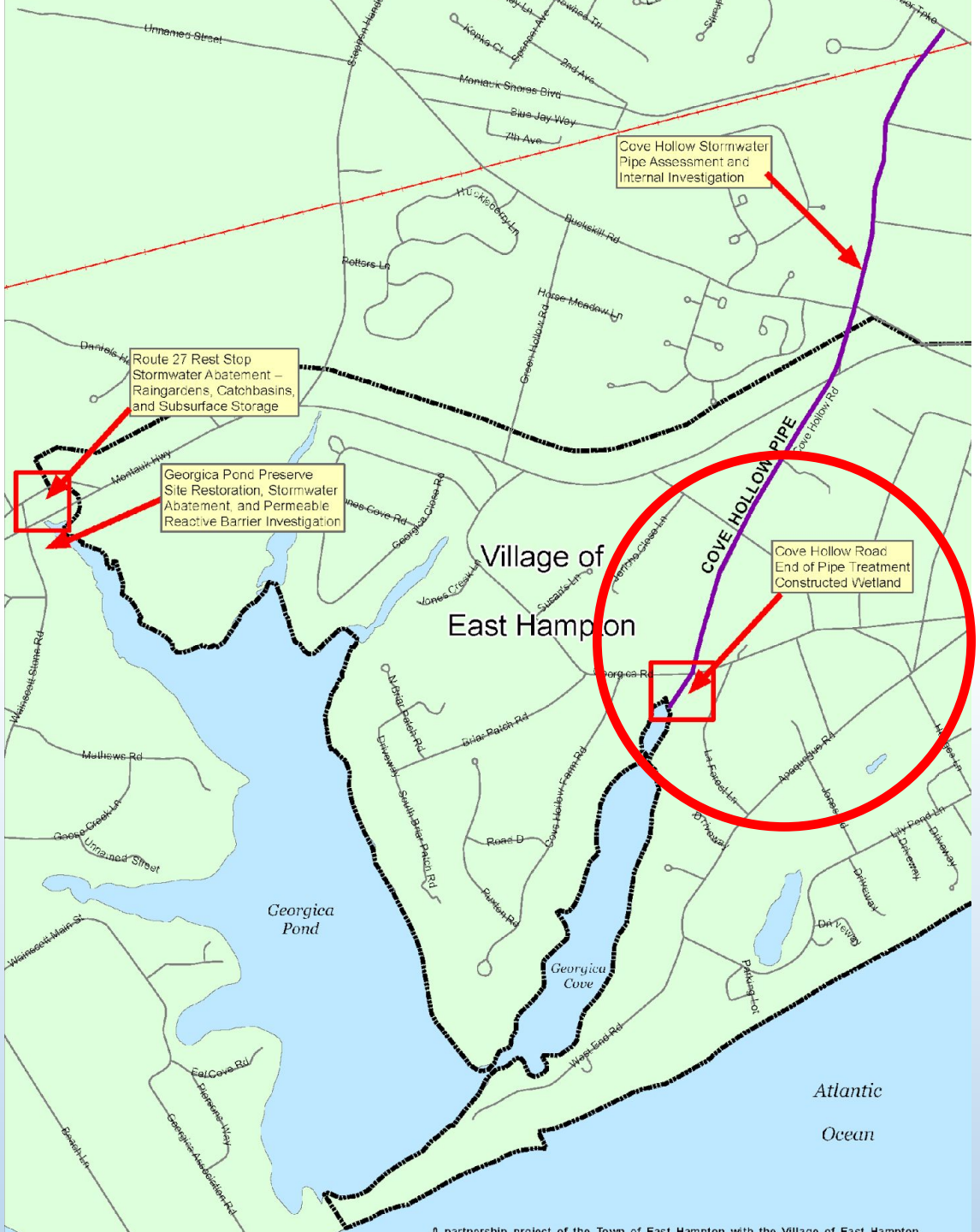
- Sources of pollution that are diffused, without one single point of origin
- Runoff from rainfall or snow melt that carries pollutants into waterways
- Stormwater Runoff
  - Overland Runoff
  - Stormwater conveyances
  - Direct discharge to waterbody
  - Increased by impervious surfaces



