WETLAND AND WATERS DELINEATION REPORT

I-95 ETL NORTHBOUND EXTENSION

Baltimore/Harford County, Maryland

JMT Project Number 13-0770-048

Submitted to:

Maryland Transportation Authority

March 2018

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1.0 INTRODUCTION

1.1 PROJECT DESCRIPTION

The Maryland Transportation Authority (MDTA) owns, operates, and maintains a 50-mile portion of I-95 in Maryland, beginning north of Baltimore City and extending to the Delaware state line. To address safety and congestion concerns, MDTA proposes to construct the Express Toll Lanes (ETL) Northbound Extension Project along I-95 from north of MD 43 in Baltimore County to MD 24 in Harford County (**Figure 1**). The purpose of the proposed improvements is to address capacity and safety needs within the project limits and thereby improve access, mobility and safety for local, regional, and inter-regional traffic, including passenger, freight, and transit vehicles. The project includes a northbound single lane ETL extension from MD 43 to south of MD 152, a northbound auxiliary lane from MD 152 to MD 24/MD 924, overpass reconstruction, and two noise walls along northbound I-95. The proposed improvements will be constructed in multiple phases while safely maintaining traffic. Minor impacts to environmental resources are anticipated and will be mitigated in coordination with federal/state regulations.

Under contract with MDTA, Johnson, Mirmiran, & Thompson (JMT) reviewed published information and conducted field investigations of the Study Area to confirm and update previously delineated resources. JMT was also tasked to delineate any new wetlands and waterways within the MDTA right of way. This report only describes the new wetland and waters delineated. Forest Characterizations are also included in the field work for these sections. Detailed Forest Stand Delineations were not completed because impacts to forest resources will be minimal, and many of the wooded areas are not large enough to qualify as forest stands.

1.2 STUDY AREA DESCRIPTION

The Study Area is located along the northbound and southbound sides of I-95, within the MDTA right of way, in Baltimore and Harford Counties. It extends from the New Forge Road overpass to Exit 74 (MD Route 152 Fallston/Joppa). Most of the Study Area is forested, exempting areas of existing roadways, shoulders, and medians. The southern portion of the Study Area lies within the Northern Atlantic Slope Diversified Farming Region of the Northern Piedmont Major Land Resource Area (MLRA). The northern portion of the Study Area lies within the Northern Atlantic Slope Diversified Farming Region of the Northern Coastal Plain MLRA. The boundary of the Study Area mainly exists in two Maryland Department of Environment (MDE) 8-Digit Watersheds: Lower Gunpowder Falls (02130802) and Little Gunpowder Falls (02130804). The most northern tip of the Study Area touches the Lower Winters Run (02130702) Sub-Watershed, but no impacts to regulated resources are expected in the sub-watershed.

Geologically, the Study Area is in the Coastal Plain and Piedmont Physiographical Province. The southernmost portion of the Study Area falls within the Baltimore Complex, Upland Deposits, and Port Deposit geologic formations. The central and northern portion of the Study Area lies within the Patuxent Formation.

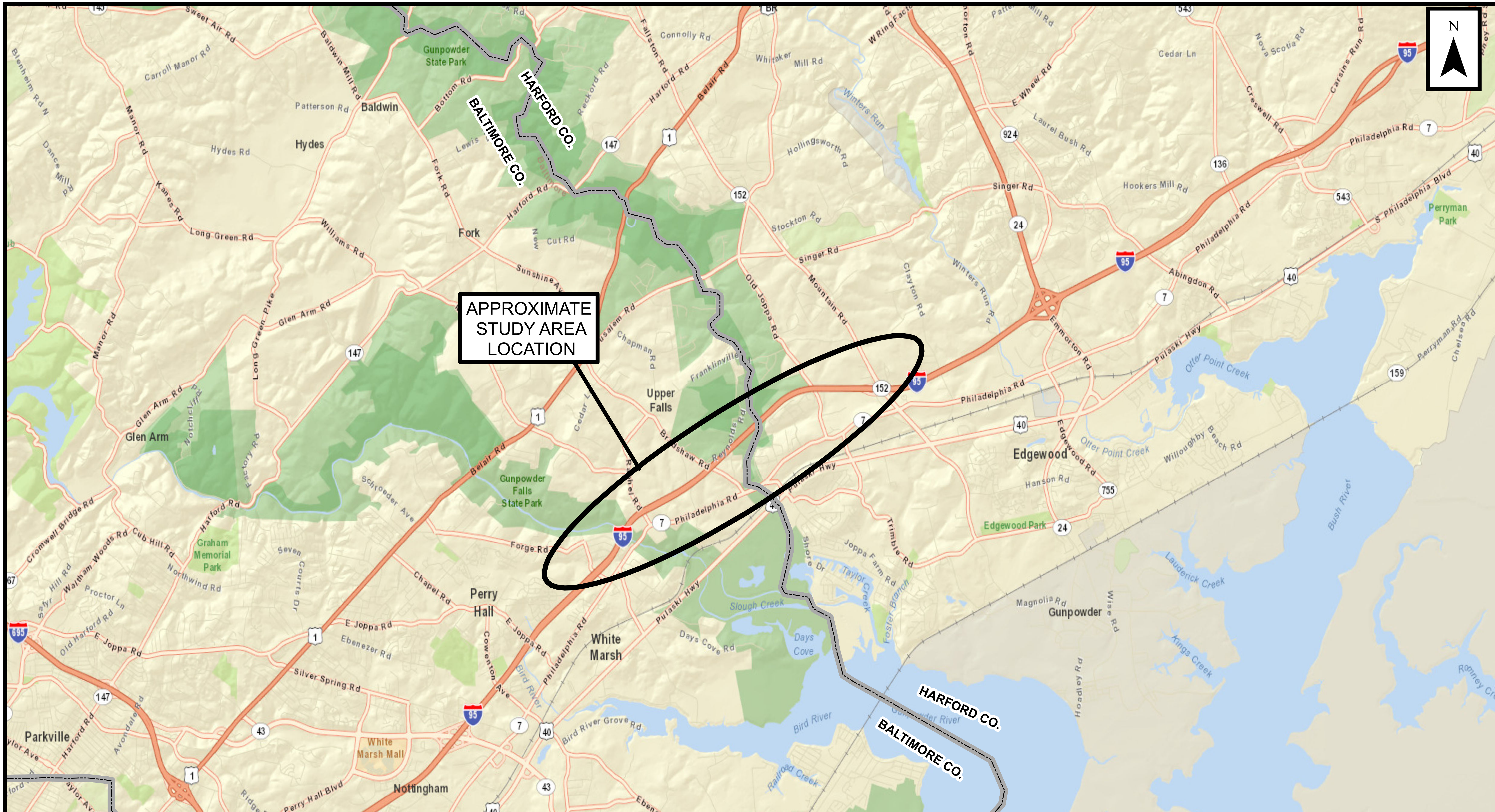


FIGURE 1
VICINITY MAP

I - 95 ETL NORTHBOUND EXTENSION
HARFORD/BALTIMORE COUNTY, MARYLAND

0 3,000 6,000 12,000 Feet

SOURCE: ESRI

DATE: MARCH 2018

SCALE: 1" = 6,000'

Legend

- County Boundary
- Study Area

NEW FORDGE RD

BALTIMORE CO.

HARFORD CO.

MOUNTAIN RD

Service Layer Credits:

0 1,000 2,000 4,000 Feet

SOURCE: USGS

FIGURE 2
STUDY AREA MAP

I - 95 ETL NORTHBOUND EXTENSION
HARFORD/BALTIMORE COUNTY, MARYLAND

DATE: MARCH 2018

SCALE: 1" = 2,000'

2.0 METHODOLOGY

2.1 DESKTOP INVESTIGATON

Pre-Field Desktop Analysis

A review of published information was conducted to identify known wetlands within the Study Area (**Table 2.1**). A field investigation was subsequently conducted between July and August 2017 to confirm the published information and field delineate wetlands within the Study Area.

Table 2.1 References for Identification of Jurisdictional Waters and Wetlands

Document	Date	Reference	Related Report Figure
USGS Baltimore 30 X 60 Minute Quadrangle for Baltimore	**1989**	**ngmdb.com (topoView)**	**Figure 2**
Digital National Wetlands Inventory	**2012**	**USFWS National Wetlands Inventory via MD iMAP**	**Figure 3**
MD Hydrology/Waterbodies	**Various**	**MD iMAP (GIS and Data Portal)**	**Figure 3**
FEMA Digital Flood Insurance Rate Map for Baltimore and Harford County	**2014**	**Federal Emergency Management Agency (FEMA)**	**Figure 4**
Soil Survey for Baltimore and Harford County	**2016**	**United States Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS) Web Soil Survey**	**Figures 5A & 5B**

Resource Jurisdiction

"Waters of the United States" are defined by the U.S. Army Corps of Engineers (USACE) as "coastal and inland waters, lakes, rivers and streams that are navigable waters of the United States, including their adjacent wetlands" and "tributaries to navigable waters of the United States, including adjacent wetlands" (*Corps of Engineers Wetlands Delineation Manual* [Environmental Laboratory, 1987].

The USACE, in its Regulatory Guidance Letter 07-01, Clean Water Act Jurisdiction following the U.S. Supreme Court's Decision in *Rapanos v. United States & Carabell v. United States* (December 2, 2008), and USACE and Environmental Protection Agency (EPA) responses to the Rapanos Decision (December 2, 2008), establishes the basic guidance for determining what will be currently regulated as Waters of the US (WUS). The USACE will assert jurisdiction over the following waters:

- Traditional navigable waters (TNW)

- Non-navigable tributaries of TNW that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months)
- Wetlands that directly abut such tributaries.

The agency will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with traditional navigable waters:

- Non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to but do not directly abut a relatively permanent non-navigable tributary.

The agency will apply the significant nexus standard as follows:

- A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of downstream traditional navigable waters
- Significant nexus includes consideration of hydrologic and ecologic factors.

The agency generally will not assert jurisdiction over the following features:

- Swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent or short duration flow)
- Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water.

2.2 FIELD INVESTIGATION

All technical fieldwork was performed according to the *U.S. Army Corps of Engineers Wetland Delineation Manual, Y-87-I* (Environmental Laboratory, 1987). Both the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region* (*Version 2.0*) (USACE, 2010) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region* (*Version 2.0*) (Environmental Laboratory, 2012) were used during the field investigations. The Corps manual outlines the three-parameter approach for delineating wetlands. All three parameters (hydrophytic vegetation, hydric soils, and wetland hydrology) must be confirmed to classify an area as a wetland, unless the site is atypical (disturbed) or a problem area. Each wetland was classified into systems according to *Classification of Wetlands and Deep Water Habitats of the United States* (Cowardin, et al., 1979). Plant indicator status was determined using the *United States Department of Agriculture Natural*

*Resources Conservation Service Plants Database (*USDA-NRCS, 2017*).* Soil colors were described in the field using a *Munsell Soil Color Chart* (Munsell® Color, 2000).

Wetlands within the Study Area were delineated by a team of environmental scientists from JMT and Wallace Montgomery. JMT delineated the northbound section of I-95, while Wallace Montgomery delineated the southbound section of I-95. Wetland and upland sample plots, along with wetland boundaries, were flagged with pink survey tape and each flag was labeled. Boundary point positions were surveyed using a global positioning system (GPS) capable of sub-meter accuracy and placed onto aerial mapping. WUS boundaries were delineated from the top of the bank by JMT professionally licensed and certified land surveyors.

Wetland (hydrophytic) vegetation was determined using the USACE *National Wetland Plant List* (NWPL) (Lichvar, et al. 2012). This document assigns a wetland indicator status to plants based on how frequently they occur in wetlands. The NWPL wetland indicator status and definitions are listed in **Table 2.2**.

Table 2.2 Wetland Plant Indicator Definitions

Wetland Indicator Status	Definition
Obligate Wetland (OBL)	Almost always occur in wetlands
Facultative Wetland (FACW)	Usually occur in wetlands, but may occur in non-wetlands
Facultative (FAC)	Occur in wetlands or non-wetlands
Facultative Upland (FACU)	Usually occur in non-wetlands, but may occur in wetlands
Obligate Upland (UPL)	Almost never occur in wetlands

Source: Lichvar et al. 2012. *The National Wetland Plant List*.

Soil samples were taken using an auger to delineate between hydric and non-hydric soils. Soil samples were collected at each wetland and upland sample point, and soil colors were described in the field using a *Munsell Soil Color Charts* manual (Kollmorgen Instruments Corporation, 2000).

3.0 FINDINGS

3.1 PUBLISHED INFORMATION

JMT reviewed published information to identify known site conditions, such as the presence of wetlands, waterways, floodplains and critical areas within the Study Area.

The *Baltimore Topographic 30 x 60 Minute Quadrangle* (USGS, 1989) depicts three mapped waterways in the Study Area: Big Gunpowder Falls, Little Gunpowder Falls, and an unnamed tributary (**Figure 2**).

The Digital NWI Map of the *Baltimore Quadrangle*, (USFWS, 2012) contains several mapped streams including Big and Little Gunpowder Falls, two unnamed tributaries to Big Gunpowder River and three tributaries to Little Gunpowder Falls. Cat Creek is located near the southwestern portion of the site but will not be impacted. There are no mapped wetlands within the Study Area (**Figure 3**).

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for Baltimore and Harford County, Maryland (FEMA, 2014) depicts two portions of the Study Area within the 100-Year Floodplain (Firm Panels #2400100295G & #24025C0253E) (**Figure 4**).

The Web Soil Survey of Baltimore and Harford County, Maryland, (USDA-NRCS, 2016) was referenced for all the soil survey data collected for this memorandum. Soil maps indicates that 76 soil types occur within the Study Area. The soils are shown below on **Table 3.1.1**, **Table 3.1.2**, and **Figures 5A** and **5B**.

Table 3.1.1 Baltimore County Soil Survey

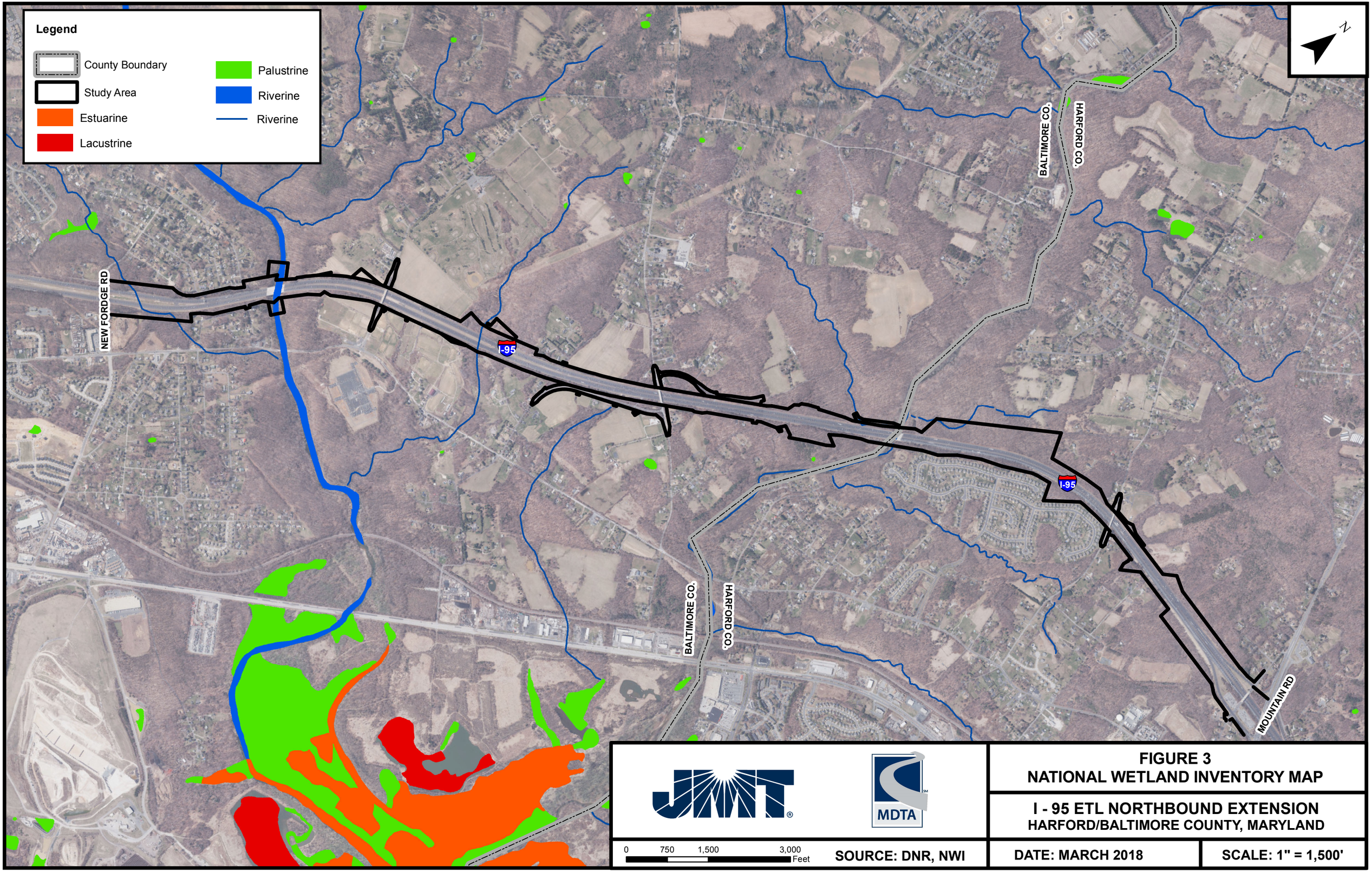
Map Unit Symbol	Map Unit Name	Hydric Rating
BeA	Beltsville silt loam, 0 to 2 percent slopes	0
BeB	Beltsville silt loam, 2 to 5 percent slopes	5
BeC	Beltsville silt loam, 5 to 10 percent slopes	0
CaB	Chillum silt loam, 0 to 5 percent slopes	0
CaC	Chillum silt loam, 5 to 10 percent slopes	0
CbB	Chillum-Urban land complex, 0 to 5 percent slopes	0
CbD	Chillum-Urban land complex, 5 to 15 percent slopes	0
CfA	Codorus silt loams, 0 to 3 percent slopes	15
DbB	Delanco silt loam, 3 to 8 percent slopes	0
DbC	Delanco silt loam, 8 to 15 percent slopes	0
EgB	Elsinboro silt loam, 3 to 8 percent slopes	0
EgC	Elsinboro silt loam, 8 to 15 percent slopes	0
GdC	Glenelg loam, 8 to 15 percent slopes	0
GeB	Glenelg channery loam, 3 to 8 percent slopes	0
GhC	Glenville silt loam, 8 to 15 percent slopes	0
IsA	Issue silt loam, occasionally flooded	10
KeB	Keyport silt loam, 2 to 5 percent slopes	5

