


# Capital Project D-1158

## Windy Knolls Wetland Mitigation Bank and TMDL Stream Restoration Project

Howard County Department of Public Works  
Utility Design Division & Storm Water Management Division



Community Meeting  
October 24, 2019





# Agenda

- Project Team
- Project Background
- Design
- Construction
- Questions/Discussion



# Project Team



- Howard County DPW
  - Kin Siew, Utility Design Division
  - Mark Richmond & Michele Monde, Storm Water Management Division
- Century Engineering, Inc./Straughan Environmental, Inc. Joint Venture
  - Eleanor Wilson, Century
  - Ward Oberholtzer, Century
  - Joe Arrowsmith, Straughan





# Project Background

Project Purpose

Project History



# Project Purpose


- Windy Knolls site is located in a priority watershed for restoration.
  - County partnership to complete the Windy Knolls restoration for two shared goals.
    - Stream Restoration Nutrient reduction credit for the County(SWM Division)
    - Future Wetland Mitigation site for Capital Improvement projects (Utility Design Division)

# Project History

- County anticipated up to 3 AC of offsite wetland mitigation for Capital Project S-6280 Hammond, Patuxent & Dorsey sewer interceptor improvement projects
  - Mitigation site search within Patuxent watershed completed in 2014
  - Gained agency site approval - Presented preferred site and concept design to USACE/MDE and visited the site (Dec. 2014)
  - Began site studies in 2015
    - Geotechnical investigation
    - Groundwater monitoring
    - Natural Resource inventories
    - Stream assessments, etc.
  - Avoidance and minimization on sewer projects = no wetland mitigation requirement
- With design underway, County continued pursuit of the site restoration for TMDL and County Wetland Bank goals.



## Project History (cont'd)

- With studies completed and design underway, County continued pursuit of the site restoration for TMDL and County Wetland Bank goals.
    - Capital Project S-6280 – Studies /Design/ Wetland Bank Establishment Phase
    - Capital Project D-1158 - Construction Phase
- 