Georgica Pond

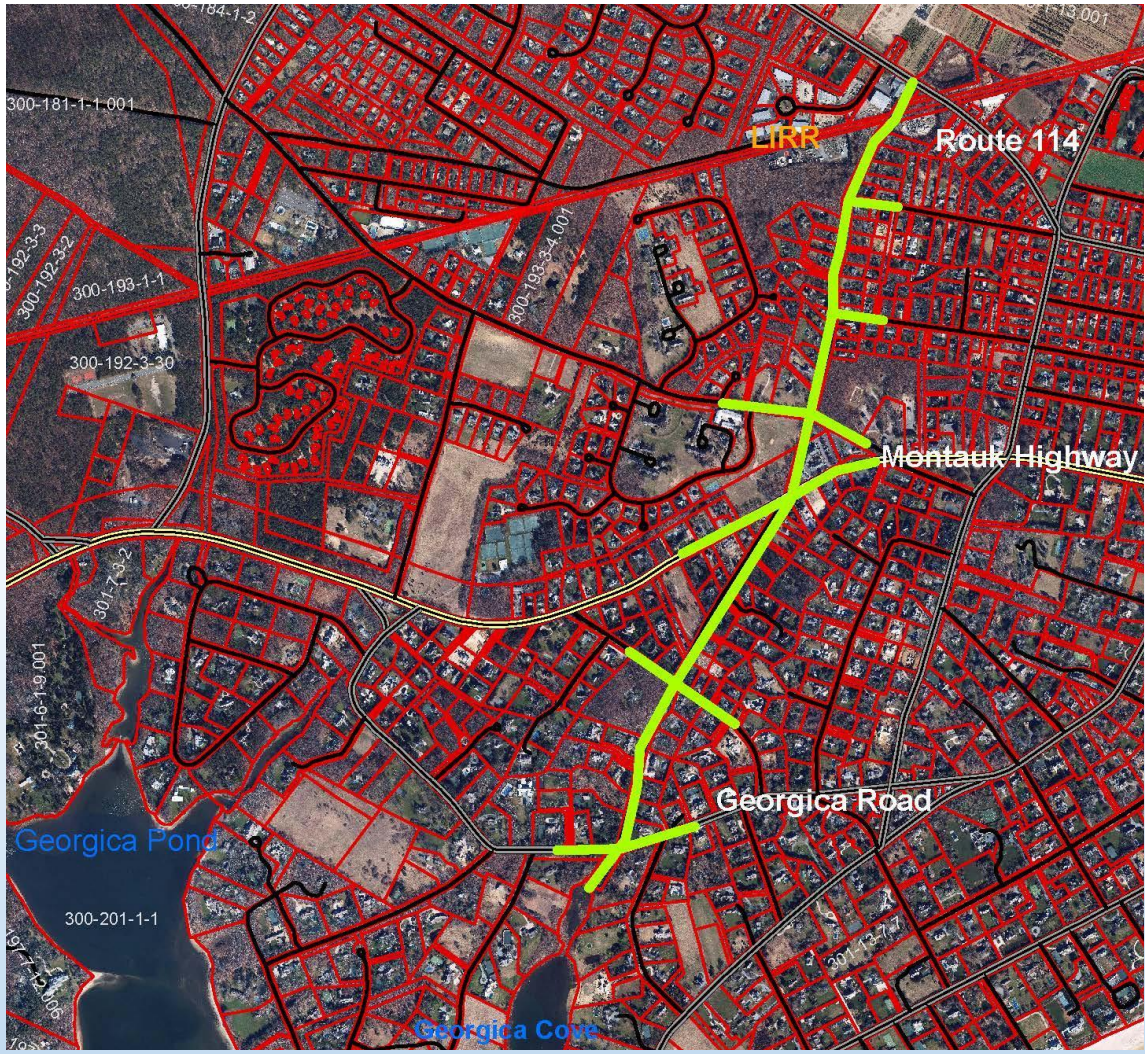
Stormwater Abatement Projects

- Cove Hollow Stormwater Pipe Assessment and Internal Investigation
- Cove Hollow End of Pipe Treatment Constructed Wetland
- Route 27 Rest Stop Stormwater Abatement
- Georgica Pond Preserve Site Restoration



Cove Hollow Stormwater Pipe - Background

- Background:
  - Designed and constructed in the 1930's to alleviate flooding from farmland runoff
  - 7,298 linear feet, gravity flow pipe
  - Runs from the railroad trestle at northern end of Cove Hollow Road to the outlet at Georgica Cove
  - When Georgica pond water level is high, the pipe end becomes submerged, and the pond backs up into the pipe
  - Georgica pond affected by algae blooms due to excess N and P impacting water quality
- Project included in the Town of East Hampton Water Quality Improvement Plan