LeB	Legore silt loam, 3 to 8 percent slopes	0
LeD	Legore silt loam, 15 to 25 percent slopes	0
LfC	Legore silt loam, 8 to 15 percent slopes, very stony	0
LfD	Legore silt loam, 15 to 25 percent slopes, very stony	0
LfE	Legore silt loam, 25 to 45 percent slopes, very stony	0
LgC	Legore-Montalto-Urban land complex, 8 to 15 percent	0
MfA	Matapeake silt loam, 0 to 2 percent slopes	0
MrC	Mount Lucas silt loam, 8 to 15 percent slopes, stony	0
NeB	Neshaminy silt loam, 3 to 8 percent slopes	0
NeC	Neshaminy silt loam, 8 to 15 percent slopes	0
RsC	Russett fine sandy loam, 5 to 10 percent slopes	0
RsD	Russett fine sandy loam, 10 to 15 percent slopes	0
SbB	Sassafras loam, 2 to 5 percent slopes	4
SbC	Sassafras loam, 5 to 10 percent slopes	0
SDD	Sassafras and Croom soils, 10 to 15 percent slopes	0
UcF	Udorthents, highway, 0 to 65 percent slopes	0
W	Water	0
WaB	Watchung silt loam, 3 to 8 percent slopes	90

Table 3.1.2 Harford County Soil Survey

Map Unit Symbol	Map Unit Name	Hydric Rating
AdB	Aldino silt loam, 3 to 8 percent slopes	5
Av	Alluvial land	100
BeB	Beltsville silt loam, 2 to 5 percent slopes	5
BeC	Beltsville silt loam, 5 to 10 percent slopes	0
CcB2	Chester silt loam, 3 to 8 percent slopes	0
CcC2	Chester silt loam, 8 to 15 percent slopes	0
CgC2	Chester gravelly silt loam, 8 to 15 percent slopes, moderately eroded	0
CgD2	Chester gravelly silt loam, 15 to 25 percent slopes, moderately eroded	0
ChB2	Chillum silt loam, 2 to 5 percent slopes, moderately eroded	0
CkC2	Chillum-Neshaminy silt loams, 5 to 10 percent slopes, moderately eroded	0
Cu	Codorus silt loam	15
DcB	Delanco silt loam, 3 to 8 percent slopes	0
En	Elkton silt loam	95

EsA	Elsinboro loam, 0 to 2 percent slopes	0
EsB2	Elsinboro loam, 2 to 5 percent slopes, moderately eroded	0
EsC2	Elsinboro loam, 5 to 10 percent slopes, moderately eroded	0
GcB2	Glenelg loam, 3 to 8 percent slopes	0
GcC3	Glenelg loam, 8 to 15 percent slopes, severely eroded	0
GcD	Glenelg loam, 15 to 25 percent slopes	0
JpB	Joppa gravelly sandy loam, 2 to 5 percent slopes	0
KpA	Keyport silt loam, 0 to 2 percent slopes	5
KpB	Keyport silt loam, 2 to 5 percent slopes	5
KrA	Kinkora silt loam, 0 to 3 percent slopes	100
KrB	Kinkora silt loam, 3 to 8 percent slopes	100
LfC	Legore very stony silt loam, 0 to 15 percent slopes	0
LfD	Legore very stony silt loam, 15 to 25 percent slopes	0
LfE	Legore very stony silt loam, 25 to 45 percent slopes	0
Lr	Leonardtown silt loam	85
LyB	Loamy and clayey land, 0 to 5 percent slopes	0
LyD	Loamy and clayey land, 5 to 15 percent slopes	0
MkB	Matapeake silt loam, 2 to 5 percent slopes	0
MlaB	Mattapex silt loam, 2 to 5 percent slopes, Northern Coastal Plain	5
NeA	Neshaminy silt loam, 0 to 3 percent slopes	0
NeB2	Neshaminy silt loam, 3 to 8 percent slopes, moderately eroded	0
NeC2	Neshaminy silt loam, 8 to 15 percent slopes, moderately eroded	0
NsD	Neshaminy and Montalto very stony silt loams, 15 to 25 percent slopes	0
NsE	Neshaminy and Montalto very stony silt loams, 25 to 45 percent slopes	0
ShaC	Sassafras sandy loam, 5 to 10 percent slopes, Northern Coastal Plain	4
SsD	Sassafras and Joppa soils, 10 to 15 percent slopes	0
SsE	Sassafras and Joppa soils, 15 to 30 percent slopes	0
W	Water	0
WaA	Watchung silt loam, 0 to 3 percent slopes	90
WcB	Watchung very stony silt loam, 0 to 8 percent slopes	100



JMT

MDTA

0 750 1,500 3,000 Feet

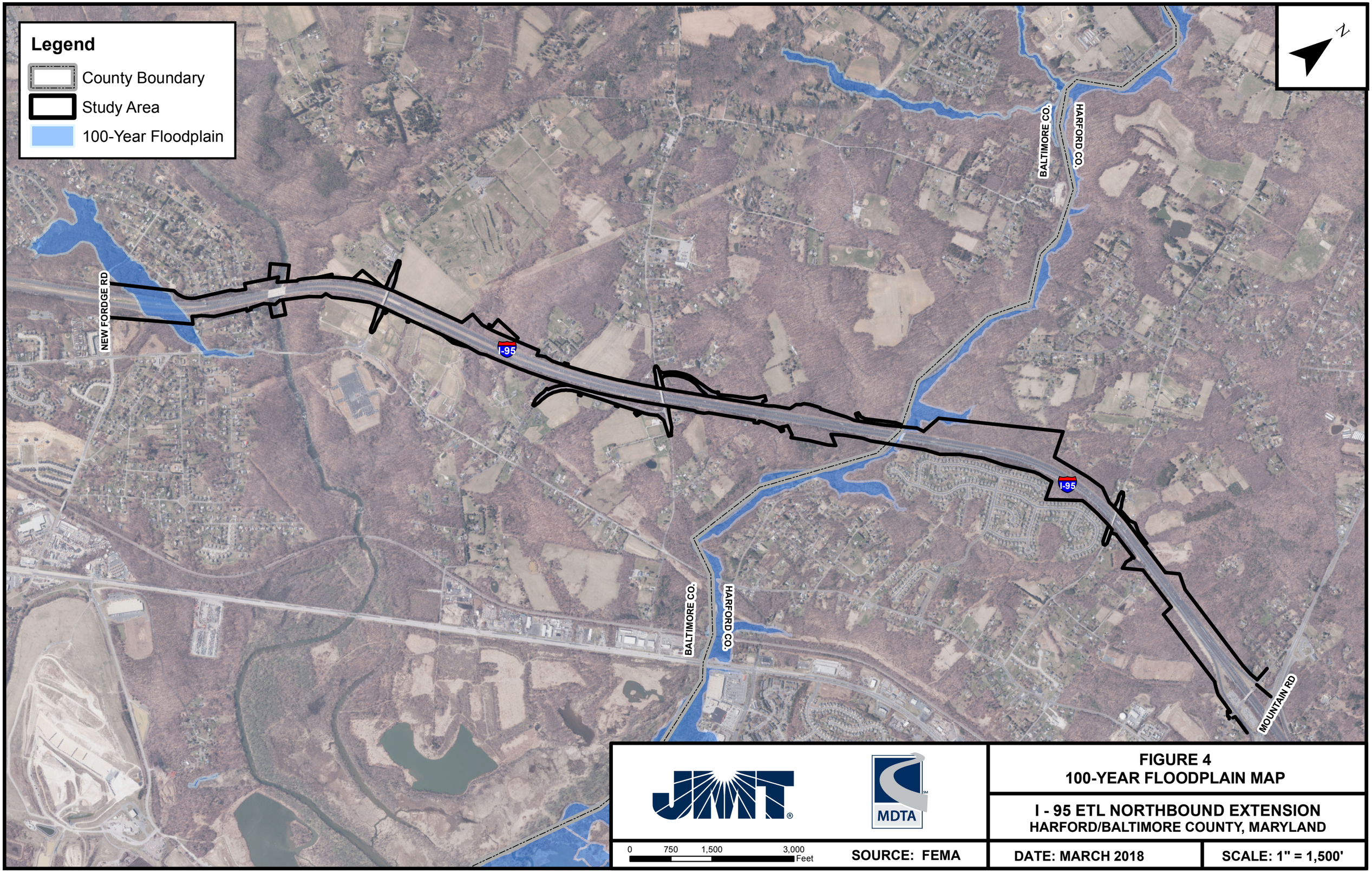
SOURCE: DNR, NWI

FIGURE 3
NATIONAL WETLAND INVENTORY MAP

I - 95 ETL NORTHBOUND EXTENSION
HARFORD/BALTIMORE COUNTY, MARYLAND

DATE: MARCH 2018

SCALE: 1" = 1,500'



JMT

MDTA

0 750 1,500 3,000 Feet

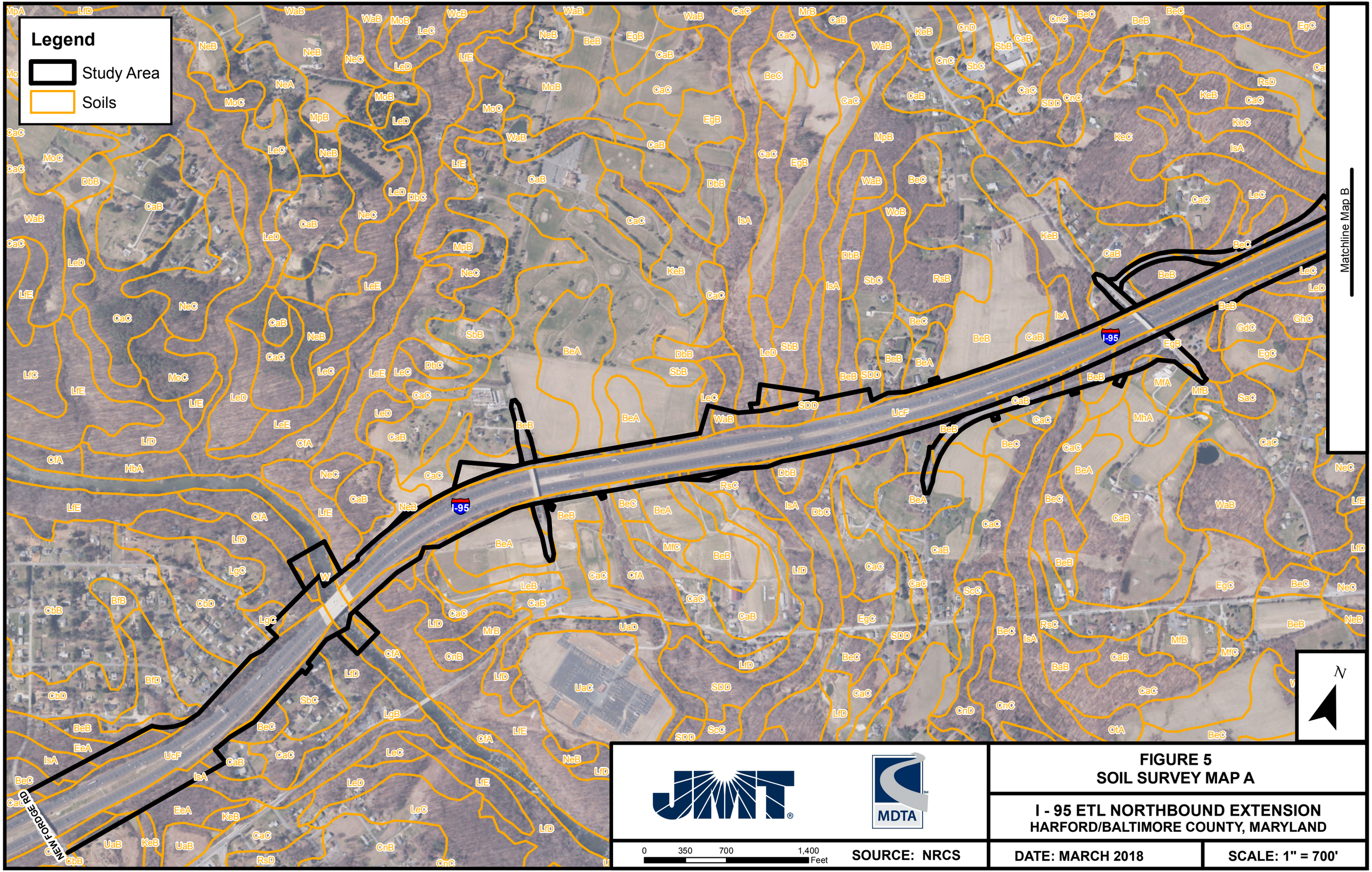
SOURCE: FEMA

FIGURE 4
100-YEAR FLOODPLAIN MAP

I - 95 ETL NORTHBOUND EXTENSION
HARFORD/BALTIMORE COUNTY, MARYLAND

DATE: MARCH 2018

SCALE: 1" = 1,500'



JMT

MDTA

0 350 700 1,400 Feet

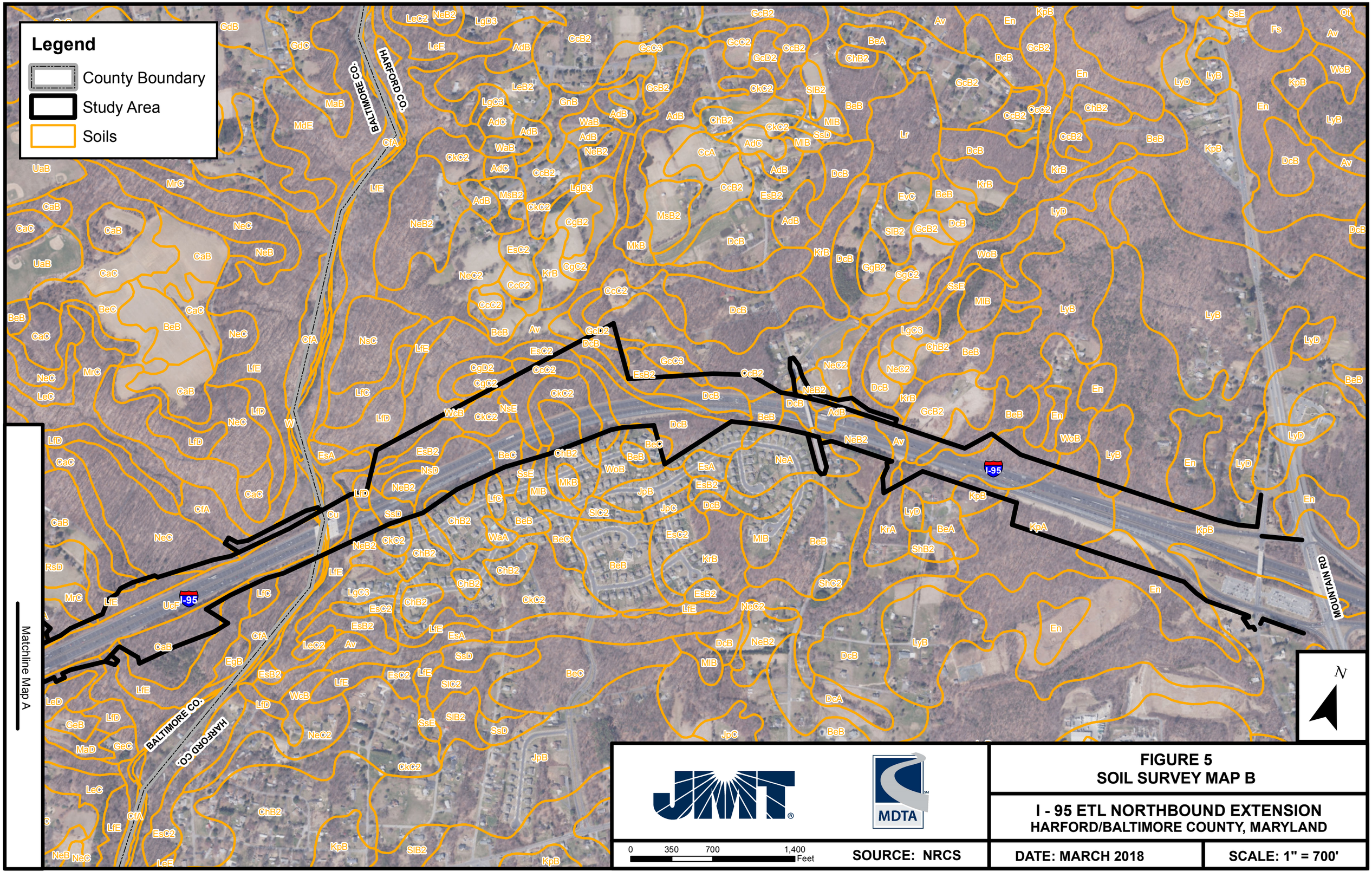
SOURCE: NRCS

FIGURE 5
SOIL SURVEY MAP A

I - 95 ETL NORTHBOUND EXTENSION
HARFORD/BALTIMORE COUNTY, MARYLAND

DATE: MARCH 2018

SCALE: 1" = 700'



JMT

MDTA

FIGURE 5
SOIL SURVEY MAP B

I - 95 ETL NORTHBOUND EXTENSION
HARFORD/BALTIMORE COUNTY, MARYLAND

SOURCE: NRCS

DATE: MARCH 2018

SCALE: 1" = 700'

3.2 RARE, THREATENED, AND ENDANGERED SPECIES

MDTA sent a letter to the Maryland Department of Natural Resources (MDNR) Wildlife and Heritage Service to determine if state-listed rare, threatened or endangered (RTE) species are present in the Study Area. MDNR Wildlife and Heritage responded in a letter dated August 22, 2017 that there are no official state or federally listed plant or animal species within the Study Area (**Appendix A**).

MDTA sent a letter to MDNR Environmental Review Unit (ERU) to determine the presence of anadromous finfish or other fish in the Study Area. MDNR ERU responded in a letter dated September 13, 2017 that there are no anadromous finfish or other fish in the Study Area (**Appendix A**).

Through coordination with the U.S. Fish and Wildlife Service (USFWS) Chesapeake Bay Field Office, it was found that no federally proposed or listed threatened or endangered species are known to exist in the Study Area, other than occasional transient species The USFWS Online Certification Letter dated February 5, 2017 documenting these results can be found in **Appendix A.**

3.3 CULTURAL AND HISTORICAL RESOURCE COORDINATION

MDTA sent a letter to the Maryland Historic Trust (MHT) to determine if historic properties will be affected. MHT responded in a letter dated August 22, 2017 stating no historic properties will be affected by the project (**Appendix A**).

3.4 FIELD DELINEATION

Field investigations were conducted between July and August 2017 to confirm and update the previous delineation and determine the presence of new wetlands and waterways within the Study Area. JMT identified nine new non-tidal wetlands and five new potential waterways on the Northbound side of I-95. On the southbound side, nine non-tidal wetlands and four potential waterways were identified. On February 15 and 16, 2018 at a field pre-application meeting, it was deemed by MDE and USACE that three waterways and one wetland will not be regulated, and three wetlands are not hydrologically connected to relatively permanent waters, therefore will only require authorization from MDE.

Wetland Determination Forms for the representative wetland and upland sample plots are presented in **Appendix B.** Due to the location of this site, both Atlantic Coastal Plain and Eastern Mountain Piedmont forms were used. Photographic documentation is presented in **Appendix C**. Locations of the delineated systems and sample plots are shown on the Environmental Features Maps in **Appendix D**. The identified new wetlands and waterways are described below.