# Site Conditions

Site Location


Site History

Natural Resources

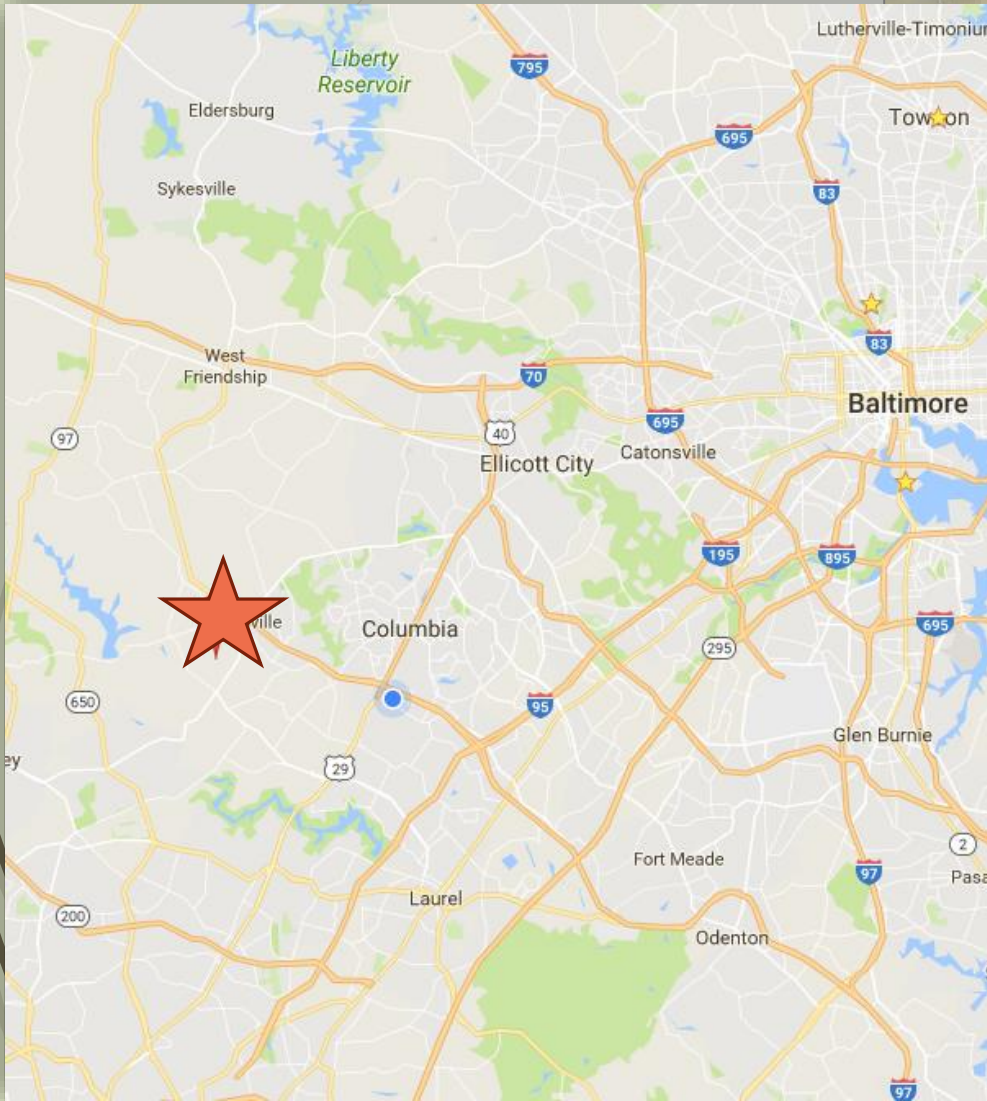




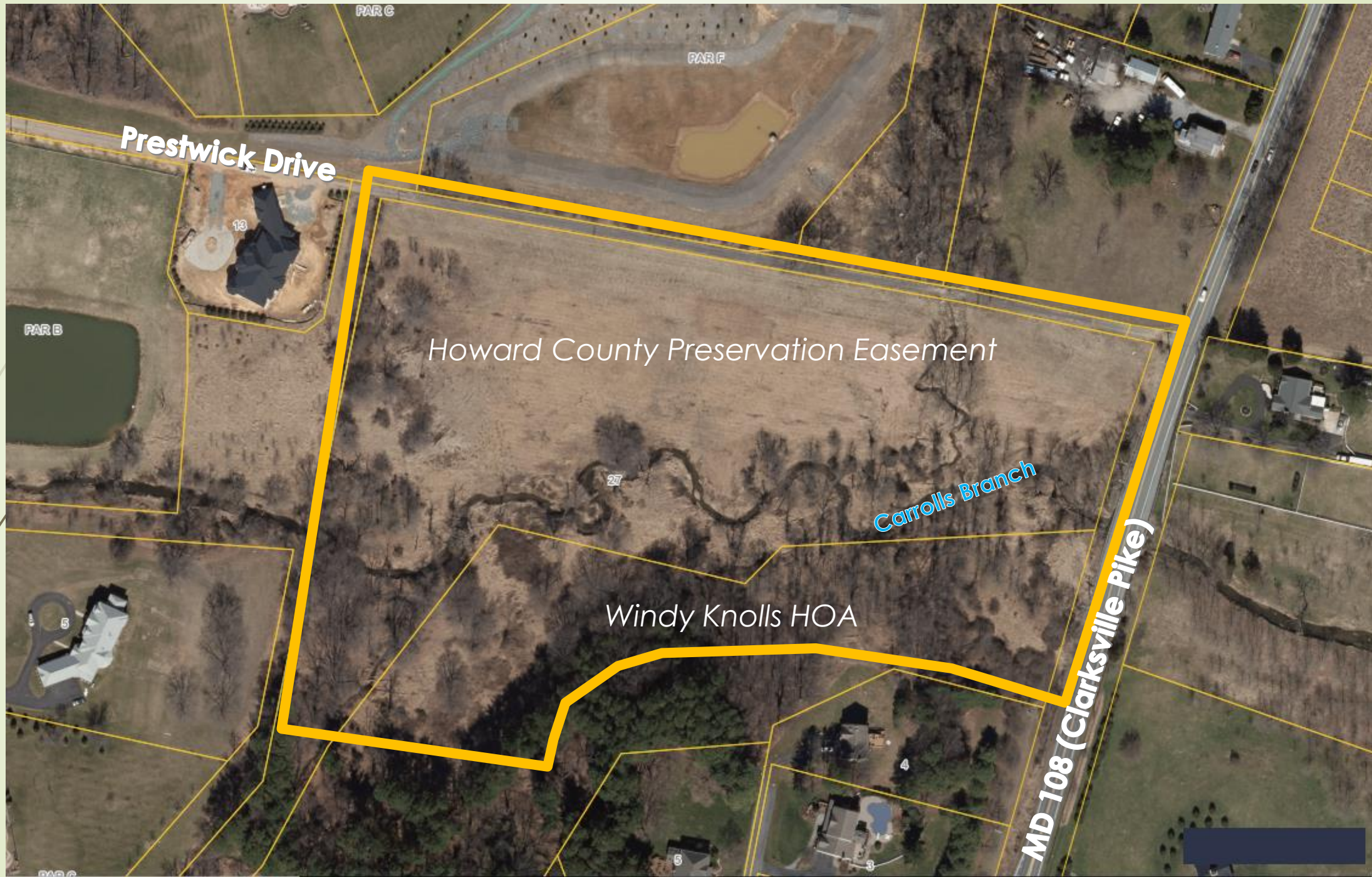
# Site Conditions

- Windy Knolls as preferred site:
    - Comprehensive Ecological Restoration Site - wetland/stream/forest
      - Restoring historic filled wetland/floodplain complex
      - Limited tree clearing needed. Mostly existing meadow habitat.
    - 5 AC of potential wetland creation/restoration
    - Priority County Restoration Area & Tier II Waterway
    - Contiguous to Forest Conservation/Floodplain Easements
    - Already in preservation
    - Primarily County owned property
    - Reduce sediment in stream (TMDL credit for stream if not needed for mitigation)
- 

