Kemp Mill

Stormwater Management Retrofit Project

July 21, 2015 Public Meeting

Montgomery County Department of Environmental Protection
Watershed Management Division

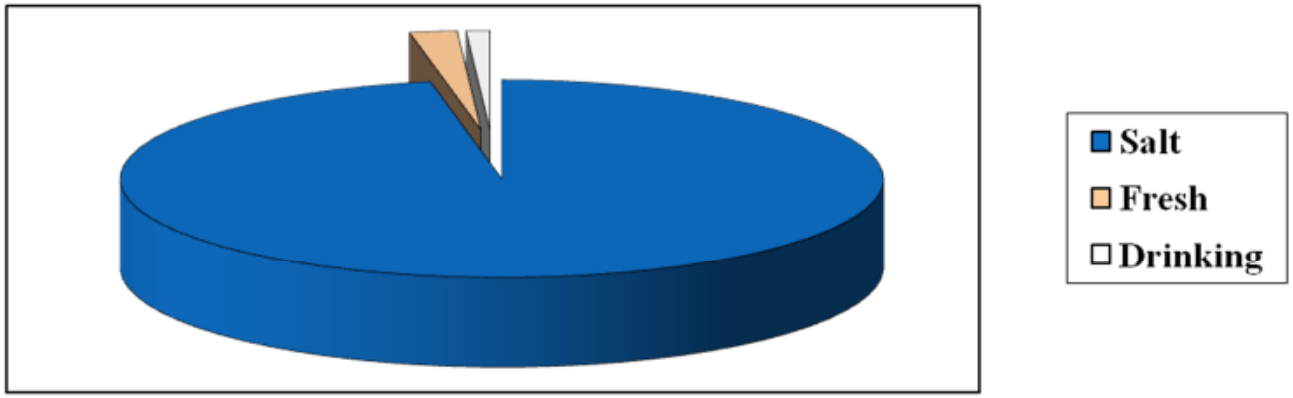
Department of Environmental Protection
Montgomery County Maryland

Gannett Fleming / GPI

Today's Agenda

- Introductions
  - Juni Alam– Project Manager, Greenman Pedersen, Inc.
  - Ryan Gardiner – Project Manager; Montgomery County DEP/JV
- Background Information – Why County is Doing This
- Kemp Mill Overview
- Project Goals and Benefits
- Design and Permitting Timeline
- What to Expect During Construction

