U.S. ARMY

Fort George G. Meade MS4 Restoration Partnerships

WE ARE THE ARMY'S HOME

Mitch Keiler
DPW Stormwater Program Manager
U.S. Army Installation Fort George G. Meade

As of: 240945MAR2023
Title_Version

U.S. ARMY

Restoration Partnerships

- **Brief History of Land Use**
- **Watershed Approach**
  - MS4 Implementation Requirements
  - Planning Studies
  - Problem Identification
- **Implementation Learning Curve**
  - Step Pool Stormwater Conveyance Project
  - USACE BMP Implementation Projects
- **USFWS Long Term Agreement**
- Severn Run Stream Restoration
  - Site 1
  - Site 2
- **Intergovernmental Service Agreement (IGSA)**
- **The Path Forward**

U.S. ARMY

Land Use History

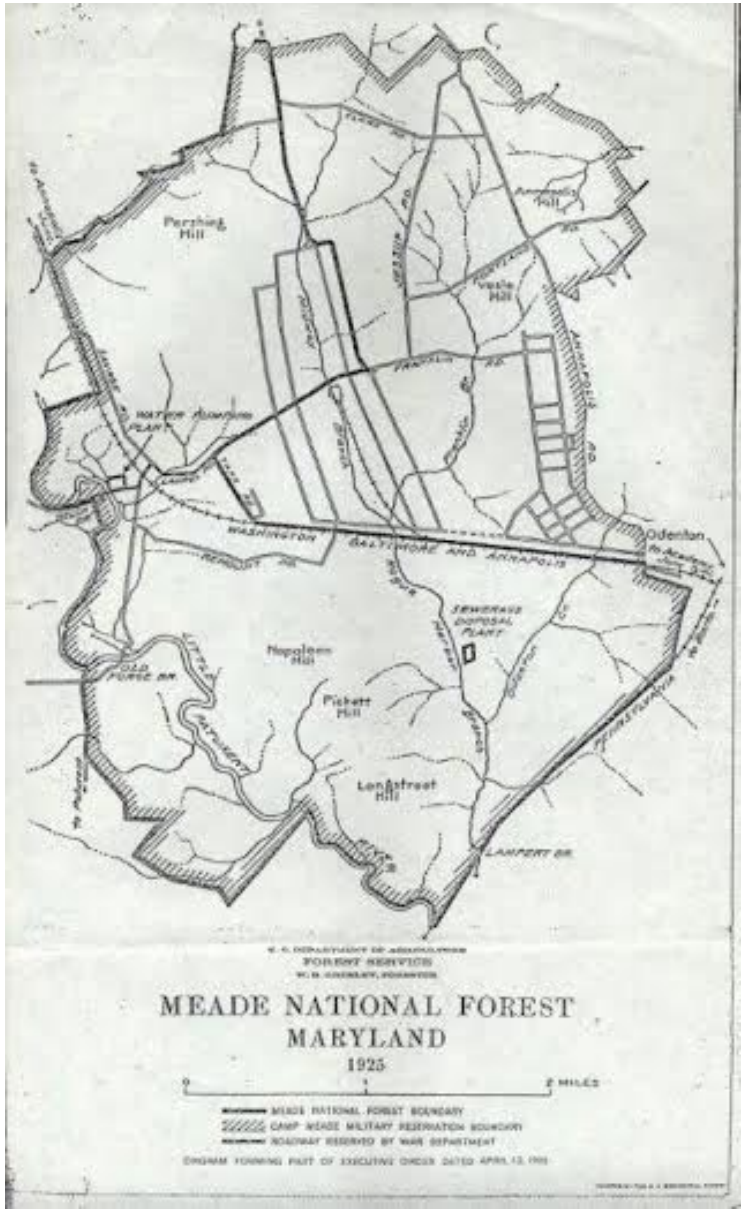
- **Authorized by an Act of Congress in 1917**
  - Originally called Camp Meade, land sold for $37 per acre
  - One of 16 cantonments built for troops drafted for WWI
  - Chosen for proximity to Baltimore's ports and Washington, D.C.
  - Named in honor of Maj. Gen. George Gordon Meade who is known for his victory at the Battle of Gettysburg in 1863.
  - In 1923 the Forest Service considered designating part of Fort Meade as a National Forest.
- **WWI**
  - 1200 wooden buildings housed more than 400,000 men who deployed through the camp on their way to France.
- **WWII**
  - Training center used by approximately 3.5 million Soldiers from 1942 to 1946
- **Cold War / Middle Eastern Conflicts / Base Realignment**
  - Shaped Fort Meade into the installation it is today