# Site Location



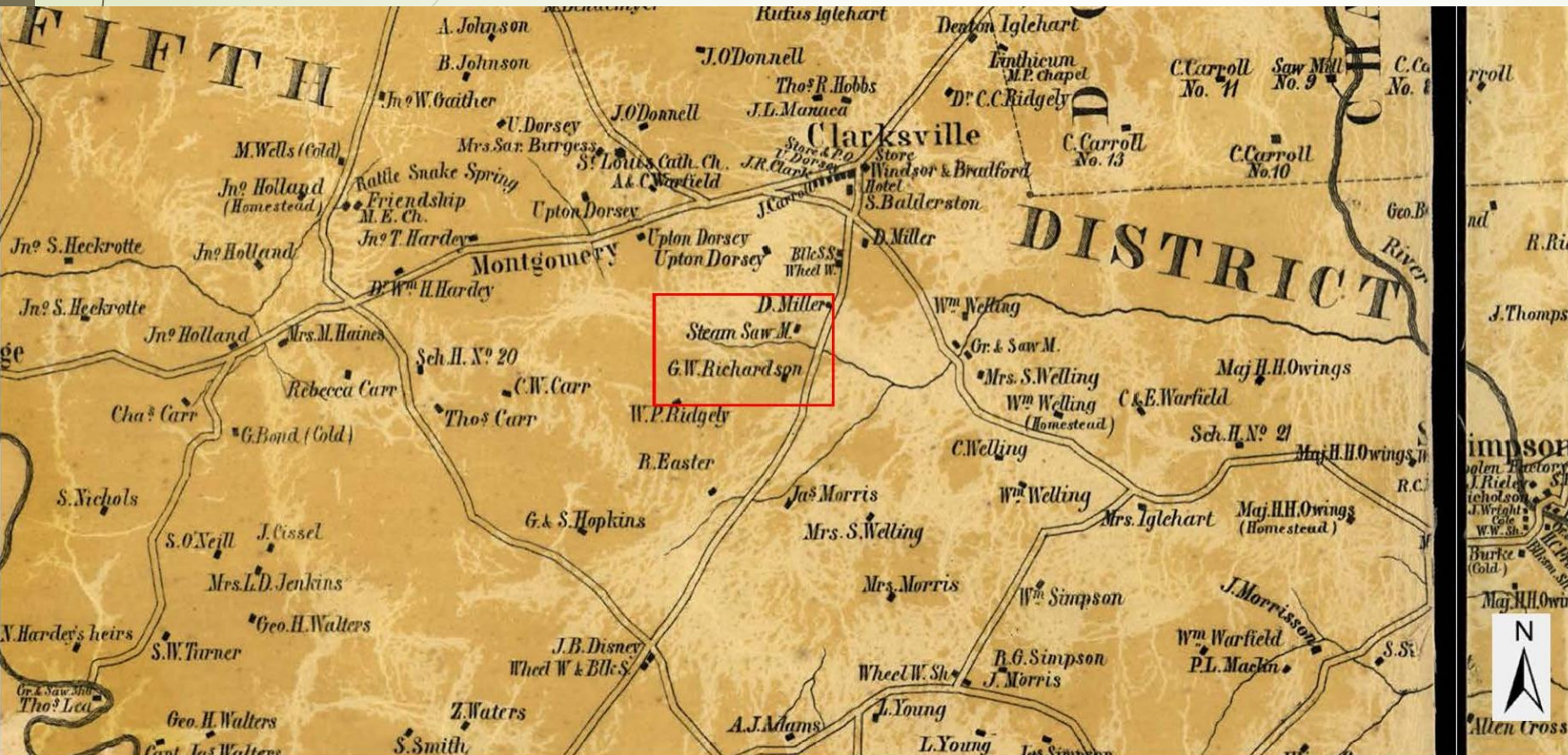






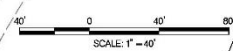
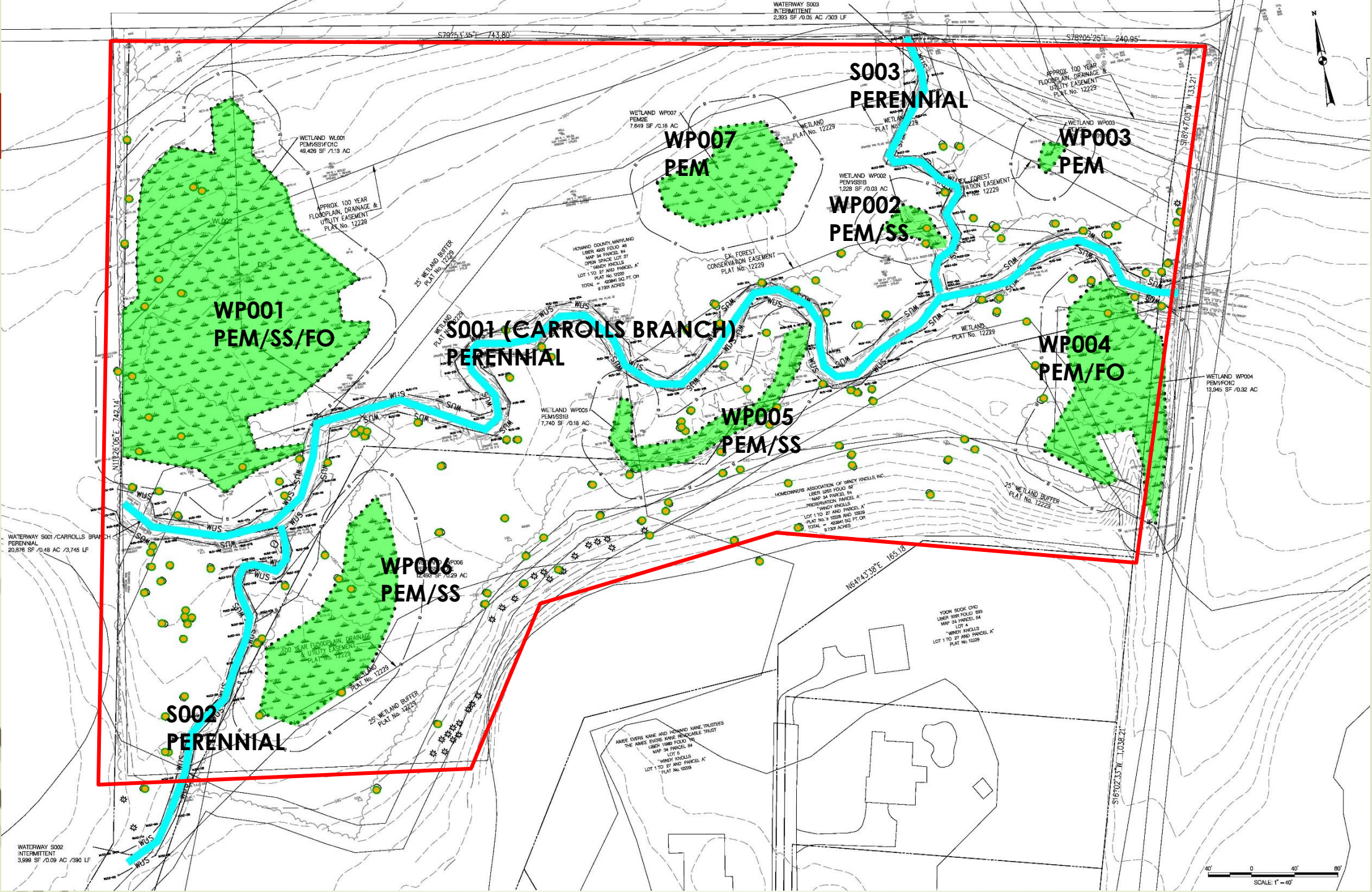
# Site History

- Mill dam at MD 108
- Sedimentation of historic floodplain



Date: 1850  
Source: Simon J. Martenet, loc.gov  
Scale: NTS  
— General Study Area Location

