



WETLAND AND WATERWAY INVESTIGATION REPORT

**I-95 ETL NORTHBOUND EXTENSION
PHASE I - KH-3009 SUPPLEMENTAL
DELINEATION**

Baltimore County, MD

17-10674-001/13-0770-054

Submitted to:
Maryland Transportation Authority

February 2021



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1.0 INTRODUCTION

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 Phase I of 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 noise walls along northbound and southbound 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.

Previously, Johnson, Mirmiran & Thompson (JMT) performed wetland and waterway investigations to identify environmental resources that could be impacted within the I-95 ETL Phase I Project Area between New Forge Road and MD 152. The study area for this delineation was limited to existing MDTA right-of-way along I-95 and resulted in the *I-95 ETL Northbound Extension Wetland and Waters Delineation Report* (JMT, 2018). An additional wetland delineation was performed within the Raphel Road right-of-way by KCI; this delineation was recorded in the *Raphel Road Bridge Replacement Wetland Assessment and Delineation Letter Report* (KCI, 2018).

However, Contract KH-3009, one of the ETL Phase I contracts, will impact areas beyond the limits of these previous delineations. A supplemental delineation was performed in January 2021 by JMT within these additional impact areas, and is summarized by this report.

Eight Supplemental Study Areas are located along I-95 between Big Gunpowder Falls and Little Gunpowder Falls. Seven are located along I-95 Northbound and one is located along I-95 Southbound, at Raphel Road. The Supplemental Study Areas total 9.36 acres in size. The Supplemental Study Areas are neighbored by forested highway right-of-way and maintained road shoulder but consist primarily of forested area and agricultural land beyond highway right-of-way (**Appendix A, Figure 1**).

The Supplemental Study Areas are located in the Piedmont Physiographic Province. They lie in the Maryland Department of the Environment (MDE) 8-digit Lower Gunpowder Falls (02130802) and Little Gunpowder Falls (02130804) Watersheds (MDE, 2005), and U.S. Geological Survey (USGS) Watershed Boundary Dataset 8-digit Gunpowder-Patapsco Watershed (#02060003; USGS, 2009).

Forest Stand Delineations were also completed for the Supplemental Study Areas and will be detailed in a separate report.

2.0 METHODOLOGY

2.1 PUBLISHED INFORMATION

The delineators reviewed several background data sources prior to completing the field work. These sources included USGS topographic maps, soil survey maps, National Wetland Inventory (NWI) and Maryland Department of Natural Resources (DNR) mapped wetlands, MDE mapped streams, Tier II watersheds, Federal Emergency Management Agency (FEMA) floodplain maps, and recent aerial photographs.

2.2 AGENCY COORDINATION

JMT coordinated with DNR, U.S. Fish and Wildlife Service (USFWS), and Maryland Historic Trust (MHT) to determine whether state-protected species, federal-protected species, and/or known historical or archaeological sites are present within the Supplemental Study Areas.

2.3 FIELD INVESTIGATIONS

Field investigations are conducted to delineate potentially jurisdictional waters of the United States, including wetlands and waterways, within the Supplemental Study Areas. Wetland delineations are performed according to the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountain and Piedmont (Version 2.0)* (US Army Corps of Engineers [USACE], 2012). The *Corps of Engineers Wetland Delineation Manual* states three criteria (wetland vegetation, wetland soils, and wetland hydrology) must be present for an area to qualify as a wetland, unless the area is significantly disturbed (atypical situation) or is considered a problem area (e.g., seasonally ponded soils). If the area is significantly disturbed or a problem area, then only two parameters must be evident to classify an area as a wetland. All delineated wetlands are classified into system, subsystem, class and subclass according to the *Classification of Wetlands and Deep-Water Habitats of the United States* (Cowardin *et al.*, 1979).

Wetland (hydrophytic) vegetation is determined using the USACE National Wetland Plant List (NWPL), (USACE, 2020). 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 1**.

Table 1: National Wetland Plant List Indicator Status Groups

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: USACE, 2020

In order to delineate wetland boundaries, samples are taken periodically using an open-faced auger. Soil samples are collected at each wetland and upland sample point, and soil colors are recorded in the field using a Munsell soil color chart (Munsell Color, 2010).

Wetland and waterway boundaries are flagged in the field and documented using a Trimble® global positioning system (GPS) capable of sub-meter accuracy or by field survey. Waterway boundaries are delineated at top of bank.

In the state of Maryland, both USACE and MDE regulate wetlands and waterways. On April 21, 2020, the Environmental Protection Agency (EPA) and USACE published the *Navigable Waters Protection Rule* (NWPR) to finalize a revised definition of USACE-regulated “waters of the United States” under the Clean Water Act; this rule went into effect on June 22, 2020. The delineated resources described within this report have been categorized per the NWPR to aid USACE regulators in determining jurisdiction. However, resources not jurisdictional to USACE may still be regulated by MDE.

USACE has stated that jurisdictionality for resources not included in the January 2019 I-95 ETL Phase I wetland permit will be determined using the NWPR; newly delineated ephemeral streams as well as wetlands lacking direct connection to tributaries will therefore not be considered Waters of the US. The previous delineations shown on the Delineated Resources Maps and discussed in this report were included in the January 2019 permit and are grandfathered under the *Rapanos* jurisdictional guidance in effect at the time that the permit was granted.

3.0 FINDINGS

3.1 PUBLISHED INFORMATION

The White Marsh Topographic 7.5' x 7.5' Quadrangle (USGS, 2019) depicts one mapped unnamed waterway within the Supplemental Study Areas (**Appendix A, Figure 2**).

The NWI (USFWS, 2002) and DNR (2005) wetland datasets show no mapped wetlands within the Supplemental Study Areas (**Appendix A, Figure 3**).

The MDE Stream Designated Use Class Map (MDE, 2014) shows two unnamed tributaries to Little Gunpowder Falls (Use III) within the Supplemental Study Area (**Appendix A, Figure 3**).

The FEMA floodplain mapping for Baltimore County, Maryland (FEMA, 2014) shows that the Supplemental Study Areas are located entirely outside the 100-year floodplain and floodway (FIRM Panel # 24025C0245E) (**Appendix A, Figure 3**).

The MDE Tier II High Quality Waters Map (MDE, 2016) shows that the Supplemental Study Areas do not fall within a Tier II Catchment (**Appendix A, Figure 3**).

The Web Soil Survey for Baltimore County, Maryland (USDA-NRCS, 2018) indicates that 17 soil mapping units occur within the Supplemental Study Areas; of these, three units are predominantly non-hydric, and 14 units are not hydric (**Appendix A, Figure 4**). A table of the soil mapping units can be found in **Appendix A**.

3.2 AGENCY COORDINATION

Rare, Threatened, and Endangered Species

MDTA sent a letter to DNR Wildlife and Heritage Service to determine if state-listed rare, threatened, and endangered (RTE) species are present in the Supplemental Study Area. DNR 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 Supplemental Study Area (**Appendix B**).

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

Through coordination with USFWS, it was found that no federally listed threatened or endangered species are known to exist within the Supplemental Study Areas, other than occasional transient individuals. The USFWS Online Certification Letters documenting these results, dated February 1, 2021, can be found in **Appendix B**. It should be noted that while the Northern Long-Eared Bat (*Myotis septentrionalis*) was flagged by the USFWS system, per the USFWS Chesapeake Bay Field Office (CBFO) website, the only areas in

Maryland with documented hibernacula are Allegany, Garrett, and Washington Counties, and the only areas with documented maternity roosts are in Garrett and Allegany Counties. This project is located in Baltimore County, Maryland and would therefore not be located within 150 feet of a known maternity roost tree or within 0.25 miles of a known hibernaculum.

Historical Resources

MDTA sent a letter to MHT to determine if the proposed project may impact known historical or archeological sites. A response was received from MHT on November 5, 2020 stating that no historic properties will be affected by the project (**Appendix B**).

3.3 FIELD INVESTIGATIONS

JMT conducted field investigations in January 2021 within the Supplemental Study Areas of Contract KH-3009. Three new wetlands (WET 104, WET 105, and WET 106) and two new streams (WUS 103 and WUS 104) were delineated; two previously delineated waterways (WUS 13A and WUS 19A) were extended.

Locations of the delineated systems are shown on the Delineated Resource Maps in **Appendix C**. Wetland, Upland, and Stream data sheets are presented in **Appendix D**. Photographic documentation is included in **Appendix E** and a summary of the delineated resources can be found in **Appendix F**.

Wetlands

Newly Delineated Wetlands

Wetland 104 (WET 104)

WET 104 is a palustrine, emergent, temporarily flooded (PEM1A) wetland located southwest of the Raphel Road overpass over I-95 (**Appendix C, Map 3**). It is approximately 0.04 acres in size. The wetland receives hydrology from roadway runoff, as well as runoff from an adjacent upland field that appears to have been recently disturbed. The wetland drains to WUS 103, which flows under Raphel Road to empty into WP001. Based on field observations as well as a previous field visit with USACE, WP001 is an isolated wetland, i.e., it lacks direct surface connection to a tributary to a Traditional Navigable Water (TNW).

The rapid test and dominance test for hydrophytic vegetation were met. The dominant (and only) species observed within the sapling stratum was green ash (*Fraxinus pennsylvanica*, FACW). Broadleaf cattail (*Typha latifolia*, OBL) was dominant in the herbaceous stratum. No trees are rooted within the wetland, but the northern half of the wetland is located under a sparse canopy cover.