U.S. ARMY

Land Use History

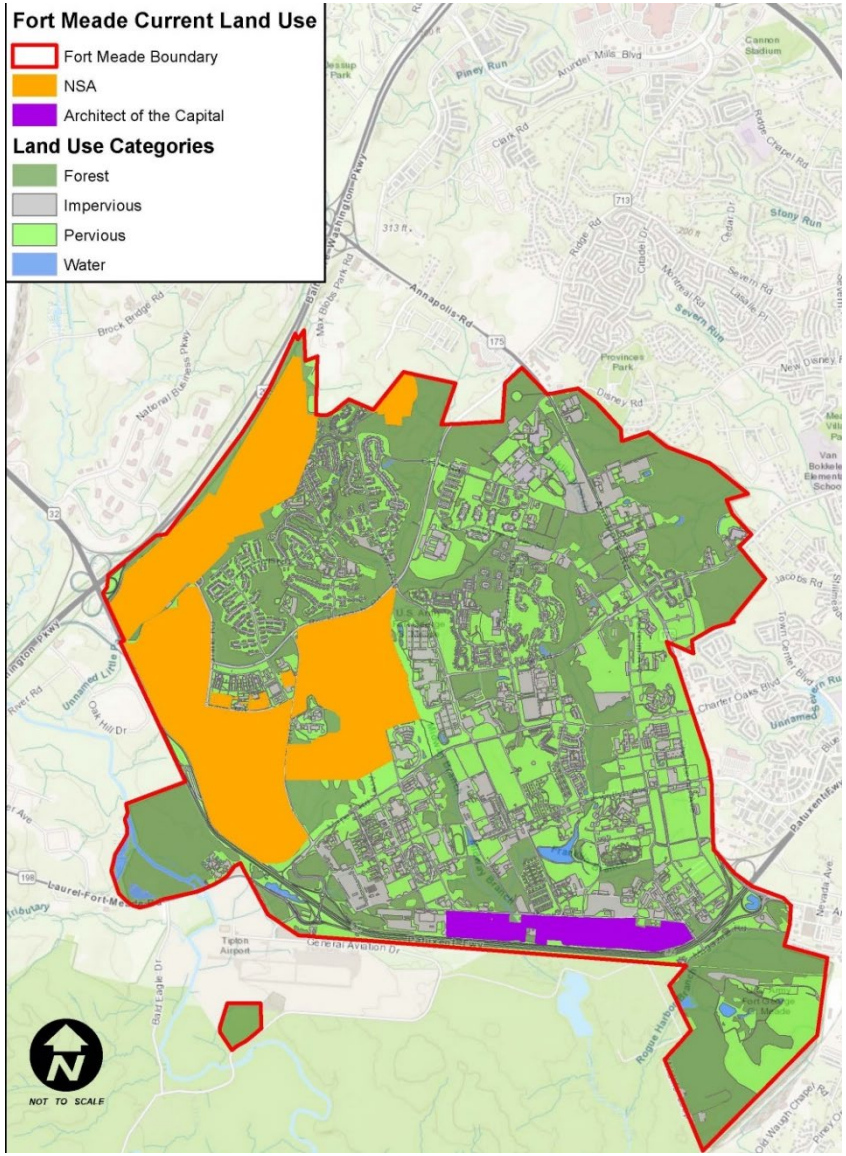
U.S. ARMY

Land Use History



U.S. ARMY

Land Use History



Fort Meade

5,163 Acres
2 watersheds
8 miles of streams
200 acres of wetlands
1,300 acres of woods
1,370 acres of impervious surface
60,000 employees and residents

