Ecological Restoration at
The Mill Swamp Mitigation Bank

60% Project Design - Public Meeting held at Charles County Public Library – Potomac Branch
MDE Tracking No.: 22-NT-0001/202261353

December 10, 2025

MEET THE TEAM

Kristina Higgins, PE
Lead Designer

Catherine Hoy, QP
Project Manager

Steve Pawlak
Designated Construction Stream Specialist

MEET JMT

- Multidisciplinary Engineering and Architecture firm
- Over 2,000 qualified professionals
- Stream & Wetland Restoration projects in MD, PA, DC, VA, & DE
- Project Team is comprised of Professional Engineers (PE), Professional Wetland Scientists (PWS), Forest Conservation Act Qualified Professionals (QP)

Erin Markel, PWS

Stacey Gill, QP

Garrett Zeigler, EIT

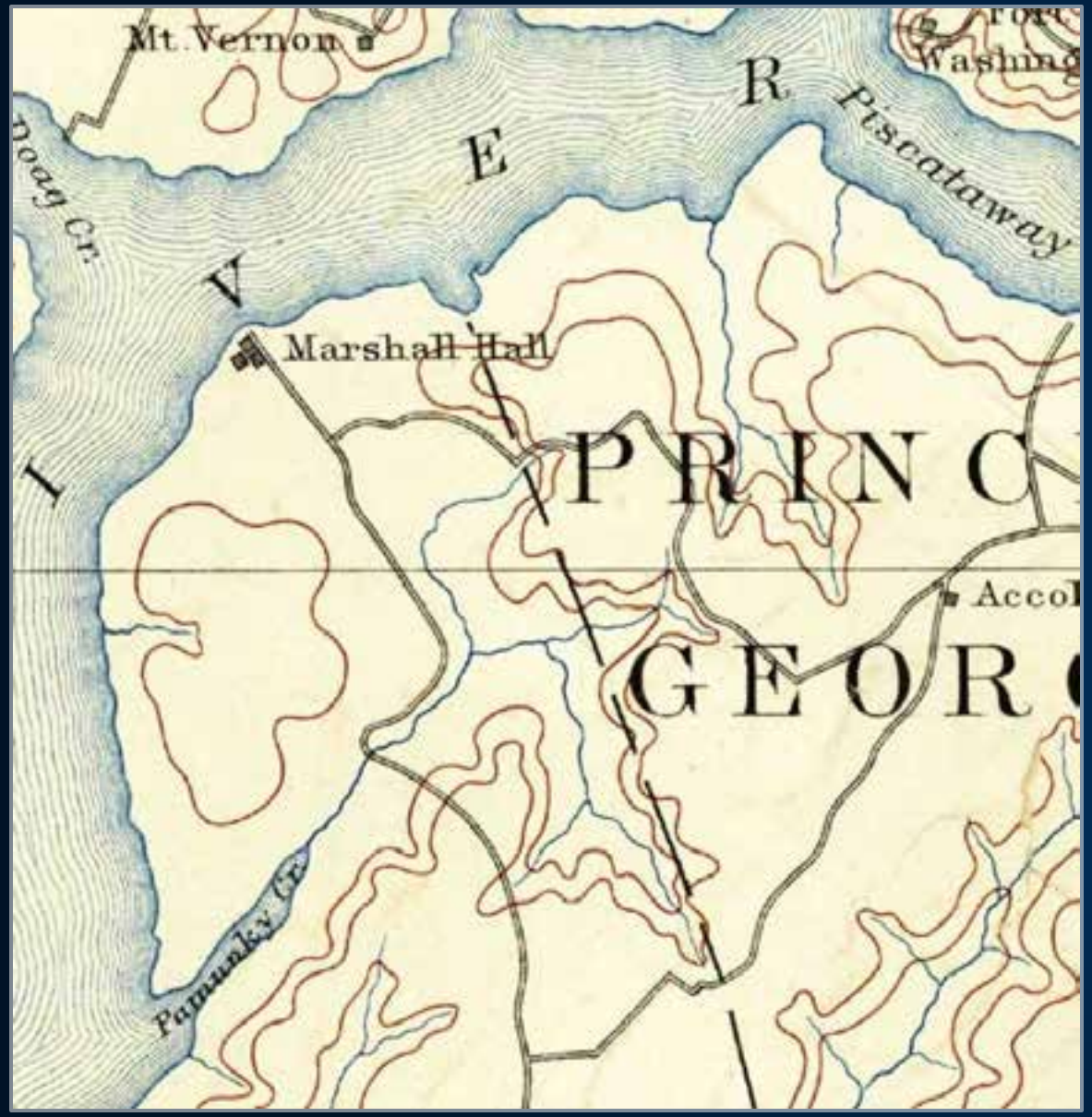
Hubert Conneally, Monitoring Specialist

TODAYS AGENDA

1. Project Background & Objectives
2. Data Collection
3. Natural Resource Management
4. Proposed Design & Revegetation Plan
5. Questions?