Observed primary indicators of hydrology were surface water, high water table, and water-stained leaves. Secondary indicators included sparsely vegetated concave surface, geomorphic position, and the FAC-neutral test. The soil profile met the depleted matrix (F3) indicator.

Wetland 105 (WET 105)

WET 105 is a palustrine, forested, broadleaf deciduous, seasonally flooded (PFO1C) wetland located north of Old Long Calm Road (**Appendix C, Map 5**). It is approximately 0.01 acres in size. The wetland receives hydrology from groundwater and runoff, and discharges to WUS 11A, which flows southwest into an unnamed tributary to Gunpowder Falls.

The dominance test for hydrophytic vegetation was met. The dominant tree species observed was red maple (*Acer rubrum*, FAC). Japanese stiltgrass (*Microstegium vimineum*, FAC) was dominant in the herbaceous stratum. Abundant downed woody debris was observed within the wetland.

Observed primary indicators of hydrology were surface water, high water table, and water-stained leaves. Secondary indicators included drainage patterns. The soil profile met the depleted matrix (F3) indicator.

Wetland 106 (WET 106)

WET 106 is a palustrine, emergent, seasonally flooded (PEM1C) wetland located northeast of the Raphel Road overpass over I-95 (**Appendix C, Map 2**). It is approximately 0.06 acres in size. The wetland receives hydrology from roadway runoff, as well as runoff from an adjacent farm field. The wetland appears to be isolated.

The dominance test for hydrophytic vegetation was met. Japanese stiltgrass (*Microstegium vimineum*, FAC) was dominant in the herbaceous stratum.

Observed primary indicators of hydrology were surface water, high water table, and water-stained leaves. Secondary indicators included sparsely vegetated concave surface, drainage patterns, and geomorphic position. The soil profile met the depleted matrix (F3) indicator.

WUS

Newly Delineated Waterways

Waters of the US 103 (WUS 103)

WUS 103 is an intermittent stream located south of I-95 northbound, south of the Raphel Road overpass over I-95 (**Appendix C, Map 3**). It receives hydrology from WET 104 and flows north, before turning northeast and flowing through a culvert under Raphel Road, discharging into WP001, an isolated wetland. The stream channel is approximately 2 to 4 feet wide. During the delineation, flow within the channel averaged less than an inch deep. The substrate consists of gravel, sand, and silt.

Waters of the US 104 (WUS 104)

WUS 104 is an intermittent stream located southeast of I-95 northbound, northwest of Old Long Calm Road (**Appendix C, Map 4**). It receives hydrology from groundwater and runoff from an adjacent clearing. It flows southwest into WUS 9A, which is an unnamed tributary to Gunpowder Falls. The stream channel is approximately 5 feet wide. During the delineation, flow within the channel averaged less than an inch deep. The substrate consists of cobble, gravel, sand, and silt. Banks were observed to be incised and unstable, measuring approximately 5 feet in height.

Previously Delineated Waterways

Waters of the US 13A (WUS 13A)

WUS 13A is an intermittent stream located northeast of Bradshaw Road, adjacent to northbound I-95 (**Appendix C, Map 6**). It flows east until it exits the Supplemental Study Area, eventually discharging into Little Gunpowder Falls. The stream channel is approximately 4 to 5 feet wide. During the delineation, flow within the channel averaged 1 to 3 inches deep. The substrate consists of concrete, cobble, gravel, sand, and silt. Banks were observed to be unstable and eroding. WUS 13A was reverified by JMT in 2018; see the *I-95 ETL Northbound Extension Wetland and Waters Delineation Report*. The supplemental delineation extended WUS 13A to the east to accommodate the expanded LOD.

Waters of the US 19A (WUS 19A)

WUS 19A is an ephemeral stream located west of Little Gunpowder Falls, adjacent to northbound I-95 (**Appendix C, Map 8**). It flows southeast until it exits the Supplemental Study Area, eventually discharging into Little Gunpowder Falls. The stream channel is approximately 4 to 6 feet wide. During the delineation, flow within the channel averaged less than an inch deep. The substrate consists of cobble, gravel, sand, and silt. WUS 19A was reverified by JMT in 2018; see the *I-95 ETL Northbound Extension Wetland and Waters Delineation Report*. The supplemental delineation extended WUS 19A to the southeast to accommodate the expanded LOD.

4.0 CONCLUSIONS

Delineators conducted a review of published information and performed field investigations based on the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountain and Piedmont (Version 2.0)* (USACE, 2012) to identify potentially jurisdictional wetlands and waterways within the Supplemental Study Areas.

Based on the results of the investigation, JMT delineated the boundaries of three new wetlands (WET 104, WET 105, and WET 106) and two new streams (WUS 103 and WUS 104). JMT also extended the delineation of two waterways (WUS 13A and WUS 19A). Environmental resources identified in this report may be subject



to verification and regulation by USACE and MDE. Impacts to these resources may require authorization by USACE and MDE as well as mitigation.

5.0 REFERENCES

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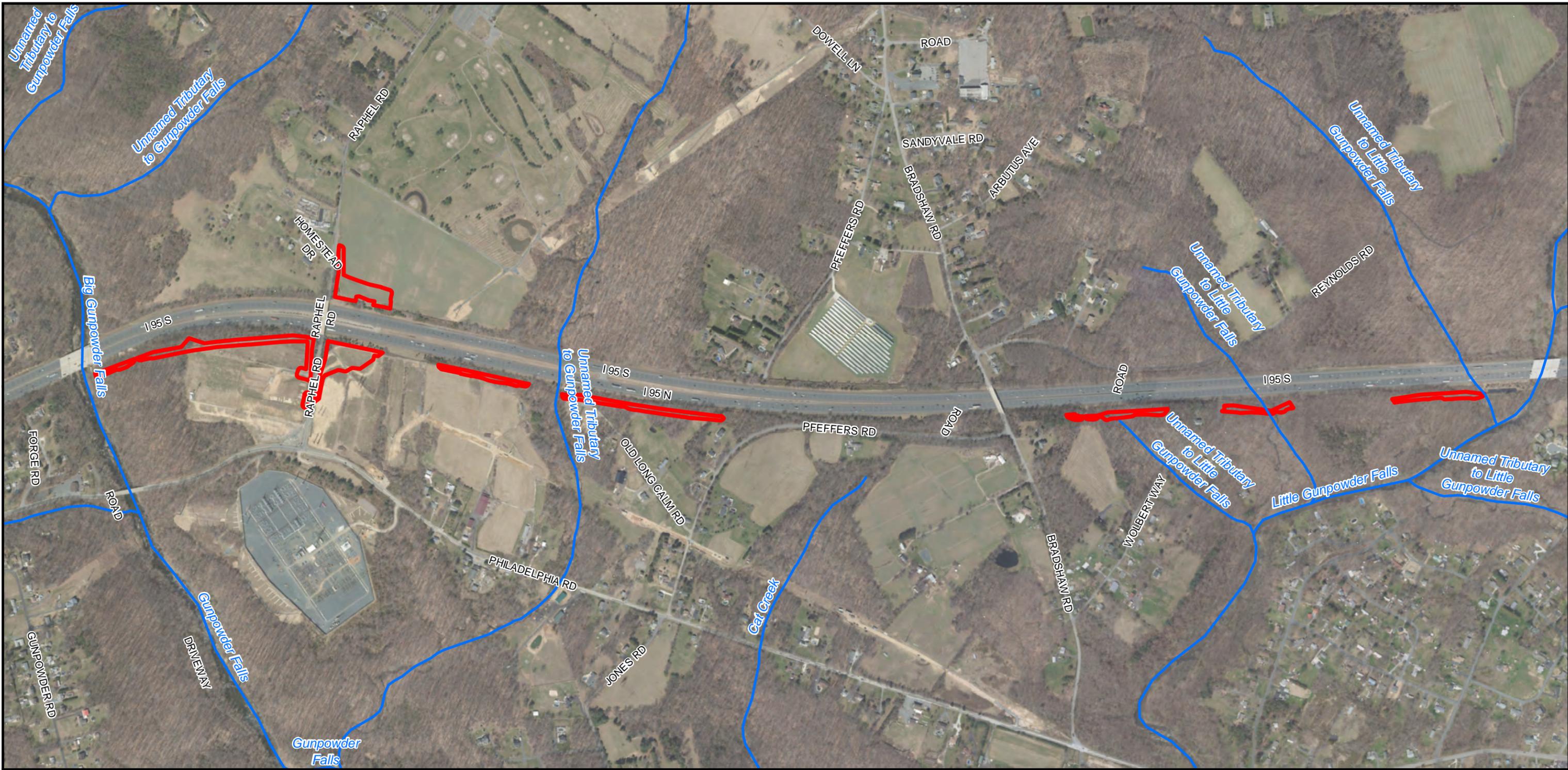
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APPENDIX A FIGURES AND SOIL MAPPING UNITS