Cove Hollow Pipe Project Milestones

- Investigation Milestones:
  - 2017-2018: Completed internal camera inspection, clean-out and survey work
  - 2018-2019: Completed Cove Hollow drainage assessment and subsurface investigation
  - 2020-2021: Completed engineering review of existing conditions to determine appropriate solutions
  - 2022: Award RFP to VHB Engineers and Architects to design the End of Pipe Treatment Project
  - 2022-2023: Design of End of Pipe Treatment Project
    Investigate the potential for other improvements
  - 2023-2024: Bid End of Pipe Treatment Project; begin construction

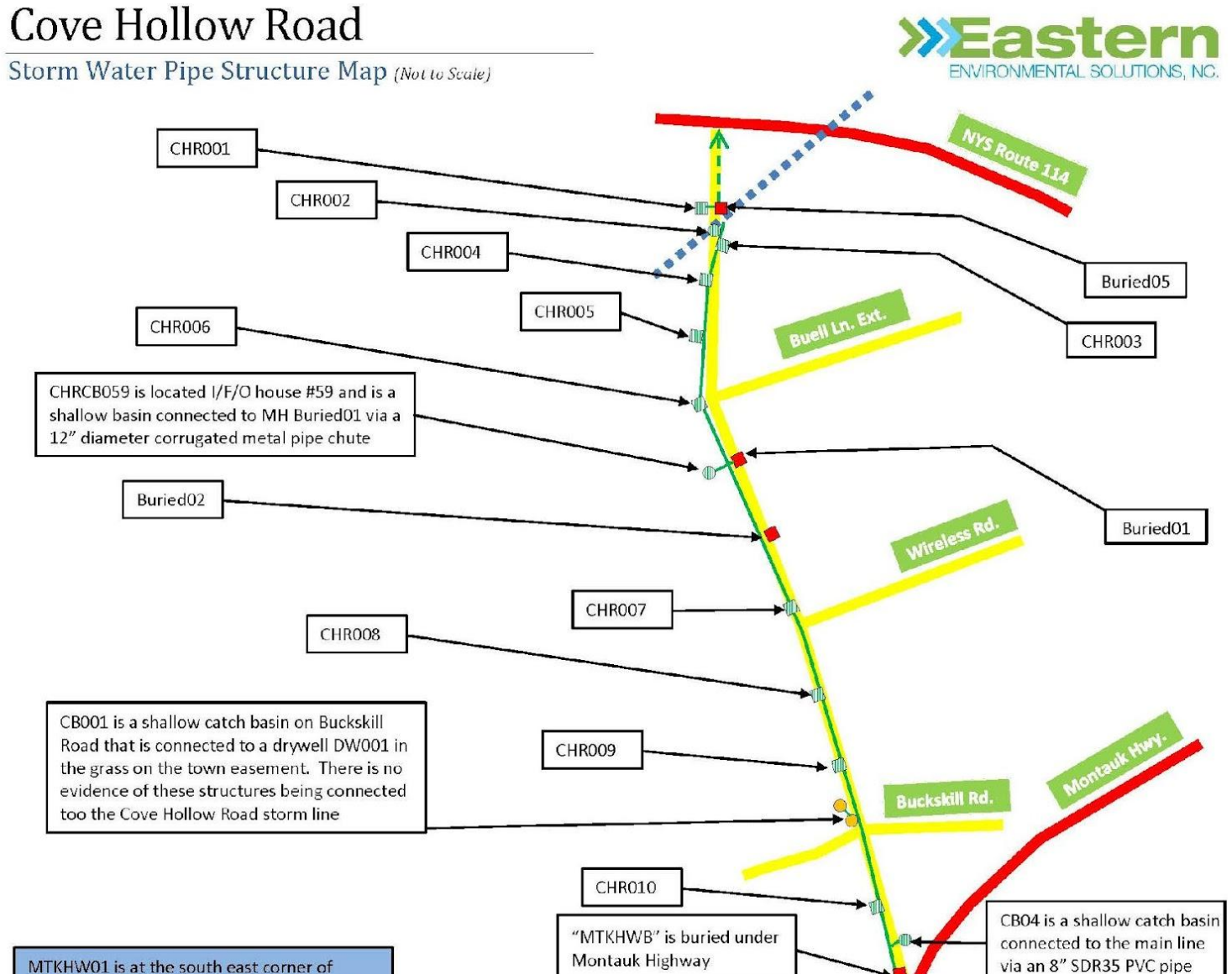
Current Conditions

- Stormwater Drainage Network
  - Starts just south of NY 114 and the LIRR overpass and extends to the outfall at Georgica Pond.
  - Overall condition of the pipe – consistent with age
- Drainage Inlets
  - 36 inlets found along Cove Hollow Road
    - 3 inlets – no evidence of being connected to the pipe network
    - 33 inlets connected and contribute stormwater to the pipe
      - Varying sizes and type
      - 7 inlets buried under asphalt
      - One inlet badly damaged on southeast corner of Montauk Highway and Cove Hollow Road (NYSDOT)
- Soil Conditions
  - Soil test borings completed to ascertain soil type, classification, groundwater detection and elevation
  - Soils generally conducive to infiltration and the water table is only an issue at the south end of Cove Hollow Road
  - Indicates that leaching basins and bio-retention are suitable management practices along the corridor

Observed Deficiencies from Pipe Inspection

- Several locations where tree roots and utility lines breach the pipe
- One catch basin on corner of NY 27/Cove Hollow Road badly damaged and loose gravel has migrated into the basin and the pipe
- Defective patch at the top of the exposed pipe south of Georgica Rd
- Inconsistent materials used for repairs/construction
- Fine deposits found settling along the bottom of the pipe
- Ponding following storm events in several areas
  - Minor ponding from poorly graded or rutted road shoulders
  - Substantial ponding observed in several areas where no drainage structures currently exist or high-water table, poor soils or unmaintained structures not functional
- Several catch basins along the drainage pipe network not at grade and are thus non-functional and make maintenance difficult