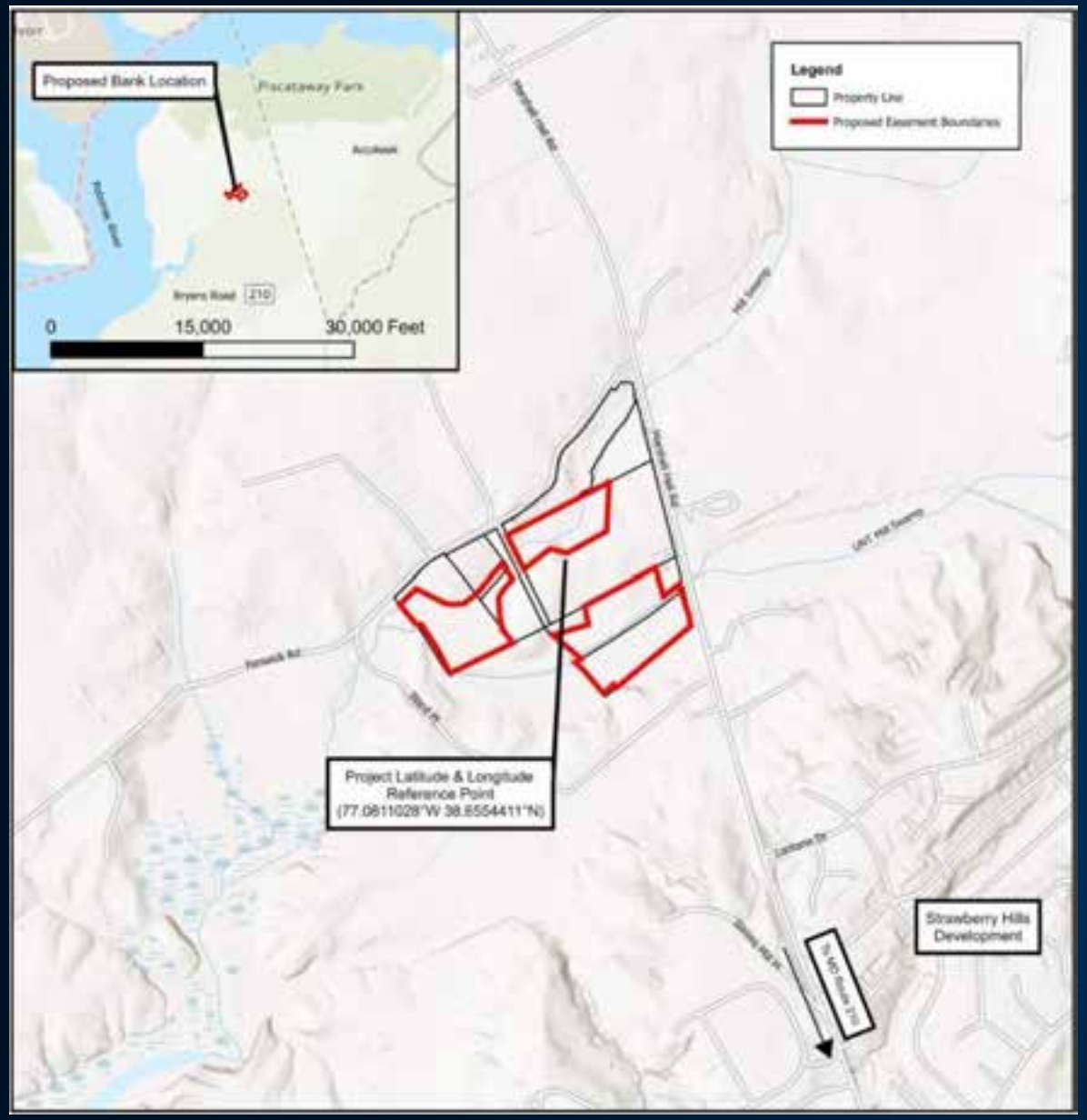
I-895 TMDL Stream Restoration

PROJECT BACKGROUND & OBJECTIVES



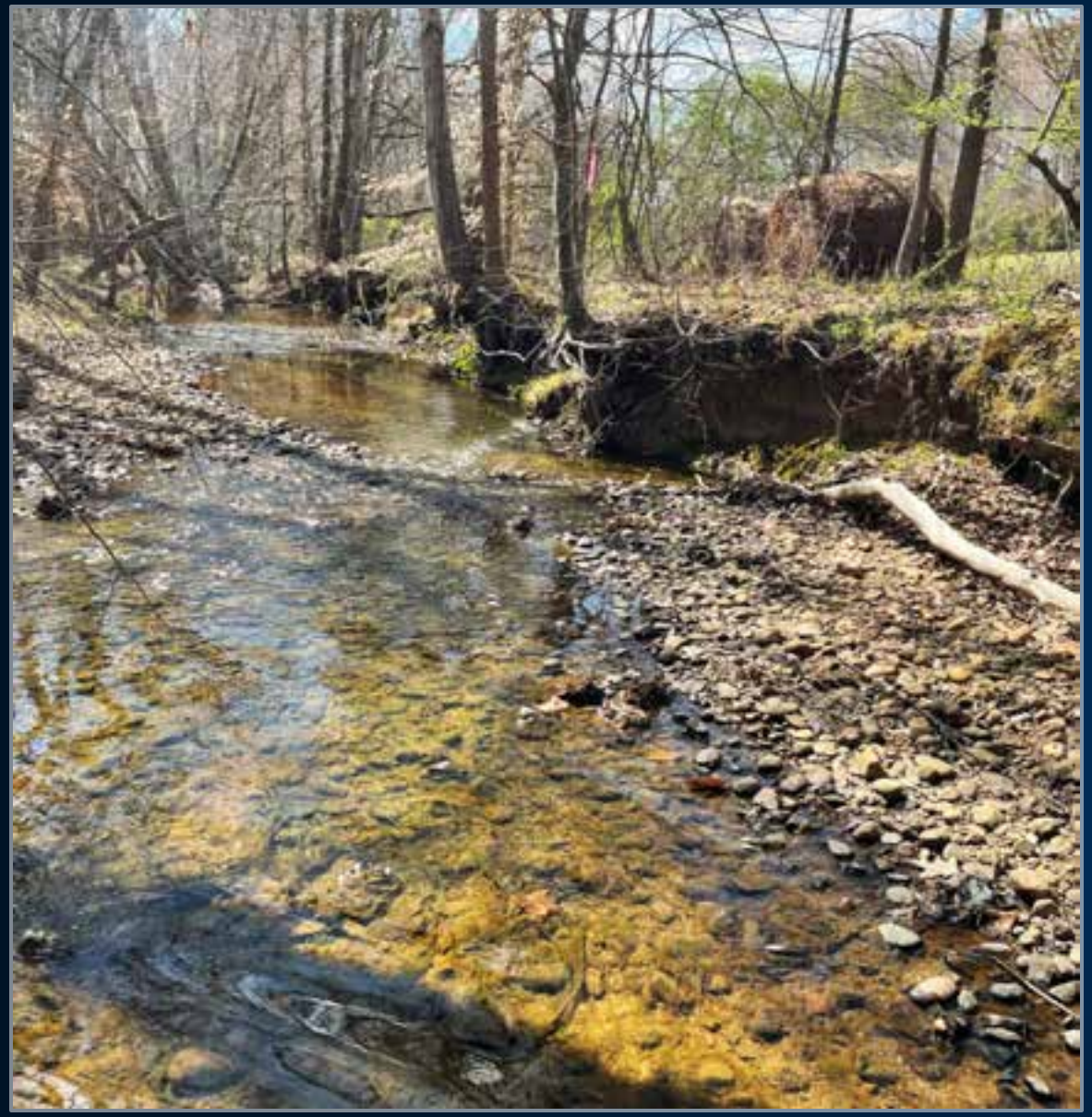
PROJECT BACKGROUND

- Whole Watershed Act
  - *New* as July 1, 2025
  - Required for ALL Stream Restoration Projects within the State
  - Stream Restoration Authorization Checklist
- Maryland Department of the Environment (MDE) Issued Public Notices on March 1, 2023, and February 15, 2025
  - Public Hearings were held for both dates.
- US Army Corps of Engineers (USACE) doing an Inadvertent Discovery Plan by reaching out to local tribes.