**I-95 ETL NORTHBOUND EXTENSION PHASE I - KH-3009 SUPPLEMENTAL DELINEATION
FIGURE 1 - VICINITY MAP**



Legend

- Supplemental Study Area
- MDE Streams



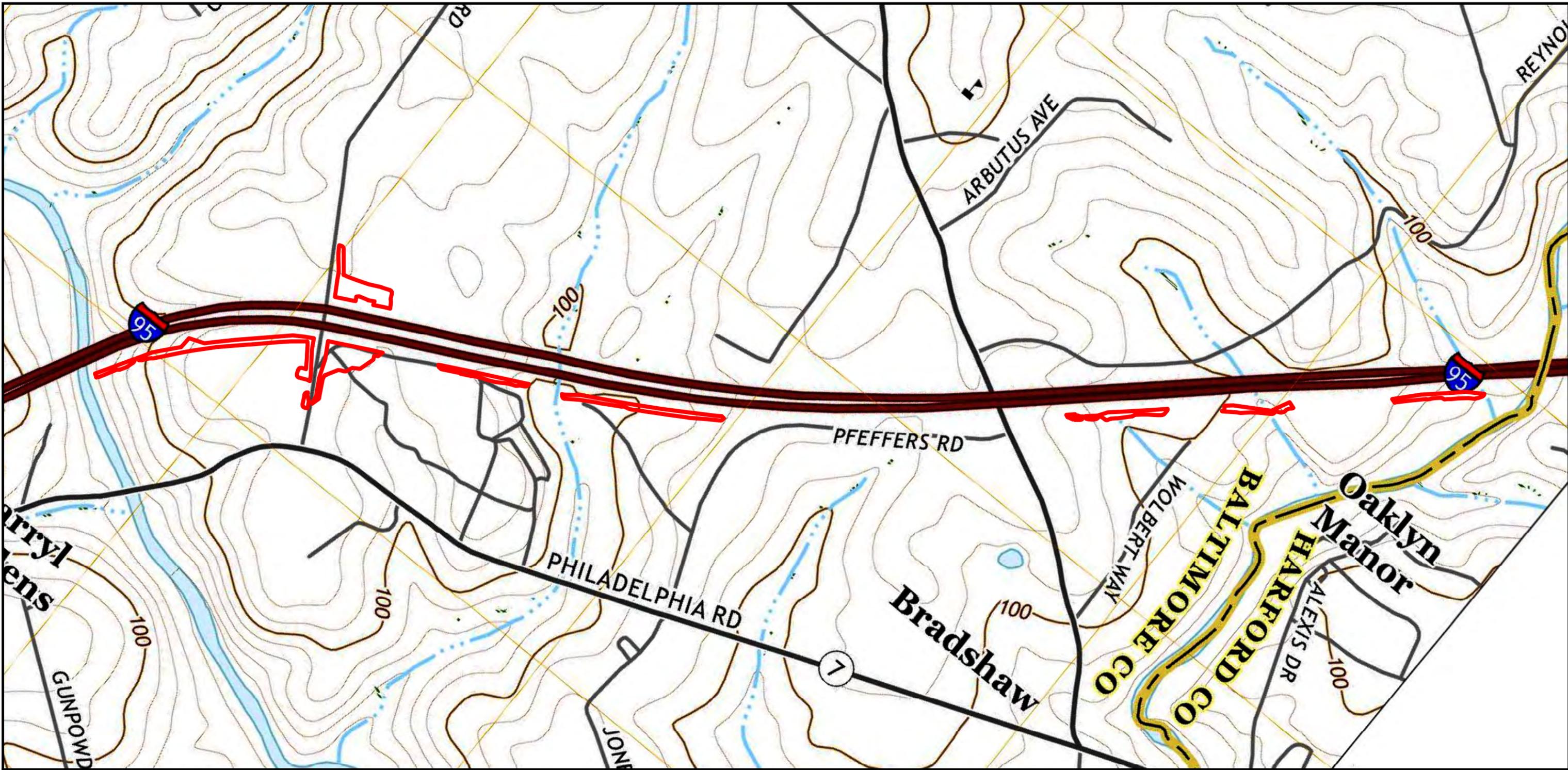
DATE: FEBRUARY 2021



0 375 750 1,500 Feet

1" = 750'

SOURCE: MD IMAP, MDE, BALT. CO.



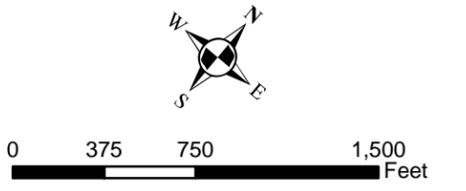
I-95 ETL NORTHBOUND EXTENSION PHASE I - KH-309 SUPPLEMENTAL DELINEATION
 FIGURE 2 - USGS MAP



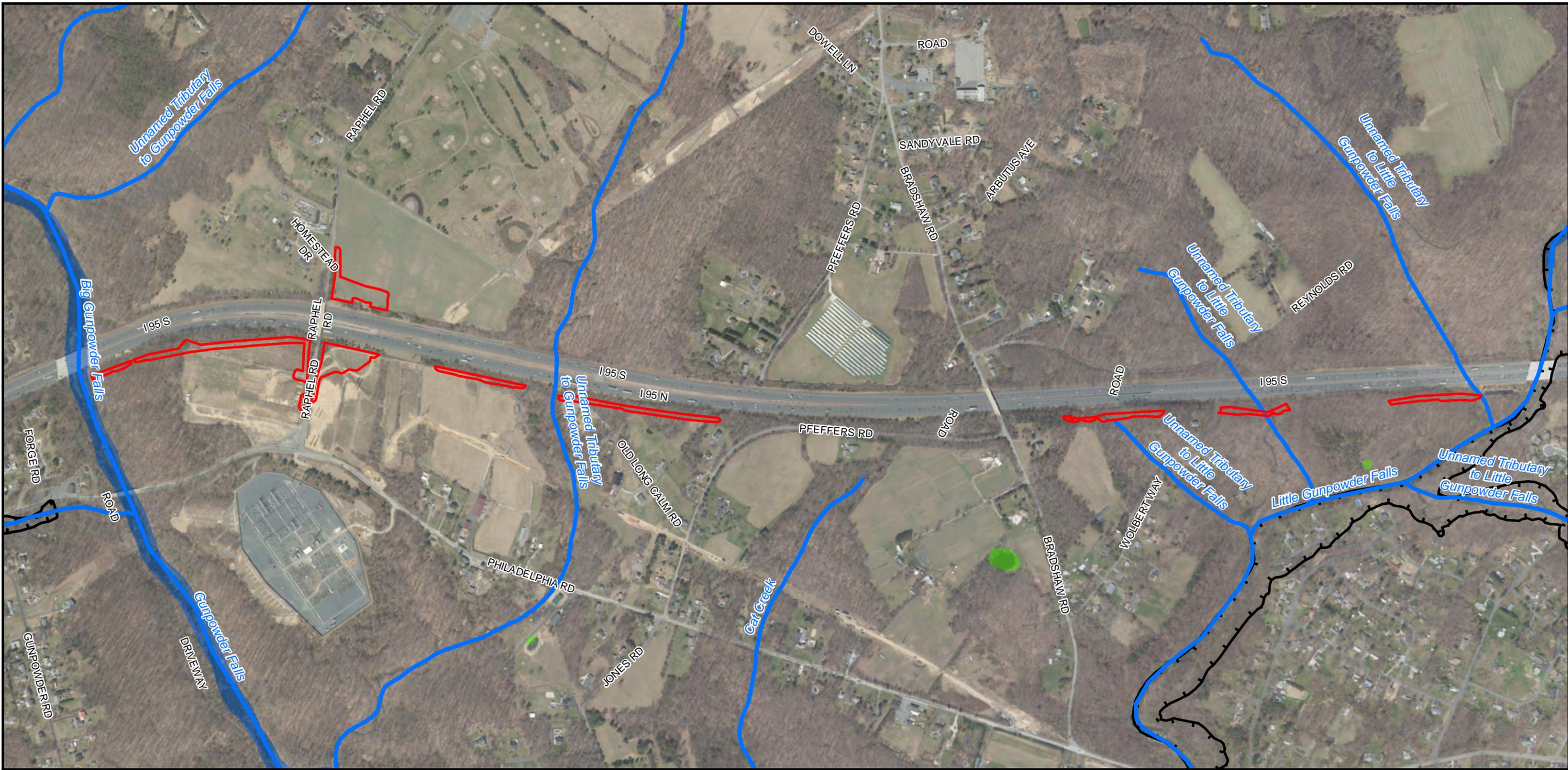
Legend
 Supplemental Study Area



DATE: FEBRUARY 2021



SOURCE: USGS, ESRI



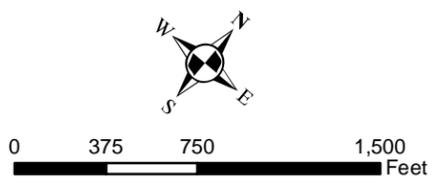
**I-95 ETL NORTHBOUND EXTENSION PHASE I - KH-3009: SUPPLEMENTAL DELINEATION
FIGURE 3 - WATER RESOURCES MAP**