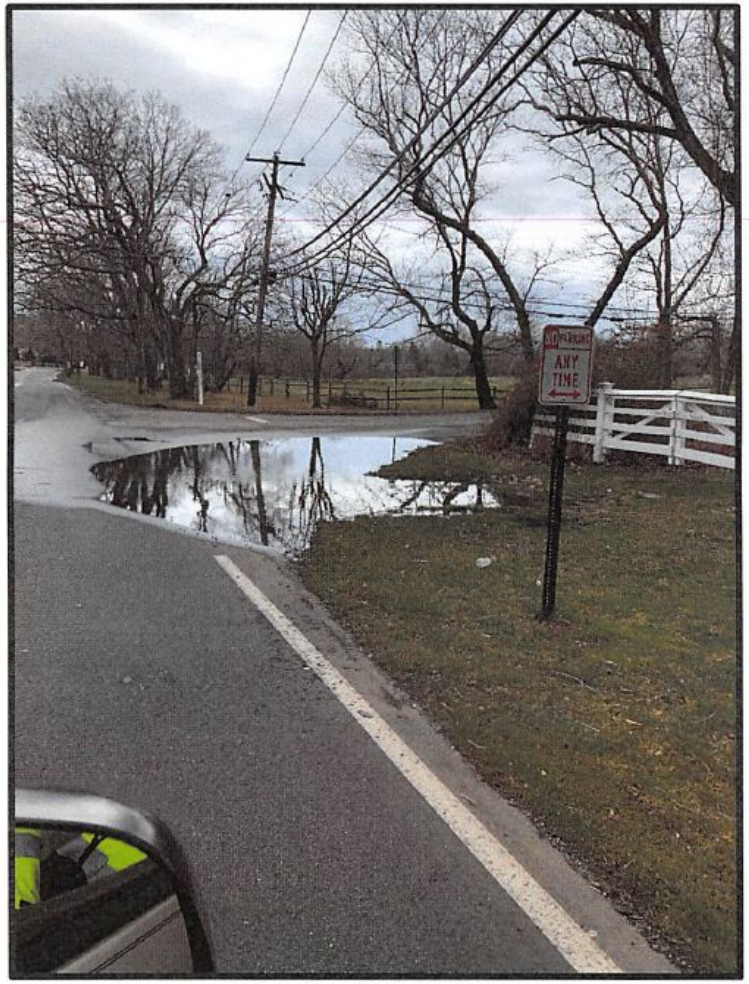
Cove Hollow Drainage Structure Map



Observed Storm Pipe Obstructions

Examples from Drainage Assessment - Ponding

Northbound #16
East side of Cove Hollow Road
North of Montauk Highway



Southbound #18
West side of Cove Hollow Road
At Buckskill Road

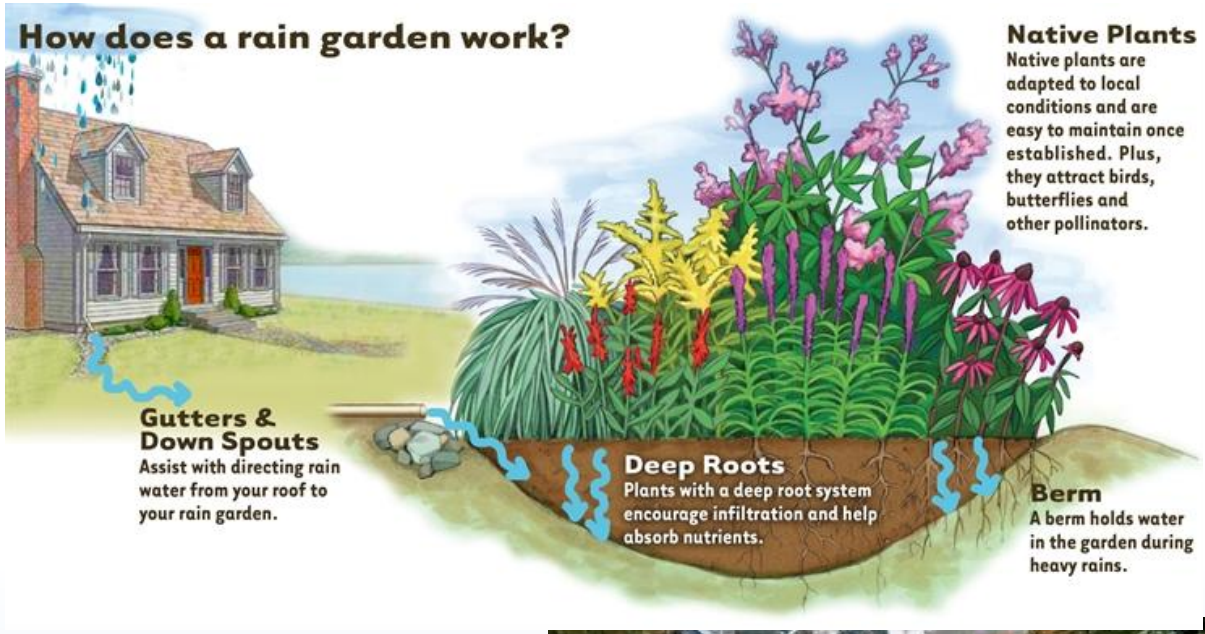
Cove Hollow Pipe Outlet

Dry Conditions – Low Pond Levels

Wet Conditions –Elevated Pond Levels

Goals and Treatment

- Reduce volume of water entering the Cove Hollow Pipe along route to Georgica Pond
  - Capture water before entering pipe inlets
    - Increase number of drywells
    - Install natural, vegetated treatment in upland