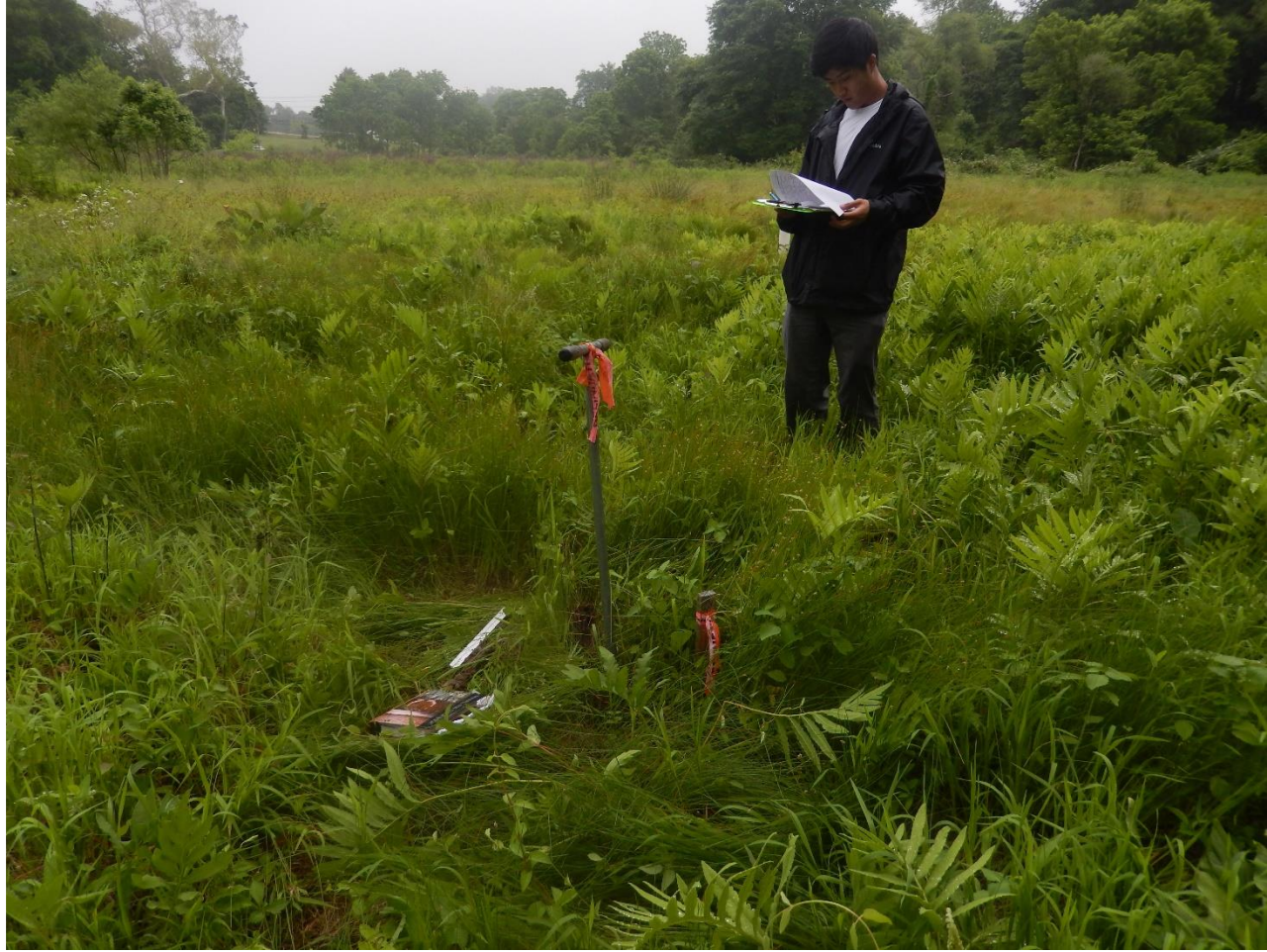










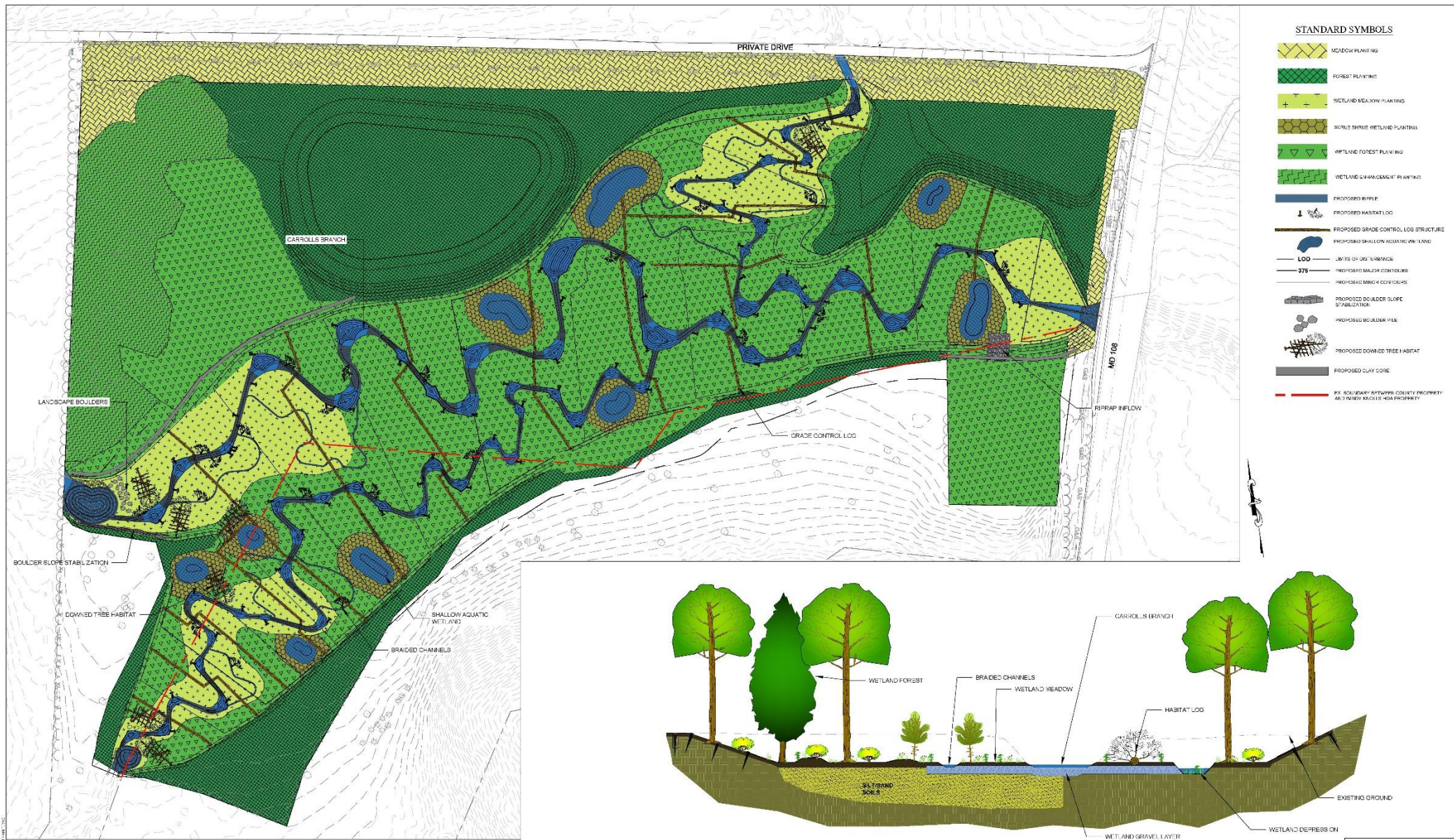




A decorative graphic on the left side of the slide. It features a solid red arrow pointing to the right, positioned horizontally. Behind the arrow and extending upwards and to the right are several thin, dark, curved lines that sweep across the page, creating a sense of movement and design.