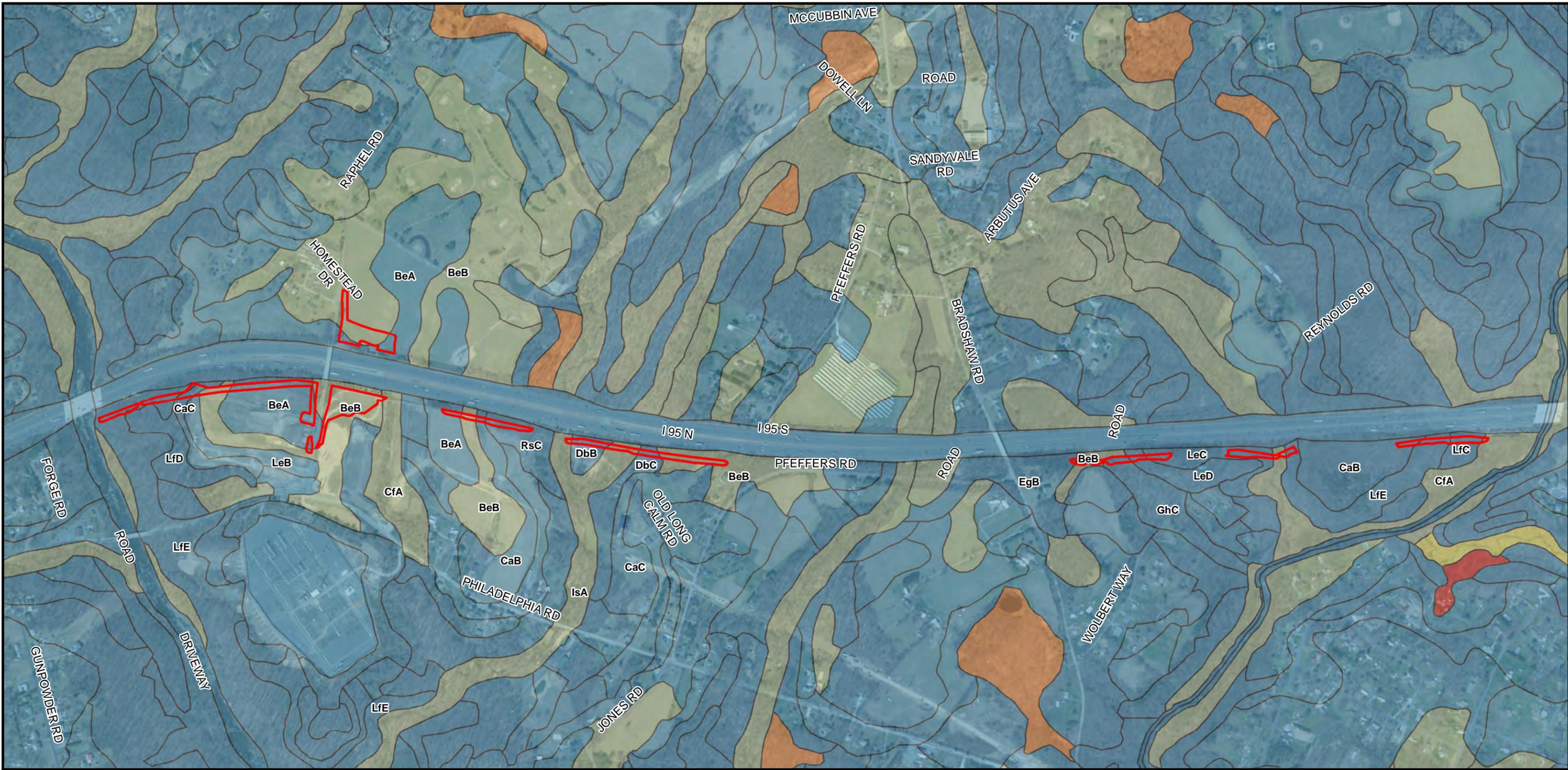
Legend			
	Study Area		Estuarine
	MDE Streams		Lacustrine
	100-Year Floodplain		Marine
	Floodway		Palustrine
	Tier II Watersheds		Riverine



DATE: FEBRUARY 2021



SOURCE: MD IMAP, MDE, NWI, USFWS, FEMA, BALT. CO.



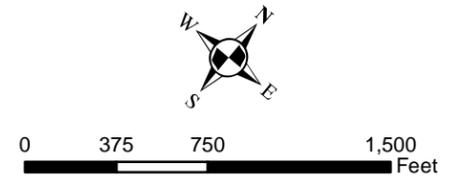
**I-95 ETL NORTHBOUND EXTENSION PHASE I - KH-3009 SUPPLEMENTAL DELINEATION
FIGURE 4 - SOIL SURVEY**

Legend

	Supplemental Study Area
	Not hydric (0%)
	Predominantly non-hydric (1 - 32%)
	Partially hydric (33 - 65%)
	Predominantly hydric (66 - 99%)
	Hydric (100%)



DATE: FEBRUARY 2021



1" = 750'

SOURCE: MD IMAP, NRCS, BALT. CO.

Soil Mapping Units					
Map Unit Symbol	Map Unit Name	Farm Class	Hydric Rating - Percent Present	K Factor - Whole Soil	Hydric Classification
BeA	Beltsville silt loam, 0 to 2 percent slopes	All areas are prime farmland	0	0.37	Not hydric (0%)
BeB	Beltsville silt loam, 2 to 5 percent slopes	All areas are prime farmland	5	0.37	Predominantly non-hydric (1 - 32%)
CaB	Chillum silt loam, 0 to 5 percent slopes	All areas are prime farmland	0	0.32	Not hydric (0%)
CaC	Chillum silt loam, 5 to 10 percent slopes	Farmland of statewide importance	0	0.32	Not hydric (0%)
CfA	Codorus silt loams, 0 to 3 percent slopes	All areas are prime farmland	15	0.32	Predominantly non-hydric (1 - 32%)
DbB	Delanco silt loam, 3 to 8 percent slopes	All areas are prime farmland	0	0.37	Not hydric (0%)
DbC	Delanco silt loam, 8 to 15 percent slopes	Farmland of statewide importance	0	0.37	Not hydric (0%)
EgB	Elsinboro silt loam, 3 to 8 percent slopes	All areas are prime farmland	0	0.49	Not hydric (0%)
GhC	Glenville silt loam, 8 to 15 percent slopes	Farmland of statewide importance	0	0.37	Not hydric (0%)
IsA	Issue silt loam, occasionally flooded	Not prime farmland	10	0.37	Predominantly non-hydric (1 - 32%)
LeB	Legore silt loam, 3 to 8 percent slopes	All areas are prime farmland	0	0.24	Not hydric (0%)
LeC	Legore silt loam, 8 to 15 percent slopes	Farmland of statewide importance	0	0.24	Not hydric (0%)
LeD	Legore silt loam, 15 to 25 percent slopes	Not prime farmland	0	0.32	Not hydric (0%)
LfC	Legore silt loam, 8 to 15 percent slopes, very stony	Not prime farmland	0	0.24	Not hydric (0%)
LfD	Legore silt loam, 15 to 25 percent slopes, very stony	Not prime farmland	0	0.24	Not hydric (0%)
LfE	Legore silt loam, 25 to 45 percent slopes, very stony	Not prime farmland	0	0.37	Not hydric (0%)
RsC	Russett fine sandy loam, 5 to 10 percent slopes	Farmland of statewide importance	0	0.28	Not hydric (0%)



APPENDIX B AGENCY CORRESPONDENCE



U.S. Department
of Transportation
**Federal Highway
Administration**

202004293

Maryland Division

31 Hopkins Plaza, Suite 1520
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F
FHWA
TJT/ESJ

September 24, 2020

In Reply Refer To:
HDA-MD

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

RECEIVED
SEP 25 2020

BY:-----

Dear Ms. Hughes:

The Federal Highway Administration (FHWA) and the Maryland Transportation Authority (MDTA) are continuing design of the interim build out of the Section 200: I-95, North of MD 43 to North of MD 22 (I-95 Section 200) project, currently referred to as the I-95 Express Toll Lanes (ETLs) Northbound Extension. During Phase II of the I-95 ETL project, MDTA consulted with the Maryland Historical Trust (MHT) on April 12, July 9 and July 18, 2019 to seek review of the current design of the project and the associated mitigation sites. MHT determined that the project would continue to have no adverse effect on historic properties.

BA Co.

MDTA is continuing design of the I-95 ETL project, which comprises several different design/construction contracts across the corridor. The current anticipated construction schedules for each of the contracts can be found on Attachment 1. MDTA is providing this update to advise on the progress of the design and request concurrence that the proposed work will continue to have no adverse effect on historic properties.

The Area of Potential Effects (APE) for this project was previously defined as 500 feet from the centerline of I-95 for the mainline improvements with expanded areas around the MD 24 and MD 543 interchanges. The archeological survey area (previously referred to as the archaeology APE) included the area within the existing right-of-way fences and slightly outside (i.e. 30 meters [or 100 feet] beyond) those right-of-way fences. The APE and archaeology survey area are being expanded to include new areas, as shown on the attached APE maps (Attachment 2). These expansions are described and justified below with the individual contract descriptions and cultural resources assessment.

I-95 Two-lane ETL Extension to MD 152

The design for I-95 Two-lane ETL Extension to MD 152 is at the final stage and is anticipated to be advertised in late summer 2020. All work remains within the APE but includes construction on maintenance access ramps at Raphael Road on both the northbound and southbound sides of I-95 that extend outside of the archaeology survey area (Attachment 3). MDTA previously proposed deck replacement of two bridges along I-95, Structure No B-X703001 crossing

2nd TJT/ESJ 11/5/2020

Gunpowder Falls and Structure No. B-X726001 crossing Little Gunpowder Falls. The current design will replace both bridges.

APE/Archaeology Survey Area Expansion: All work remains within the existing APE. Because the proposed maintenance ramps would extend outside of the existing archeological survey area, it is being extended to include the worst-case limits of disturbance (LOD) for the ramp construction.

Archaeology: The area of the proposed maintenance roads extends approximately 30 feet beyond the previously established LOD on both the north and south of I-95. These areas have been previously surveyed, first in association with the Archaeological Society of Maryland in 1964 (Hunt survey report 194; MHT #BA29B) and then in 2007 (A.D. Marble 2009; MHT #BA198). Two archaeological sites were recorded by those surveys: 18BA54 on the southern side of I-95 (northbound) and to the east of the proposed maintenance road; and 18BA53 on the northern side of I-95 (southbound) on the western side of Raphael Road and west of the proposed maintenance road on that side of I-95.