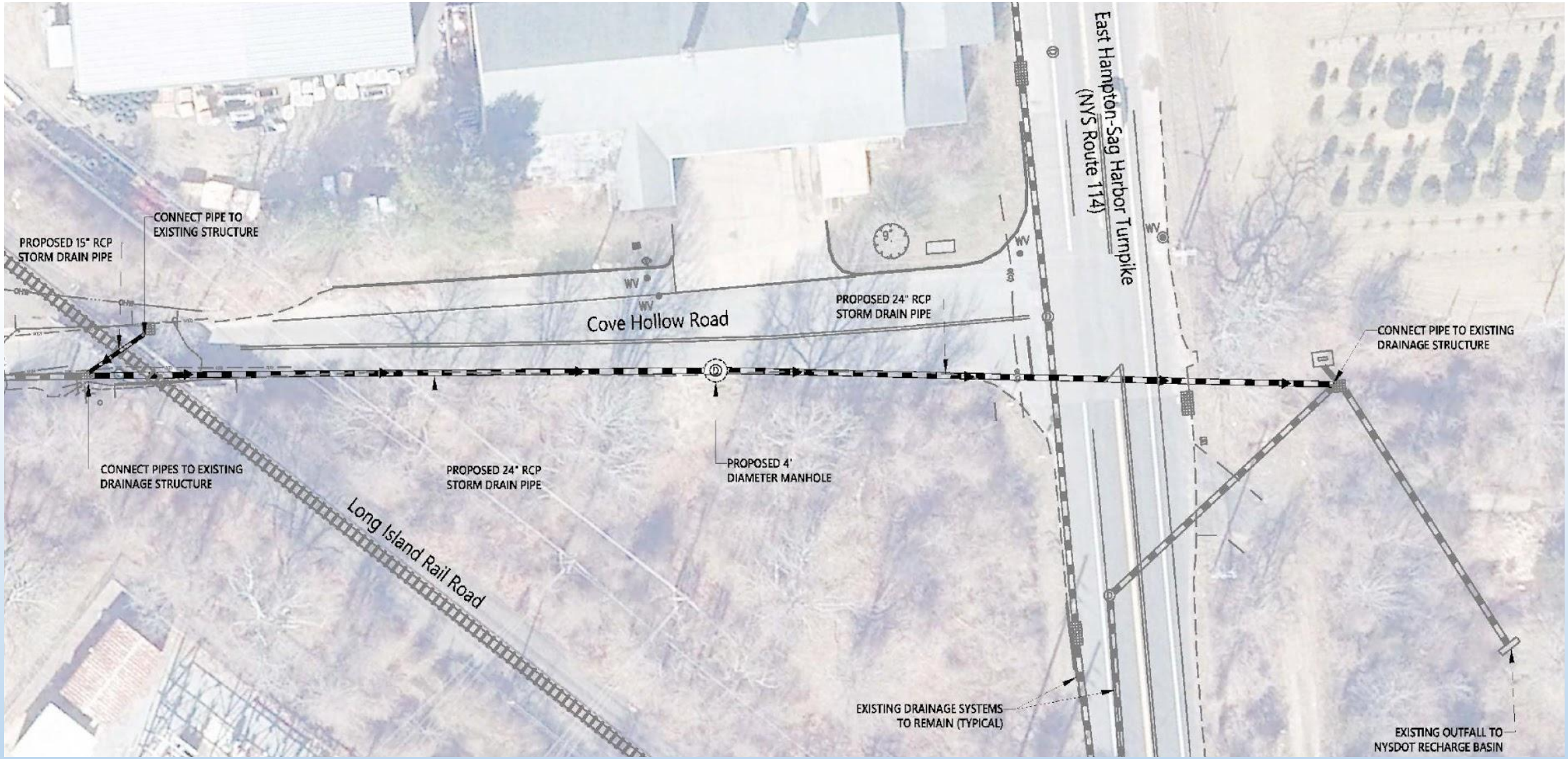
- Improve the quality of water entering Georgica Pond from the Cove Hollow Pipe
  - Treat water entering catchbasins using inlet filters to remove pollutants
  - Incorporate

Recommendations from Engineering Review

- Install drainage inlet filters and clean-out catch basins on all structures
- Establish standard specifications for drainage structures for ease of maintenance
- Repair damages to pipe and inlets/fix deficiencies identified
- Capture runoff in upland to reduce volume of water entering pipe and conveyed to Georgica Cove
  - Install additional drainage structures in targeted areas to reduce ponding
  - Explore feasibility of purchasing open parcels or leasing property along corridor for drainage storage and treatment
- Reconnect recharge basin on north side of NY114 in vicinity of Cove Hollow Rd
- End of pipe treatment: relocate drainage system outfall and create a constructed wetland treatment system into the Cove with forebay and micropool

Cove Hollow: Upstream Treatment

Conceptual Design



Cove Hollow: End of Pipe Treatment

Conceptual Design

Benefits

- Slows down water to allow for better infiltration
- Allows for natural processes to take place to improve water quality
- Preservation and enhancement of Georgica Pond Water Quality
  - Improved habitat for wildlife
- Beautification and revitalization of the road end
- Improved access to Georgica Pond
- Public Education

Cove Hollow: End of Pipe Treatment

Conceptual Design

- Comments from TOEH, Trustees, Village and FOGP kick-off meeting with VHB;
  - Maintain vehicular/emergency access to the Pond at Georgica Cove
  - Improve/allow for kayak access to the Pond
  - Maintain viewshed of the Pond
    - Arrange parking to allow for front in parking or views for quick stops
  - No lighting
  - Remove sidewalks near entrance
    - No sidewalks along Georgica Road to connect to
  - Reduce parking area
  - Protect existing native vegetation

Questions? Comments?

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Photo: Georgica Cove, July 2021