PROJECT BACKGROUND

- Ecological Restoration Project in Bryans Road, MD
- Proposed Conservation Easement
  - >23 acres
- Preserve, Enhance & Restore
  - > 16 acres of wetlands
  - > 4,400 feet of stream
  - > 6 acres of forested buffer



Existing project site conditions

PROJECT BACKGROUND

- Input from multiple stakeholders
  - Landowners
  - Charles County
  - MD Interagency Review Team
    - U.S. Army Corps of Engineers (USACE)
    - Maryland Department of the Environment (MDE)
    - Maryland Department of Natural Resources (DNR)
    - U.S. Fish & Wildlife Service (USFWS)
    - U.S. Environmental Protection Agency (US EPA)
    - National Oceanic & Atmospheric Administration (NOAA)
    - Maryland Historical Trust (MHT)
- Multiple site meetings with State & Federal Agencies
- Construction anticipated in 2027

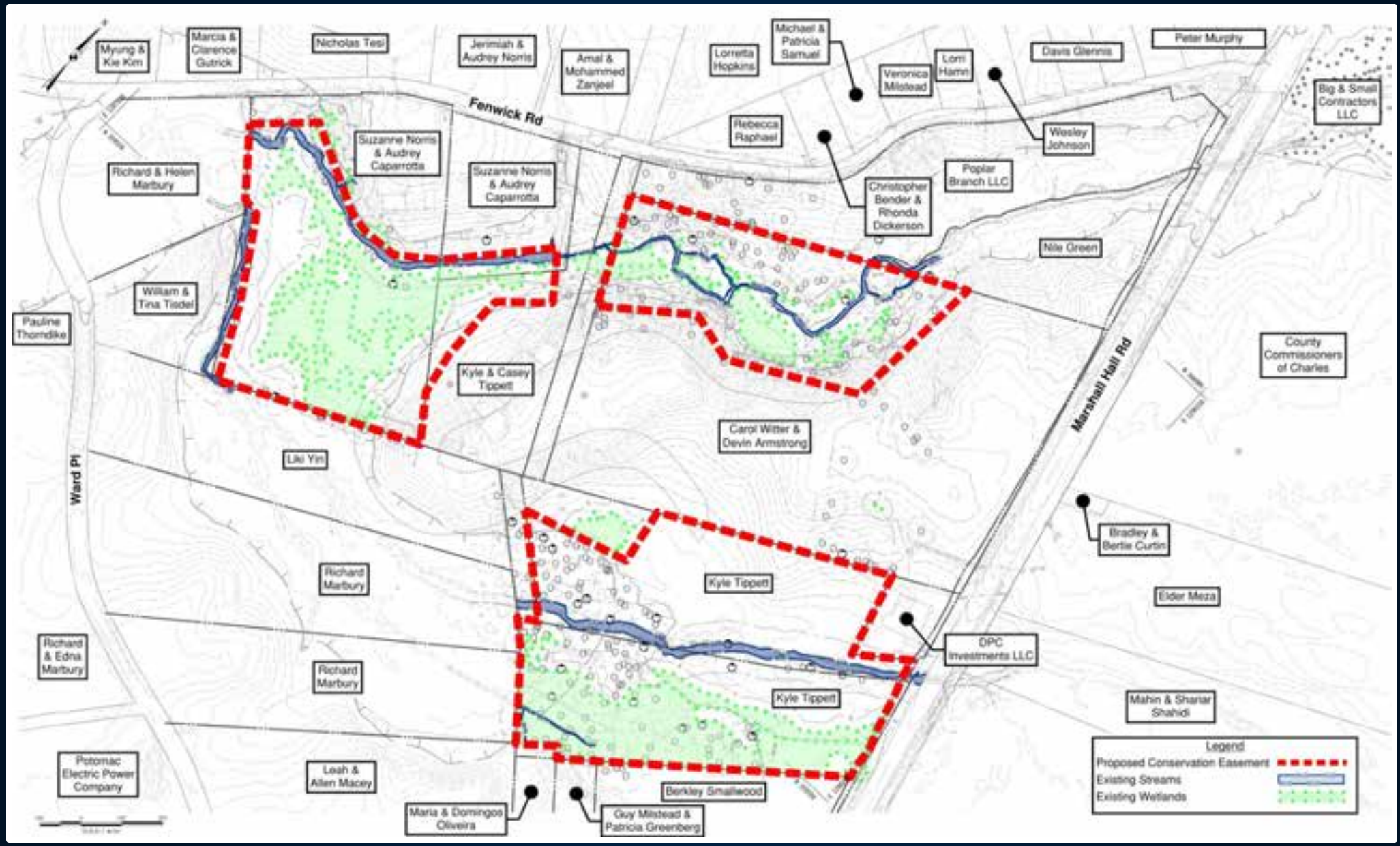
Stream is disconnected from the floodplain. Stream banks are actively eroding.

PROJECT OBJECTIVES

- Create an environmentally diverse & self-sustaining ecological system
- Restore habitats to enhance warm water fishery
- Plant native vegetation & pollinator habitats
- Manage invasive plant species
- Improve floodplain to reduce flood intensity affecting adjacent roadways
- Retain forest stands and minimize tree removal

DATA COLLECTION

EXISTING CONDITIONS



Existing conditions data collection

DATA COLLECTION

- The outcome is not determined before the data is collected.
- How is the site functioning as a whole?
- Determine major sources of impairment
- In-house data collection as well as specialized data collection from qualified professionals

Stream Channel Geomorphic Assessment

DATA COLLECTION

- Historical Records Search
  - Historic agriculture operation altered natural stream pattern
  - Widespread Deforestation
- Geomorphic Analysis of Stream
  - Straightening of stream channel has led to increased flows
  - Disconnection from the floodplain & adjacent wetlands
  - Exposed stream banks facilitate erosion
- Forest Stand Delineation
  - Forest health, successional stage, species diversity & abundance, canopy coverage, habitat, environmental features & functions

Groundwater Well

DATA COLLECTION

- Wetland Delineation
  - Groundwater Sensors / Wells
- Invasive Species Mapping
- Habitat Assessment
  - Minimal available suitable in-stream habitat
- Benthic Survey
- Fish Survey
- In-stream Temperature Monitoring
  - Continuously collecting data since 2021

Stream disconnected from floodplain, streambank erosion

Stream soil eroding around tree roots

Trees falling into channel due to streambank erosion.

Cloudy water decreases available habitat

SITE IMPAIRMENTS

- Erosion
  - Destroys habitat
    - Loss of land takes plants and trees with it
  - Degrades water quality
    - Sediment falls into the stream
  - Loss of land
    - Stream expands laterally and deepens vertically
- Stream Disconnected from Floodplain
  - Caused by erosion
    - Stream cannot access floodplain to spread out water during a storm event
    - Water stays trapped in the stream channel, so the water level rises higher
  - Increases the chances of flooding nearby roads and properties.
- Degraded habitat
  - Floodplain animals lose their home when stream is disconnected
  - Fish and other creatures cannot survive in muddy water
  - Fewer species and less diversity

Natural Resource Management

Existing forested wetland to be preserved

Natural Resource Management

- Design geared toward developing an environmentally diverse, self-sustaining ecosystem
- Focused on preserving functioning resources and restoring impaired resources to create one thriving ecosystem
  - Support multitude of mammals, birds, fish, amphibians, and bugs.