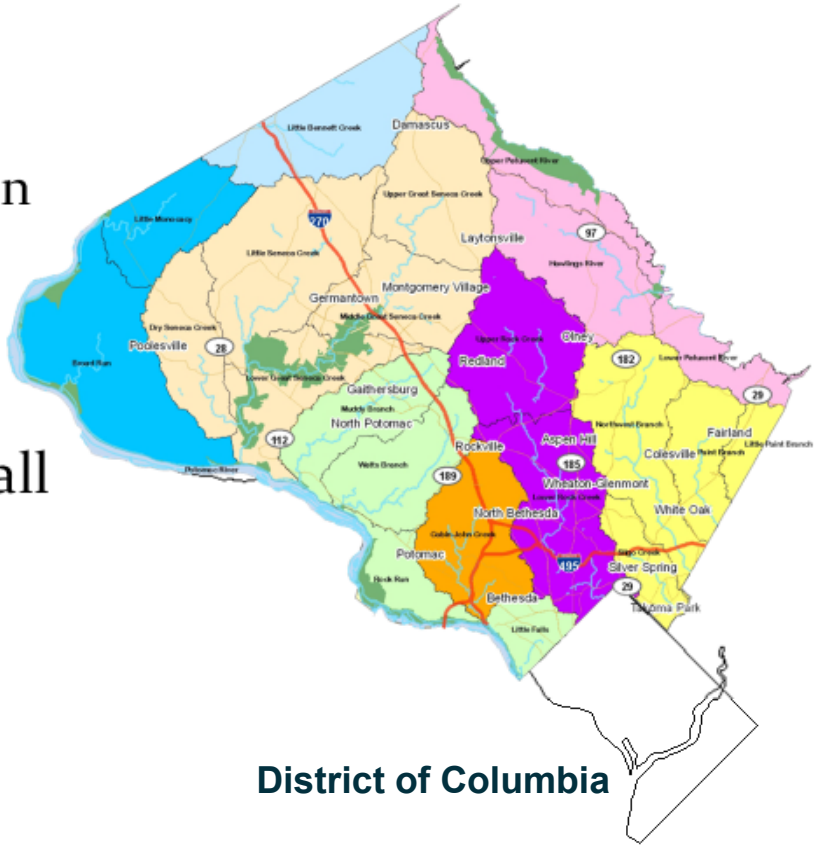
Sources of Water



- About 97% is salt water
- About 2% is frozen
- Only 1% is available for drinking water
  - Across the Country, about 57% comes from surface water sources
  - In Maryland, 74% is from surface water sources
- Potential for greater impacts from runoff in Maryland

Montgomery County, MD

- 500 sq. miles
- 1,000,000 people
  - Second only to Baltimore City within Maryland in average people per square mile
  - 184 languages spoken
- About 12% impervious surface overall
  - About the size of Washington DC
- Over 1,500 miles of streams
- Two major river basins:
  - Potomac
  - Patuxent
- Eight local *watersheds*



Impervious: Not allowing water to soak through the ground.

What is a Watershed?

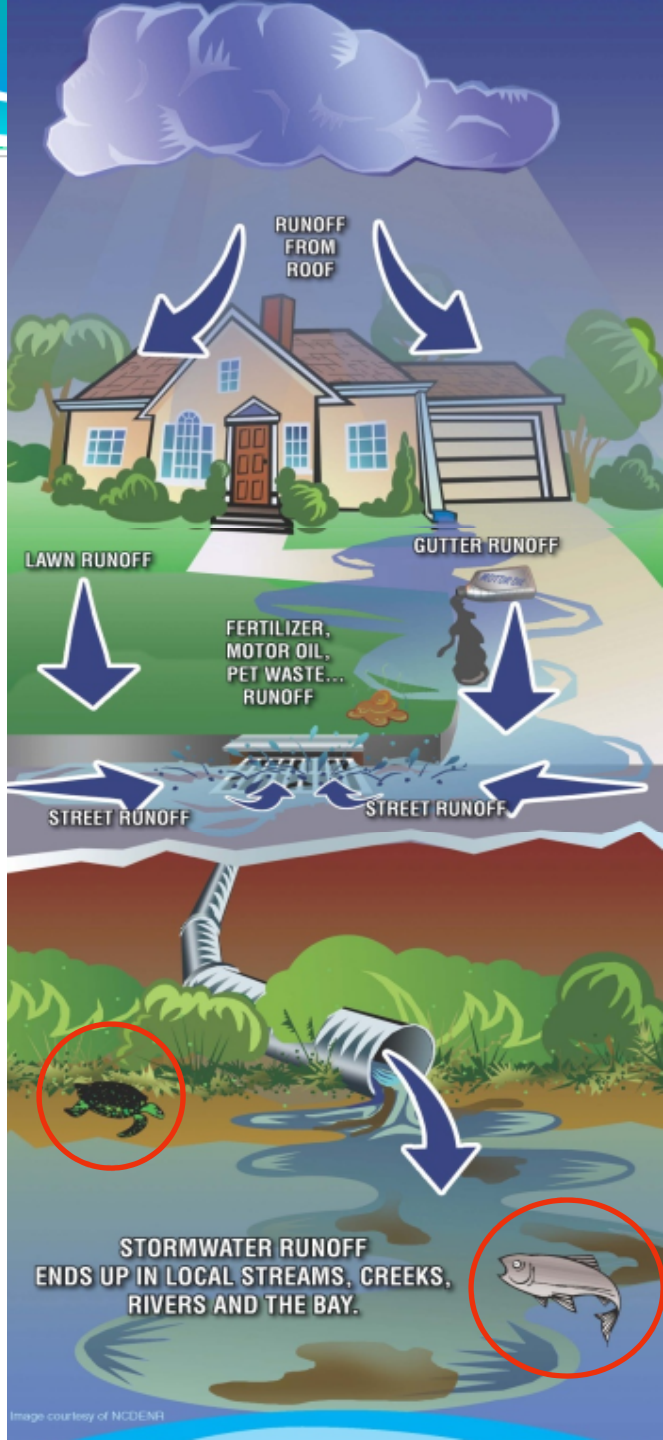
- A ***watershed*** is an area from which the water above and below ground drains to the same place.
- Different scales of watersheds:
  - Chesapeake Bay
  - Eight local watersheds
  - Neighborhood (to a storm drain)

What is Runoff?