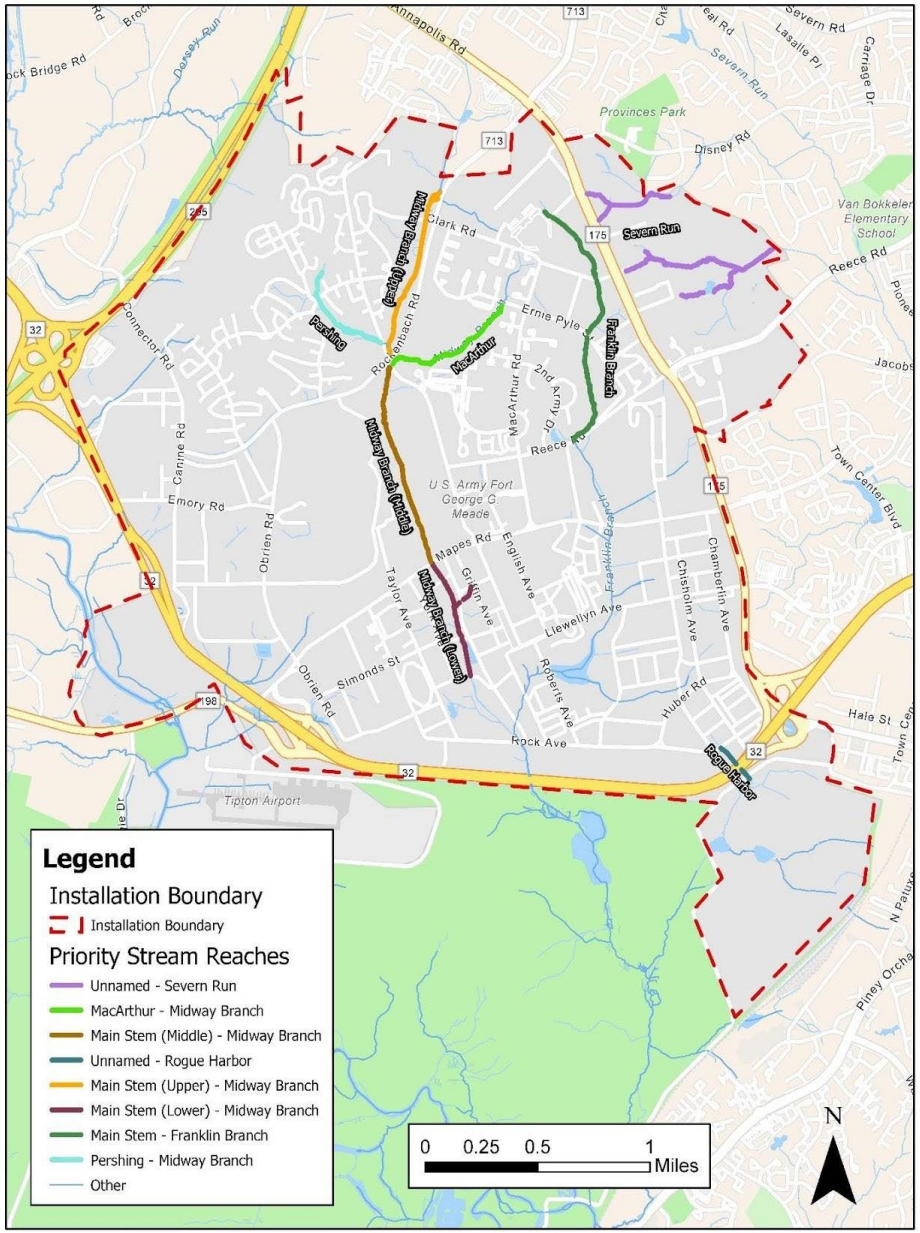
U.S. ARMY

Watershed Approach

- **Studies Prior to 2015**
  - 2002 USACE Midway Branch Watershed Assessment – environmental conditions survey.
  - 2005 DNR **Stream Corridor Assessment**
  - 2008 USACE Installation Management Plan (47 sub-watersheds)
  - 2008 USACE **HEC-RAS Floodplain Mapping**
  - 2012 USACE Stream Habitat Assessment
  - 2014 USACE Restoration Plan for MS4 Permit (Draft)
- **Studies Post 2015**
  - 2015 USACE **Restoration Plan (Final)**
  - 2018 USACE **Stream Condition TMDL Assessment**
  - 2019 DPW MS4 Implementation Strategy
  - 2020 USFWS **Stream Restoration Decision Matrix**
  - 2021 USGS Midway Branch (TN, TP, TSS) Study
  - 2023 USACE Stormwater Infrastructure Mapping
  - 2024 Burba Lake Dam Assessment