The Hunt survey recorded site 18BA54 as “SE side of Expressway; spoil pile 400 ft. N of Raphael Road” from which temporally undiagnostic precontact lithic tools and “historic object” were recovered. Additional subsurface testing was conducted at 10-meter intervals in the area during a 2007 A.D. Marble & Company survey (MHT #BA198). The previously recorded prehistoric site was not identified, and the historic artifacts were documented to originate from disturbed soils. Little information is available from the Hunt survey regarding the nature of site 18BA53, but it was recorded as a multicomponent precontact and historic site. The 2007 A.D. Marble survey, however documented roadway and drainage ditch disturbances within the area. Although only 18BA54 was officially determined NRHP ineligible eligible, given the documented disturbance within 18BA53, it too would be considered ineligible if evaluated.

Although archaeological sites have been documented in the vicinity of the proposed maintenance roads, documented evidence of historic disturbance and lack of significant NRHP eligible archaeological deposits in the area suggests that the areas of the proposed Maintenance roads have likewise been disturbed during construction of I-95 and do not have the potential to contain intact significant archaeological deposits. As a result, no further archaeological investigations are warranted.

Architecture: The two structures being replaced, Structure No B-X703001 crossing Gunpowder Falls and Structure No. B-X726001 crossing Little Gunpowder Falls are both steel girder bridges, constructed in 1959 and reconstructed in 1971. Although over 50 years of age, these bridge are exempt from review under the Advisory Council on Historic Preservation Program Comment Issued for Streamlining Section 106 Review for Actions Affecting Post-1945 Concrete and Steel Bridges (Federal Register Vol. 77, No. 222), which relieves agencies from the need to consider effects of undertakings on common post-1945 bridge types and includes steel girder bridges (Section V (C)). No additional architectural investigations are recommended.

MD 24 Improvements

Traffic analysis determined that based on current and projected traffic counts, traffic would back up into the new MD 24 interchange that is proposed for construction as part of MD 24 Interchange, I-95 NB Two-Lane ETL Extension. To address this traffic concern auxiliary lanes are proposed from MD 24 through the Singer Road Intersection (Attachment 4). The auxiliary lane will be added to the roadway median to expand the existing two-lane typical section to include three 12-foot lanes and one 10-foot outside shoulder. Additional work items include replacement of existing signs and construction of associated stormwater management facilities. All work along MD 24 would be within the existing Maryland Department of Transportation State Highway Administration (MDOT SHA) right of way. Construction of noise abatement is being evaluated per the 2020 MDOT SHA Noise Guidelines.

APE/Archaeology Survey Area Expansion: Proposed work extends beyond the previously defined boundaries of the APE and archaeological survey area along MD 24. Most of the work is at grade and all work is in keeping with the existing character of the highway corridor. Noise walls are being proposed along sections of MD 24, but in areas that are screened by existing mature trees. The APE expansion for MD 24 improvements includes the worst-case limits of construction disturbance. The archaeological survey area is also defined as the worst-case LOD and is coterminous with the expanded APE along MD 24.

Archaeology: The expanded archaeology survey area for the MD 24 Improvements, defined as the LOD within the existing MDOT SHA ROW, was included in four previous archaeological surveys: Phase I Archeological Reconnaissance of Maryland Route 24 From US Route 1 (Bel Air By-pass) to Interstate 95 (Conrad 1975; MHT #HA4A); Report on the Significance of Two Areas along Maryland Route 24, Harford County, Maryland (Curry 1977; MHT #HA 4B); A Report on an Intensive Archeological Survey of 18HA98 and an Archeological Reconnaissance of a Similar Area within the Study Bounds of Maryland Route 24 Relocated Route 1 Bel Air Bypass to I-95 (Marshall 1979; MHT #HA 4C); and Phase IB Intensive Archeological Investigations for MD 24 from MD 24/Tollgate RD to MD 7 Harford County, Maryland (Wall 2002; MHT #HA92). The archaeology survey area includes areas of slopes in excess of 15 percent and areas that have been subjected to disturbances associated with roadway construction, drainage improvements, and underground utilities through the recent past.

Only one precontact archaeological site, the Singer Road Site (18HA98) was identified during the Conrad 1975 survey and further investigated by Dennis Curry (Curry 1977) and Bradley Marshall (Marshall 1979). The site was described as a lithic scatter that was a source of raw lithic material (mostly quartz and quartzite) that was repeatedly occupied for brief periods from the Archaic through the Late Woodland periods. All the artifacts recovered originated from plow zone contexts and no features were recorded. No additional investigations were recommended in 1979 and the site has subsequently been developed with residential housing.

Given the overall negative survey coverage and, documented and observable ground disturbance, the archaeology survey area lacks the potential to contain intact and significant archaeological deposits and no additional archaeological investigations are warranted.

Architecture: The expanded APE at MD 24 includes one historic property, Woodside (HA-693), listed on the National Register of Historic Places (NRHP) on November 1, 1979. Woodside house was built in 1823 and is an example of a Federal side hall double parlor plan; the property also includes several outbuildings. The property is significant for its architecture; house is described as the best example of its style in Harford County. Woodside's boundary encompasses 44 acres surrounding the house and was defined prior to the construction of MD 24 in the 1980s. MD 24 is a modern feature that would not contribute to the property's NRHP significance. Since all widening and improvements along MD 24 remain within MDOT SHA right-of-way and are consistent with the existing character of the area along the highway, the proposed work would not diminish the integrity of Woodside.

MHT manages a preservation easement on the 40.282-acre parcel at Woodside. Although the easement boundary shown on MEDUSA, Maryland's Cultural Resource Information System, shows that the easement boundary includes MD 24, the boundary description in the Deed of Easement (Harford County Deed Book 1410:651, 1987) excludes MD 24 right-of-way.

The APE along MD 24 also includes Constant Friendship (HA-769), an unevaluated resource that included an eighteenth-century house and two log buildings. Aerial photographs indicate that all buildings and any associated landscape features were demolished by 1994, likely during the original construction of MD 24 and the extant residential subdivision.

There are no other architectural resources 50 years of age or greater and no additional architectural investigations are warranted.

MD 152 Interchange Improvements

Reconstruction of the MD 152 Interchange as a diamond interchange including ramps to the ETLs and general public lanes (GPL). The alignment of I-95 would shift approximately 40 feet to the north (SB side) to avoid relocation of the 108-inch water main on the NB side. The interchange will include median ETL ramp access for NB and SB I-95 from MD 152. The SB ramp will remain closed until the SB ETL lanes are constructed in the future. Two full traffic signals will serve I-95 GPL ramp traffic and one full traffic signal will serve I-95 ETL ramp traffic. Cul-de-sacs would be constructed on Old Mountain Road to eliminate direct access from Old Mountain Road to the interchange ramps. The Old Mountain Road Bridge over I-95 would be removed and would not be replaced (Attachment 5).

The MD 152 interchange improvement have been part of previous project coordination, but the APE and archaeological survey area were not expanded to include work along MD 152 to the north and south of the interchange that is outside of the existing project APE and archaeology survey area.

APE/Archaeology Survey Area Expansion: Proposed work for MD 152 Interchange Improvements includes work outside of the existing APE/archaeological survey area to the north and south of the interchange. Work within the APE expansion is at grade and all work is in keeping with the existing character of the highway corridor and so the APE is defined as the worst case LOD. The archaeology survey area at this location is being expanded to include the worst-case LOD.

Archaeology: The archaeology survey area has been largely previously surveyed as part of the Phase I archaeological survey conducted in advance of the construction of I-95 (Hunt, Hunt, and Ford 1964; MHT #BA29B), and MD 152 improvements in 1989 (Ervin 1989; MHT# HA23), and then again as part of the *Phase IB Archeological Survey of Section 200: I-95, North of MD 43 to North of MD 22* (Kenworthy 2009; MHT # BA198). Portions of the expanded APE north to Taylor Brook Lane and to the south of Philadelphia Road, however, have not been previously surveyed. As seen on historic aerial images, that area was previously disturbed in the 1940s and 1950s by domestic development and subsequent demolition and construction of MD 152. Additionally, proposed improvements in these areas are limited to the LOD and existing disturbed right-of way and have a low potential to contain intact significant archaeological deposits.

One archaeological site, the Mountain View Road Site (18HA35), was identified during the initial survey of the I-95 corridor in the location of the existing park and ride at the intersection with MD 152. That site was characterized as a multicomponent precontact lithic scatter and historic domestic artifact scatter. An additional site, to the east of Old Joppa Road, the Joppa Lane Site (18HA36), was also identified during that survey. Little was recorded about the site other than that a projectile point of unknown date was recovered. Additional investigations were conducted on the north side of I-95 in the vicinity of the site by A.D. Marble in 2008, that survey indicated that the area was heavily disturbed by the construction of I-95 and utility lines.

An additional precontact lithic scatter, the Carob Site (18HA1646), was identified during the 1989 survey in advance of improvements to the intersection of MD 152 and I-95 (Ervin 1989; MHT# HA23), but that site is beyond the current LOD and will not be impacted by the proposed project.

As a result, the archaeological survey area has been sufficiently surveyed previously and given the negative survey coverage and disturbance associated with roadway construction and underground utility installation, the archaeology survey area does not have the potential to affect intact or significant archaeological deposits and no additional archaeological investigations are warranted.