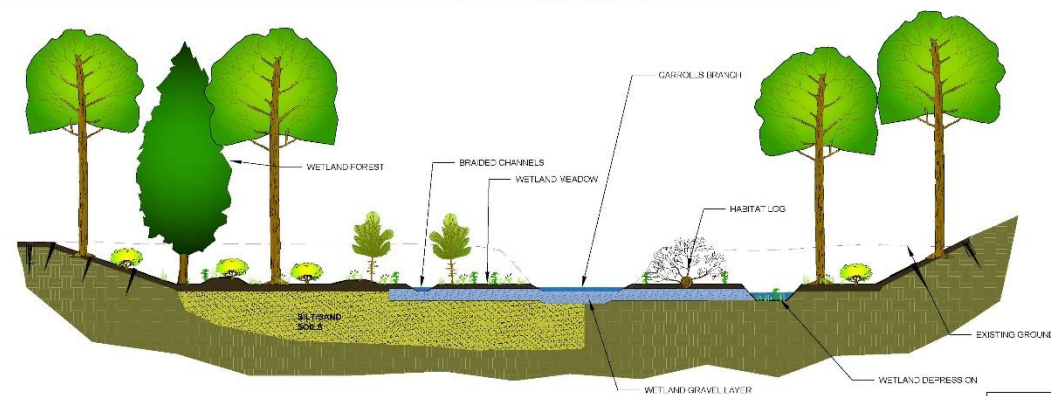
# Design Overview





# STANDARD SYMBOLS

- MEADOW PLANTING
- FOREST PLANTING
- WETLAND MEADOW PLANTING
- SCIRUS SHRUB WETLAND PLANTING
- WETLAND FOREST PLANTING
- WETLAND SHRUB/GRASS PLANTING
- PROPOSED RIFFLE
- PROPOSED HABITAT LOG
- PROPOSED GRADE CONTROL LOG STRUCTURE
- PROPOSED SHALLOW AQUATIC WETLAND
- LIMITS OF US URBAN
- PROPOSED MAJOR CONTROLS
- PROPOSED MINOR CONTROLS
- PROPOSED DOULDER SLOPE STABILIZATION
- PROPOSED BOULDER PILE
- PROPOSED DOWNED TREE HABITAT
- PROPOSED CLAY CORE
- PR. BOUNDARY: RTTAPPR. COUNTY PROPERTY  
ADJ. PROPERTY: KAROLIS-HOA PROPERTY



PROJECT: WINDY KNOLES WETLAND AND STREAM MITIGATION PROJECT  
 PREPARED BY: STRAUGHAN ENVIRONMENTAL  
 DATE: OCT 2019



PREPARED BY:



DES: 2019/10/19  
 DIN: 2019/10/19  
 CHK: 2019/10/19  
 DATE: OCT 2019

| REV. | BY   | DATE       |
|------|------|------------|
| 1    | DES  | 2019/10/19 |
| 2    | DIN  | 2019/10/19 |
| 3    | CHK  | 2019/10/19 |
| 4    | DATE | OCT 2019   |

FINAL DESIGN

WINDY KNOLES WETLAND AND STREAM  
 MITIGATION PROJECT

CAPITAL PROJECT NO. D-1158  
 HOWARD COUNTY, MARYLAND  
 7TH ELECTION DISTRICT

ZONING: RR-DEO

NAD83/NAVDS8

MAP NO. 34

BLOCK NO. N/A

TAX MAP: 34

NOT FOR  
 CONSTRUCTION

SCALE  
 1" = 40'

SHEET



# Proposed Habitats/Landscape

RIPARIAN FOREST



SCRUB SHRUB WETLAND



FORESTED WETLAND



EMERGENT WETLAND



- 1,123 Trees Planted
- 1,080 Shrubs Planted
- 24 Woody Species Proposed
- 2.66 AC of Upland Forest Restored
- 5.13 AC of Floodplain/Wetland Restored
- 4 Habitat Types
- Pollinator Species/Habitat





# Permitting

# Project Permits

## Maryland Historical Trust

- No resources of concern identified as being affected by the project

## ➤ Maryland Department of Natural Resources & U.S. Fish & Wildlife Service

- Rare, Threatened & Endangered Species Review – No species/habitats of concern identified as being affected by the project

## ➤ Howard Co. Soil Conservation District – Erosion & Sediment Control

## ➤ Maryland State Highway Administration

- Roadside Tree Permit

- Access Permit

## ➤ Maryland Department of the Environment (MDE)

- National Pollutant Discharge Elimination System (NPDES) Permit

## ➤ MDE & U.S. Army Corps of Engineers

- Nontidal Wetlands and Waterways Permit

- Interagency Review Team Wetland Bank Review and Approval

- ALL permits approved except pending Wetland Bank Approval.





# Construction

Estimated Timeline

Site Access & Limit of Disturbance

Example Projects



# Project Timeline

- Project approvals and final plans - January 2020
- Begin construction Spring/Summer 2020
- Construction duration – 8 to 12 months
  - Construction access off of MD 108
- Post construction monitoring for 5 to 7 years
  - Groundwater
  - Vegetation
  - Stream stability

# Site Access & Limit of Disturbance





# Example Floodplain Restoration Projects

GIDDINGS STREAM  
RELOCATION/RESTORATION  
& FLOODPLAIN  
REMEDIATION

EXISTING CONDITIONS



ACTIVE CONSTRUCTION



IMMEDIATELY AFTER CONSTRUCTION



1-YEAR POST CONSTRUCTION



GREAT SENECA HWY. SWM  
& STREAM RESTORATION



BROAD CREEK HEADWATERS  
WETLAND AND STREAM  
RESTORATION







# Questions & Discussion