3.4.1 NORTHBOUND WETLAND DESCRIPTIONS

Wetland A (WET A)

WET A is a palustrine emergent wetland (PEM) located in the northeastern portion of the Study Area on the northbound side of I-95. The wetland is approximately 1,277 square feet. Primary Hydrology Indicators are saturation and water-stained leaves. The vegetation within the wetland is considered hydrophytic. The dominant vegetation includes broadleaf cattail (*Typha latifolia,* OBL), and *Carex* species. Soils in the sample plot are hydric, meeting the criteria for the Depleted Matrix Hydric Soil Indicator. This feature is not shown on NWI or DNR GIS mapping. *During the field pre-application meeting USACE and MDE stated this resource would not be regulated.*

Wetland B1 (WET B1)

WET B1 is in the northeastern portion of the Study Area and is classified as a palustrine forested (PFO) wetland. The wetland is approximately 5,454 square feet. Primary Hydrology Indicators are saturation, water-stained leaves, and surface water. Vegetation within the wetland is considered hydrophytic. The dominant vegetation includes willow oak (*Quercus phellos,* FACW), sweetgum *(Liquidambar styraciflua*, FAC), bald cypress *(Taxodium distichum,* OBL*)*, elder berry (*Sambucus nigra*, FACW), bottle brush (*Carex hystericina*, OBL), narrow leaf cattail (*Typha angustifolia*, OBL), and rice cutgrass (*Leersia oryozoides*, OBL). Soils in the sample plot are hydric, meeting the criteria for the Depleted Matrix Hydric Soil Indicator. This feature is not shown on NWI or DNR GIS mapping.

Wetland B2 (WET B2)

WET B2 is in the northeastern portion of the Study Area and is classified as a PEM wetland. The wetland is approximately 2,090 square feet. Primary Hydrology Indicators are saturation and water-stained leaves. Vegetation within the wetland is considered hydrophytic. The dominant vegetation includes willow oak, red maple *(Acer rubrum*, FAC*)*, greenbrier (*Smilax rotundifolia*, FAC), Japanese honeysuckle (*Lonicera japonica*, FACU), and Virginia creeper (*Parthenocissus quinquefolia*, FACU). Soils in the sample plot are hydric, meeting the criteria for the Depleted Matrix Hydric Soil Indicator. This feature is not shown on NWI or DNR GIS mapping.

Wetland C (WET C)

WET C is in the northeastern portion of the Study Area and is classified as a PEM and PFO wetland. The PEM portion is approximately 292 square feet and the PFO portion is approximately 417 square feet. Primary Hydrology Indicators are saturation and water-stained leaves. Vegetation within the wetland is considered hydrophytic. The dominant vegetation includes willow oak, sweet gum, pin oak *(Quercus palustris,* FACW*)*, reed canary grass (*Phalaris arundinacea*, OBL), Pennsylvania smartweed (*Polygonum pensylvanicum*, FACW), little headweed (*Portulaca*

oleraceas, FACU), and greenbrier. Soils in the sample plot are hydric, meeting the criteria for the Loamy Gleyed Matrix Hydric Soil Indicator. This feature is not shown on NWI or DNR GIS mapping.

Wetland L1 (WET L1)

WET L1 is in the northeastern portion of the Study Area and is classified as a PFO wetland. This wetland is approximately 1,166 square feet. Primary Hydrology Indicators are saturation, water marks, surface water, and water-stained leaves. Vegetation within the wetland is considered hydrophytic. The dominant vegetation includes willow oak, red maple, green ash (*Fraxinus pennsylvanica*, FACW), greenbrier, and fox grass (*Carex vulpinoidea*, FACW). Soils in the sample plot are hydric, meeting the criteria for the Depleted Matrix Hydric Soil Indicator. This feature is not shown on NWI or DNR GIS mapping. *During field pre-application meeting this resource was deemed not hydrologically connected to relatively permanent waters.*

Wetland L2 (WET L2)

WET L2 is in the northeastern portion of the Study Area and is classified as a PEM wetland. This wetland is approximately 1,352 square feet. Primary Hydrology Indicators are saturation and water-stained leaves. Vegetation within the wetland is considered hydrophytic. The dominant vegetation includes red maple, willow oak, eastern baccharis *(Baccharis halimifolia* FAC), greenbrier, and narrowleaf cattail. Soils in the sample plot are hydric, meeting the criteria for the Depleted Matrix Hydric Soil Indicator. This feature is not shown on NWI or DNR GIS mapping. *During field pre-application meeting this resource was deemed not hydrologically connected to relatively permanent waters.*

Wetland M (WET M)

WET M is in the northeastern portion of the Study Area and is classified as a PEM wetland. This wetland is approximately 800 square feet. The Primary Hydrology Indicator is water-stained leaves. Vegetation within the wetland is considered hydrophytic. The dominant species is greenbrier; vegetation is very sparse in this wetland. Soils in the sample plot are hydric, meeting the criteria for the Depleted Matrix Hydric Soil Indicator. This feature is not shown on NWI or DNR GIS mapping.

Wetland N (WET N)

WET N is in the northeastern portion of the Study Area and is classified as a PEM wetland. This wetland is approximately 1,318 square feet. Primary Hydrology Indicators are surface water, saturation, and high-water table. Vegetation within the wetland is considered hydrophytic. The dominant includes common reed (*Phragmites australis*, FACW*)* and narrowleaf cattail. Soils in the sample plot are hydric, meeting the criteria for the Depleted Matrix Hydric Soil Indicator. This feature is not shown on NWI or DNR GIS mapping.

Wetland O (WET O)

WET O is in the northeastern portion of the Study Area and is classified as a PFO wetland. This wetland is approximately 573 square feet. Primary Hydrology Indicators are surface water, high water table, water-stained leaves, and saturation. Vegetation within the wetland is considered hydrophytic. The dominant vegetation includes sweetgum, greenbrier, and poison ivy (*Toxicodendron radicans*, FAC*)*. Soils in the sample plot are hydric, meeting the criteria for the Depleted Matrix Hydric Soil Indicator. This feature is not shown on NWI or DNR GIS mapping.

3.3.2 NORTHBOUND WATERS DESCRIPTIONS

Waters A (WUS A)

WUS A is an ephemeral waterway located in the southern portion of the Study Area. This waterway flows south paralleling the northbound side of I-95 and eventually discharges into Big Gunpowder Falls. WUS A is in the form of a storm water conveyance channel that has been reinforced with concrete, limiting the channel substrate to only concrete. WUS A is approximately 3 feet wide, with an average observed depth of 1-2 inches. *During field pre-application meeting this resource was deemed to be not regulated.*

Waters B (WUS B)

WUS B is an ephemeral channel located in the southern portion of the Study Area. This waterway directly parallels the northbound side of I-95, flowing south and eventually discharging into Waters A. The channels substrate consists of sand and gravel. WUS B is approximately 3-5 feet wide, with an average observed depth of 1-2 inches.

Waters C (WUS C)

WUS C is an ephemeral channel located in the southern portion of the Study Area. This waterway is completely forested and parallels the northbound side of I-95. This channel flows south into an existing waterway. The substrate consists of sand, silt, and gravel. Waters C is approximately 2-3 feet wide with an average observed depth of 0-2 inches.

Waters D (WUS D)

WUS D is an ephemeral channel located in the northern portion of the Study Area. This channel is completely forested and parallels the northbound side of I-95 flowing southwest into an existing waterway. The channel substrate consists of sand, silt, and gravel. It is and approximately 2-3 feet wide. *During field pre-application meeting this resource was deemed not hydrologically connected to relatively permanent waters.*

Waters E (WUS E)

WUS E is an ephemeral channel located in the northern portion of the Study Area. This channel drains to an existing waterway and directly parallels the northbound side of I-95, flowing east from an existing wetland (WET A). The channel's substrate consists of sand, silt, muck, and is approximately 2-3 feet wide.

Waters 13A-b (WUS 13A-b)

WUS 13A-b is an ephemeral channel located in the central portion of the Study Area. This channel drains to an existing wetland (WET 13A), flowing south. in the form of a storm water conveyance channel that has been reinforced with concrete, limiting the channel substrate to only concrete.

3.4.3 SOUTHBOUND WETLAND DESCRIPTIONS

Wetland 17A (WET 17A)

WET 17A is a PFO wetland located off the southbound side of I-95, south of Old Mountain Road. The wetland originates outside of the Study Area and drains to both WUS 23A and WUS 29A. The dominant vegetation includes red maple, southern arrowwood, and greenbrier. Primary Hydrologic indicators include the presence of water-stained leaves, and oxidized rhizospheres on living roots. The soils in this area meet the Depleted Matrix Hydric Soil Indicator. This wetland feature is not shown on NWI or DNR GIS mapping.

Wetland 18A (WET 18A, PFO)

WET 18A is a wetland complex with areas consisting of both PFO and PEM wetland areas. It is located along the southbound side of I-95, south of South Old Mountain Road. The wetland originates outside of the Study Area and drains to BRBR-WUS 23A and WUS 29A. The dominant vegetation within the PFO portion of the wetland include red maple, pin oak, and greenbrier. Primary Hydrologic indicators include the presence of oxidized rhizospheres on living roots. The soils in this area meet the Depleted Matrix Hydric Soil Indicator. This wetland feature is not shown on NWI or DNR GIS mapping.

Wetland 18A (WET 18A, PEM)

WET 18A is a PEM wetland located along the southbound side of I-95, south of South Old Mountain Road. The wetland originates outside of the Study Area and drains to BRBR-WUS 23A and WUS 29A. The dominant vegetation includes broadleaf cattail and bushy seedbox. Primary Hydrologic indicators include the presence of oxidized rhizospheres on living roots. The soils in this area meet the Depleted Matrix and Redox Dark Surface Hydric Soil Indicator. This wetland feature is not shown on NWI or DNR GIS mapping.

Wetland 20A (WET 20A)

WET 20A is a PFO wetland located off the southbound side of I-95, south of Old Joppa Road. The wetland abuts WUS 18A on both sides of the channel. The wetland continues southwest outside of the Study Area. The dominant vegetation includes red maple, spicebush, skunk cabbage (*Symplocarpus foetidus*, OBL*),* and greenbrier. Primary Hydrologic indicators include the presence of oxidized rhizospheres on living roots. The soils in this area meet the Depleted Matrix Hydric Soil Indicator. This wetland feature is not shown on NWI or DNR GIS mapping.

Wetland 22 A (WET 22A)

WET 22A is a PFO wetland located off the southbound side of I-95, immediately north of WUS 34A (Little Gunpowder Falls). The wetland is within the floodplain of WUS 34A. The dominant vegetation includes pin oak, spicebush, southern arrowwood, and skunk cabbage. Primary Hydrologic indicators include the presence of water-stained leaves and oxidized rhizospheres on living roots. The soils in this area meet the Depleted Matrix Hydric Soil Indicator. This wetland feature is not shown on NWI or DNR GIS mapping.

Wetland 23A (WET 23A)

WET 23A is a PFO wetland located off the southbound side of I-95, immediately south of WUS 34A (Little Gunpowder Falls). This wetland abuts a stream that flows parallel and north towards WUS 34A. This stream channel is immediately outside of the Study Area. The wetland looks like it was recently accessed with heavy equipment, which may indicate the wetland is located within an underground utility corridor. Dominant vegetation includes red maple, American sycamore (*Platanus occidentalis*, FACW*),* river birch (*Betula nigra*, FACW), spicebush, Japanese stiltgrass and Japanese honeysuckle*.* Primary Hydrologic indicators include the presence of surface water, saturation, and oxidized rhizospheres on living roots. The soils in this area meet the Depleted Matrix Hydric Soil Indicator. This wetland feature is not shown on NWI or DNR GIS mapping.

Wetland 25A (WET 25A)

WET 25A is a PFO wetland located off the southbound side of I-95, immediately north of Bradshaw Road. The wetland continues to the west beyond the limits of the Study Area. The dominant plant species include red maple, sweetgum*,* common winterberry (*Ilex verticillata*, FACW*),* soft rush, and greenbrier. Primary Hydrologic indicators include the presence of oxidized rhizospheres on living roots. The soils in this area meet the Depleted Matrix Hydric Soil Indicator. This wetland feature is not shown on NWI or DNR GIS mapping.

Wetland 93A (WET 93A)

WET 93A is a PFO wetland located off the southbound side of I-95, south of Old Joppa Road. The wetland is a sparsely vegetated drainage swale that begins at an old spring box. The wetland

has a direct connection to WUS 18A. The dominant vegetation includes Japanese stiltgrass and poison ivy. Primary Hydrologic indicators include high water table, saturation, and water-stained leaves. The soils in this area meet the Depleted Matrix Hydric Soil Indicator. This wetland feature is not shown on NWI or DNR GIS mapping.

Wetland 94A (WET 94A)

WET 94A is a PFO wetland located off the southbound side of I-95, north of South Old Mountain Road. This wetland is a roadway drainage swale that conveys runoff to a culvert that feeds WET 37A. The dominant vegetation includes red maple, pin oak, eastern baccharis (*Baccharis halimifolia*, FACW*)*, common reed, and Japanese knotweed *(Reynoutria japonica,* FACU). Primary Hydrologic indicators include the presence of water-stained leaves. The soils in this area meet the Depleted Below Dark Surface Hydric Soil Indicator. This wetland feature is not shown on NWI or DNR GIS mapping.

Wetland 97A (WET 97A)

WET 97A is a PFO wetland located along the southbound side of I-95, north of New Forge Road. The wetland directly abuts WUS 44A and WUS 43A. The dominant vegetation includes sweetgum, blackgum, red maple, Japanese stiltgrass, and Japanese honeysuckle. Primary Hydrologic indicators include the presence of oxidized rhizospheres on living roots. The soils in this area meet the Depleted Matrix Hydric Soil Indicator. This wetland feature is not shown on NWI or DNR GIS mapping.

3.4.4 SOUTHBOUND WATERS DESCRIPTIONS

Waters W (WUS W)

WUS W is an ephemeral channel located in the central portion of the Study Area. This channel directly parallels the southbound side of I-95. Waters W is culverted under Bradshaw Road, flowing south. Waters W is approximately 2-3 feet wide and substrate consists of sand, silt, concrete, and gravel. *During the field pre-application meeting USACE and MDE stated this resource would not be regulated.*

Waters X (WUS X)

WUS X is an ephemeral channel located in the central portion of the Study Area. This channel is partially forested and parallels the southbound side of I-95. Waters X is culverted under Bradshaw Road, flowing south. The banks are approximately 2-3 feet wide and substrate consists of sand, silt, concrete, and gravel. *During the field pre-application meeting USACE and MDE stated this resource would not be regulated.*

Waters Y (WUS Y)

WUS Y is an ephemeral channel located in the northern portion of the Study Area. This channel is completely forested and directly parallels the southbound side of I-95. Waters Y is culverted under Old Joppa Road flowing east to an Unnamed Tributary of Little Gunpowder Falls. Waters Y is approximately 2-3 feet wide and substrate consists of sand, silt, concrete, and gravel.

Waters Z (WUS Z)

WUS Z is an ephemeral channel located in the northern portion of the Study Area. This channel directly parallels the southbound side of I-95. Waters Z is culverted under Old Joppa Road flowing east to an Unnamed Tributary of Little Gunpowder Falls. The banks are approximately 2-3 feet wide and substrate consists of sand, silt, concrete, and gravel. *During the field pre-application meeting USACE and MDE stated this resource would not be regulated.*

4.0 CONCLUSION

During the wetland and waterways delineation on the northbound section of I-95, JMT delineated nine new wetlands as well as five new waterways. On the southbound section, Wallace Montgomery delineated nine new wetlands and JMT delineated four new waterways. Both firms confirmed previous delineated resources on the north and southbound sections. The environmental features delineated may be subject to regulation by the USACE and MDE and impacts to these areas may require authorization from one or both agency for mitigation from potential impacts.

5.0 REFERENCES

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APPENDIX A
AGENCY CORRESPONDENCE

MARYLAND
DEPARTMENT OF
NATURAL RESOURCES

Larry Hogan, *Governor*
Boyd Rutherford, *Lt. Governor*
Mark Belton, *Secretary*
Joanne Throwe, *Deputy Secretary*

August 22, 2017

Mr. William N. Pines
Maryland Transportation Authority
300 Authority Drive
Baltimore, MD 21222-2200

RE: Environmental Review for MDTA I-95 Express Toll Lanes Northern Transition, from MD 43 to MD 152, MDTA Tracking #KH-3009, Harford and Baltimore Counties, Maryland.

Dear Mr. Pines:

The Wildlife and Heritage Service has determined that there are no official State or Federal records for listed plant or animal species within the delineated area shown on the map provided. As a result, we have no specific concerns regarding potential impacts or recommendations for protection measures at this time. Please let us know however if the limits of proposed disturbance or overall site boundaries change and we will provide you with an updated evaluation.

Thank you for allowing us the opportunity to review this project. If you should have any further questions regarding this information, please contact me at (410) 260-8573.

Sincerely,

Lori A. Byrne

Lori A. Byrne,
Environmental Review Coordinator
Wildlife and Heritage Service
MD Dept. of Natural Resources

ER# 2017.1226.ha/ba

MARYLAND
DEPARTMENT OF
NATURAL RESOURCES

Larry Hogan, *Governor*
Boyd Rutherford, *Lt. Governor*
Mark Belton, *Secretary*
Joanne Throwe, *Deputy Secretary*

18-MIS-020

September 13th, 2017

William Pines
Maryland Transportation Authority
300 Authority Dr.
Baltimore, MD 21222

Subject: Fisheries Information for the MDTA I-95 Express Toll Lanes Northern Transition from MD43 to MD 152, MDTA Tracking# KH-3009, Baltimore and Harford Counties

Dear Mr. Pines;

The above referenced project has been reviewed to determine fisheries species near the proposed project. The proposed activities include adding a single express toll lane on northbound I-95 from MD 43 to MD 152, a slip ramp north of MD 43 to allow ETL users to merge into general purpose lanes, replace the Bradshaw Overpass, replace the Old Joppa Road Overpass, and reconstruct the parapets on the Big Gunpowder and Little Gunpowder bridges and construct two noise walls.

The project will impact Gunpowder falls which is classified as a Use IV (supports adult trout) stream. Anadromous fish are present in Gunpowder Falls. Generally no instream work is allowed in Use IV streams with anadromous fish between February 15th and June 15th of any given year to protect spawning fish. In addition the project site is within a Sensitive Species Project Review Area. The MDDNR Wildlife Heritage Service should be contacted to see if they have any additional Rare, Threatened or Endangered species concerns or comments. In addition the project will impact Little Gunpowder Falls which is classified as a Use III stream. Anadromous fish are also present in Gunpowder Falls. Generally no instream work is allowed in Use III stream containing anadromous fish from October 1st through June 15th of any given year to protect spawning fish. If adequate sediment and erosion controls can be implemented during construction which will prevent sediment laden runoff from reaching these streams, and no instream work is required, than a Time of Year restriction period would not need to be implemented. The applicant is encouraged to strictly adhere to the approved sediment and erosion control plan to prevent further sedimentation downstream during construction.