Wetland Preservation Area on Project Site

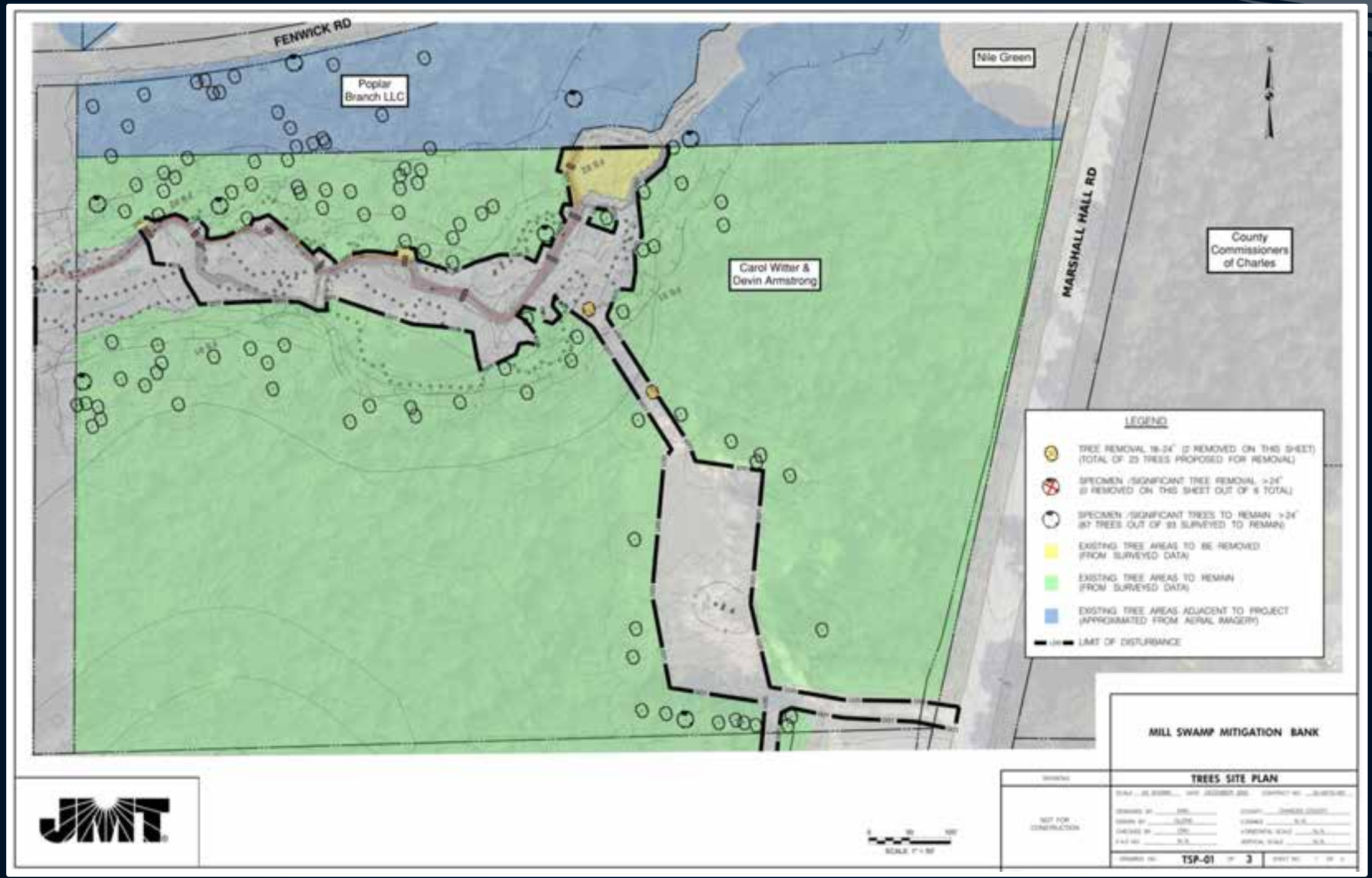
Natural Resource Management

- Natural Resources Restored, Enhanced & Preserved on Site
  - Wetlands
    - ± 15.9 AC. Forested Wetlands (PFO)
    - ± 0.01 AC. Scrub-Shrub Wetlands (PSS)
    - ± 0.3 AC. Emergent Wetlands (PEM)
  - Streams
    - ± 3,900 LF of Perennial Streams
    - ± 490 LF of Intermittent Streams

Existing project site conditions

Natural Resource Management

- Existing forests
  - Restoration requires minimum forest impacts
  - Proposed design protects in perpetuity many high-quality trees
  - Unavoidable impacts to forest will be replaced and new forested areas will be created


FENWICK RD
Poplar Branch LLC
Nile Green
MARSHALL HALL RD
County Commissioners of Charles
Carol Witter & Devin Armstrong
LEGEND
TREE REMOVAL 18-24" (2 REMOVED ON THIS SHEET) (TOTAL OF 23 TREES PROPOSED FOR REMOVAL)
SPECIMEN /SIGNIFICANT TREE REMOVAL >24" (0 REMOVED ON THIS SHEET OUT OF 6 TOTAL)
SPECIMEN /SIGNIFICANT TREES TO REMAIN >24" (87 TREES OUT OF 93 SURVEYED TO REMAIN)
EXISTING TREE AREAS TO BE REMOVED (FROM SURVEYED DATA)
EXISTING TREE AREAS TO REMAIN (FROM SURVEYED DATA)
EXISTING TREE AREAS ADJACENT TO PROJECT (APPROXIMATED FROM AERIAL IMAGERY)
LIMIT OF DISTURBANCE
JMT
MILL SWAMP MITIGATION BANK
TREES SITE PLAN
NOT FOR CONSTRUCTION
TSP-01
3