Architecture: There are no architectural historic properties, MIHP resources, or resources 50 years of age or greater in the expanded APE at the MD 152 interchange. Within the existing 500-foot buffer APE, the parcels at 3001 and 3003 S Old Mountain Road contain dwellings that are greater than 50 years of age that had not previously been evaluated for NRHP eligibility. Since proposed work at 3001 and 3003 S Old Mountain Road would include tree clearing and the LOD is directly adjacent to buildings on these parcels, the two resources have been evaluated as part of historic properties identification efforts for this project, on DOE Short Forms. Both are representative of common twentieth century architectural forms that are not NRHP eligible. No additional architectural investigations are warranted.

MD 152 Park and Ride

Previous correspondence indicated that a new Park & Ride would be constructed at Franklinville Road to accommodate commuters who use the existing MD 152 Park & Ride that would be

demolished during interchange construction. An alternative site for a MD 152 Park and Ride is under consideration at the MD 152 interchange west of Old Mountain Road (Attachment 6). If this alternative site is selected for use as the Park & Ride, the three parcels on the south side of Old Mountain Road S (Harford County Tax Map 65 Parcels 15, 16, and 583) would be acquired and the existing dwelling on Parcel 583 would be demolished.

APE/Archaeology Survey Area Expansion: The proposed new Park & Ride is partially outside of the existing APE and archaeology survey area. The APE at this location is being expanded to include Parcels 15, 16, and 583 (Attachment 5). The archaeology survey area at this location is being expanded to include the worst-case LOD.

Archaeology: The archaeology survey area for the MD 152 Park & Ride has been previously surveyed as part of the Phase I archaeological survey conducted in advance of the construction of I-95 (Hunt, Hunt, and Ford 1964; MHT #BA29B) and then again as part of the Phase IB Archeological Survey of Section 200: I-95, North of MD 43 to North of MD 22 (Kenworthy 2009; MHT # BA198). One archaeological site, the Mountain View Road Site (18HA35) was identified during the initial survey of the I-95 corridor. That site was characterized as a multicomponent precontact lithic scatter and historic domestic artifact scatter.

The site form provided by the Maryland Historical Trust (MHT) states that material collected during the 1962 archaeological survey:

“... included 1 projectile point, 1 possible scraper, 1 possible pipe, and historic artifacts. Between 12 and 13 November 1987, Richard G. Ervin, Spencer Geasey, and William Huser of the MGS Division of Archeology conducted a survey on the east side of MD 152. A letter regarding this survey, dated 7 December 1987, from MGS to Lou Ege of SHA, notes that 18HA35, "was recorded 350 m west of the project area, but apparently has been destroyed by construction of the exit ramp from Interstate 95 north."

In addition, Tiffany Raszick of MDOT SHA reported to the MHT in 2012 that the site, "has been further destroyed by construction of the park and ride and by drainage and landscaping at the location."

As a result, MDTA has determined that the archaeological survey area has been sufficiently surveyed previously and that the proposed park and ride Option E does not have the potential to affect intact or significant archaeological deposits and no additional investigations are warranted.

Architecture: There are no architectural historic properties or MIHP resources in the expanded APE for the MD 152 Park & Ride. The dwelling proposed for demolition on Parcel 583 (1506 Old Mountain Road S) is the only architectural resource in the expanded APE. It was evaluated in 2007 on a DOE Short Form (DOE-HA-0098) and determined not eligible. The Park & Ride location also includes two additional parcels that were evaluated on DOE Short Forms: 1508 Old Mountain Road S (DOE-HA-0089) and 1504 Old Mountain Road S (DOE-HA-0097), which were both demolished between 2011 and 2015. No additional architectural investigations are warranted.

Review Request

We request your concurrence, within 30 days of receipt of this letter, with the continued finding that the undertaking will have no adverse effects to historic properties. If you have any questions, please contact Ms. Jeanette Mar, Environmental Program Manager, FHWA, at 410-779-7152 or Jeanette.Mar@dot.gov.

Sincerely,

GREGORY
KEITH MURRILL

Digitally signed by
GREGORY KEITH MURRILL
Date: 2020.09.24 12:44:58
-04'00'

Gregory Murrill
Division Administrator

Attachments

Attachment 1- Contract Display
Attachment 2- APE Maps
Attachment 3- Maintenance Access Ramps APE Detail
Attachment 4- MD 24 Improvements APE Detail
Attachment 5- MD 152 Interchange APE Detail
Attachment 6- Old Mountain Road Park and Ride Location

cc: Ms. Jeanette Mar, FHWA Maryland Division
Mr. Carl Chamberlin, MDTA
Mr. Kristofer Beadenkopf, MDTA
Ms. Sarah Groesbeck, MDTA

CONCUR:

By signing below, the Maryland Historical Trust agrees with the Federal Highway Administration/Maryland Transportation Authority's continued determination that there will be No Adverse Effect by the Undertaking/project activities described herein.

Ami Taniguchi Name 11/5/2020 Date



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
Environmental Review Program



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

ER# 2017.1226.ha/ba



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:

February 01, 2021

Consultation code: 05E2CB00-2020-TA-1500

Event Code: 05E2CB00-2021-E-01430

Project Name: MDTA Phase I I-95 Improvements Mainline

Subject: Verification letter for the 'MDTA Phase I I-95 Improvements Mainline' project under the January 5, 2016, Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-eared Bat and Activities Excepted from Take Prohibitions.

Dear Jessica Lord:

The U.S. Fish and Wildlife Service (Service) received on February 01, 2021 your effects determination for the 'MDTA Phase I I-95 Improvements Mainline' (the Action) using the northern long-eared bat (*Myotis septentrionalis*) key within the Information for Planning and Consultation (IPaC) system. This IPaC key assists users in determining whether a Federal action is consistent with the activities analyzed in the Service's January 5, 2016, Programmatic Biological Opinion (PBO). The PBO addresses activities excepted from "take"^[1] prohibitions applicable to the northern long-eared bat under the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based upon your IPaC submission, the Action is consistent with activities analyzed in the PBO. The Action may affect the northern long-eared bat; however, any take that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o). Unless the Service advises you within 30 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the PBO satisfies and concludes your responsibilities for this Action under ESA Section 7(a)(2) with respect to the northern long-eared bat.

Please report to our office any changes to the information about the Action that you submitted in IPaC, the results of any bat surveys conducted in the Action area, and any dead, injured, or sick northern long-eared bats that are found during Action implementation. If the Action is not completed within one year of the date of this letter, you must update and resubmit the information required in the IPaC key.

If the Action may affect other federally listed species besides the northern long-eared bat, a proposed species, and/or designated critical habitat, additional consultation between you and this Service office is required. If the Action may disturb bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act is recommended.

[1]Take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct [ESA Section 3(19)].

Action Description

You provided to IPaC the following name and description for the subject Action.

1. Name

MDTA Phase I I-95 Improvements Mainline

2. Description

The following description was provided for the project 'MDTA Phase I I-95 Improvements Mainline':

Construction of two ETLs along NB I-95 from Section 100 (north of MD 43) to south of MD 152. The ETLs would be constructed by widening into the median of I-95 where possible and to the outside for the remainder. The ETLs and existing General Purpose Lanes (GPLs) would be separated by a 2-foot concrete barrier with a 4-foot offset. The right most lane would be dropped at the MD 152 off-ramp.

Extension of the on-ramp from MD 152 as an auxiliary lane to the MD 24/MD 924 off-ramp. The auxiliary lane and the right most lane would be dropped at the MD 24/MD 924 intersection.

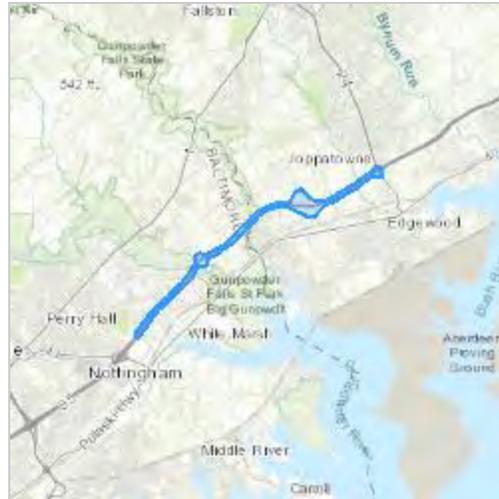
Minor modifications including re-striping and minor geometric improvements to the off-ramp at the MD 24/MD 924 intersection.

Construction of two noise walls (one on NB I-95 north of the Gunpowder Falls and one on the SB side of I-95 just south of the Little Gunpowder Falls).

Installation of Intelligent Transportation System (ITS) technology including: All-Electronic Tolling (AET) to collect tolls using E-ZPass, Closed Circuit Television (CCTV) cameras and Traffic Sensor Systems (TSS) to provide information to access real-time traffic flow, and Dynamic Message Systems (DMS) to display real-time traffic information.

Reconstruction of the I-95 overpass bridges at Bradshaw Road, Old Joppa Road, and Raphel Road to accommodate the additional travel lanes along I-95.

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@39.4228017,-76.39819350340227,14z>



Determination Key Result

This Federal Action may affect the northern long-eared bat in a manner consistent with the description of activities addressed by the Service's PBO dated January 5, 2016. Any taking that may occur incidental to this Action is not prohibited under the final 4(d) rule at 50 CFR §17.40(o). Therefore, the PBO satisfies your responsibilities for this Action under ESA Section 7(a)(2) relative to the northern long-eared bat.

Determination Key Description: Northern Long-eared Bat 4(d) Rule

This key was last updated in IPaC on May 15, 2017. Keys are subject to periodic revision.

This key is intended for actions that may affect the threatened northern long-eared bat.

The purpose of the key for Federal actions is to assist determinations as to whether proposed actions are consistent with those analyzed in the Service's PBO dated January 5, 2016.