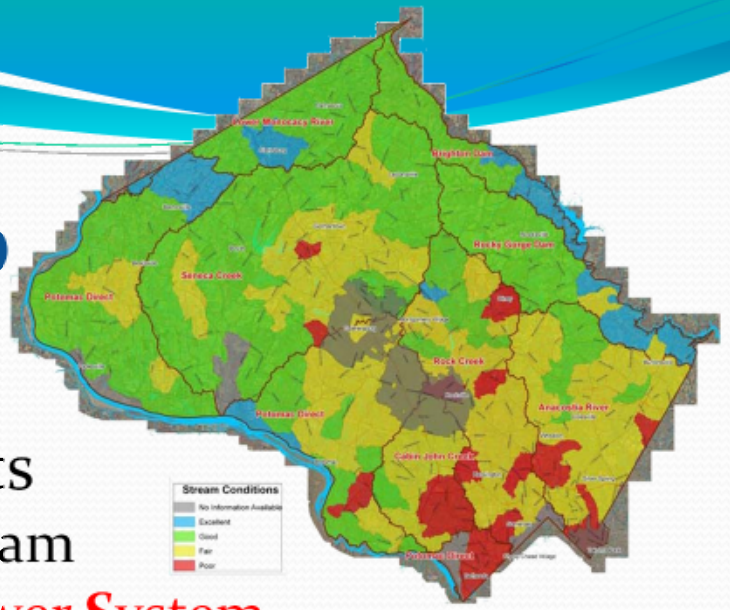
Water that does not soak into the ground becomes surface runoff. This runoff flows over hard surfaces like rooftops, driveways and parking lots collecting potential contaminants and flows:

- **Directly into streams**
- **Into storm drain pipes, eventually leading to streams**
- **Into stormwater management facilities, then streams**

Two Major Issues:
Volume/Timing of Runoff
Water Quality



What is the County doing to protect our Streams?