U.S. ARMY

Watershed Approach



Fort Meade holds a Phase II State and Federal MS4 Permit

MS4 requirement for is **199.11 acre credits**

173.54 formal credits remaining FY17

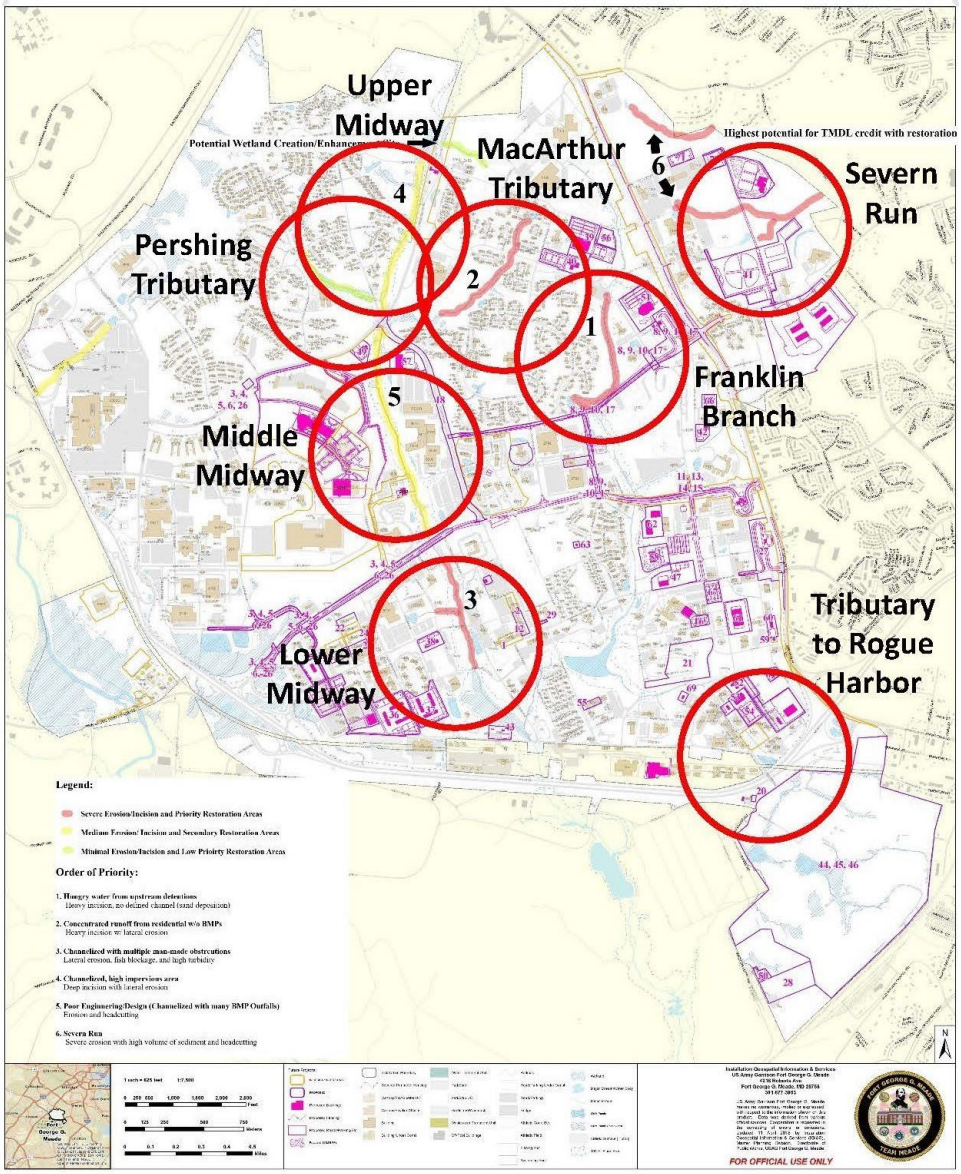
123.54 balance per FY19 & 20 projects

4.54 balance per end FY24

- **$8.81 mil** spent on MS4 projects since FY16
  - BMP projects with USACE
  - Stream Restoration Designs
- **$2.2 mil** spent in FY20
  - Dam Demolition Study
  - Severn Tributary Construction
- About **$1.6 mil** needed to complete MS4 requirement by 2025

U.S. ARMY

Watershed Approach



U.S. ARMY

Watershed Approach

Watershed Reaches	Impervious Surface %IS in WS (Above 20% Y/N)	WS with BMPs to MEP (Y/N)	Expected Land Use Change (Y/N)	Restoration Potential for Functional Lift (Levels 1-5)	Constraints: >Physical >Fiscal >Legal >0	Connectivity downstream: A) Blockage B) Culverts C) Dam below	Location in Watershed: 1) Upper 2) Middle 3) Lower
Midway Br (Upper)	Y	N	Y	3	0	A B C	2
Midway Br (Middle)	Y	N	Y	3	Physical Legal	A C	2
Midway Br (Lower)	Y	N	Y	3	Physical Fiscal	A C	2
MacArthur Tributary	N	N	N	3	Legal	B C	1
Pursh̲i̲n̲g Tributary	N	N	N	3	Legal	B C	1
Franklin Br	N	Y	Y	3	Physical Fiscal	A B C	2
Rogue Harbor unnammed	Y	N	Y	4	Physical	B C	2
Severn Run	N	Y	Y	4	0	B	1

U.S. ARMY

Implementation Learning Curve

- **Defining the Problem**
  - Many different approaches to solving the problem which approach is right and cost efficient for you. Studies take time.
- **Funding**
  - Funding based on IGEs in an inflationary market. We compete with other installations and missions for funding. Funding can vary from year to year.
  - What is a real world delivery time for an installation. Think 2 – 3 years for delivery. What about COVID.
- **Concept Plan through Approved Design with Permits**
  - Design moves quickly
  - Permitting, the world slows down. Expedited review saves time. There are new permitting requirements with the state and a Federal Agency requirement for FONPA to be signed off.
- **Construction**
  - You have to hope your funding will cover the competitive bid.
  - Construction management can be cumbersome. RFIs, weather delays, supply chain.