Myung & Kie Kim
Marcia & Clarence Gutrick
Nicholas Tesi
FENWICK RD
Suzanne Norris & Audrey Caparrotta
Suzanne Norris & Audrey Caparrotta
Richard & Helen Marbury
Richard & Helen Marbury
WARD PL
William & Tina Tisdel
Kyle & Casey Tippett
Carol Wiber & Devin Armstrong
Liki Yin
LEGEND
TREE REMOVAL 18-24" (10 REMOVED ON THIS SHEET) (TOTAL OF 23 TREES PROPOSED FOR REMOVAL)
SPECIMEN /SIGNIFICANT TREE REMOVAL >24" (1 REMOVED ON THIS SHEET OUT OF 6 TOTAL)
SPECIMEN /SIGNIFICANT TREES TO REMAIN >24" (87 TREES OUT OF 93 SURVEYED TO REMAIN)
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JMT
MILL SWAMP MITIGATION BANK
TREES SITE PLAN
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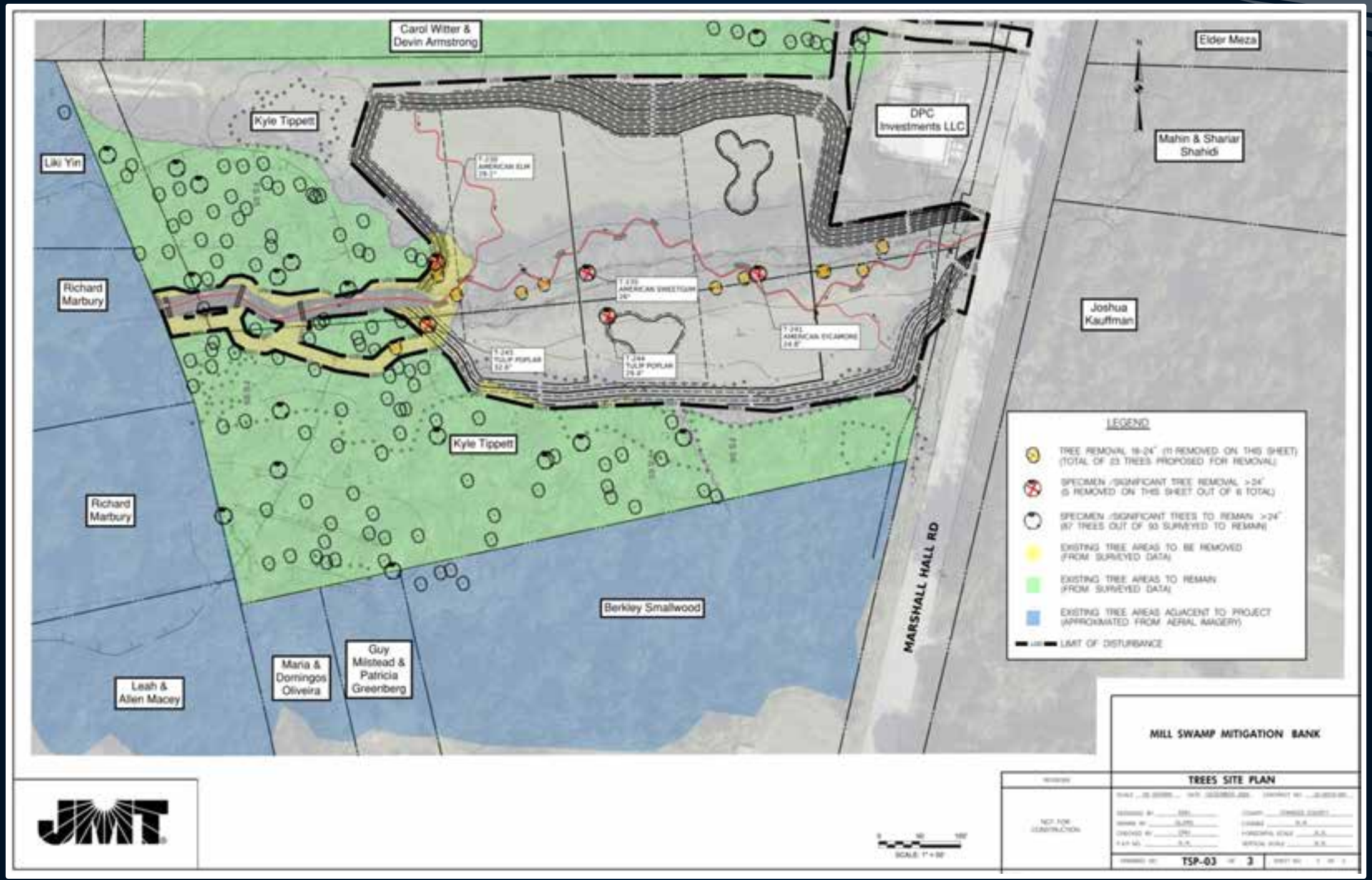
TSP-02 OF 3