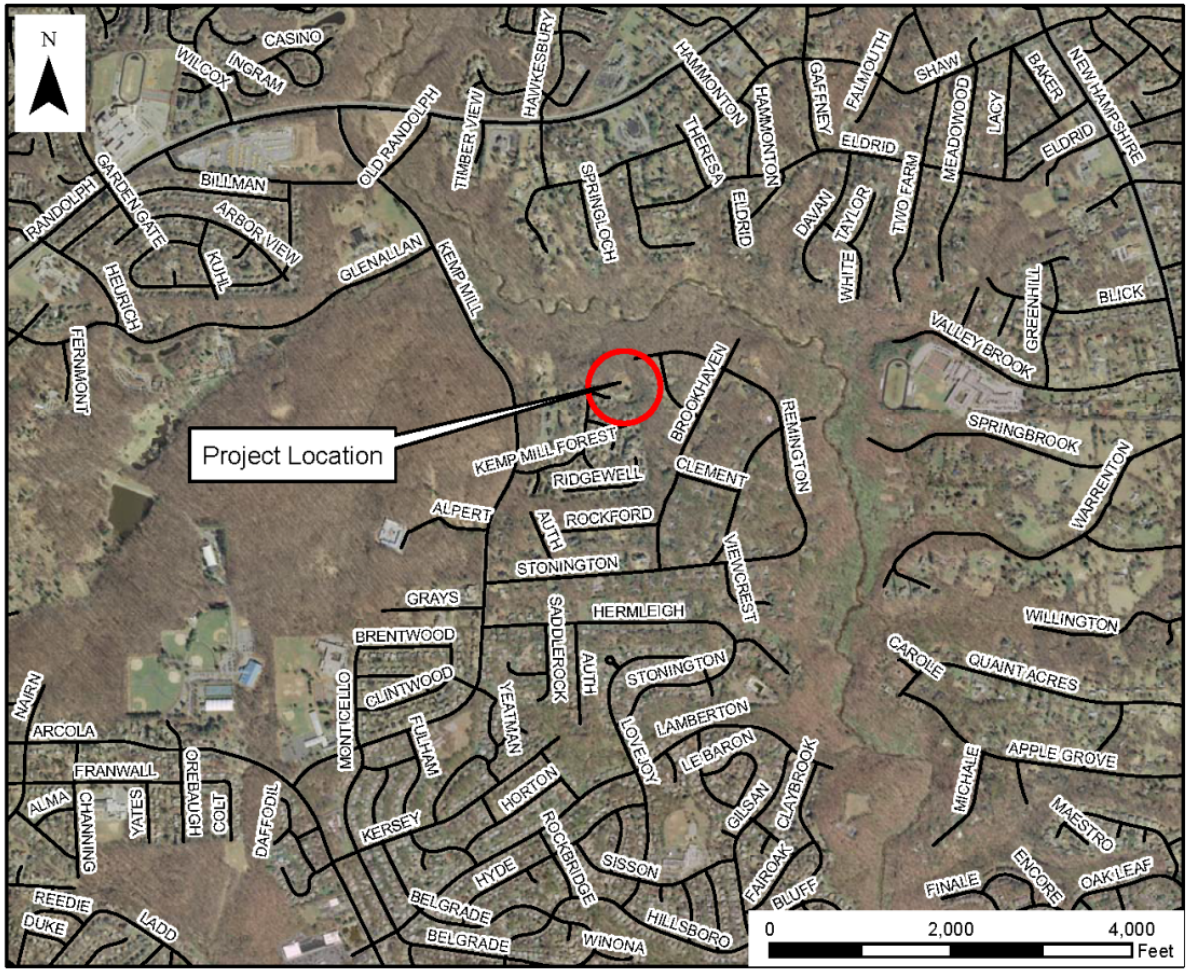
- Must meet regulatory requirements
  - Federal Clean Water Act permit program
  - **MS4** = **M**unicipal **S**eparate **S**torm **S**ewer **S**ystem
- Applies to all large and medium Maryland jurisdictions
- County programs
  - Restore our streams and watersheds