Federal actions that may cause prohibited take of northern long-eared bats, affect ESA-listed species other than the northern long-eared bat, or affect any designated critical habitat, require ESA Section 7(a)(2) consultation in addition to the use of this key. Federal actions that may affect species proposed for listing or critical habitat proposed for designation may require a conference under ESA Section 7(a)(4).

Determination Key Result

This project may affect the threatened Northern long-eared bat; therefore, consultation with the Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.) is required. However, based on the information you provided, this project may rely on the Service's January 5, 2016, *Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-Eared Bat and Activities Excepted from Take Prohibitions* to fulfill its Section 7(a)(2) consultation obligation.

Qualification Interview

1. Is the action authorized, funded, or being carried out by a Federal agency?
Yes
2. Have you determined that the proposed action will have "no effect" on the northern long-eared bat? (If you are unsure select "No")
No
3. Will your activity purposefully **Take** northern long-eared bats?
No
4. [Semantic] Is the project action area located wholly outside the White-nose Syndrome Zone?
Automatically answered
No
5. Have you contacted the appropriate agency to determine if your project is near a known hibernaculum or maternity roost tree?

Location information for northern long-eared bat hibernacula is generally kept in state Natural Heritage Inventory databases – the availability of this data varies state-by-state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited. A web page with links to state Natural Heritage Inventory databases and other sources of information on the locations of northern long-eared bat roost trees and hibernacula is available at www.fws.gov/midwest/endangered/mammals/nleb/nhisites.html.

Yes

6. Will the action affect a cave or mine where northern long-eared bats are known to hibernate (i.e., hibernaculum) or could it alter the entrance or the environment (physical or other alteration) of a hibernaculum?
No
 7. Will the action involve Tree Removal?
Yes
-

8. Will the action only remove hazardous trees for the protection of human life or property?

No

9. Will the action remove trees within 0.25 miles of a known northern long-eared bat hibernaculum at any time of year?

No

10. Will the action remove a known occupied northern long-eared bat maternity roost tree or any trees within 150 feet of a known occupied maternity roost tree from June 1 through July 31?

No

Project Questionnaire

If the project includes forest conversion, report the appropriate acreages below. Otherwise, type '0' in questions 1-3.

1. Estimated total acres of forest conversion:

44

2. If known, estimated acres of forest conversion from April 1 to October 31

22

3. If known, estimated acres of forest conversion from June 1 to July 31

22

If the project includes timber harvest, report the appropriate acreages below. Otherwise, type '0' in questions 4-6.

4. Estimated total acres of timber harvest

0

5. If known, estimated acres of timber harvest from April 1 to October 31

0

6. If known, estimated acres of timber harvest from June 1 to July 31

0

If the project includes prescribed fire, report the appropriate acreages below. Otherwise, type '0' in questions 7-9.

7. Estimated total acres of prescribed fire

0

8. If known, estimated acres of prescribed fire from April 1 to October 31

0

9. If known, estimated acres of prescribed fire from June 1 to July 31

0

If the project includes new wind turbines, report the megawatts of wind capacity below. Otherwise, type '0' in question 10.

10. What is the estimated wind capacity (in megawatts) of the new turbine(s)?

0



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:

February 01, 2021

Consultation Code: 05E2CB00-2020-SLI-1500

Event Code: 05E2CB00-2021-E-01428

Project Name: MDTA Phase I I-95 Improvements Mainline

Subject: Updated list of threatened and endangered species that may occur in your proposed project location 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://](http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html)

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: 05E2CB00-2020-SLI-1500

Event Code: 05E2CB00-2021-E-01428

Project Name: MDTA Phase I I-95 Improvements Mainline

Project Type: TRANSPORTATION

Project Description: Construction of two ETLs along NB I-95 from Section 100 (north of MD 43) to south of MD 152. The ETLs would be constructed by widening into the median of I-95 where possible and to the outside for the remainder. The ETLs and existing General Purpose Lanes (GPLs) would be separated by a 2-foot concrete barrier with a 4-foot offset. The right most lane would be dropped at the MD 152 off-ramp.

Extension of the on-ramp from MD 152 as an auxiliary lane to the MD 24/MD 924 off-ramp. The auxiliary lane and the right most lane would be dropped at the MD 24/MD 924 intersection.

Minor modifications including re-striping and minor geometric improvements to the off-ramp at the MD 24/MD 924 intersection.

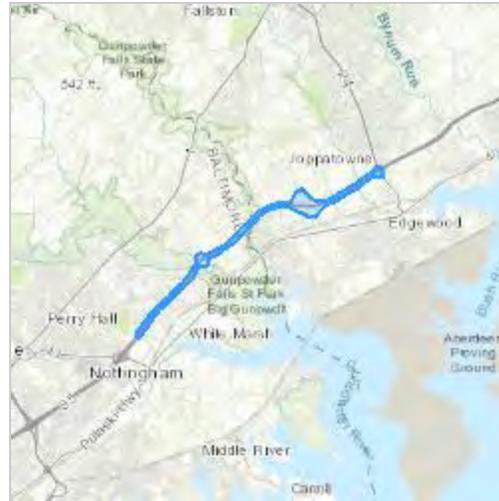
Construction of two noise walls (one on NB I-95 north of the Gunpowder Falls and one on the SB side of I-95 just south of the Little Gunpowder Falls).

Installation of Intelligent Transportation System (ITS) technology including: All-Electronic Tolling (AET) to collect tolls using E-ZPass, Closed Circuit Television (CCTV) cameras and Traffic Sensor Systems (TSS) to provide information to access real-time traffic flow, and Dynamic Message Systems (DMS) to display real-time traffic information.

Reconstruction of the I-95 overpass bridges at Bradshaw Road, Old Joppa Road, and Raphel Road to accommodate the additional travel lanes along I-95.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@39.4228017,-76.39819350340227,14z>



Counties: Baltimore and Harford counties, Maryland

Endangered Species Act Species

There is a total of 1 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. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

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.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> Projects with a federal nexus that have tree clearing = to or > 15 acres: 1. REQUEST A SPECIES LIST 2. NEXT STEP: EVALUATE DETERMINATION KEYS 3. SELECT EVALUATE under the Northern Long-Eared Bat (NLEB) Consultation and 4(d) Rule Consistency key Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

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

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Wetlands

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER EMERGENT WETLAND

- [PEM1Ax](#)
- [PEM1Ex](#)

FRESHWATER FORESTED/SHRUB WETLAND

- [PFO1A](#)
- [PFO1F](#)
- [PFO1/EM5A](#)

FRESHWATER POND

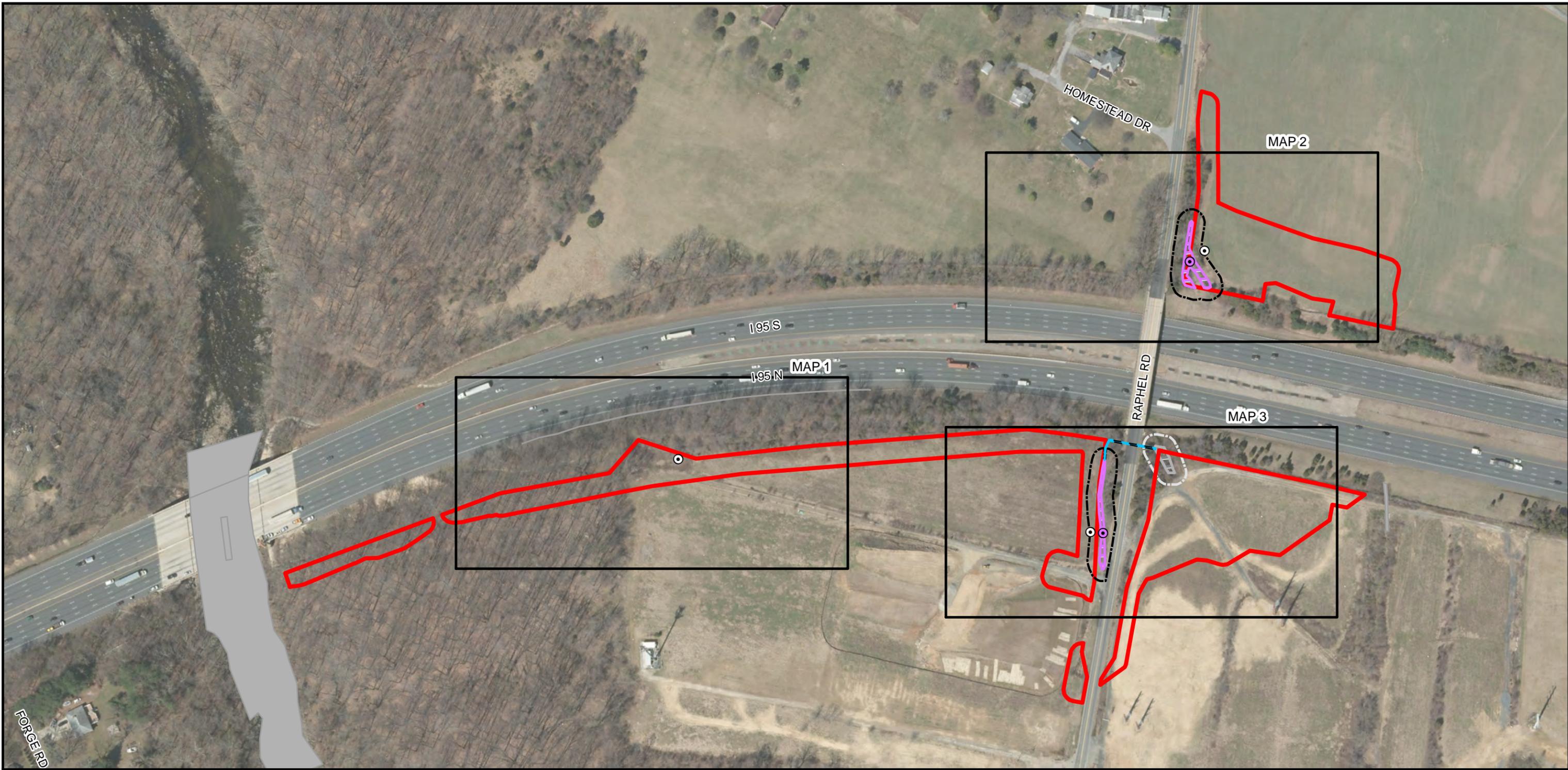
- [PUBHx](#)