Carol Witter & Devin Armstrong
Elder Meza
DPC Investments LLC
Kyle Tippett
Mahin & Shariar Shahidi
Liki Yin
Richard Marbury
Joshua Kauffman
Kyle Tippett
Richard Marbury
Berkley Smallwood
MARSHALL HALL RD
Maria & Domingos Oliveira
Guy Milstead & Patricia Greenberg
Leah & Allen Macey
LEGEND
TREE REMOVAL 18-24" (11 REMOVED ON THIS SHEET) (TOTAL OF 23 TREES PROPOSED FOR REMOVAL)
SPECIMEN /SIGNIFICANT TREE REMOVAL >24" (5 REMOVED ON THIS SHEET OUT OF 6 TOTAL)
SPECIMEN /SIGNIFICANT TREES TO REMAIN >24" (87 TREES OUT OF 93 SURVEYED TO REMAIN)
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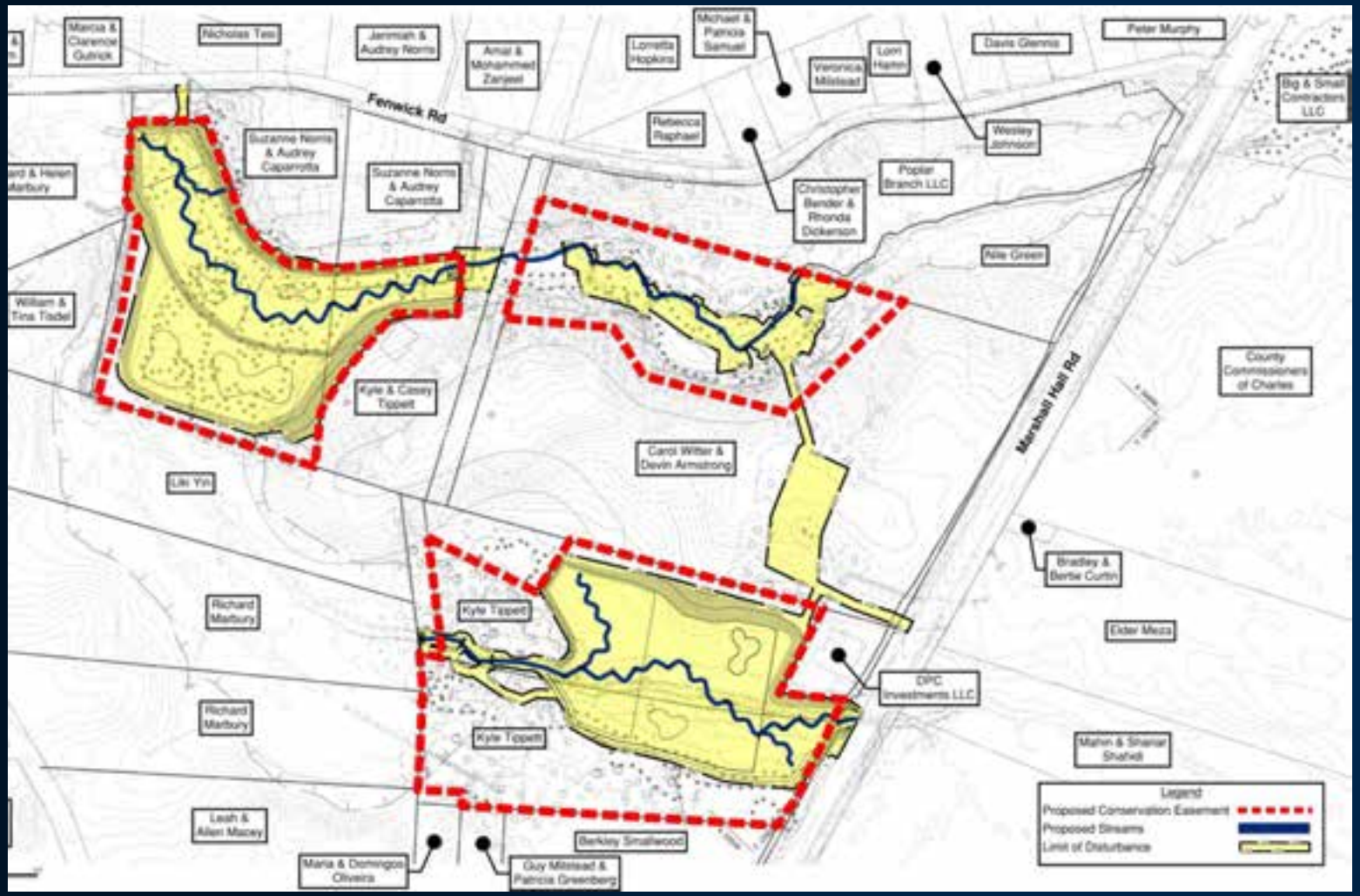
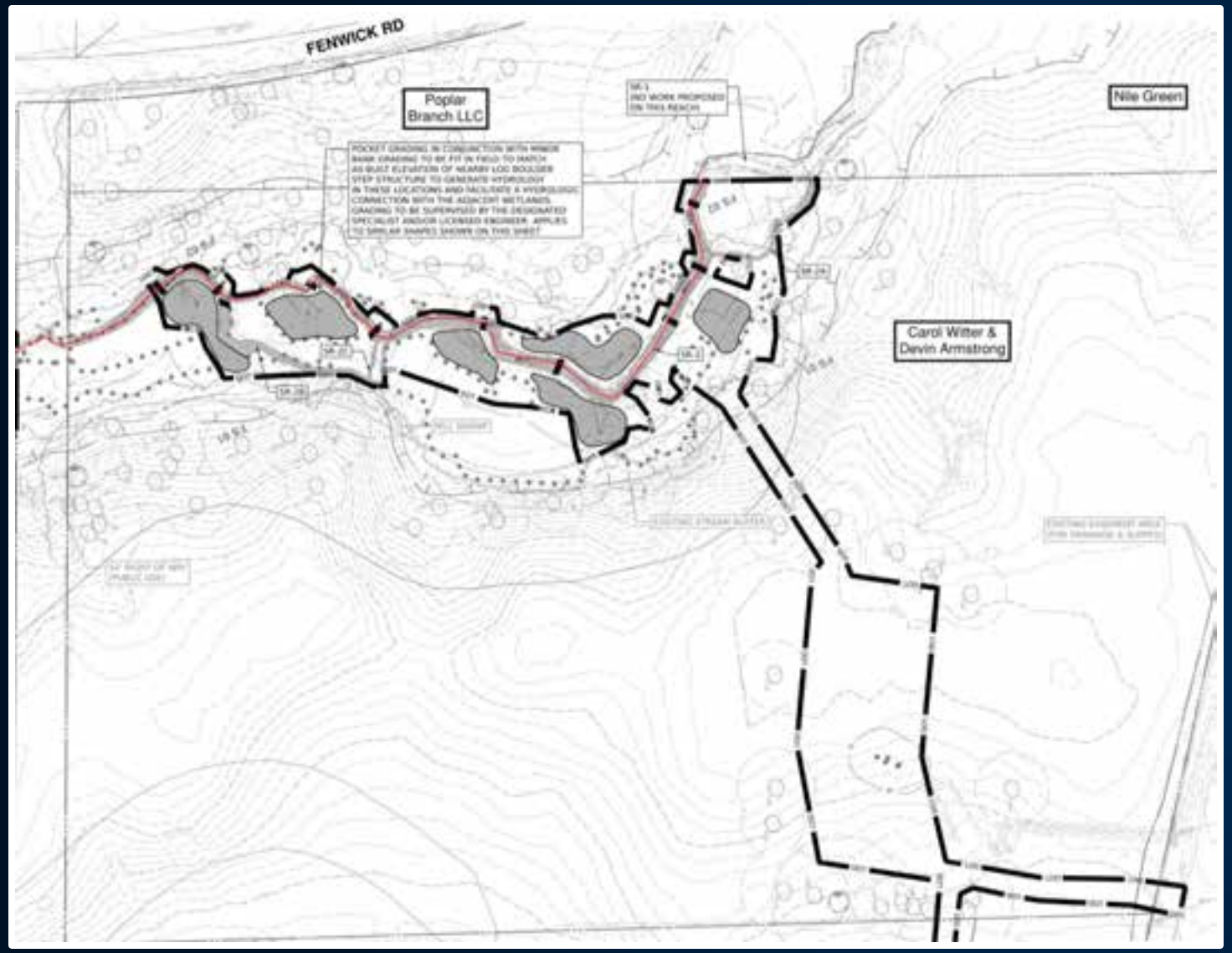
LIMIT OF DISTURBANCE
MILL SWAMP MITIGATION BANK
TREES SITE PLAN
NOT FOR CONSTRUCTION
TSP-03
3