    - Add runoff management
  - Meet water quality protection goals
    - Reduce pollutants getting into our streams
  - Educate and engage all stakeholders
    - Individual actions make a difference
  - Focus on watersheds showing greatest impacts

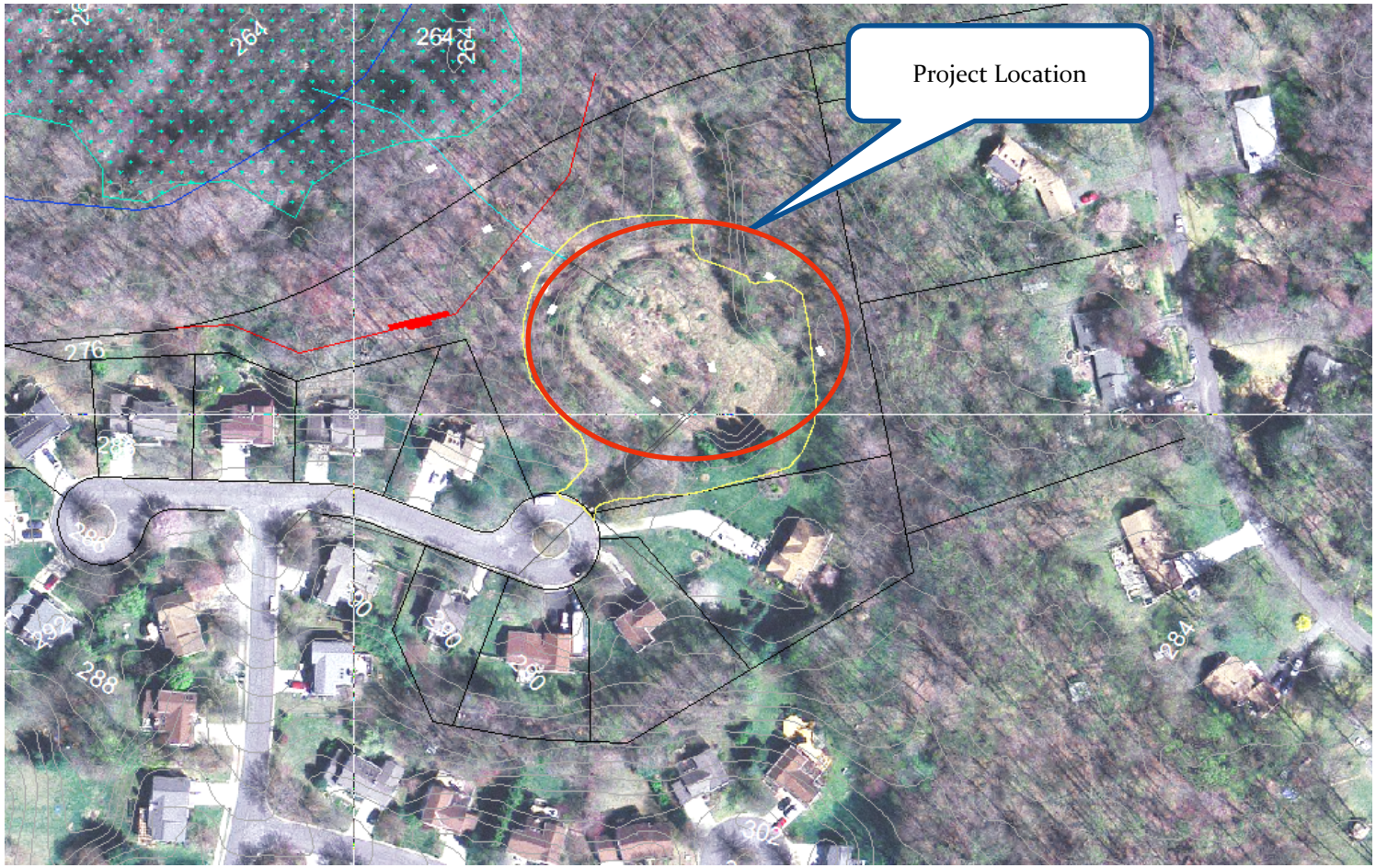
MS4 permit, what is it?