U.S. ARMY

Implementation Learning Curve

SPSC replacing a failed SW Pond and eroding ephemeral ditch

U.S. ARMY

Implementation Learning Curve

SPSC after rain event

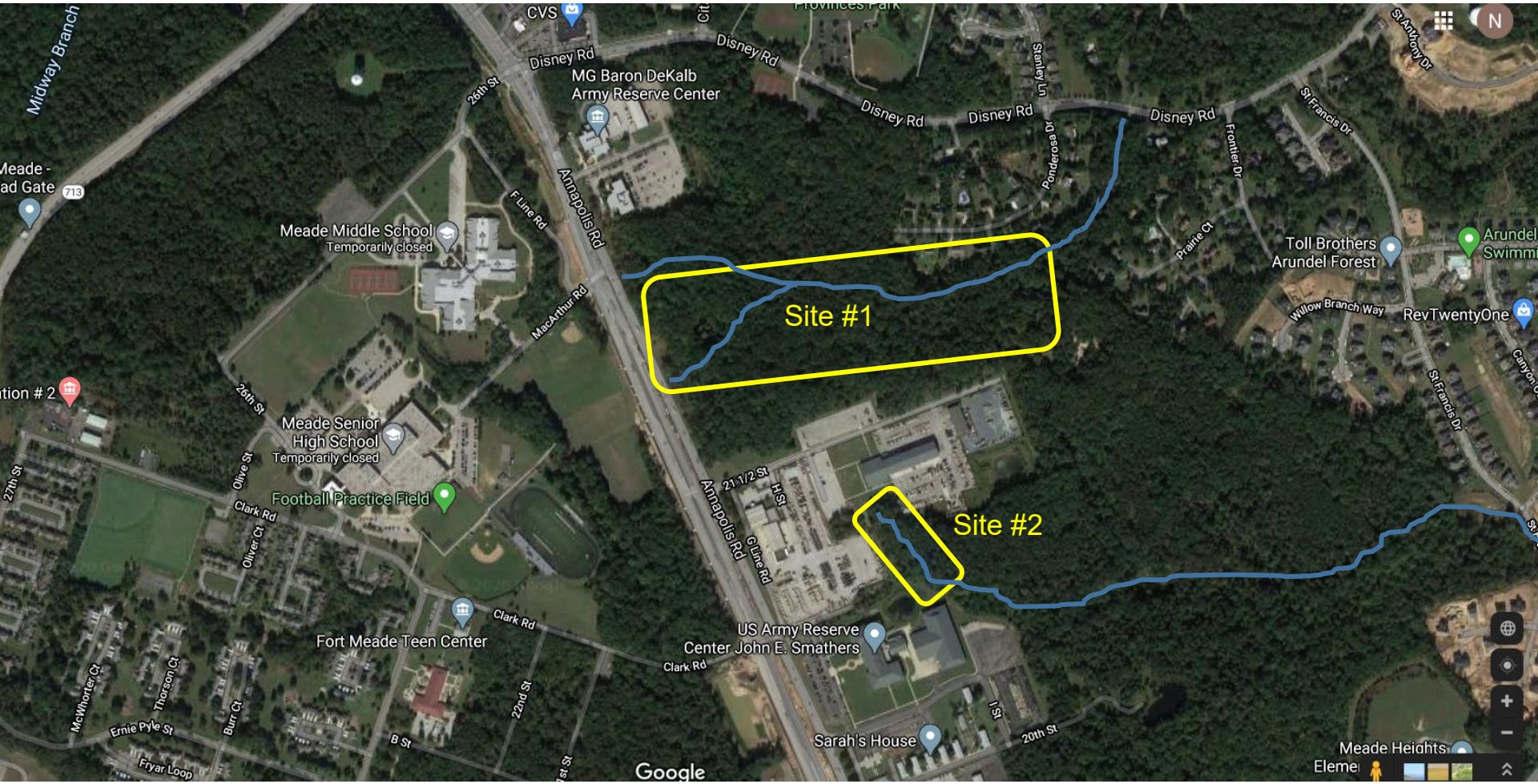
U.S. ARMY

USFWS Long Term Agreement

USFWS 10-Year Agreement

- Provides for assistance with conservation practices.
- Allows them to use approved procurement through Western Maryland RC&D.
- Provides access to local contractors specializing in stream and wetland.
- Provides for design, permitting, and construction services.
- Their office is near by, they work with the Patuxent Refuge which is our neighbor, they know Fort Meade and are willing to assist us with stream restoration and other conservation practices.