PROPOSED DESIGN & REVEGETATION PLAN



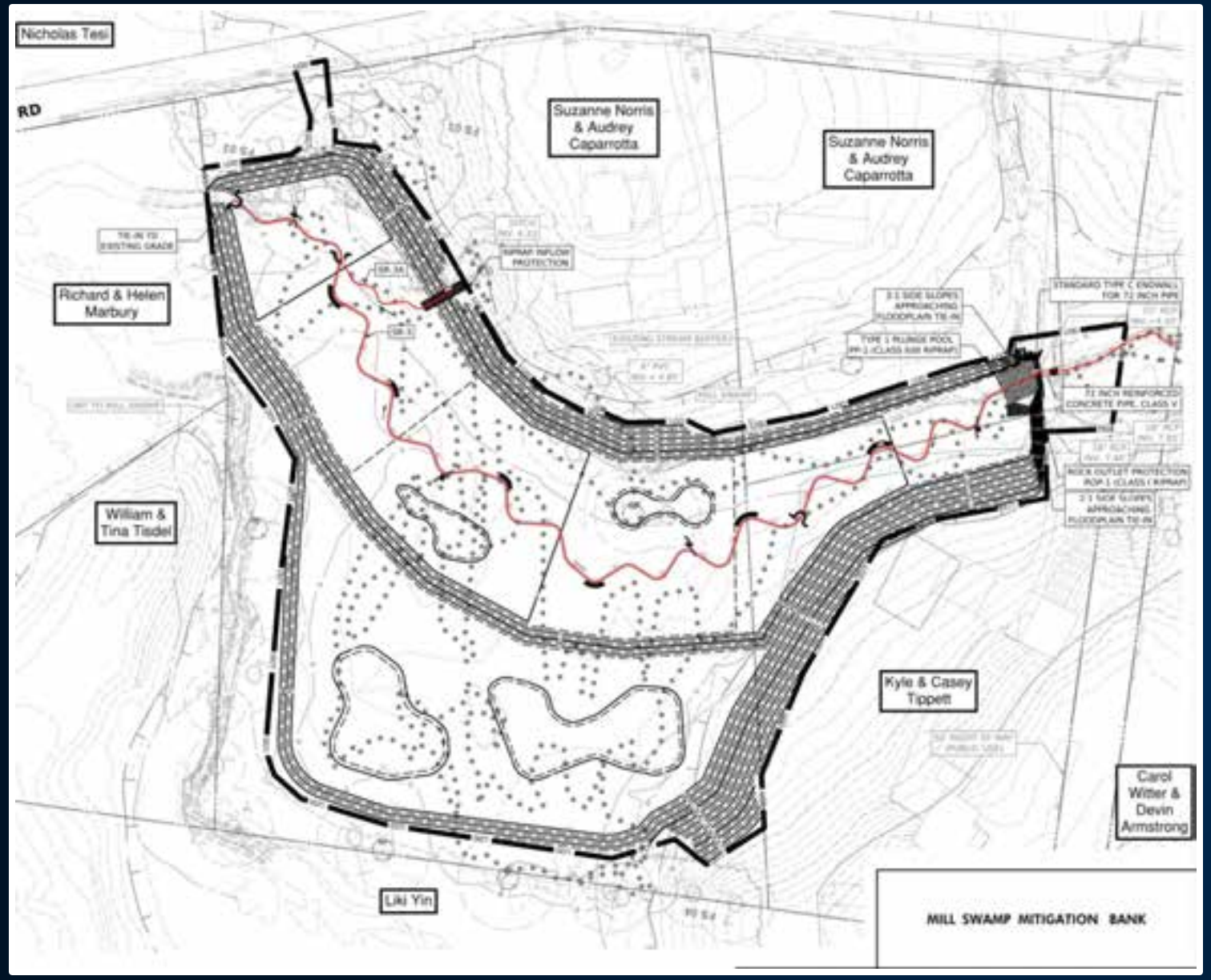
PROPOSED DESIGN

- Limit of Disturbance ± 15.4 acres
- Stream
  - Restoration
  - Preservation
- Wetland
  - Restoration
  - Enhancement
  - Preservation
- Forest
  - Enhancement
  - Preservation