- Montgomery County is responsible for:
  - What goes into our storm drain pipes
  - What comes out of them
  - What flows into the streams
- Requires additional stormwater management for **20 percent** of impervious surfaces (4,292 acres = 6.7 square miles). That's about three times the size of Takoma Park.

That's equivalent to 3,307 football fields!

Kemp Mill / Northwest Branch

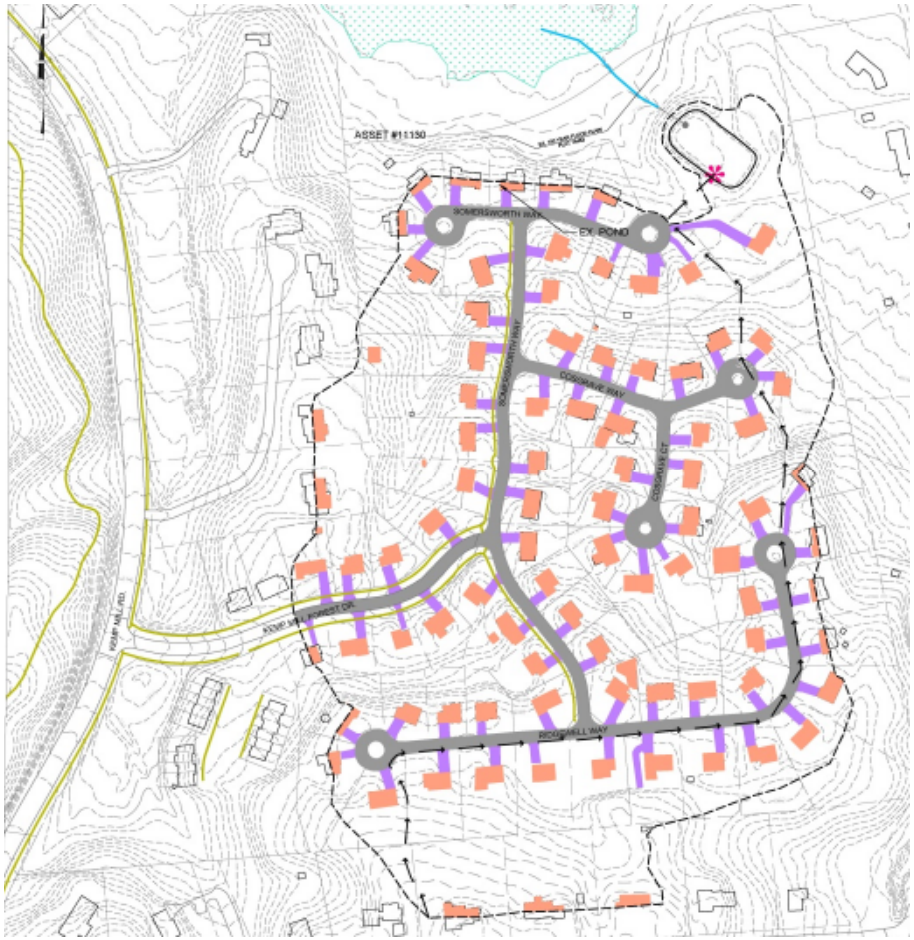



Project Location

Project Goals

- STORMWATER MANAGEMENT
  - Convert pond to a shallow marsh wetland
- STREAM PROTECTION
  - Modify outlet works to better regulate pond discharge and protect Northwest Branch
- MAINTENANCE
  - Replace existing risers with water-tight structures
  - Widen dam embankment and install impervious liner
- AESTHETICS/ENVIRONMENT
  - Landscape to improve bio-diversity and aesthetics
  - Augment existing environmental features such as forest and wetlands where possible

Stormwater Pond Drainage Area

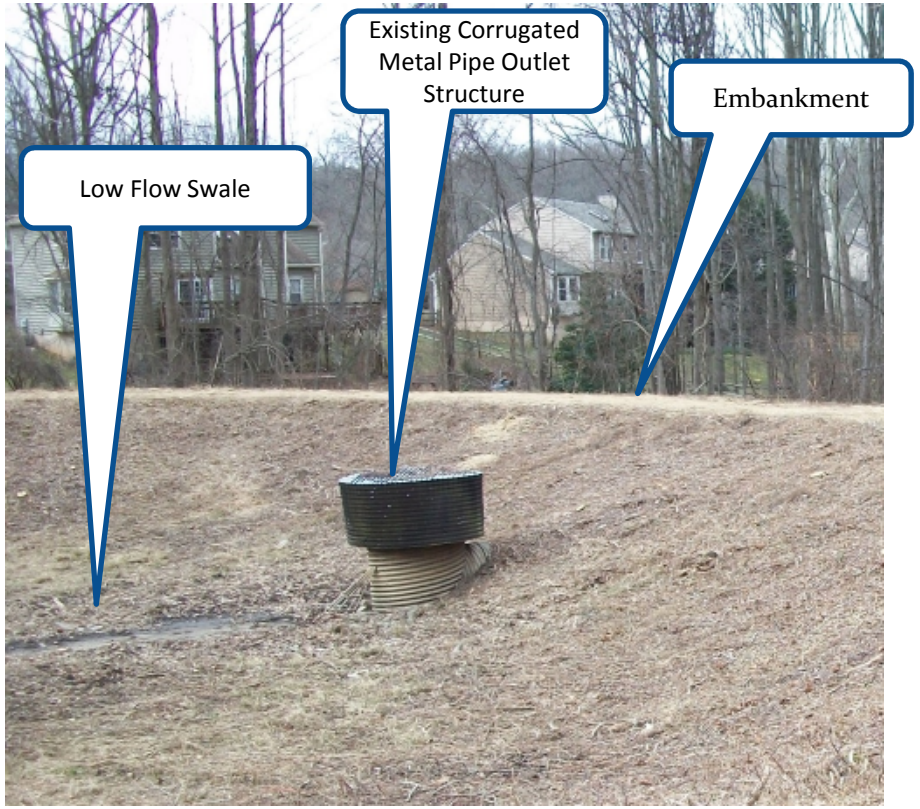


Drainage Area = 31.19 acres

25% Impervious

Existing Conditions

- Stormwater Management Dry Pond
  - 14’ High Earth Embankment Dam
  - Adjacent residential properties
  - Does not meet current SWM requirements to achieve any MS4 credit.
  - Low flow drainage channel in center of facility