DNR has documented many resident fish species from Gunpowder Falls and Little Gunpowder Falls and their tributaries by our Maryland Biological Stream Survey. MBSS data can be accessed via the MDDNR web page at http://streamhealth.maryland.gov, allowing access to resource surveys in neighboring tributaries.

If you have any further questions, please feel free to contact me at 410 260-8736.

Sincerely;

Christopher Aadland

Christopher Aadland
Environmental Review Program

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chesapeake Bay Ecological Services Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401-7307
Phone: (410) 573-4599 Fax: (410) 266-9127
http://www.fws.gov/chesapeakebay/
http://www.fws.gov/chesapeakebay/endsppweb/ProjectReview/Index.html

In Reply Refer To:
Consultation Code: 05E2CB00-2018-SLI-0623
Event Code: 05E2CB00-2018-E-01401
Project Name: I-95 Northbound Extension

February 05, 2018

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. This species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Chesapeake Bay Ecological Services Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401-7307
(410) 573-4599

Project Summary

Consultation Code: 05E2CB00-2018-SLI-0623

Event Code: 05E2CB00-2018-E-01401

Project Name: I-95 Northbound Extension

Project Type: TRANSPORTATION

Project Description: I-95 Northbound Extension

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/39.43296821650006N76.38242874593581W

Counties: Baltimore, MD | Harford, MD

Endangered Species Act Species

There is a total of 0 threatened, endangered, or candidate species on this species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

2017 04621 Rec'd 8/7/17 F FHWA TJT/ER

Maryland Transportation Authority

Larry Hogan
Governor

Boyd K. Rutherford
Lt. Governor

Pete K. Rahn
Chairman

Katherine Bays Armstrong
Peter J. Basso
Dontae Carroll
William H. Cox, Jr.
William C. Ensor, III
W. Lee Gaines, Jr.
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Kevin C. Reigrut
Executive Director

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410-537-7803 (fax)
711 (MD Relay)
1-888-754-0098

e-mail: mdta@mdta.maryland.gov

www.mdta.maryland.gov

July 25, 2017

Ms. Elizabeth Hughes
State Historic Preservation Officer
Maryland Historic Trust
100 Community Place, 3rd floor
Crownsville, MD 21032-2023

Attention: Ms. Beth Cole

RE: Maryland Transportation Authority (MDTA)
I-95 Express Toll Lanes Northern Transition
From MD 43 to MD 152
MDTA Tracking # KH-3009
Baltimore and Harford Counties, MD
Request for Project Review and Comment

Dear Ms. Hughes:

The Maryland Transportation Authority (MDTA) is proposing to begin staged implementation of the I-95 Section 200 approved NEPA FONSI improvements. The first stage of implementation will include adding a single express toll lane (ETL) on northbound I-95 from MD 43 to MD 152, a slip ramp north of MD 43 to allow ETL users to merge into the general purpose lanes (GPLs), replacement of the Bradshaw Overpass, replacement of the Old Joppa Road Overpass, reconstructing the parapets on the Big Gunpowder and Little Gunpowder bridges, and two noise walls.

The proposed improvements will address capacity, operational, and safety concerns that exist along northbound I-95. The proposed improvements will be constructed within different contracts to address constructability, maintenance of traffic, and yearly funding availability. This is a state project with state funding and permit authorizations that will follow the Maryland Historical Trust Act §§ 5A-325 and 5A-326 of the State Finance and Procurement Article for state level compliance. The project will also require a joint permit from the Maryland Department of the Environment (MDE) and the U.S. Army Corps of Engineers (USACE).

We request your project review and comment. Please include the MDTA tracking number listed in the subject line above in all future correspondence. If you have questions on the proposed project or require additional information to complete your review, please contact me at wpines@mdta.state.md.us or (410) 931-0808.

Sincerely,

William N. Pines, P.E.
Director of Project Development

The Maryland Historical Trust has determined that there are no historic properties affected by this undertaking.

Date 8/22/17

Enclosure: Location Map

cc:
MDTA: James Harkness, Serena Liu, Peter Mattejat, Pam McNicholas, Ning Zhou
JMT: Stacey Gill, Leyla Lange, Michael Rothenheber
RKK: Sally Kishter, Greg O'Hare, Mitchell Scott, Ed Tinney
CDM Smith: David Greenwood

IA TJT/ERC 8/22/17

APPENDIX B
WETLAND DETERMINATION FORMS

NORTHBOUND SECTION

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL NB Extension City/County: Harford Sampling Date: 7/19/17

Applicant/Owner: MDTA State: MD Sampling Point: WET A

Investigator(s): L. Snyder, S. Knight Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): None Local relief (concave, convex, none): Concave Slope (%): None

Subregion (LRR or MLRA): MLRA149 Lat: 39.4419 Long: -76.3643 Datum: NAD 83

Soil Map Unit Name: NeB2, Neshaminy silt loam NWI classification: PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☑	No	☐			
Hydric Soil Present?	Yes	☑	No	☐	**Is the Sampled Area Within a Wetland?**	Yes ☑	No ☐
Wetland Hydrology Present?	Yes	☑	No	☐			

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes	☑	No	☐	Depth (inches):	2
Water Table Present?	Yes	☑	No	☐	Depth (inches):	4
Saturation Present? (includes capillary fringe)	Yes	☑	No	☐	Depth (inches):	0

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET A

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Sapling/Shrub Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Herb Stratum (Plot size: 30')			
1. *Typha latifolia*	30	Y	OBL
2. *Polygonum pensylvanicum*	5	N	FACW
3. *Daucus carota*	5	N	UPL
4. *Ambrosia artemisiifolia*	10	N	FACU
5. *Cicuta maculata*	10	N	OBL
6. *Carex* sp.	40	Y	NI
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	40	x1=	40
FACW species	5	x2=	10
FAC species	0	x3=	0
FACU species	10	x4=	40
UPL species	5	x5=	25
Column Totals:	60 (A)		115 (B)

Prevalence Index = B/A = 1.9

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is > 50%

X 3 - Prevalence Index is ≤ 3.0[1]

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☐ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/1	100					Sandy Loam	
6-12	10YR 4/6	40	5YR 4/6	20			Sandy Clay	
	10YR 4/1	40						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL NB Extension City/County: Harford Sampling Date: 7/19/17

Applicant/Owner: MDTA State: MD Sampling Point: WET B1

Investigator(s): L. Snyder, S. Knight Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): None Local relief (concave, convex, none): Concave Slope (%): None

Subregion (LRR or MLRA): MLRA149 Lat: 39.4418 Long: -76.3603 Datum: NAD 83

Soil Map Unit Name: Lr, Leonardtown silt loam NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☑	No	☐	**Is the Sampled Area Within a Wetland?**	Yes ☑	No ☐
Hydric Soil Present?	Yes	☑	No	☐			
Wetland Hydrology Present?	Yes	☑	No	☐			

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes	☑	No	☐	Depth (inches):	2
Water Table Present?	Yes	☑	No	☐	Depth (inches):	3
Saturation Present? (includes capillary fringe)	Yes	☑	No	☐	Depth (inches):	0

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET B1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus phellos*	20	Y	FACW
2. *Liquidambar styraciflua*	20	Y	FAC
3. *Taxodium distichum*	10	Y	OBL
4.			
5.			
6.			
7.			
8.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		
Sapling/Shrub Stratum (Plot size: 30')			
1. *Quercus phellos*	10	Y	FACW
2. *Liquidambar styraciflua*	15	Y	FAC
3. *Sambucus nigra*	20	Y	FACW
4.			
5.			
6.			
7.			
8.			
	45 = Total Cover		
50% of total cover: 22.5	20% of total cover: 9		
Herb Stratum (Plot size: 30')			
1. *Carex hystericina*	20	Y	OBL
2. *Typha angustifolia*	20	Y	OBL
3. *Smilax rotundifolia*	10	N	FAC
4. *Toxicodendron radicans*	10	N	FAC
5. *Leersia oryozoides*	50	Y	OBL
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	110 = Total Cover		
50% of total cover: 55	20% of total cover: 22		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is > 50%

____ 3 - Prevalence Index is ≤ 3.0[1]

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET B1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 2/2	100					Loam	
1-8	10YR 4/1	80	10YR 4/6	10	C	M	Sandy Clay	
			10YR 7/1	10	D	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: gravel

Depth (inches): 8

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL NB Extension City/County: Harford Sampling Date: 8/16/17

Applicant/Owner: MDTA State: MD Sampling Point: WET B2

Investigator(s): E. Markel, S. Knight Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): None Local relief (concave, convex, none): None Slope (%): None

Subregion (LRR or MLRA): MLRA149 Lat: 39.4416 Long: -76.3607 Datum: NAD 83

Soil Map Unit Name: Lr, Leonardtown silt loam NWI classification: PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☑	No	☐	**Is the Sampled Area Within a Wetland?**	Yes ☑	No ☐
Hydric Soil Present?	Yes	☑	No	☐			
Wetland Hydrology Present?	Yes	☑	No	☐			

Remarks:

Mosaic 80% wet, 20% upland

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☑ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes	☐	No	☑	Depth (inches):	
Water Table Present?	Yes	☐	No	☑	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☑	No	☐	Depth (inches):	2

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

PFO extension – fed by roadside runoff, extends S. of SA

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET B2

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	60	Y	FAC
2. *Quercus phellos*	20	Y	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		

Sapling/Shrub Stratum (Plot size: 30')			
1. *Acer rubrum*	20	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		

Herb Stratum (Plot size: 30')			
1. *Smilax rotundifolia*	12	Y	FAC
2. *Juncus effusus*	5	N	OBL
3. *Carex vulpinoidea*	5	N	FACW
4. *Leersia virginica*	10	N	FACW
5. *Lonicera japonica*	12	Y	FACU
6. *Parthenocissus quinquefolia*	12	Y	FACU
7. *Quercus phellos*	5	N	FACW
8.			
9.			
10.			
11.			
12.			
	61 = Total Cover		
50% of total cover: 30.5	20% of total cover: 12.2		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ___ 3 - Prevalence Index is ≤ 3.0[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET B2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/1	98	10YR 3/6	2			Clay loam	
2-10	2.5Y 5/1	85	10YR 5/6	10			Clay loam	
			10YR 3/1	5	D	M	Clay loam	
10-12+	10YR 5/8	90	10YR 7/1	10	D	M	Sandy Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL NB Extension City/County: Harford Sampling Date: 8/9/17

Applicant/Owner: MDTA State: MD Sampling Point: WET C

Investigator(s): S. Gill, L. Snyder Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): None Local relief (concave, convex, none): None Slope (%): None

Subregion (LRR or MLRA): MLRA149 Lat: 39.4441776 Long: -76.3613 Datum: NAD 83

Soil Map Unit Name: Lr. Leonardtown silt loam NWI classification: PEM/PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☑	No	☐	**Is the Sampled Area Within a Wetland?**	Yes ☑	No ☐
Hydric Soil Present?	Yes	☑	No	☐			
Wetland Hydrology Present?	Yes	☑	No	☐			

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☑ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes	☑	No	☐	Depth (inches):	2
Water Table Present?	Yes	☑	No	☐	Depth (inches):	3
Saturation Present? (includes capillary fringe)	Yes	☑	No	☐	Depth (inches):	0

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET C

Tree Stratum (Plot size: 30')

		Absolute % Cover	Dominant Species?	Indicator Status
1.	*Quercus phellos*	20	Y	FACW
2.	*Liquidambar styraciflua*	30	Y	FAC
3.	*Quercus palustris*	20	Y	FACW
4.				
5.				
6.				
7.				
8.				
		70	= Total Cover	

50% of total cover: 35 20% of total cover: 14

Sapling/Shrub Stratum (Plot size: 30')

1.	*Quercus phellos*	10	Y	FACW
2.				
3.				
4.				
5.				
6.				
7.				
8.				
		10	= Total Cover	

50% of total cover: 5 20% of total cover: 2

Herb Stratum (Plot size: 30')

1.	*Polygonum pensylvanicum*	10	Y	FACW
2.	*Smilax rotundifolia*	10	Y	FAC
3.	*Dichanthelium boreale*	5	N	FACU
4.	*Phalaris arundinacea*	25	Y	OBL
5.	*Portulaca oleracea*	10	Y	FACU
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		60	= Total Cover	

50% of total cover: 30 20% of total cover: 12

Woody Vine Stratum (Plot size: 30')

1.	*Toxicodendron radicans*	10	Y	FAC
2.				
3.				
4.				
5.				
		10	= Total Cover	

50% of total cover: 5 20% of total cover: 2

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 88 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ___ 3 - Prevalence Index is ≤ 3.0[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET C

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/2	100					Sandy loam	
3-12	7.5YR 5/2	40	GLEY1 6/5G/1	20	D	M	Sandy clay	
			5YR 5/8	40	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☑ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL NB Extension City/County: Harford Sampling Date: 8/16/17

Applicant/Owner: MDTA State: MD Sampling Point: WET L1

Investigator(s): L.Snyder, S. Knight Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): None Local relief (concave, convex, none): None Slope (%): None

Subregion (LRR or MLRA): MLRA149 Lat: 39.4417 Long: -76.3588 Datum: NAD 83

Soil Map Unit Name: KpB, Keyport silt loam NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☑	No	☐	**Is the Sampled Area Within a Wetland?**	Yes ☑	No ☐
Hydric Soil Present?	Yes	☑	No	☐			
Wetland Hydrology Present?	Yes	☑	No	☐			

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☑ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☑ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes	☑	No	☐	Depth (inches):	1/2
Water Table Present?	Yes	☑	No	☐	Depth (inches):	1
Saturation Present? (includes capillary fringe)	Yes	☑	No	☐	Depth (inches):	0

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET L1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	40	Y	FAC
2. *Quercus phellos*	40	Y	FACW
3. *Nyssa sylvatica*	10	N	FAC
4.			
5.			
6.			
7.			
8.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		
Sapling/Shrub Stratum (Plot size: 30')			
1. *Acer rubrum*	10	Y	FAC
2. *Quercus phellos*	30	Y	FACW
3. *Fraxinus pennsylvanica*	10	Y	FACW
4.			
5.			
6.			
7.			
8.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		
Herb Stratum (Plot size: 30')			
1. *Smilax rotundifolia*	30	Y	FAC
2. *Scirpus Cyperinus*	10	N	OBL
3. *Carex vulpinoidea*	30	Y	FACW
4. *Persicaria maculosa*	5	N	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	61 = Total Cover		
50% of total cover: 30.5	20% of total cover: 12.2		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ___ 3 - Prevalence Index is ≤ 3.0[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET L1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/1	100						
2-10	10Y 5/1	80	10YR 6/6	20	C		Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL NB Extension City/County: Harford Sampling Date: 8/16/17

Applicant/Owner: MDTA State: MD Sampling Point: WET L2

Investigator(s): L.Snyder, S. Knight Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): None Local relief (concave, convex, none): None Slope (%): None

Subregion (LRR or MLRA): MLRA149 Lat: 39.4418 Long: -76.3597 Datum: NAD 83

Soil Map Unit Name: Lr, Leonardtown silt loam NWI classification: PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☑	No	☐	**Is the Sampled Area Within a Wetland?**	Yes ☑	No ☐
Hydric Soil Present?	Yes	☑	No	☐			
Wetland Hydrology Present?	Yes	☑	No	☐			

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☑ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes	☐	No	☑	Depth (inches):	
Water Table Present?	Yes	☐	No	☑	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☑	No	☐	Depth (inches):	Surface

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET L2

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	20	Y	FAC
2. *Quercus palustris*	10	N	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		

Sapling/Shrub Stratum (Plot size: 30')			
1. *Baccharis halimifolia*	10	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		

Herb Stratum (Plot size: 30')			
1. *Smilax rotundifolia*	70	Y	FAC
2. *Typha angustifolia*	25	Y	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	95 = Total Cover		
50% of total cover: 47.5	20% of total cover: 19		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is ≤ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET L2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 5/2	100					Sandy Loam	
3-12	10YR 6/1	35	5YR 3/4	15	C	M	Sandy Clay	
	10YR 5/1	35	5YR 7/1	15	D	M	Sandy Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL NB Extension City/County: Harford Sampling Date: 8/9/17

Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: WET M

Investigator(s): E. Markel, M. McCormick Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): None

Subregion (LRR or MLRA): MLRA149 Lat: 39.44126 Long: -76.35433 Datum: NAD 83

Soil Map Unit Name: En, Elkton silt loam NWI classification: PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☑	No	☐			
Hydric Soil Present?	Yes	☑	No	☐	**Is the Sampled Area Within a Wetland?**	Yes ☑	No ☐
Wetland Hydrology Present?	Yes	☑	No	☐			

Remarks:

No trees in wetland but located in forest canopy. Drains into adjacent stream, fed by rainfall.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET M

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling/Shrub Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 30')			
1. *Smilax rotundifolia*	30	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	30 = Total Cover		

50% of total cover: 15 20% of total cover: 6

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is > 50%

____ 3 - Prevalence Index is ≤ 3.0[1]

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

Very sparsely vegetated

SOIL

Sampling Point: WET M

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/2	100					Sandy Loam	
8-12+	10YR 6/1	75	2.5YR 5/4	25	C	M	Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL NB Extension City/County: Harford Sampling Date: 8/9/17

Applicant/Owner: MDTA State: MD Sampling Point: WET N

Investigator(s): E. Markel, M. McCormick Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Toe of slope Local relief (concave, convex, none): Concave Slope (%): None

Subregion (LRR or MLRA): MLRA149 Lat: 39.4416 Long: -76.3558 Datum: NAD 83

Soil Map Unit Name: En, Elkton silt loam NWI classification: PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☑	No	☐	**Is the Sampled Area Within a Wetland?**	Yes ☑	No ☐
Hydric Soil Present?	Yes	☑	No	☐			
Wetland Hydrology Present?	Yes	☑	No	☐			

Remarks:

Fed by outfall, *Phragmites australis* wetland, phrag continues past visible hydrology indicators and those areas were excluded from the wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes	☑	No	☐	Depth (inches):	2"
Water Table Present?	Yes	☑	No	☐	Depth (inches):	0"
Saturation Present? (includes capillary fringe)	Yes	☑	No	☐	Depth (inches):	0-12"

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET N

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Sapling/Shrub Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Herb Stratum (Plot size: 30')			
1. *Phragmites australis*	80	Y	FACW
2. *Typha angustifolia*	20	Y	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is ≤ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET N

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/2	100					Sandy Loam	
3-12	10YR 4/2	80	5YR 4/4	20	C	M	Sandy Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL NB Extension City/County: Harford Sampling Date: 8/16/17

Applicant/Owner: MDTA State: MD Sampling Point: WET O

Investigator(s): E. Markel, S. Knight Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): None Local relief (concave, convex, none): None Slope (%): None

Subregion (LRR or MLRA): MLRA149 Lat: 39.4417 Long: -76.3612 Datum: NAD 83

Soil Map Unit Name: Lr, Leonardtown silt loam NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☑	No	☐	**Is the Sampled Area Within a Wetland?**	Yes ☑	No ☐
Hydric Soil Present?	Yes	☑	No	☐			
Wetland Hydrology Present?	Yes	☑	No	☐			

Remarks:

Small, fed by rainfall and roadside drainage

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☑ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes	☑	No	☐	Depth (inches):	Surface
Water Table Present?	Yes	☑	No	☐	Depth (inches):	Surface
Saturation Present? (includes capillary fringe)	Yes	☑	No	☐	Depth (inches):	Surface

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET O

Tree Stratum (Plot size: 30')

		Absolute % Cover	Dominant Species?	Indicator Status
1.	*Liquidambar styraciflua*	20	Y	FAC
2.				
3.				
4.				
5.				
6.				
7.				
8.				
		20	= Total Cover	

50% of total cover: 10 20% of total cover: 4

Sapling/Shrub Stratum (Plot size: 30')

1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
			= Total Cover	

50% of total cover: 20% of total cover:

Herb Stratum (Plot size: 30')

1.	*Smilax roundifolia*	15	Y	FAC
2.	*Parthenocissus quinquefolia*	5	N	FACU
3.	*Lonicera japonica*	5	N	FACU
4.	*Toxicodendron radicans*	5	N	FAC
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		30	= Total Cover	

50% of total cover: 15 20% of total cover: 6

Woody Vine Stratum (Plot size: 30')

1.	*Toxicodendron radicans*	10	Y	FAC
2.	*Smilax rotundifolia*	15	Y	FAC
3.				
4.				
5.				
		25	= Total Cover	

50% of total cover: 12.5 20% of total cover: 5

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ___ 3 - Prevalence Index is ≤ 3.0[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET O

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	85	10YR 4/6	5	C	M	Clay Loam	
			10YR 5/3	10	C	M	Clay Loam	
4-8	2.5Y 4/2	100					Clay	
8-10+	10YR 6/3	100					Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL NB Extension City/County: Harford Sampling Date: 8/9/17

Applicant/Owner: MDTA State: MD Sampling Point: UPL B L2

Investigator(s): L. Snyder, S. Gill Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): None Local relief (concave, convex, none): None Slope (%): None

Subregion (LRR or MLRA): MLRA149 Lat: 39.4418 Long: -76.3603 Datum: NAD 83

Soil Map Unit Name: Lr, Leonardtown silt loam NWI classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☐	No	☑		
Hydric Soil Present?	Yes	☐	No	☑	**Is the Sampled Area Within a Wetland?**	Yes ☐ No ☑
Wetland Hydrology Present?	Yes	☐	No	☑		

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes	☐	No	☑	Depth (inches):	
Water Table Present?	Yes	☐	No	☑	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☑	Depth (inches):	

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL B L2

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling/Shrub Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 30')			
1. *Fescue* sp.	60	Y	NI
2. *Plantago lanceolata*	30	Y	FACU
3. *Taraxacum officinale*	10	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		

50% of total cover: 50 20% of total cover: 20

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:100		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is > 50%

____ 3 - Prevalence Index is ≤ 3.0[1]

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UPL B L2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/2	100					Sandy clay loam	
3-12	10YR 4/2	50						
	10YR 4/4	50						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils [3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL NB Extension City/County: Harford Sampling Date: 8/9/17

Applicant/Owner: MDTA State: MD Sampling Point: UPL C

Investigator(s): S. Gill, L. Snyder Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): None Local relief (concave, convex, none): None Slope (%): None

Subregion (LRR or MLRA): MLRA149 Lat: 39.4418 Long: -76.3615 Datum: NAD 83

Soil Map Unit Name: Av, Alluvial land NWI classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☐	No	☑	**Is the Sampled Area Within a Wetland?**	Yes ☐	No ☑
Hydric Soil Present?	Yes	☐	No	☑			
Wetland Hydrology Present?	Yes	☐	No	☑			

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes	☐	No	☑	Depth (inches):	
Water Table Present?	Yes	☐	No	☑	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☑	Depth (inches):	

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL C

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling/Shrub Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 30')			
1. *Schedonorus arundinaceus*	80	Y	FACU
2. *Toxicodendron radicans*	5	N	FAC
3. *Asclepias syriaca*	5	N	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 = Total Cover		

50% of total cover: 45 20% of total cover: 18

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is > 50%

____ 3 - Prevalence Index is ≤ 3.0[1]

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

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Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UPL C

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 4/2	100					Sandy Loam	
1-10	10YR 5/3	80					Sandy Clay	gravel
	10YR 4/4	20						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL NB Extension City/County: Harford Sampling Date: 8/16/17

Applicant/Owner: MDTA State: MD Sampling Point: UPL L1

Investigator(s): L. Snyder, S. Knight Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): None Local relief (concave, convex, none): None Slope (%): None

Subregion (LRR or MLRA): MLRA149 Lat: 39.4418 Long: -76.3588 Datum: NAD 83

Soil Map Unit Name: KpB, Keyport silt loam NWI classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☑	No	☐		
Hydric Soil Present?	Yes	☐	No	☑	**Is the Sampled Area Within a Wetland?**	Yes ☐ No ☑
Wetland Hydrology Present?	Yes	☐	No	☑		

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes	☐	No	☑	Depth (inches):	
Water Table Present?	Yes	☐	No	☑	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☑	Depth (inches):	

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL L1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: 20% of total cover:

Sapling/Shrub Stratum (Plot size: 30')			
1. *Quercus rubra*	15	Y	FACU
2. *Quercus phellos*	10	Y	FACW
3. *Nyssa sylvatica*	10	Y	FAC
4.			
5.			
6.			
7.			
8.			
	35 = Total Cover		

50% of total cover: 17.5 20% of total cover: 7

Herb Stratum (Plot size: 30')			
1. *Festuca* sp.	70	Y	NI
2. *Taraxacum officinale*	10	N	FACU
3. *Plantago lanceolata*	5	N	FACU
4. *Toxicodendron radicans*	5	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 = Total Cover		

50% of total cover: 45 20% of total cover: 18

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: 20% of total cover:

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is > 50%

____ 3 - Prevalence Index is ≤ 3.0[1]

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UPL L1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/1	100						
2-8+	10YR 6/2	80	5YR 6/2	20			Sandy Clay	Gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL NB Extension City/County: Harford Sampling Date: 8/16/17

Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: UPL M N

Investigator(s): E. Markel, S. Knight Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): None Local relief (concave, convex, none): None Slope (%): None

Subregion (LRR or MLRA): MLRA149 Lat: 39.4414 Long: -76.3561 Datum: NAD 83

Soil Map Unit Name: KpA, Keyport silt loam NWI classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☑	No	☐	**Is the Sampled Area Within a Wetland?**	Yes ☐	No ☑
Hydric Soil Present?	Yes	☐	No	☑			
Wetland Hydrology Present?	Yes	☐	No	☑			

Remarks:

Located at an outfall, but water dissipates. Insufficient hydrology for hydric soils

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes	☐	No	☑	Depth (inches):	
Water Table Present?	Yes	☐	No	☑	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☑	Depth (inches):	2

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL M N

Tree Stratum (Plot size: 30')

		Absolute % Cover	Dominant Species?	Indicator Status
1.	*Acer rubrum*	25	Y	FAC
2.	*Fagus grandifolia*	10	N	FACU
3.	*Liquidambar styraciflua*	25	Y	FAC
4.				
5.				
6.				
7.				
8.				
		60 =	Total Cover	

50% of total cover: 30 20% of total cover: 12

Sapling/Shrub Stratum (Plot size: 30')

1.	*Hamamelis virginiana*	6	Y	FACU
2.	*Acer rubrum*	6	Y	FAC
3.	*Viburnum dentatum*	6	Y	FAC
4.				
5.				
6.				
7.				
8.				
		18 =	Total Cover	

50% of total cover: 9 20% of total cover: 3.6

Herb Stratum (Plot size: 30')

1.	*Phragmites australis*	30	Y	FACW
2.	*Microstegium vimineum*	50	Y	FAC
3.	*Parthenocissus quinquefolia*	10	N	FACU
4.	*Smilax rotundifolia*	10	N	FAC
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		100 =	Total Cover	

50% of total cover: 50 20% of total cover: 20

Woody Vine Stratum (Plot size: 30')

1.	*Toxicodendron radicans*	10	Y	FAC
2.				
3.				
4.				
5.				
		10 =	Total Cover	

50% of total cover: 5 20% of total cover: 2

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 87 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ___ 3 - Prevalence Index is ≤ 3.0[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UPL M N

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 2/1	100					Silty Clay Loam	
1-13	10YR 4/3	100					Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

APPENDIX B
WETLAND DETERMINATION FORMS

SOUTHBOUND SECTION

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension | City/County: Harford | Sampling Date: 12/19/17

Applicant/Owner: MDTA | State: MD | Sampling Point: WET17A-W1

Investigator(s): SA, JM | Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%): 1

Subregion (LRR or MLRA): 148 | Lat: 39.4426441638 | Long: -76.3533219357 | Datum: NAD83

Soil Map Unit Name: Keyport silt loam, 2 to 5 percent slopes | NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation N , Soil N , or hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation N , Soil N , or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	
Hydric Soil Present?	Yes X No ____	**Is the Sampled Area**
Wetland Hydrology Present?	Yes X No ____	**within a Wetland?** **Yes X No ____**

Remarks: Wetland has a direct connection to WUS23A and WUS29A.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? Yes ____ No X Depth (inches): ____

(includes capillary fringe)

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) -- Use Scientific Names of plants. Sampling Point: WET17A-W1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	60	Y	FAC
2.			
3.			
4.			
5.			
6.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover:	12	
Sapling Stratum (Plot Size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover:	0	
Shrub Stratum (Plot Size: 15')			
1. *Viburnum dentatum*	20	Y	FAC
2.			
3.			
4.			
5.			
6.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover:	4	
Herb Stratum (Plot Size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover:	0	
Woody Vine Stratum (Plot size: 30')			
1. *Smilax rotundifolia*	3	N	FAC
2.			
3.			
4.			
5.			
	3 = Total Cover		
50% of total cover: 1.5	20% of total cover:	0.6	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x1=	0
FACW species	0	x2=	0
FAC species	83	x3=	249
FACU species	0	x4=	0
UPL species	0	x5=	0
Column Totals:	83 (A)		249 (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [X] 2 -Dominance Test is >50%
- [X] 3 - Prevalence Index is ≤ 3.0[1]
- [ ] 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height.

Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb -- All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine -- All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: WET17A-W1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 5/1		2.5YR 4/6	5	C	M	Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (**LRR N**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)(**LRR N, MLRA 147, 148**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Dark Surface (S8)(**MLRA 147, 148**)
- ___ Thin Dark Surface (S9)(**MLRA 147, 148**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12)(**LRR N, MLRA 136**)
- ___ Umbric Surface (F13)(**MLRA 136, 122**)
- ___ Piedmont Floodplain Soils (F19)(**MLRA 148**)
- ___ Red Parent Material (F21)(**MLRA 127, 147**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)(**MLRA 147**)
- ___ Coast Prarie Redox (A16) (**MLRA 147, 148**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____ **Hydric Soils Present? Yes** X **No** ___

Remarks:

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension | City/County: Harford | Sampling Date: 12/19/17

Applicant/Owner: MDTA | State: MD | Sampling Point: WET17A-U

Investigator(s): SA, JM | Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%): 1

Subregion (LRR or MLRA): 148 | Lat: 39.4425702539 | Long: -76.3532702904 | Datum: NAD83

Soil Map Unit Name: Keyport silt loam, 2 to 5 percent slopes | NWI classification: UPL

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation N , Soil N , or hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation N , Soil N , or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	
Hydric Soil Present?	Yes ____	No X	**Is the Sampled Area**
Wetland Hydrology Present?	Yes ____	No X	**within a Wetland?** **Yes ____ No X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? Yes ____ No X Depth (inches): ____

(includes capillary fringe)

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) -- Use Scientific Names of plants. Sampling Point: WET17A-U

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	60	Y	FAC
2. *Fagus grandifolia*	20	Y	FACU
3.			
4.			
5.			
6.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		
Sapling Stratum (Plot Size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot Size: 15')			
1. *Fagus grandifolia*	15	Y	FACU
2. *Kalmia latifolia*	5	Y	FACU
3.			
4.			
5.			
6.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Herb Stratum (Plot Size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x1=	0
FACW species	0	x2=	0
FAC species	60	x3=	180
FACU species	40	x4=	160
UPL species	0	x5=	0
Column Totals:	100 (A)		340 (B)

Prevalence Index = B/A = 3.4

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 -Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height.

Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb -- All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine -- All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ___ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

No herbaceous layer present.

SOIL Sampling Point: WET17A-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5YR 3/2	100					Loam	
2-6	2.5YR 5/4	100					Silt loam	
6-10	10YR 5/3	100					Loam	
10-16	10YR 5/6	100					Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (**LRR N**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)(**LRR N, MLRA 147, 148**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Dark Surface (S8)(**MLRA 147, 148**)
- ___ Thin Dark Surface (S9)(**MLRA 147, 148**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12)(**LRR N, MLRA 136**)
- ___ Umbric Surface (F13)(**MLRA 136, 122**)
- ___ Piedmont Floodplain Soils (F19)(**MLRA 148**)
- ___ Red Parent Material (F21)(**MLRA 127, 147**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)(**MLRA 147**)
- ___ Coast Prarie Redox (A16) (**MLRA 147, 148**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____ **Hydric Soils Present? Yes** ___ **No X**

Remarks:

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension | City/County: Harford | Sampling Date: 12/19/17

Applicant/Owner: MDTA | State: MD | Sampling Point: WET18A-W2

Investigator(s): SA, JM | Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%): 1

Subregion (LRR or MLRA): 148 | Lat: 39.442525199 | Long: -76.3581358706 | Datum: NAD83

Soil Map Unit Name: Keyport silt loam 2-5 percent slopes | NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation N , Soil N , or hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation N , Soil N , or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	
Hydric Soil Present?	Yes X No ____	**Is the Sampled Area**
Wetland Hydrology Present?	Yes X No ____	**within a Wetland?** **Yes X No ____**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? Yes ____ No X Depth (inches): ____ (includes capillary fringe)

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) -- Use Scientific Names of plants. Sampling Point: WET18A-W2

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1. *Acer rubrum*	40	Y	FAC
2. *Quercus palustris*	35	Y	FACW
3. *Betula nigra*	5	N	FACW
4.			
5.			
6.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		
Sapling Stratum (Plot Size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot Size: 15')			
1. *Acer rubrum*	50	Y	FAC
2.			
3.			
4.			
5.			
6.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		
Herb Stratum (Plot Size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Woody Vine Stratum (Plot size: 30')			
1. *Smilax rotundifolia*	5	Y	FAC
2.			
3.			
4.			
5.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x1=	0
FACW species	40	x2=	80
FAC species	95	x3=	285
FACU species	0	x4=	0
UPL species	0	x5=	0
Column Totals:	135 (A)		365 (B)

Prevalence Index = B/A = 2.7

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 -Dominance Test is >50%
- X 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height.

Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb -- All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine -- All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: WET18A-W2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR 4/1	70	2.5YR 4/4	30	C	M	Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (**LRR N**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)(**LRR N, MLRA 147, 148**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Dark Surface (S8)(**MLRA 147, 148**)
- ___ Thin Dark Surface (S9)(**MLRA 147, 148**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12)(**LRR N, MLRA 136**)
- ___ Umbric Surface (F13)(**MLRA 136, 122**)
- ___ Piedmont Floodplain Soils (F19)(**MLRA 148**)
- ___ Red Parent Material (F21)(**MLRA 127, 147**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)(**MLRA 147**)
- ___ Coast Prarie Redox (A16) (**MLRA 147, 148**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____ **Hydric Soils Present? Yes** X **No** ____

Remarks: Denied at 11 inches

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension | City/County: Harford | Sampling Date: 12/19/17

Applicant/Owner: MDTA | State: MD | Sampling Point: WET18A-W1

Investigator(s): SA, JM | Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Floodplain | Local relief (concave, convex, none): None | Slope (%): 1

Subregion (LRR or MLRA): 148 | Lat: 39.442393324 | Long: -76.3581820227 | Datum: NAD83

Soil Map Unit Name: Beltsville silt loam, 2 to 5 percent slopes | NWI classification: PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation Y , Soil Y , or hydrology Y significantly disturbed? Are "Normal Circumstances" present? Yes ____ No X

Are Vegetation N , Soil N , or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	
Hydric Soil Present?	Yes X	No ____	**Is the Sampled Area**
Wetland Hydrology Present?	Yes X	No ____	**within a Wetland?** **Yes X** **No ____**

Remarks: Plants all located within a highway drainage ditch. Ditch has connections present to other wetland areas upstream.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? Yes X No ____ Depth (inches): 3

(includes capillary fringe)

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) -- Use Scientific Names of plants. Sampling Point: WET18A-W1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot Size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot Size: 15')			
1. *Typha latifolia*	50	Y	OBL
2. *Phragmites australis*	10	N	FACW
3.			
4.			
5.			
6.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		
Herb Stratum (Plot Size: 5')			
1. *Ludwigia alternifolia*	5	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	50	x1=	50
FACW species	15	x2=	30
FAC species	0	x3=	0
FACU species	0	x4=	0
UPL species	0	x5=	0
Column Totals:	65 (A)		80 (B)

Prevalence Index = B/A = 1.2

Hydrophytic Vegetation Indicators:

- X 1 - Rapid Test for Hydrophytic Vegetation
- X 2 -Dominance Test is >50%
- X 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height.

Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb -- All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine -- All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: WET18A-W1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/1	85	2.5YR 4/6	15	C	M	Loam	
4-12	10YR 5/2	95	2.5YR 4/6	5	C	M	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (**LRR N**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)(**LRR N, MLRA 147, 148**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Dark Surface (S8)(**MLRA 147, 148**)
- ___ Thin Dark Surface (S9)(**MLRA 147, 148**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12)(**LRR N, MLRA 136**)
- ___ Umbric Surface (F13)(**MLRA 136, 122**)
- ___ Piedmont Floodplain Soils (F19)(**MLRA 148**)
- ___ Red Parent Material (F21)(**MLRA 127, 147**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)(**MLRA 147**)
- ___ Coast Prarie Redox (A16) (**MLRA 147, 148**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____ **Hydric Soils Present? Yes** X **No** ___

Remarks:

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension City/County: Harford Sampling Date: 12/19/17

Applicant/Owner: MDTA State: MD Sampling Point: WET18A-U

Investigator(s): SA, JM Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR or MLRA): 148 Lat: 39.44264189260 Long: -76.3540015268 Datum: NAD83

Soil Map Unit Name: Keyport silt loam 2 to 5 percent slopes NWI classification: UPL

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation N , Soil N , or hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation N , Soil N , or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	
Hydric Soil Present?	Yes ____	No X	**Is the Sampled Area**
Wetland Hydrology Present?	Yes ____	No X	**within a Wetland?** **Yes ____ No X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? Yes ____ No X Depth (inches): ____

(includes capillary fringe)

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) -- Use Scientific Names of plants. Sampling Point: WET18A-U

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus rubrum*	30	Y	FAC
2. *Liriodendron tulipifera*	20	Y	FACU
3. *Fagus grandifolia*	15	Y	FACU
4.			
5.			
6.			
	65 = Total Cover		
50% of total cover: 32.5	20% of total cover:	13	

Sapling Stratum (Plot Size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover:	0	

Shrub Stratum (Plot Size: 15')			
1. *Fagus grandifolia*	10	Y	FACU
2. *Ilex opaca*	10	Y	FACU
3.			
4.			
5.			
6.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover:	4	

Herb Stratum (Plot Size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover:	0	

Woody Vine Stratum (Plot size: 30')			
1. *Smilax rotundifolia*	5	Y	FAC
2.			
3.			
4.			
5.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover:	1	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x1=	0
FACW species	0	x2=	0
FAC species	35	x3=	105
FACU species	55	x4=	220
UPL species	0	x5=	0
Column Totals:	90 (A)		325 (B)

Prevalence Index = B/A = 3.6

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 -Dominance Test is >50%
- 3 - Prevalence Index is ≤ 3.0[1]
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height.

Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb -- All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine -- All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: WET18A-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/3	100					Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (**LRR N**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)(**LRR N, MLRA 147, 148**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Dark Surface (S8)(**MLRA 147, 148**)
- ___ Thin Dark Surface (S9)(**MLRA 147, 148**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12)(**LRR N, MLRA 136**)
- ___ Umbric Surface (F13)(**MLRA 136, 122**)
- ___ Piedmont Floodplain Soils (F19)(**MLRA 148**)
- ___ Red Parent Material (F21)(**MLRA 127, 147**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)(**MLRA 147**)
- ___ Coast Prarie Redox (A16) (**MLRA 147, 148**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____ **Hydric Soils Present? Yes** ____ **No X**

Remarks:

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension | City/County: Harford | Sampling Date: 12/19/17

Applicant/Owner: MDTA | State: MD | Sampling Point: WET18A-U2

Investigator(s): SA, JM | Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%): 1

Subregion (LRR or MLRA): 148 | Lat: 39.4424809044 | Long: -76.3555772937 | Datum: NAD83

Soil Map Unit Name: Beltsville silt loam 2 to 5 percent slopes | NWI classification: UPL

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation N , Soil N , or hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation N , Soil N , or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	
Hydric Soil Present?	Yes ____	No X	**Is the Sampled Area**
Wetland Hydrology Present?	Yes ____	No X	**within a Wetland?** **Yes ____ No X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? Yes ____ No X Depth (inches): ____

(includes capillary fringe)

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) -- Use Scientific Names of plants. Sampling Point: WET18A-U2

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	40	Y	FAC
2. *Ilex opaca*	30	Y	FACU
3.			
4.			
5.			
6.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		
Sapling Stratum (Plot Size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot Size: 15')			
1. *Ilex opaca*	10	Y	FACU
2. *Kalmia latifolia*	5	Y	FACU
3.			
4.			
5.			
6.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3		
Herb Stratum (Plot Size: 5')			
1. *Dendrolycopodium obscurum*	20	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC 20 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x1=	0
FACW species	0	x2=	0
FAC species	40	x3=	120
FACU species	65	x4=	260
UPL species	0	x5=	0
Column Totals:	105 (A)		380 (B)

Prevalence Index = B/A = 3.6

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 -Dominance Test is >50%

___ 3 - Prevalence Index is ≤ 3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height.

Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb -- All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine -- All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ___ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: WET18A-U2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 4/3	100					Sandy loam	
7-16	10YR 4/3	100					Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (**LRR N**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)(**LRR N, MLRA 147, 148**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Dark Surface (S8)(**MLRA 147, 148**)
- ___ Thin Dark Surface (S9)(**MLRA 147, 148**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12)(**LRR N, MLRA 136**)
- ___ Umbric Surface (F13)(**MLRA 136, 122**)
- ___ Piedmont Floodplain Soils (F19)(**MLRA 148**)
- ___ Red Parent Material (F21)(**MLRA 127, 147**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)(**MLRA 147**)
- ___ Coast Prarie Redox (A16) (**MLRA 147, 148**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____ **Hydric Soils Present? Yes** ____ **No X**

Remarks:

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension | City/County: Harford | Sampling Date: 12/19/17

Applicant/Owner: MDTA | State: MD | Sampling Point: WET20A-W1

Investigator(s): SA, JM | Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Floodplain | Local relief (concave, convex, none): Concave | Slope (%): 1

Subregion (LRR or MLRA): 148 | Lat: 39.4416386506 | Long: -76.3709227674 | Datum: NAD83

Soil Map Unit Name: Delanco silt loam, 3 to 8 percent slopes | NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation N , Soil N , or hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation N , Soil N , or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	
Hydric Soil Present?	Yes X	No ____	**Is the Sampled Area**
Wetland Hydrology Present?	Yes X	No ____	**within a Wetland?** **Yes X** **No ____**

Remarks: Wetland includes small wetland bench on opposite side of channel at right-of-way fence.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? Yes ____ No X Depth (inches): ____ (includes capillary fringe)

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) -- Use Scientific Names of plants. Sampling Point: WET20A-W1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	60	Y	FAC
2. *Liriodendron tulipifera*	10	N	FACU
3.			
4.			
5.			
6.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		

Sapling Stratum (Plot Size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Shrub Stratum (Plot Size: 15')			
1. *Lindera benzoin*	15	Y	FAC
2.			
3.			
4.			
5.			
6.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3		

Herb Stratum (Plot Size: 5')			
1. *Symplocarpus foetidus*	5	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		

Woody Vine Stratum (Plot size: 30')			
1. *Smilax rotundifolia*	3	N	FAC
2.			
3.			
4.			
5.			
	3 = Total Cover		
50% of total cover: 1.5	20% of total cover: 0.6		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x1=	5
FACW species	0	x2=	0
FAC species	78	x3=	234
FACU species	10	x4=	40
UPL species	0	x5=	0
Column Totals:	93 (A)		279 (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:

- X 1 - Rapid Test for Hydrophytic Vegetation
- X 2 -Dominance Test is >50%
- X 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height.

Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb -- All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine -- All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: WET20A-W1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/1	100					Silt loam	
3-8	10YR 4/2	95	2.5YR 3/6	5	C	M	Loam	
8-16	10YR 6/1	90	2.5YR 3/6	10	C	M	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (**LRR N**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)(**LRR N, MLRA 147, 148**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Dark Surface (S8)(**MLRA 147, 148**)
- ___ Thin Dark Surface (S9)(**MLRA 147, 148**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12)(**LRR N, MLRA 136**)
- ___ Umbric Surface (F13)(**MLRA 136, 122**)
- ___ Piedmont Floodplain Soils (F19)(**MLRA 148**)
- ___ Red Parent Material (F21)(**MLRA 127, 147**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)(**MLRA 147**)
- ___ Coast Prarie Redox (A16) (**MLRA 147, 148**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____ **Hydric Soils Present? Yes** X **No** ___

Remarks:

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension | City/County: Harford | Sampling Date: 12/1/17

Applicant/Owner: MDTA | State: MD | Sampling Point: WET20A-U

Investigator(s): SA, JM | Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Convex | Slope (%): 1

Subregion (LRR or MLRA): 148 | Lat: 39.4415283316 | Long: -76.3703656792 | Datum: NAD83

Soil Map Unit Name: Delanco silt loam, 3 to 8 percent slopes | NWI classification: UPL

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation N , Soil N , or hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation N , Soil N , or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	
Hydric Soil Present?	Yes ____	No X	**Is the Sampled Area**
Wetland Hydrology Present?	Yes ____	No X	**within a Wetland?** **Yes ____ No X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? Yes ____ No X Depth (inches): ____

(includes capillary fringe)

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) -- Use Scientific Names of plants. Sampling Point: WET20A-U

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Liriodendron tulipifera*	40	Y	FACU
2. *Quercus rubra*	30	Y	FACU
3. *Fagus grandifolia*	20	Y	FACU
4. *Prunus serotina*	5	N	FACU
5.			
6.			
	95	= Total Cover	
50% of total cover: 47.5	20% of total cover:	19	
Sapling Stratum (Plot Size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover:	0	
Shrub Stratum (Plot Size: 15')			
1. *Fagus grandifolia*	15	Y	FACU
2. *Ilex opaca*	10	Y	FACU
3.			
4.			
5.			
6.			
	25	= Total Cover	
50% of total cover: 12.5	20% of total cover:	5	
Herb Stratum (Plot Size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover:	0	
Woody Vine Stratum (Plot size: 30')			
1. *Smilax rotundifolia*	5	Y	FAC
2.			
3.			
4.			
5.			
	5	= Total Cover	
50% of total cover: 2.5	20% of total cover:	1	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC 17 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x1=	0
FACW species	0	x2=	0
FAC species	5	x3=	15
FACU species	120	x4=	480
UPL species	0	x5=	0
Column Totals:	125 (A)		495 (B)

Prevalence Index = B/A = 4.0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 -Dominance Test is >50%

___ 3 - Prevalence Index is ≤ 3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height.

Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb -- All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine -- All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ___ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: WET20A-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	7.5YR 5/4	100					Loam	
5-10	7.5YR 4/4	100					Sandy loam	
10-16	7.5YR 3/4	100					Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (**LRR N**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)(**LRR N, MLRA 147, 148**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Dark Surface (S8)(**MLRA 147, 148**)
- ___ Thin Dark Surface (S9)(**MLRA 147, 148**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12)(**LRR N, MLRA 136**)
- ___ Umbric Surface (F13)(**MLRA 136, 122**)
- ___ Piedmont Floodplain Soils (F19)(**MLRA 148**)
- ___ Red Parent Material (F21)(**MLRA 127, 147**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)(**MLRA 147**)
- ___ Coast Prarie Redox (A16) (**MLRA 147, 148**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____ **Hydric Soils Present? Yes** ____ **No X**

Remarks:

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension | City/County: Harford | Sampling Date: 12/19/17

Applicant/Owner: MDTA | State: MD | Sampling Point: WET22A-W1

Investigator(s): SA, JM | Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Floodplain | Local relief (concave, convex, none): Concave | Slope (%): 1

Subregion (LRR or MLRA): 148 | Lat: 39.436878929 | Long: -76.3773207182 | Datum: NAD83

Soil Map Unit Name: Codorus silt loam 0 to 3 percent slopes | NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation N , Soil N , or hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation N , Soil N , or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	
Hydric Soil Present?	Yes X	No ____	**Is the Sampled Area**
Wetland Hydrology Present?	Yes X	No ____	**within a Wetland?** **Yes X** **No ____**

Remarks: Located within the floodplain of Little Gunpowder.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? Yes ____ No X Depth (inches): ____ (includes capillary fringe)

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) -- Use Scientific Names of plants. Sampling Point: WET22A-W1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus palustris*	10	Y	FACW
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Sapling Stratum (Plot Size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot Size: 15')			
1. *Lindera benzoin*	10	Y	FAC
2. *Viburnum dentatum*	10	Y	FAC
3.			
4.			
5.			
6.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Herb Stratum (Plot Size: 5')			
1. *Symplocarpus foetidus*	5	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x1=	5
FACW species	10	x2=	20
FAC species	20	x3=	60
FACU species	0	x4=	0
UPL species	0	x5=	0
Column Totals:	35 (A)		85 (B)

Prevalence Index = B/A = 2.4

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 -Dominance Test is >50%
- X 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height.

Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb -- All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine -- All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: WET22A-W1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/1	100					Silt loam	
3-7	10YR 5/2	100					Sandy loam	
7-16	10YR 5/2	90	2.5YR 4/6	10	C	M	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (**LRR N**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)(**LRR N, MLRA 147, 148**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Dark Surface (S8)(**MLRA 147, 148**)
- ___ Thin Dark Surface (S9)(**MLRA 147, 148**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12)(**LRR N, MLRA 136**)
- ___ Umbric Surface (F13)(**MLRA 136, 122**)
- ___ Piedmont Floodplain Soils (F19)(**MLRA 148**)
- ___ Red Parent Material (F21)(**MLRA 127, 147**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)(**MLRA 147**)
- ___ Coast Prarie Redox (A16) (**MLRA 147, 148**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____ **Hydric Soils Present? Yes** X **No** ___

Remarks:

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension | City/County: Harford | Sampling Date: 12/1/17

Applicant/Owner: MDTA | State: MD | Sampling Point: WET22A-U

Investigator(s): SA, JM | Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Convex | Slope (%): 3

Subregion (LRR or MLRA): 148 | Lat: 39.437059289 | Long: -76.3770604437 | Datum: NAD83

Soil Map Unit Name: Codorus silt loam 0 to 3 percent slopes | NWI classification: UPL

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation N , Soil N , or hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation N , Soil N , or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	
Hydric Soil Present?	Yes ____	No X	**Is the Sampled Area**
Wetland Hydrology Present?	Yes ____	No X	**within a Wetland?** **Yes ____ No X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? Yes ____ No X Depth (inches): ____

(includes capillary fringe)

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) -- Use Scientific Names of plants. Sampling Point: WET22A-U

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	40	Y	FAC
2. *Liriodendron tulipifera*	40	Y	FACU
3.			
4.			
5.			
6.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		
Sapling Stratum (Plot Size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot Size: 15')			
1. *Fagus grandifolia*	20	Y	FACU
2. *Nyssa sylvatica*	5	N	FAC
3. *Liriodendron tulipifera*	5	N	FACU
4. *Prunus serotina*	5	N	FACU
5.			
6.			
	35 = Total Cover		
50% of total cover: 17.5	20% of total cover: 7		
Herb Stratum (Plot Size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Woody Vine Stratum (Plot size: 30')			
1. *Smilax rotundifolia*	5	Y	FAC
2.			
3.			
4.			
5.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x1=	0
FACW species	0	x2=	0
FAC species	50	x3=	150
FACU species	70	x4=	280
UPL species	0	x5=	0
Column Totals:	120 (A)		430 (B)

Prevalence Index = B/A = 3.6

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 -Dominance Test is >50%
- 3 - Prevalence Index is ≤ 3.0[1]
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height.

Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb -- All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine -- All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: WET22A-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	7.5YR 4/3	100					Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (**LRR N**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)(**LRR N, MLRA 147, 148**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Dark Surface (S8)(**MLRA 147, 148**)
- ___ Thin Dark Surface (S9)(**MLRA 147, 148**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12)(**LRR N, MLRA 136**)
- ___ Umbric Surface (F13)(**MLRA 136, 122**)
- ___ Piedmont Floodplain Soils (F19)(**MLRA 148**)
- ___ Red Parent Material (F21)(**MLRA 127, 147**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)(**MLRA 147**)
- ___ Coast Prarie Redox (A16) (**MLRA 147, 148**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____ **Hydric Soils Present? Yes** ____ **No X**

Remarks:

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension | City/County: Baltimore | Sampling Date: 12/19/17

Applicant/Owner: MDTA | State: MD | Sampling Point: WET23A-W1

Investigator(s): SA, JM | Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%): 1

Subregion (LRR or MLRA): 148 | Lat: 39.4355457757 | Long: -76.378979864 | Datum: NAD83

Soil Map Unit Name: Codorus silt loams, 0 to 3 percent slopes | NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation N , Soil Y , or hydrology Y significantly disturbed? Are "Normal Circumstances" present? Yes ____ No X

Are Vegetation N , Soil N , or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	
Hydric Soil Present?	Yes X	No ____	**Is the Sampled Area**
Wetland Hydrology Present?	Yes X	No ____	**within a Wetland?** **Yes X** **No ____**

Remarks: Area looks to be along an underground utility corridor. Area looks to have been accessed by machinery lately.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 1

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? Yes X No ____ Depth (inches): 0

(includes capillary fringe)

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) -- Use Scientific Names of plants. Sampling Point: WET23A-W1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	60	Y	FAC
2. *Platanus occidentalis*	20	Y	FACW
3. *Quercus palustris*	5	N	FACW
4. *Betula nigra*	5	N	FACW
5.			
6.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		
Sapling Stratum (Plot Size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot Size: 15')			
1. *Lindera benzoin*	10	Y	FAC
2. *Betula nigra*	10	Y	FACW
3.			
4.			
5.			
6.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Herb Stratum (Plot Size: 5')			
1. *Microstegium vimineum*	20	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Woody Vine Stratum (Plot size: 30')			
1. *Lonicera japonica*	5	Y	FACU
2.			
3.			
4.			
5.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC 83 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x1=	0
FACW species	40	x2=	80
FAC species	90	x3=	270
FACU species	5	x4=	20
UPL species	0	x5=	0
Column Totals:	135 (A)		370 (B)

Prevalence Index = B/A = 2.7

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 -Dominance Test is >50%
- X 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height.

Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb -- All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine -- All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: WET23A-W1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 5/1	85	10YR 6/4	15	C	M	Clay loam	almost loamy clay

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (**LRR N**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)(**LRR N, MLRA 147, 148**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Dark Surface (S8)(**MLRA 147, 148**)
- ___ Thin Dark Surface (S9)(**MLRA 147, 148**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12)(**LRR N, MLRA 136**)
- ___ Umbric Surface (F13)(**MLRA 136, 122**)
- ___ Piedmont Floodplain Soils (F19)(**MLRA 148**)
- ___ Red Parent Material (F21)(**MLRA 127, 147**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)(**MLRA 147**)
- ___ Coast Prarie Redox (A16) (**MLRA 147, 148**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____ **Hydric Soils Present? Yes** X **No** ____

Remarks:

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension | City/County: Baltimore | Sampling Date: 12/7/17

Applicant/Owner: MDTA | State: MD | Sampling Point: WET23A-U

Investigator(s): SA, JM | Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Convex | Slope (%): 2

Subregion (LRR or MLRA): 148 | Lat: 39.4349466469 | Long: -76.3797404018 | Datum: NAD83

Soil Map Unit Name: Codorus silt loams, 0 to 3 percent slopes | NWI classification: UPL

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation N , Soil N , or hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation N , Soil N , or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	
Hydric Soil Present?	Yes ____	No X	**Is the Sampled Area**
Wetland Hydrology Present?	Yes ____	No X	**within a Wetland?** **Yes ____ No X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? Yes ____ No X Depth (inches): ____

(includes capillary fringe)

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) -- Use Scientific Names of plants. Sampling Point: WET23A-U

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1. *Quercus rubra*	40	Y	FACU
2. *Liriodendron tulipifera*	20	Y	FACU
3. *Fagus grandifolia*	10	N	FACU
4.			
5.			
6.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		
Sapling Stratum (Plot Size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot Size: 15')			
1. *Prunus serotina*	15	Y	FACU
2. *Quercus michauxii*	10	Y	FACW
3. *Liquidambar styraciflua*	10	Y	FAC
4.			
5.			
6.			
	35 = Total Cover		
50% of total cover: 17.5	20% of total cover: 7		
Herb Stratum (Plot Size: 5')			
1. *Rosa multiflora*	5	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Woody Vine Stratum (Plot size: 30')			
1. *Lonicera japonica*	5	Y	FACU
2.			
3.			
4.			
5.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC 29 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x1=	0
FACW species	10	x2=	20
FAC species	10	x3=	30
FACU species	95	x4=	380
UPL species	0	x5=	0
Column Totals:	115 (A)		430 (B)

Prevalence Index = B/A = 3.7

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 -Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height.

Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb -- All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine -- All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ___ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: WET23A-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/3	100					Loam	
3-11	10YR 3/4	100					Sandy loam	
11-16	10YR 3/4	100					Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (**LRR N**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)(**LRR N, MLRA 147, 148**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Dark Surface (S8)(**MLRA 147, 148**)
- ___ Thin Dark Surface (S9)(**MLRA 147, 148**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12)(**LRR N, MLRA 136**)
- ___ Umbric Surface (F13)(**MLRA 136, 122**)
- ___ Piedmont Floodplain Soils (F19)(**MLRA 148**)
- ___ Red Parent Material (F21)(**MLRA 127, 147**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)(**MLRA 147**)
- ___ Coast Prarie Redox (A16) (**MLRA 147, 148**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____ **Hydric Soils Present? Yes** ____ **No X**

Remarks:

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension | City/County: Baltimore | Sampling Date: 12/21/17

Applicant/Owner: MDTA | State: MD | Sampling Point: WET25A-W1

Investigator(s): SA, JM | Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Concave | Slope (%): 1

Subregion (LRR or MLRA): 148 | Lat: 39.428843251 | Long: -76.3882608577 | Datum: NAD83

Soil Map Unit Name: Beltsville silt loam, 2 to 5 percent slopes | NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation N , Soil N , or hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation N , Soil N , or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	
Hydric Soil Present?	Yes X	No ____	**Is the Sampled Area**
Wetland Hydrology Present?	Yes X	No ____	**within a Wetland?** **Yes X** **No ____**

Remarks: This appears to be an isolated wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? Yes ____ No X Depth (inches): ____ (includes capillary fringe)

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) -- Use Scientific Names of plants. Sampling Point: WET25A-W1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	40	Y	FAC
2.			
3.			
4.			
5.			
6.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		
Sapling Stratum (Plot Size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot Size: 15')			
1. *Liquidambar styraciflua*	20	Y	FAC
2. *Ilex verticillata*	10	Y	FACW
3.			
4.			
5.			
6.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		
Herb Stratum (Plot Size: 5')			
1. *Juncus effusus*	15	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3		
Woody Vine Stratum (Plot size: 30')			
1. *Smilax rotundifolia*	10	Y	FAC
2.			
3.			
4.			
5.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x1=	0
FACW species	25	x2=	50
FAC species	70	x3=	210
FACU species	0	x4=	0
UPL species	0	x5=	0
Column Totals:	95 (A)		260 (B)

Prevalence Index = B/A = 2.7

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 -Dominance Test is >50%
- X 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height.

Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb -- All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine -- All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: WET25A-W1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/1	70	2.5YR 4/4	30	C	M	Silt loam	
8-16	10YR 3/1	100					Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (**LRR N**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)(**LRR N, MLRA 147, 148**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Dark Surface (S8)(**MLRA 147, 148**)
- ___ Thin Dark Surface (S9)(**MLRA 147, 148**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12)(**LRR N, MLRA 136**)
- ___ Umbric Surface (F13)(**MLRA 136, 122**)
- ___ Piedmont Floodplain Soils (F19)(**MLRA 148**)
- ___ Red Parent Material (F21)(**MLRA 127, 147**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)(**MLRA 147**)
- ___ Coast Prarie Redox (A16) (**MLRA 147, 148**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____ **Hydric Soils Present? Yes** X **No** ___

Remarks:

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension | City/County: Baltimore | Sampling Date: 12/1/17

Applicant/Owner: MDTA | State: MD | Sampling Point: WET25A-U

Investigator(s): SA, JM | Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%): 1

Subregion (LRR or MLRA): 148 | Lat: 39.4288998985 | Long: -76.3882244693 | Datum: NAD83

Soil Map Unit Name: Beltsville silt loam, 2 to 5 percent slopes | NWI classification: UPL

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation N , Soil N , or hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation N , Soil N , or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	
Hydric Soil Present?	Yes ____	No X	**Is the Sampled Area**
Wetland Hydrology Present?	Yes ____	No X	**within a Wetland?** **Yes** ____ **No X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? Yes ____ No X Depth (inches): ____

(includes capillary fringe)

Wetland Hydrology Present? Yes ____ **No X**

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) -- Use Scientific Names of plants. Sampling Point: WET25A-U

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot Size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot Size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot Size: 5')			
1. *Smilax rotundifolia*	90	Y	FAC
2. *Microstegium vimineum*	5	N	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	95 = Total Cover		
50% of total cover: 47.5	20% of total cover: 19		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x1=	0
FACW species	0	x2=	0
FAC species	95	x3=	285
FACU species	0	x4=	0
UPL species	0	x5=	0
Column Totals:	95 (A)		285 (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 -Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height.

Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb -- All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine -- All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: WET25A-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 5/6	100					Loam	
8-16	10YR 5/6	100					Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (**LRR N**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)(**LRR N, MLRA 147, 148**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Dark Surface (S8)(**MLRA 147, 148**)
- ___ Thin Dark Surface (S9)(**MLRA 147, 148**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12)(**LRR N, MLRA 136**)
- ___ Umbric Surface (F13)(**MLRA 136, 122**)
- ___ Piedmont Floodplain Soils (F19)(**MLRA 148**)
- ___ Red Parent Material (F21)(**MLRA 127, 147**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)(**MLRA 147**)
- ___ Coast Prarie Redox (A16) (**MLRA 147, 148**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____ **Hydric Soils Present? Yes** ___ **No X**

Remarks:

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension | City/County: Harford | Sampling Date: 12/19/17

Applicant/Owner: MDTA | State: MD | Sampling Point: WET93A-W1

Investigator(s): SA, JM | Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 1

Subregion (LRR or MLRA): 148 | Lat: 39.4413923562 | Long: -76.3704585804 | Datum: NAD83

Soil Map Unit Name: Delanco silt loam, 3 to 8 percent slopes | NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation N , Soil N , or hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation N , Soil N , or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	
Hydric Soil Present?	Yes X	No ____	**Is the Sampled Area**
Wetland Hydrology Present?	Yes X	No ____	**within a Wetland?** **Yes X** **No ____**

Remarks: The area is fed by a seep. The wetland is classified as PFO because of the heavy overstory cover. However, no vegetation is growing within the delineated limits.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- X Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes X	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Hydrology provided by spring/ seep.

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension | City/County: Harford | Sampling Date: 12/1/17

Applicant/Owner: MDTA | State: MD | Sampling Point: WET93A-U

Investigator(s): SA, JM | Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Convex | Slope (%): 1

Subregion (LRR or MLRA): 148 | Lat: 39.4413923562 | Long: -76.3704585804 | Datum: NAD83

Soil Map Unit Name: Delanco silt loam, 3 to 8 percent slopes | NWI classification: UPL

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation N , Soil N , or hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation N , Soil N , or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	
Hydric Soil Present?	Yes ____	No X	**Is the Sampled Area**
Wetland Hydrology Present?	Yes ____	No X	**within a Wetland?** **Yes ____ No X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? Yes ____ No X Depth (inches): ____

(includes capillary fringe)

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) -- Use Scientific Names of plants. Sampling Point: WET93A-U

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Liriodendron tulipifera*	40	Y	FACU
2. *Quercus rubra*	30	Y	FACU
3. *Fagus grandifolia*	20	Y	FACU
4. *Prunus serotina*	5	N	FACU
5.			
6.			
	95	= Total Cover	
50% of total cover: 47.5	20% of total cover:	19	
Sapling Stratum (Plot Size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover:	0	
Shrub Stratum (Plot Size: 15')			
1. *Fagus grandifolia*	15	Y	FACU
2. *Ilex opaca*	10	Y	FACU
3.			
4.			
5.			
6.			
	25	= Total Cover	
50% of total cover: 12.5	20% of total cover:	5	
Herb Stratum (Plot Size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover:	0	
Woody Vine Stratum (Plot size: 30')			
1. *Smilax rotundifolia*	5	Y	FAC
2.			
3.			
4.			
5.			
	5	= Total Cover	
50% of total cover: 2.5	20% of total cover:	1	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC 17 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x1=	0
FACW species	0	x2=	0
FAC species	5	x3=	15
FACU species	120	x4=	480
UPL species	0	x5=	0
Column Totals:	125 (A)		495 (B)

Prevalence Index = B/A = 4.0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 -Dominance Test is >50%

___ 3 - Prevalence Index is ≤ 3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height.

Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb -- All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine -- All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ___ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: WET93A-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	7.5YR 5/4	100					Loam	
5-10	7.5YR 4/4	100					Sandy loam	
10-16	7.5YR 3/4	100					Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (**LRR N**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)(**LRR N, MLRA 147, 148**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Dark Surface (S8)(**MLRA 147, 148**)
- ___ Thin Dark Surface (S9)(**MLRA 147, 148**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12)(**LRR N, MLRA 136**)
- ___ Umbric Surface (F13)(**MLRA 136, 122**)
- ___ Piedmont Floodplain Soils (F19)(**MLRA 148**)
- ___ Red Parent Material (F21)(**MLRA 127, 147**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)(**MLRA 147**)
- ___ Coast Prarie Redox (A16) (**MLRA 147, 148**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____ **Hydric Soils Present? Yes** ____ **No X**

Remarks:

VEGETATION (Five Strata) -- Use Scientific Names of plants. Sampling Point: WET93A-W1

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot Size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot Size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot Size: 5')			
1. *Microstegium vimineum*	3	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	3 = Total Cover		
50% of total cover: 1.5	20% of total cover: 0.6		
Woody Vine Stratum (Plot size: 30')			
1. *Toxicodendron radicans*	3	Y	FAC
2.			
3.			
4.			
5.			
	3 = Total Cover		
50% of total cover: 1.5	20% of total cover: 0.6		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC N/A (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x1=	0
FACW species	0	x2=	0
FAC species	6	x3=	18
FACU species	0	x4=	0
UPL species	0	x5=	0
Column Totals:	6 (A)		18 (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 -Dominance Test is >50%
- X 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height.

Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb -- All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine -- All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

Very sparse vegetation present.

SOIL Sampling Point: WET93A-W1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	2.5YR 3/1	100					Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (**LRR N**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)(**LRR N, MLRA 147, 148**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Dark Surface (S8)(**MLRA 147, 148**)
- ___ Thin Dark Surface (S9)(**MLRA 147, 148**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- X Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12)(**LRR N, MLRA 136**)
- ___ Umbric Surface (F13)(**MLRA 136, 122**)
- ___ Piedmont Floodplain Soils (F19)(**MLRA 148**)
- ___ Red Parent Material (F21)(**MLRA 127, 147**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)(**MLRA 147**)
- ___ Coast Prarie Redox (A16) (**MLRA 147, 148**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____ **Hydric Soils Present? Yes** X **No** ___

Remarks:

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension City/County: Harford Sampling Date: 12/19/17

Applicant/Owner: MDTA State: MD Sampling Point: WET94A-W1

Investigator(s): SA, JM Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Drainage depression Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR or MLRA): 148 Lat: 39.4431057676 Long: -76.35000632 Datum: NAD83

Soil Map Unit Name: Elkton silt loam NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation N , Soil N , or hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation N , Soil N , or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	
Hydric Soil Present?	Yes X	No ____	**Is the Sampled Area**
Wetland Hydrology Present?	Yes X	No ____	**within a Wetland?** **Yes X** **No ____**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? Yes ____ No X Depth (inches): ____ (includes capillary fringe)

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension City/County: Harford Sampling Date: 12/15/17
Applicant/Owner: MDTA State: MD Sampling Point: WET94A-U
Investigator(s): SA, JM Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 5
Subregion (LRR or MLRA): 148 Lat: 39.4431381884 Long: -76.3500066772 Datum: NAD83
Soil Map Unit Name: Elkton silt loam NWI classification: UPL
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation N , Soil N , or hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation N , Soil N , or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	
Hydric Soil Present?	Yes ____	No X	**Is the Sampled Area**
Wetland Hydrology Present?	Yes ____	No X	**within a Wetland?** **Yes ____ No X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____
Water Table Present? Yes ____ No X Depth (inches): ____
Saturation Present? Yes ____ No X Depth (inches): ____
(includes capillary fringe)

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) -- Use Scientific Names of plants. Sampling Point: WET94A-U

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	5	Y	FAC
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Sapling Stratum (Plot Size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot Size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot Size: 5')			
1. *Reynoutria japonica*	50	Y	FACU
2. *Eupatorium serotinum*	25	Y	FAC
3. *Lonicera japonica*	5	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		
Woody Vine Stratum (Plot size: 30')			
1. *Lonicera japonica*	3	N	FACU
2.			
3.			
4.			
5.			
	3 = Total Cover		
50% of total cover: 1.5	20% of total cover: 0.6		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x1=	0
FACW species	0	x2=	0
FAC species	30	x3=	90
FACU species	58	x4=	232
UPL species	0	x5=	0
Column Totals:	88 (A)		322 (B)

Prevalence Index = B/A = 3.7

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 -Dominance Test is >50%

___ 3 - Prevalence Index is ≤ 3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height.

Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb -- All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine -- All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ___ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

Disturbed sideslope at Mountain Road

SOIL Sampling Point: WET94A-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 4/4	100					Loam	
9-16	10YR 4/4	100					Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (**LRR N**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)(**LRR N, MLRA 147, 148**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Dark Surface (S8)(**MLRA 147, 148**)
- ___ Thin Dark Surface (S9)(**MLRA 147, 148**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12)(**LRR N, MLRA 136**)
- ___ Umbric Surface (F13)(**MLRA 136, 122**)
- ___ Piedmont Floodplain Soils (F19)(**MLRA 148**)
- ___ Red Parent Material (F21)(**MLRA 127, 147**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)(**MLRA 147**)
- ___ Coast Prarie Redox (A16) (**MLRA 147, 148**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____ **Hydric Soils Present? Yes** ____ **No X**

Remarks:

VEGETATION (Five Strata) -- Use Scientific Names of plants. Sampling Point: WET94A-W1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	50	Y	FAC
2. *Quercus palustris*	20	Y	FACW
3.			
4.			
5.			
6.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover:	14	

Sapling Stratum (Plot Size: 15')			
1. *Acer rubrum*	50	Y	FAC
2. *Quercus palustris*	20	Y	FACW
3.			
4.			
5.			
6.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover:	14	

Shrub Stratum (Plot Size: 15')			
1. *Baccharis halimifolia*	30	Y	FACW
2.			
3.			
4.			
5.			
6.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover:	6	

Herb Stratum (Plot Size: 5')			
1. *Phragmites australis*	25	Y	FACW
2. *Reynoutria japonica*	20	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	45 = Total Cover		
50% of total cover: 22.5	20% of total cover:	9	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover:	0	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC 86 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x1=	0
FACW species	95	x2=	190
FAC species	100	x3=	300
FACU species	20	x4=	80
UPL species	0	x5=	0
Column Totals:	215 (A)		570 (B)

Prevalence Index = B/A = 2.7

Hydrophytic Vegetation Indicators:

- [X] 1 - Rapid Test for Hydrophytic Vegetation
- [X] 2 -Dominance Test is >50%
- [X] 3 - Prevalence Index is ≤ 3.0[1]
- [ ] 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height.

Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb -- All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine -- All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: WET94A-W1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/1	100					Sandy loam	
7-16	10YR 4/2	95	2.5YR 4/6	5	C	PL	sandy loam	coarse sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (**LRR N**)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)(**LRR N, MLRA 147, 148**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Dark Surface (S8)(**MLRA 147, 148**)
- ___ Thin Dark Surface (S9)(**MLRA 147, 148**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12)(**LRR N, MLRA 136**)
- ___ Umbric Surface (F13)(**MLRA 136, 122**)
- ___ Piedmont Floodplain Soils (F19)(**MLRA 148**)
- ___ Red Parent Material (F21)(**MLRA 127, 147**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)(**MLRA 147**)
- ___ Coast Prarie Redox (A16) (**MLRA 147, 148**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____ **Hydric Soils Present? Yes** X **No** ___

Remarks:

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension | City/County: Baltimore | Sampling Date: 12/7/17

Applicant/Owner: MDTA | State: MD | Sampling Point: WET97A-U

Investigator(s): SA, JM | Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%): 1

Subregion (LRR or MLRA): 148 | Lat: 39.4103028877 | Long: -76.4151170839 | Datum: NAD83

Soil Map Unit Name: Beltsville silt loam, 5 to 10 percent slopes | NWI classification: UPL

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation N , Soil N , or hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation N , Soil N , or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	
Hydric Soil Present?	Yes ____	No X	**Is the Sampled Area**
Wetland Hydrology Present?	Yes ____	No X	**within a Wetland?** **Yes ____ No X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? Yes ____ No X Depth (inches): ____

(includes capillary fringe)

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) -- Use Scientific Names of plants. Sampling Point: WET97A-U

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Liriodendron tulipifera*	40	Y	FACU
2. *Fagus grandifolia*	20	Y	FACU
3. *Pinus strobus*	10	N	FACU
4. *Acer rubrum*	10	N	FAC
5.			
6.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		
Sapling Stratum (Plot Size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot Size: 15')			
1. *Fagus grandifolia*	10	Y	FACU
2. *Liriodendron tulipifera*	10	Y	FACU
3. *Acer rubrum*	10	Y	FAC
4.			
5.			
6.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		
Herb Stratum (Plot Size: 5')			
1. *Toxicodendron radicans*	15	Y	FAC
2. *Alliaria petiolata*	5	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC 29 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x1=	0
FACW species	0	x2=	0
FAC species	35	x3=	105
FACU species	95	x4=	380
UPL species	0	x5=	0
Column Totals:	130 (A)		485 (B)

Prevalence Index = B/A = 3.7

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 -Dominance Test is >50%
- 3 - Prevalence Index is ≤ 3.0[1]
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height.

Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb -- All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine -- All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: WET97A-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/4	100					Loam	
3-16	10YR 4/3	100					Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (**LRR N**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)(**LRR N, MLRA 147, 148**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Dark Surface (S8)(**MLRA 147, 148**)
- ___ Thin Dark Surface (S9)(**MLRA 147, 148**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12)(**LRR N, MLRA 136**)
- ___ Umbric Surface (F13)(**MLRA 136, 122**)
- ___ Piedmont Floodplain Soils (F19)(**MLRA 148**)
- ___ Red Parent Material (F21)(**MLRA 127, 147**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)(**MLRA 147**)
- ___ Coast Prarie Redox (A16) (**MLRA 147, 148**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____ **Hydric Soils Present? Yes** ____ **No X**

Remarks:

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension | City/County: Baltimore | Sampling Date: 12/7/17

Applicant/Owner: MDTA | State: MD | Sampling Point: WET97A-W1

Investigator(s): SA, JM | Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Concave | Slope (%): <1

Subregion (LRR or MLRA): 148 | Lat: 39.4100598731 | Long: -76.4152765821 | Datum: NAD83

Soil Map Unit Name: Beltsville silt loam, 5 to 10 percent slopes | NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation N , Soil N , or hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation N , Soil N , or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	
Hydric Soil Present?	Yes X	No ____	**Is the Sampled Area**
Wetland Hydrology Present?	Yes X	No ____	**within a Wetland?** **Yes X** **No ____**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? Yes ____ No X Depth (inches): ____ (includes capillary fringe)

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) -- Use Scientific Names of plants. Sampling Point: WET97A-W1

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1. *Liquidambar styraciflua*	5	Y	FAC
2. *Nyssa sylvatica*	5	Y	FAC
3.			
4.			
5.			
6.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover:	2	
Sapling Stratum (Plot Size: 15')			
1. *Acer rubrum*	60	Y	FAC
2.			
3.			
4.			
5.			
6.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover:	12	
Shrub Stratum (Plot Size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover:	0	
Herb Stratum (Plot Size: 5')			
1. *Microstegium vimineum*	30	Y	FAC
2. *Toxicodendron radicans*	5	N	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	35 = Total Cover		
50% of total cover: 17.5	20% of total cover:	7	
Woody Vine Stratum (Plot size: 30')			
1. *Lonicera japonica*	5	Y	FACU
2.			
3.			
4.			
5.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover:	1	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC 80 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x1=	0
FACW species	0	x2=	0
FAC species	105	x3=	315
FACU species	5	x4=	20
UPL species	0	x5=	0
Column Totals:	110 (A)		335 (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 -Dominance Test is >50%
- X 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height.

Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb -- All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine -- All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: WET97A-W1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	100					Loam	
4-16	10 YR 5/1	90	2.5YR 4/6	10	C	M	Sandy clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (**LRR N**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)(**LRR N, MLRA 147, 148**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Dark Surface (S8)(**MLRA 147, 148**)
- ___ Thin Dark Surface (S9)(**MLRA 147, 148**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12)(**LRR N, MLRA 136**)
- ___ Umbric Surface (F13)(**MLRA 136, 122**)
- ___ Piedmont Floodplain Soils (F19)(**MLRA 148**)
- ___ Red Parent Material (F21)(**MLRA 127, 147**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)(**MLRA 147**)
- ___ Coast Prarie Redox (A16) (**MLRA 147, 148**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____ **Hydric Soils Present? Yes** X **No** ____

Remarks:

APPENDIX C
PHOTOGRAPHIC DOCUMENTATION

Northbound Wetlands and Waters

Photo 1: WET A looking west, south of I-95

Photo 2: WET A looking east, south of I-95

Photo 3: WET B1 looking north, south of I-95

Photo 4: WET B1 looking south, south of I-95

Photo 5: WET B2 looking northwest, south of I-95

Photo 6: WET C looking northeast, south of I-95

Photo 7: WET C looking northwest, south of I-95

Photo 8: WET L2 looking south, south of I-95

Photo 9: WET L2 looking east, south of I-95

Photo 10: WET M looking west, south of I-95

Photo 11: WET N looking east, south of I-95

Photo 12: WET O looking north, south of I-95

Photo 13: WUS A looking north, east of I-95

Photo 14: WUS C looking northeast, southeast of I-95

Southbound Wetlands and Waters

Photo 1: WET 17A looking northeast, south of Old Mountain Road

Photo 2: WET 18A looking southeast, south of South Old Mountain Road

Photo 3: WET 18A looking east, south of South Old Mountain Road

Photo 4: WET 18A looking southwest, south of South Old Mountain Road

Photo 5: WET 18A looking north, south of South Old Mountain Road

Photo 6: WET 18A looking east, south of South Old Mountain Road

Photo 7: WET 18A along I-95 southbound, looking west, south of South Old Mountain Road

Photo 8: WET 18A looking southwest toward I-95, south of South Old Mountain Road

Photo 9: WET 20A looking east, south of Old Joppa Road

Photo 10: WET 20A to west of WUS18A, looking downstream (northwest)

Photo 1: WET 22A looking south toward Little Gunpowder Falls (WUS34A)

Photo 12: WET 23A looking south, immediately south of Little Gunpowder Falls

Photo 13: WET 25A looking east, immediately north of Bradshaw Road

Photo 14: WET 93A with WUS 18A to the east, looking upstream (south) toward I-95

Photo 15: WET 94A looking northeast, north of South Old Mountain Road

Photo 16: WET 94A looking southeast, north of South Old Mountain Road

Photo 17: WET 97A looking northwest, north of New Forge Road

APPENDIX D
ENVIRONMENTAL FEATURES MAPS

N

MAP 1

MAP 2

MAP 3

MAP 4

MAP 5

MAP 6

MAP 7

MAP 8

FRANKLINVILLE RD

REYNOLDS ROAD

BRADSHAW ROAD

RAPHEL ROAD

OLD JOPPA ROAD

NEW FORGE RD

1500′ 0 1500′ 3000′

SCALE: 1″=1500′

ENVIRONMENTAL FEATURES KEY MAP

I-95 EXTENDED TOLL LANES NORTHBOUND EXTENSION
MARYLAND DEPARTMENT OF TRANSPORTATION

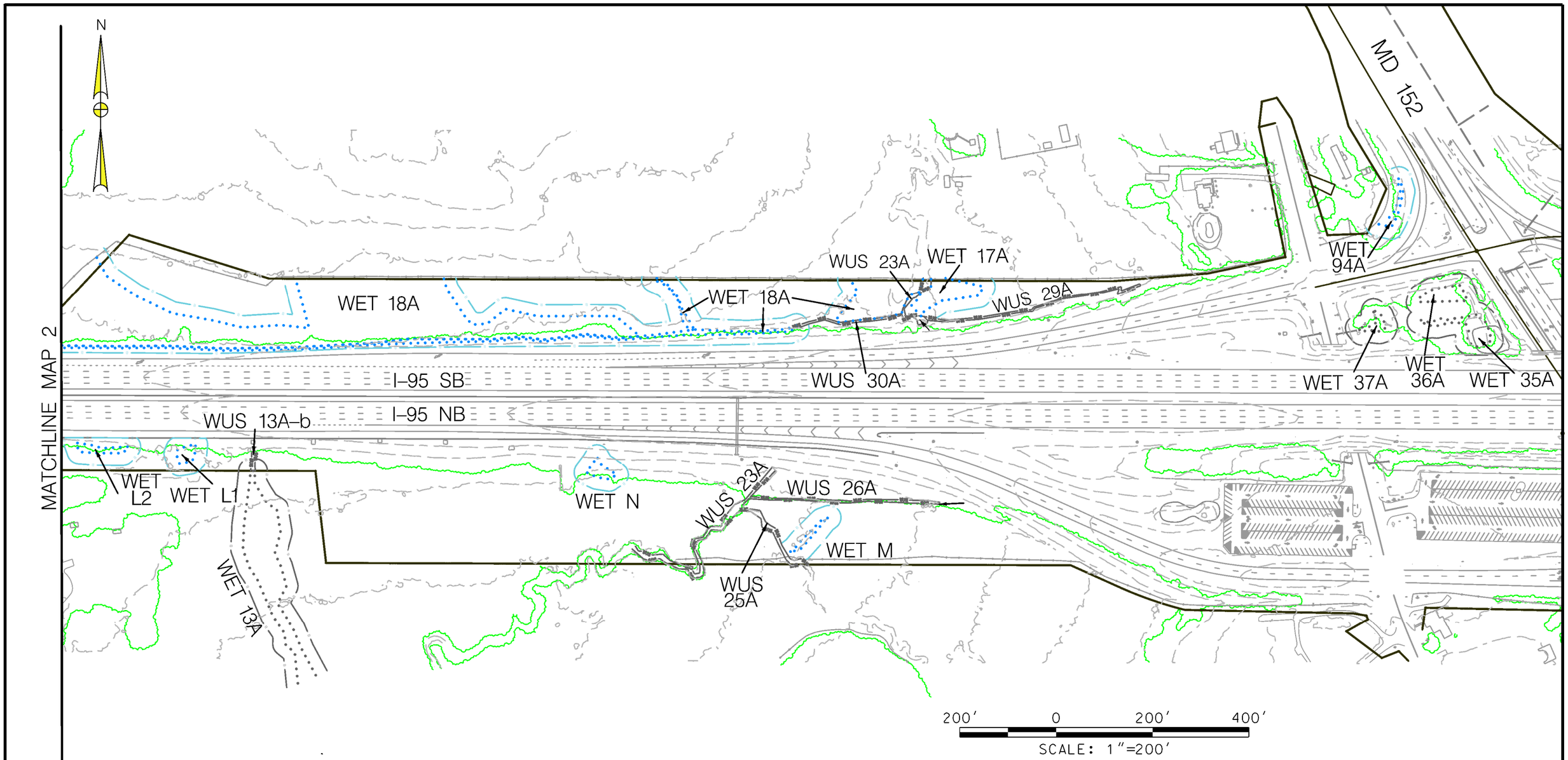
MDTA

MARYLAND TRANSPORTATION AUTHORITY

JMT

SCALE: 1" = 1500'

DATE: FEB 2018



ENVIRONMENTAL FEATURES MAP 1

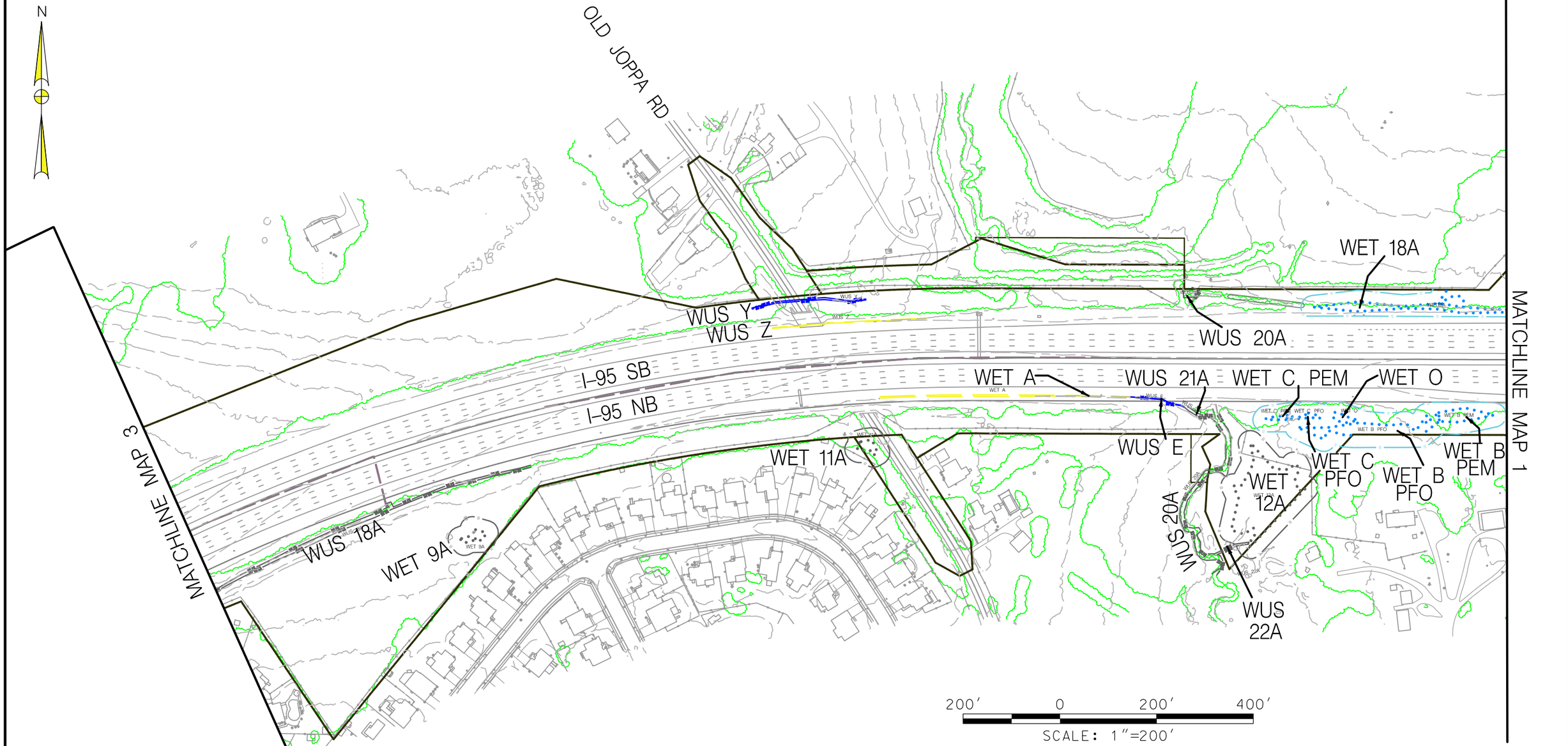
I–95 ETL NORTHBOUND EXTENSION

LEGEND

- WUS — CONFIRMED WATERWAY
- WUS — NEW WATERWAY
- 100–YEAR FLOODPLAIN
- MDTA RIGHT OF WAY
- TREE LINE
- CONFIRMED WETLAND BOUNDARY
- NEW WETLAND BOUNDARY
- B — NEW WETLAND BUFFER
- B — CONFIRMED WETLAND BUFFER
- RESOURCE NOT REGULATED

SCALE: 1" = 200'

DATE: FEB 2018



ENVIRONMENTAL FEATURES MAP 2

I-95 ETL NORTHBOUND EXTENSION

LEGEND

- WUS — CONFIRMED WATERWAY
- WUS — NEW WATERWAY
- 100-YEAR FLOODPLAIN
- MDTA RIGHT OF WAY
- TREE LINE
- CONFIRMED WETLAND BOUNDARY
- NEW WETLAND BOUNDARY
- B — NEW WETLAND BUFFER
- B — CONFIRMED WETLAND BUFFER
- RESOURCE NOT REGULATED

JMT

MDTA

SCALE: 1" = 200'

DATE: FEB 2018

Q:\SMD\130770_048_I95_ETL_N_Tran\CADD\N&CR\Environemntal Features Maps\Env Features 2.dgn
Thursday, February 22, 2018 AT 09:07 AM

N

WET 20A

WET 20A
WUS 18A
WET 93A

WUS 32A

WUS 33A

I-95 SB

I-95 NB

WUS D WUS 18A

MATCHLINE MAP 2

WET 22A

POWDERSBY ROAD

MATCHLINE MAP 4

200' 0 200' 400'

SCALE: 1"=200'

ENVIRONMENTAL FEATURES MAP 3

LEGEND

- WUS — CONFIRMED WATERWAY
- WUS — NEW WATERWAY
- 100-YEAR FLOODPLAIN
- MDTA RIGHT OF WAY
- TREE LINE
- CONFIRMED WETLAND BOUNDARY
- NEW WETLAND BOUNDARY
- B — NEW WETLAND BUFFER
- B — CONFIRMED WETLAND BUFFER
- RESOURCE NOT REGULATED

I-95 ETL NORTHBOUND EXTENSION

JMT

MDTA SM

SCALE: 1" = 200'

DATE: FEB 2018

N

MATCHLINE MAP 5

MATCHLINE MAP 3

WUS 14A

I-95 SB

I-95 NB

WET 23A

WUS 19A

WET 10A

WUS 16A

WUS 14A

WUS 15A

WUS 94A

LITTLE GUNPOWDER

200' 0 200' 400'

SCALE: 1"=200'

ENVIRONMENTAL FEATURES MAP 4

LEGEND

- WUS — CONFIRMED WATERWAY
- WUS — NEW WATERWAY
- 100-YEAR FLOODPLAIN
- MDTA RIGHT OF WAY
- TREE LINE
- CONFIRMED WETLAND BOUNDARY
- NEW WETLAND BOUNDARY
- B — NEW WETLAND BUFFER
- B — CONFIRMED WETLAND BUFFER
- RESOURCE NOT REGULATED

I-95 ETL NORTHBOUND EXTENSION

JMT

MDTA

SCALE: 1" = 200'

DATE: FEB 2018

N

BRADSHAW RD

REYNOLDS RD

WUS 38A
WUS 37A

WUS W

WET 25A

I–95 SB

WUS X

I–95 NB

WUS 13A

WUS 12A

PFEFFERS RD

MATCHLINE MAP 6

MATCHLINE MAP 4

200′ 0 200′ 400′

SCALE: 1″=200′

ENVIRONMENTAL FEATURES MAP 5

LEGEND

- WUS — CONFIRMED WATERWAY
- WUS — NEW WATERWAY
- 100–YEAR FLOODPLAIN
- MDTA RIGHT OF WAY
- TREE LINE
- CONFIRMED WETLAND BOUNDARY
- NEW WETLAND BOUNDARY
- B — NEW WETLAND BUFFER
- B — CONFIRMED WETLAND BUFFER
- RESOURCE NOT REGULATED

I–95 ETL NORTHBOUND EXTENSION

JMT

MDTA SM

SCALE: 1″ = 200′

DATE: FEB 2018

N

WET 28A

WUS 40A

WUS 96A

WUS 97A

WUS 98A

WUS 39A

WUS 99A

WUS 96A

WET 29A

I–95 SB

I–95 NB

WUS C

WUS 8A

MATCHLINE MAP 7

MATCHLINE MAP 5

200′ 0 200′ 400′

SCALE: 1″=200′

ENVIRONMENTAL FEATURES MAP 6

LEGEND

- WUS — CONFIRMED WATERWAY
- WUS — NEW WATERWAY
- 100–YEAR FLOODPLAIN
- MDTA RIGHT OF WAY
- TREE LINE
- CONFIRMED WETLAND BOUNDARY
- NEW WETLAND BOUNDARY
- B — NEW WETLAND BUFFER
- B — CONFIRMED WETLAND BUFFER
- RESOURCE NOT REGULATED

I–95 ETL NORTHBOUND EXTENSION

JMT

MDTA

SCALE: 1″ = 200′

DATE: FEB 2018

N

RAPHEL RD

I-95 SB

I-95 NB

WUS B

WUS A

WUS 7A

BIG GUNPOWDER

WUS 41A

WUS 6A

MATCHLINE MAP 8

MATCHLINE MAP 6

200' 0 200' 400'

SCALE: 1"=200'

ENVIRONMENTAL FEATURES MAP 7

LEGEND

- WUS CONFIRMED WATERWAY
- WUS NEW WATERWAY
- 100-YEAR FLOODPLAIN
- MDTA RIGHT OF WAY
- TREE LINE
- CONFIRMED WETLAND BOUNDARY
- NEW WETLAND BOUNDARY
- B NEW WETLAND BUFFER
- B CONFIRMED WETLAND BUFFER
- RESOURCE NOT REGULATED

I-95 ETL NORTHBOUND EXTENSION

JMT

MDTA SM

SCALE: 1" = 200'

DATE: FEB 2018

N

WUS 43A

WET 30A

WUS 44A

WUS 42A

WET 97A

WUS 2A

WET 1

NEW FORGE RD

MATCHLINE MAP 7

200′ 0 200′ 400′

SCALE: 1″=200′

ENVIRONMENTAL FEATURES MAP 8

LEGEND

- WUS — CONFIRMED WATERWAY
- WUS — NEW WATERWAY
- 100-YEAR FLOODPLAIN
- MDTA RIGHT OF WAY
- TREE LINE
- CONFIRMED WETLAND BOUNDARY
- NEW WETLAND BOUNDARY
- B — NEW WETLAND BUFFER
- B — CONFIRMED WETLAND BUFFER
- RESOURCE NOT REGULATED

I-95 ETL NORTHBOUND EXTENSION

JMT

MDTA SM

SCALE: 1" = 200'

DATE: FEB 2018