U.S. ARMY


Site #1
Site #2
Meade Middle School
Temporarily closed
Meade Senior
High School
Temporarily closed
Football Practice Field
Fort Meade Teen Center
MG Baron DeKalb
Army Reserve Center
US Army Reserve
Center John E. Smathers
Toll Brothers
Arundel Forest
RevTwentyOne
Sarah's House
Disney Rd
Annapolis Rd
MacArthur Rd
F Line Rd
G Line Rd
Clark Rd
26th St
27th St
22nd St
20th St
Google


Severn Run Site #1
SHA and Meade HS Applied ESD To MEP Drainage with SWM controls
Fort Meade Boundary
Severn Run Site #2
SPSC Restored Drainage
Severn Run Site #3
Toll Brothers Arundel Forest
Arundel Forrest Swimming Pool
RevTwentyOne
US Army Reserve Center John E. Smathers
Sarah's House
Fort Meade Visual Information (Photo Lab)
Bark Park
Fort meade visitor center
Meade Heights Elementary School
School Age Care Center
EurAupair Au Pair
Severn Run
Google

U.S. ARMY

Severn Run Site 1

UT-6 Before
Note: 6-foot survey rod
In background (RT Center)

Convincing management
this is the right thing to do

U.S. ARMY

Severn Run Site 1

UT-6 during construction / RSC approach

U.S. ARMY

Severn Run Site 1

UT 3 and 4 Before

UT 3 and 4 After

Severn Run Site 1

Before
Part of the 400 tons
of sediment leaving
FMMD each year

After
Not pretty but
improves with time.


Severn Run Constructed Site #2
Location of Failed SW Pond
SPSC replacement of failed SW pond
Eroding ditch replaced by SPSC
Design/Build Site #3
Google
US Army Reserve
Imagery ©2020 Commonwealth of Virginia, Maxar Technologies, U.S. Geological Survey, Map data ©2020 United States Terms Send feedback 100 ft

U.S. ARMY

Severn Run Site 2

Site 2 looking downstream – a river of sediment

U.S. ARMY

Severn Run Site 2

Installation of a Cobble Stone Weir

Severn Run Site 2

Before

After

U.S. ARMY

Intergovernmental Service Agreement (IGSA)

IGSA with Howard County

- The IGSA with HO CO has several different components. We will only discuss Stormwater.
- The agreement allows Fort Meade to tap into the expertise of the employees in the Howard County SWM Division.
- Provides access to local contractors specializing in stormwater, through the county's procurement system.
- Provides for design, permitting, and construction services.
- Their office is near by, they have gotten to know Fort Meade and are willing to assist us with our SWM projects.
- The ISGA has a cap of $5M per year.

U.S. ARMY

Intergovernmental Service Agreement (IGSA)

IGSA with Howard County

Former Garrison Commander COL Nyland watches as Howard County Executive , Dr. Calvin Ball signs the IGSA agreement.