Project Objectives – Shallow Marsh Wetland

Existing Conditions

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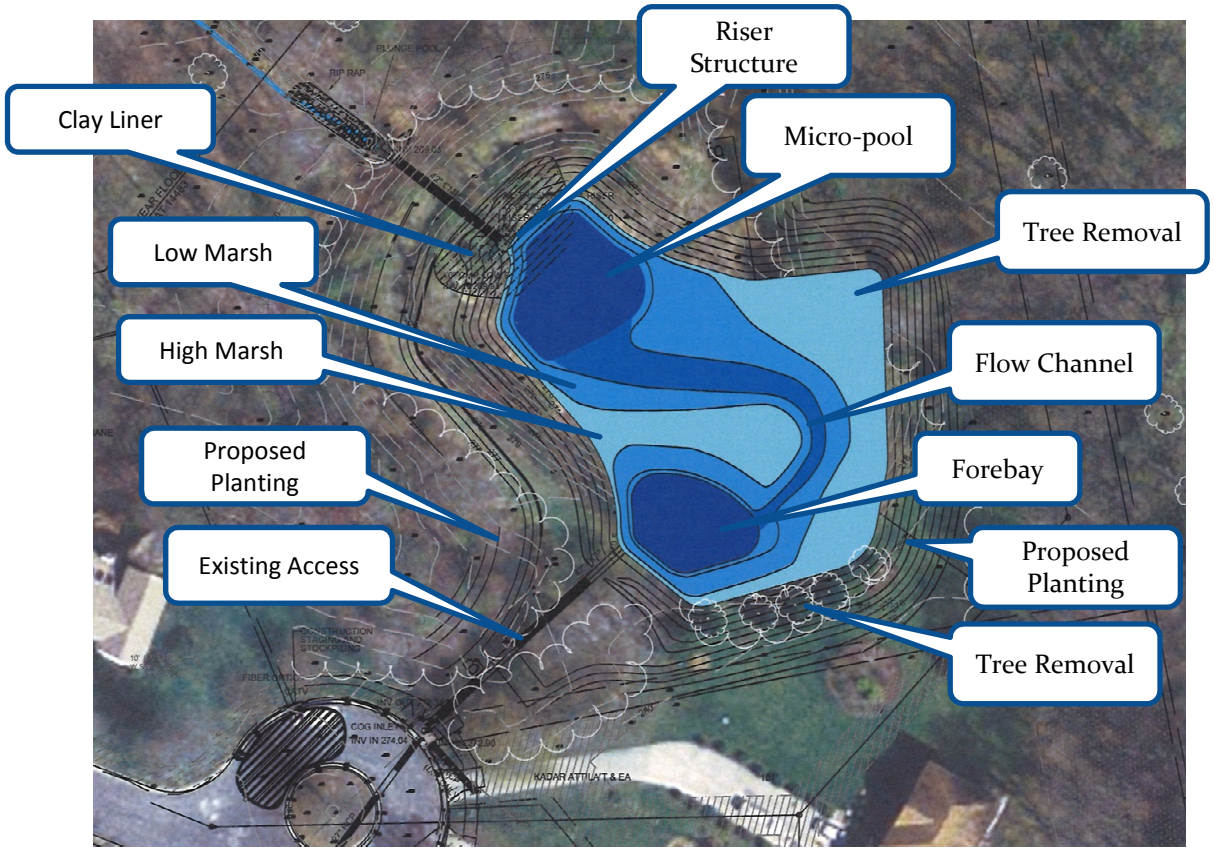
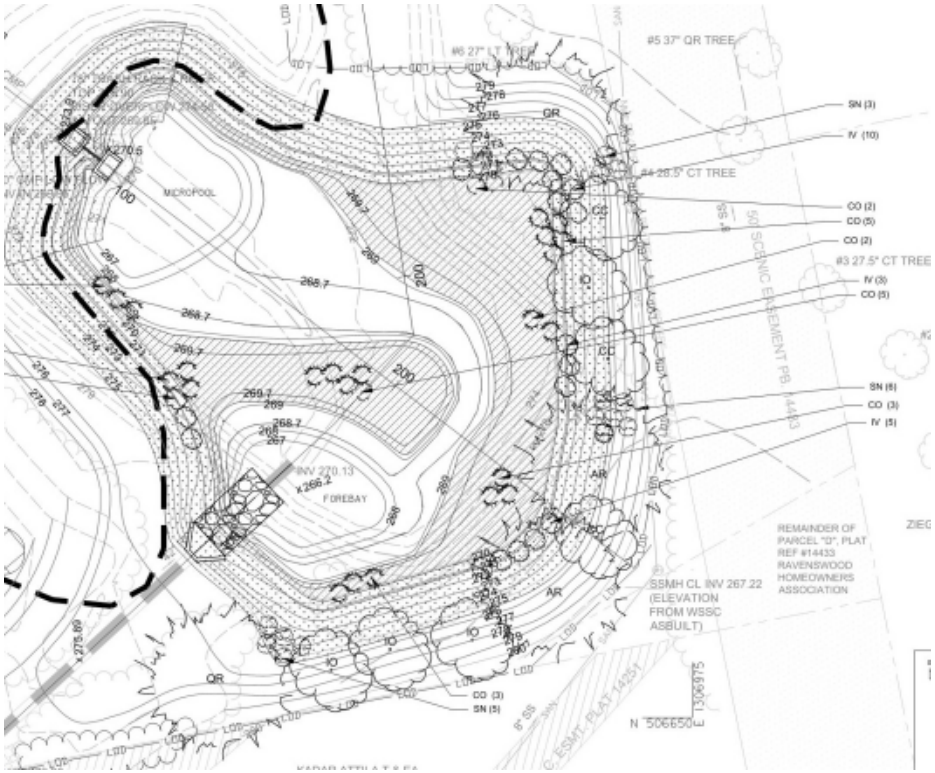