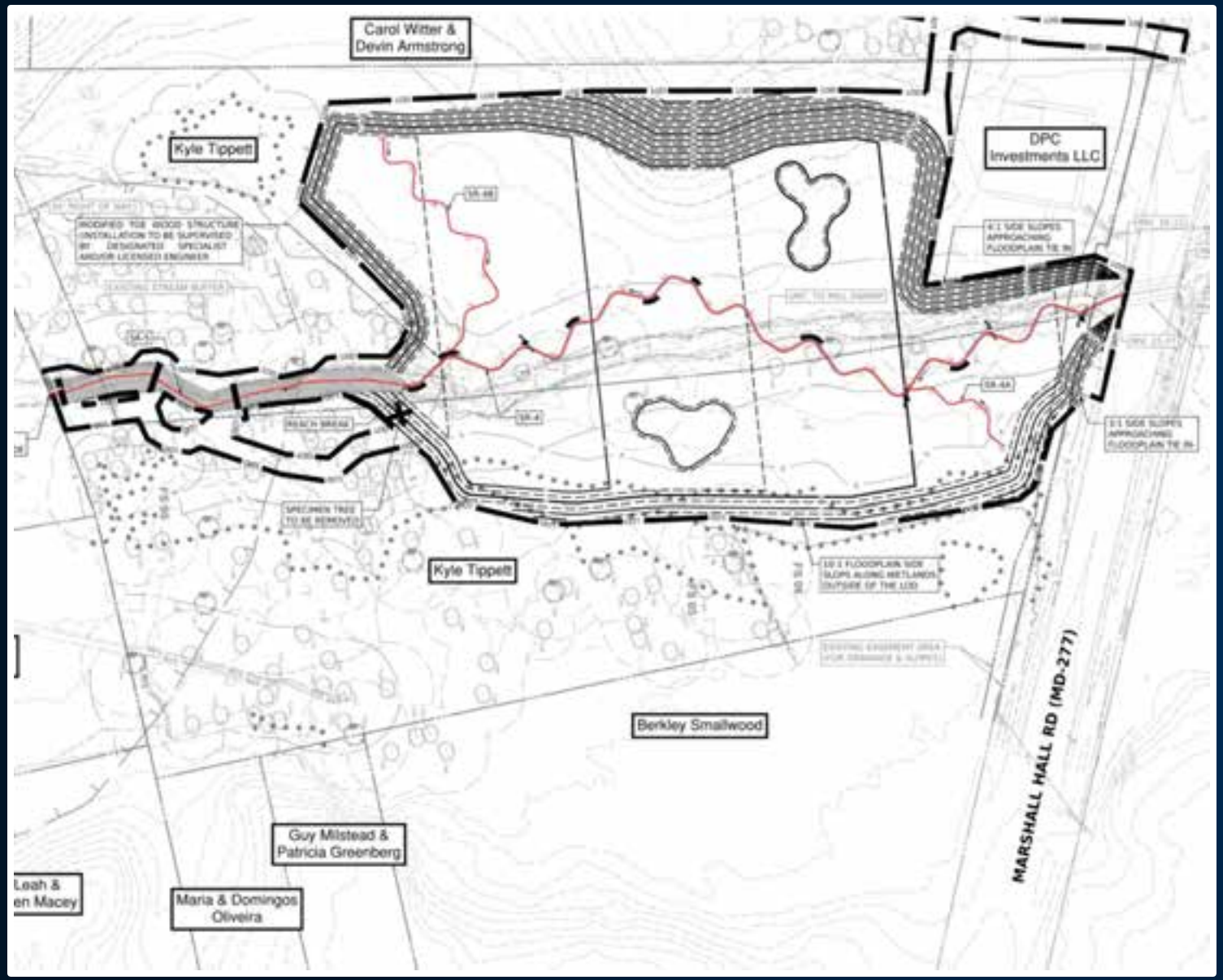
PROPOSED DESIGN

- Avoidance of Trees / Minimization of Tree Removal
- Connect the stream channel to its floodplain and adjacent wetlands
- Plant trees in work area to connect to adjacent forest stands
- Preserve existing high-quality wetlands



PROPOSED DESIGN

- Avoidance of Trees / Minimization of Tree Removal
- Relocate stream to center of valley
- Restore historic wetlands by connecting the system to groundwater
- Plant trees in work area to connect to adjacent forest stands



PROPOSED DESIGN

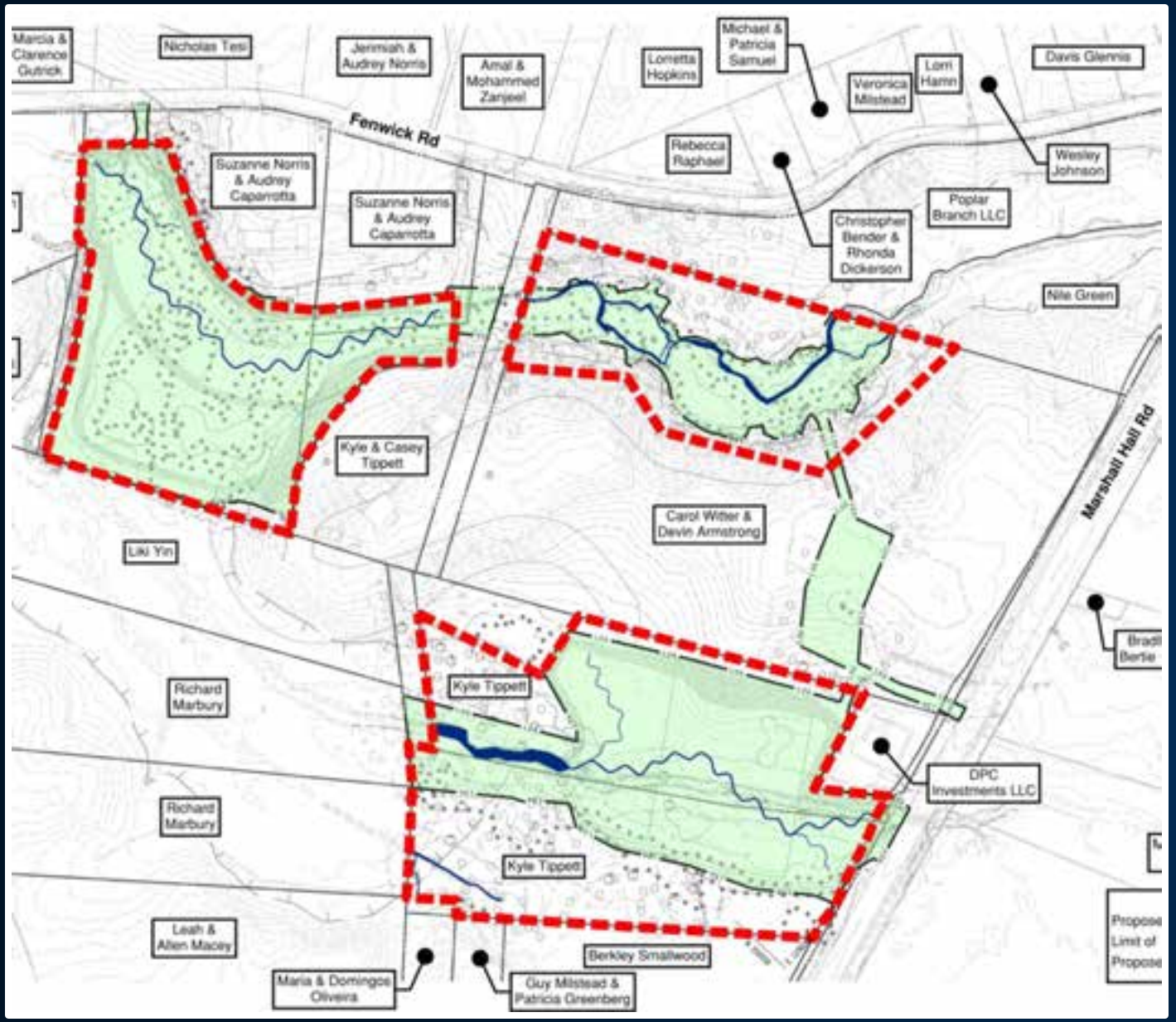
- Avoidance of Trees / Minimization of Tree Removal
- Connect the stream channel to its floodplain and restore historic wetlands
- Plant trees in work areas to connect to adjacent forest stands
- Preserve existing high-quality wetlands

Rock Cross Vane

Wood used for in-channel structures

Streambank Tree Save

Log Boulder Step Structure



REVEGETATION PLAN

- Planting
  - > 4,400 Trees
  - > 1,800 Shrubs
- Wetland & Upland Seed Mixes
- Warm Season Grass

Swamp white oak

American sycamore

Silver maple

Bald cypress

Black willow

Northern red oak

River birch

Black locust

Box elder maple

REVEGETATION PLAN

- 20 Wetland & Upland Tree Species
- 7 Wetland & Upland Shrub Species

Existing Conditions at Project Site

Existing Conditions at Project Site

POST CONSTRUCTION PLAN

- 10 years of monitoring
- Adaptive Management Plan

Eccleston Mitigation Bank

Patuxent Mitigation Bank

QUESTIONS ?

Mill Swamp Project Website:
https://jmt.com/expertise/environmental/mitigation-banking/mill-swamp-mitigation-banking/
or
QR Code:

- Email additional questions by Friday 12-19-2025
- Meeting minutes will be uploaded to the website no later than 12-17-2025

CONTACT US:

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