U.S. ARMY

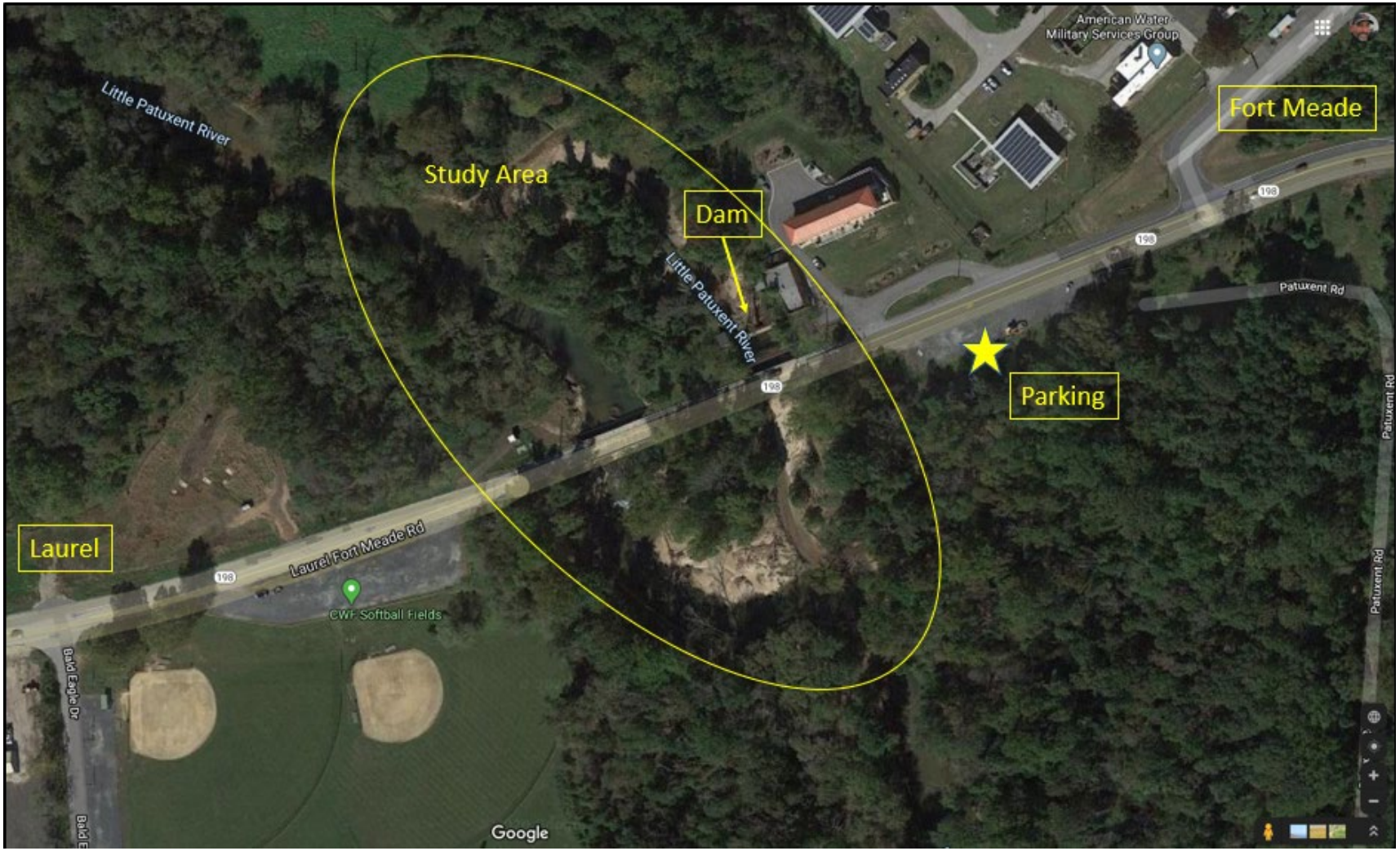
Path Forward

- **Stream Restoration Projects**
  - Severn Run Site 3 (USFWS)
  - MacArthur Tributary (USFWS)
  - Pershing Tributary (USFWS)
  - Midway Branch (IGSA)
- **Dam Removal Study and Design**
  - Little Patuxent Water In-take Dam (USFWS & American Rivers)
- **Pollinator Meadows / SWM Basin Pollinator Plantings**
  - Meade Middle School (USFWS, NAVFAC, AA County Schools)
  - Burba Lake Pollinator Meadow (USFWS, NAVFAC)
- **Invasive Plant Removal**
  - Burba Lake (USFWS)

U.S. ARMY

Path Forward

Location Little Patuxent Water In-take Dam



U.S. ARMY

Path Forward

Location Little Patuxent Water In-take Dam

U.S. ARMY

The Partnership

Severn Run Project Team 2024

U.S. ARMY

QUESTIONS?

Contact Information

Mitch Keiler / Tutu Onamade
Stormwater Program Managers
Fort George G. Meade
4216 Roberts Avenue, 2nd Floor
USAG Fort Meade, MD 20755
(301) 741-1324 work cell