- Create Wetland
- Provide 24-hour Channel Protection Volume Storage

Shallow Marsh Wetland Planting Plan



	PLANTING LIST				
FORM	SYMBOL	QUANTITY	SCIENTIFIC NAME	COMMON NAME	ZONE
SHRUB	SN	14	SAMBUCUS NIGRA	COMMON ELDERBERRY	4
SHRUB	CO	26	CEPHALANTHUS OCCIDENTALIS	BUTTONBUSH	2-3
SHRUB	IV	21	ILEX VERTICILLATA	WINTERBERRY	3
TREE	QR	2	QUERCUS RUBRA	NORTHERN RED OAK	5
TREE	AR	2	ACER RUBRUM	RED MAPLE	4
TREE	CC	2	CERCIS CANADENSIS	EASTERN REDBUD	5
TREE	IO	4	ILEX OPACA	AMERICAN HOLLY	4-5
ZONE 2-3 HERBACEOUS					
HERBACEOUS	CC	340	CAREX COMOSA	BRISTLY SEDGE	2-3
HERBACEOUS	IVE	340	IRIS VERSICOLOR	BLUE FLAG	2-3
ZONE 4 HERBACEOUS					
	PP	250	POLYGONUM PENSYLVANICUM	PENNSYLVANIA SMARTWEED	3-4
	RL	250	RUDIBECKIA LACTINATA	CUTLEAF CONEFLOWER	4
	AL	250	AESCLEPIAS INCARNATA	SWAMP MILKWEED	4
	AP	250	ASTER PUNICEUS	PURPLESTEM ASTER	4

Mosquito Predators

- **Non-Biting Midge**
- **Diving Beetle**
- **Damselfly Larvae**
- **Backswimmers**
- **Water Scorpion**
- **Dragonfly Nymph**
- **Phantom Midge**
- **Water Strider**
- **Swallows, Adult Dragonflies, Frogs**

Shallow Marsh Wetland~ During Construction

Shallow Marsh Wetland ~ Within 1 Year After Construction

Shallow Marsh Wetland ~ Within 5 Year After Construction

Project Design

- Maintenance
  - Replace existing risers with water-tight structures to meet current standards
  - Install impervious liner on dam embankments
  - Install forebays and pre-treatment measures at inflow points where possible
- Aesthetics
  - Landscape all facilities with native vegetation to improve aquatic habitat and aesthetics
  - Reforestation Planting = 0.23 acres at a cost of $9,000

Estimated Design and Permitting Timeline

- **Design** - January 2014 – December 2015
- **Approvals** – November / December 2015
- **Permits** – January 2016
- **Bidding** – Spring 20156
- **Construction** – Spring / Summer 2016
- **Construction** – 3 months (7am to 4pm)

Questions?

For more information:

www.montgomerycountymd.gov/watershedrestoration

click on → StormwaterPondRetrofits

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