RIVERINE

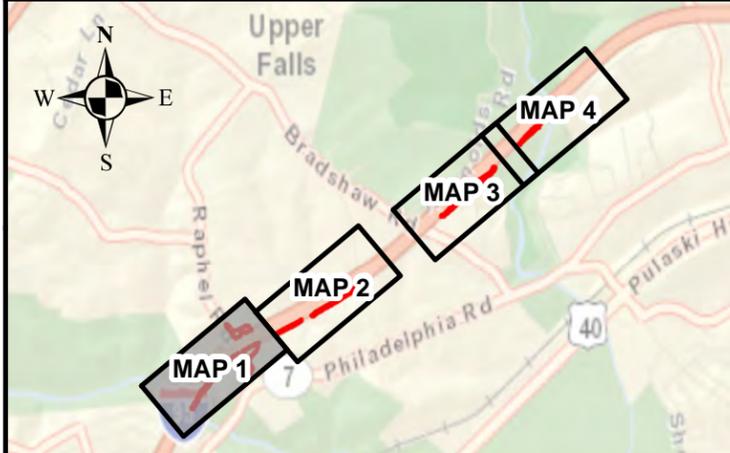
- [R4SBC](#)
 - [R2UBH](#)
 - [R3UBH](#)
-



APPENDIX C DELINEATED RESOURCE MAPS



I-95 ETL NORTHBOUND EXTENSION PHASE I - KH-3009 SUPPLEMENTAL DELINEATION OVERVIEW MAP 1



Legend

- Supplemental Study Area
- Map Boundary
- 100-Year Floodplain
- Floodway

Data Plots

- Upland
- Wetland
- 25-ft Wetland Buffer
- Prev. Del. 25-ft Wetland Buffer

Delineated Streams

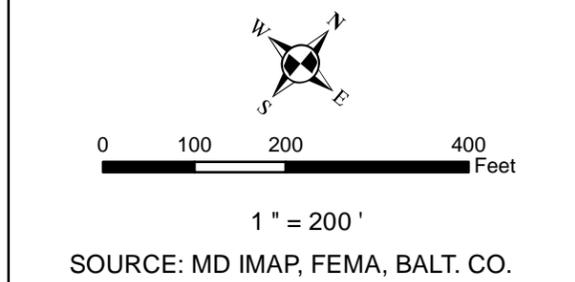
- Ephemeral
- Intermittent
- Culverted Streams
- Prev. Del. Streams

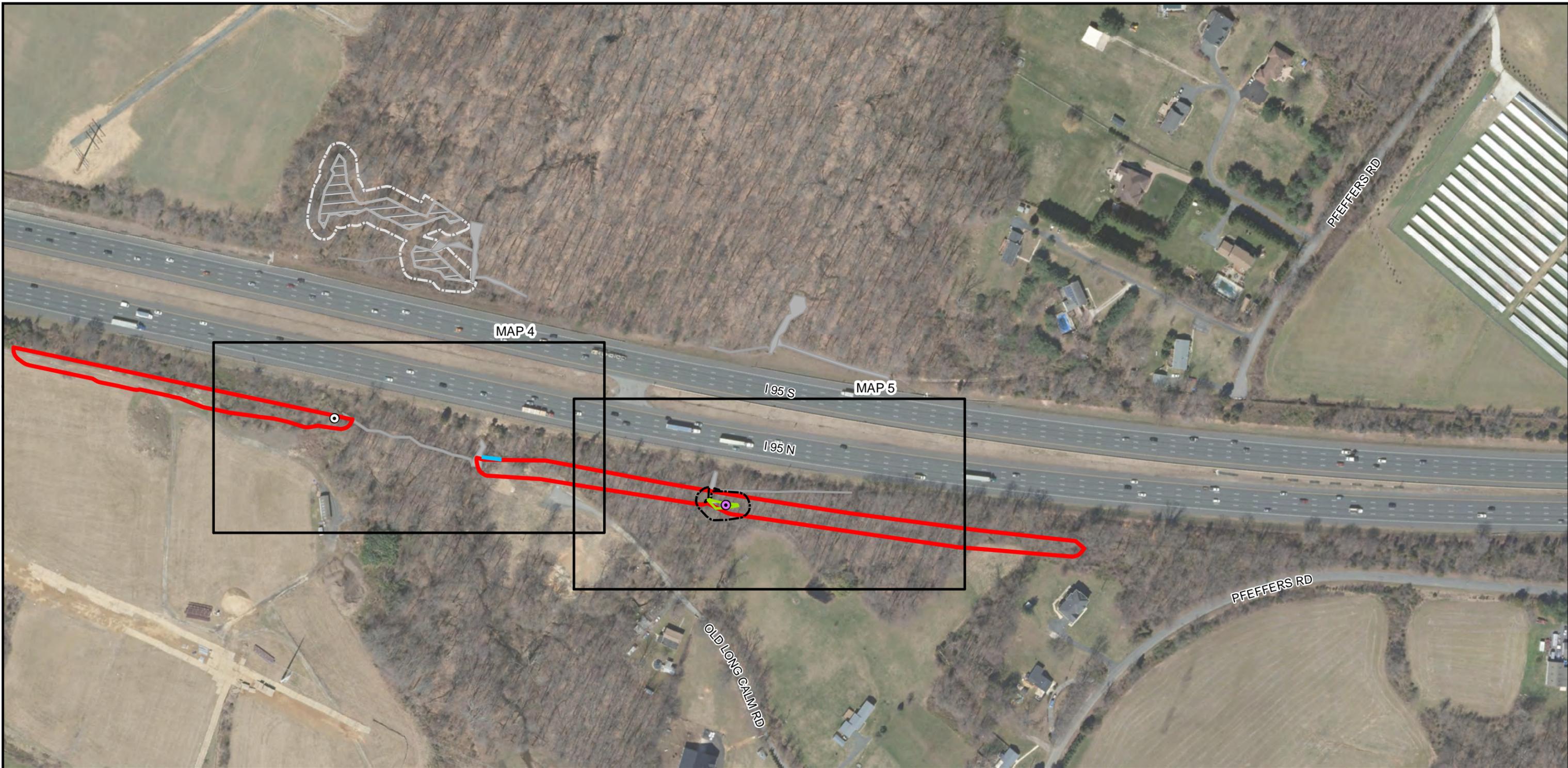
Delineated Wetlands

- PEM
- PFO
- Prev. Del. Wetlands

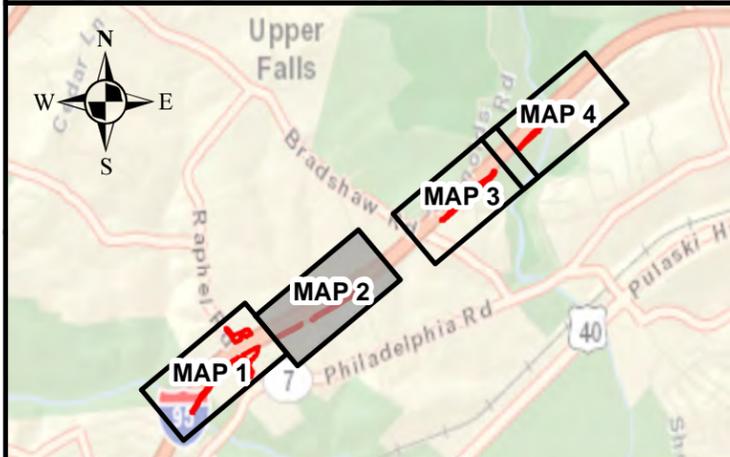


DATE: FEBRUARY 2021





I-95 ETL NORTHBOUND EXTENSION PHASE I - KH-3009 SUPPLEMENTAL DELINEATION OVERVIEW MAP 2



Legend

- Supplemental Study Area
- Map Boundary
- 100-Year Floodplain
- Floodway

Data Plots

- ⊙ Upland
- ⊙ Wetland
- 25-ft Wetland Buffer
- Prev. Del. 25-ft Wetland Buffer

Delineated Streams

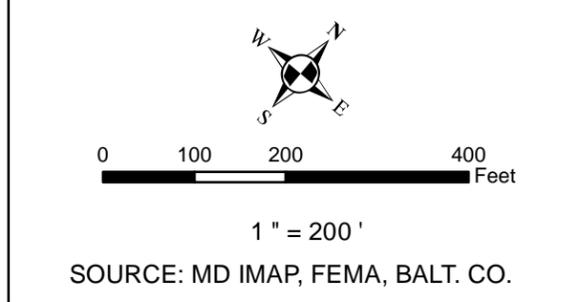
- Ephemeral
- Intermittent
- Culverted Streams
- Prev. Del. Streams

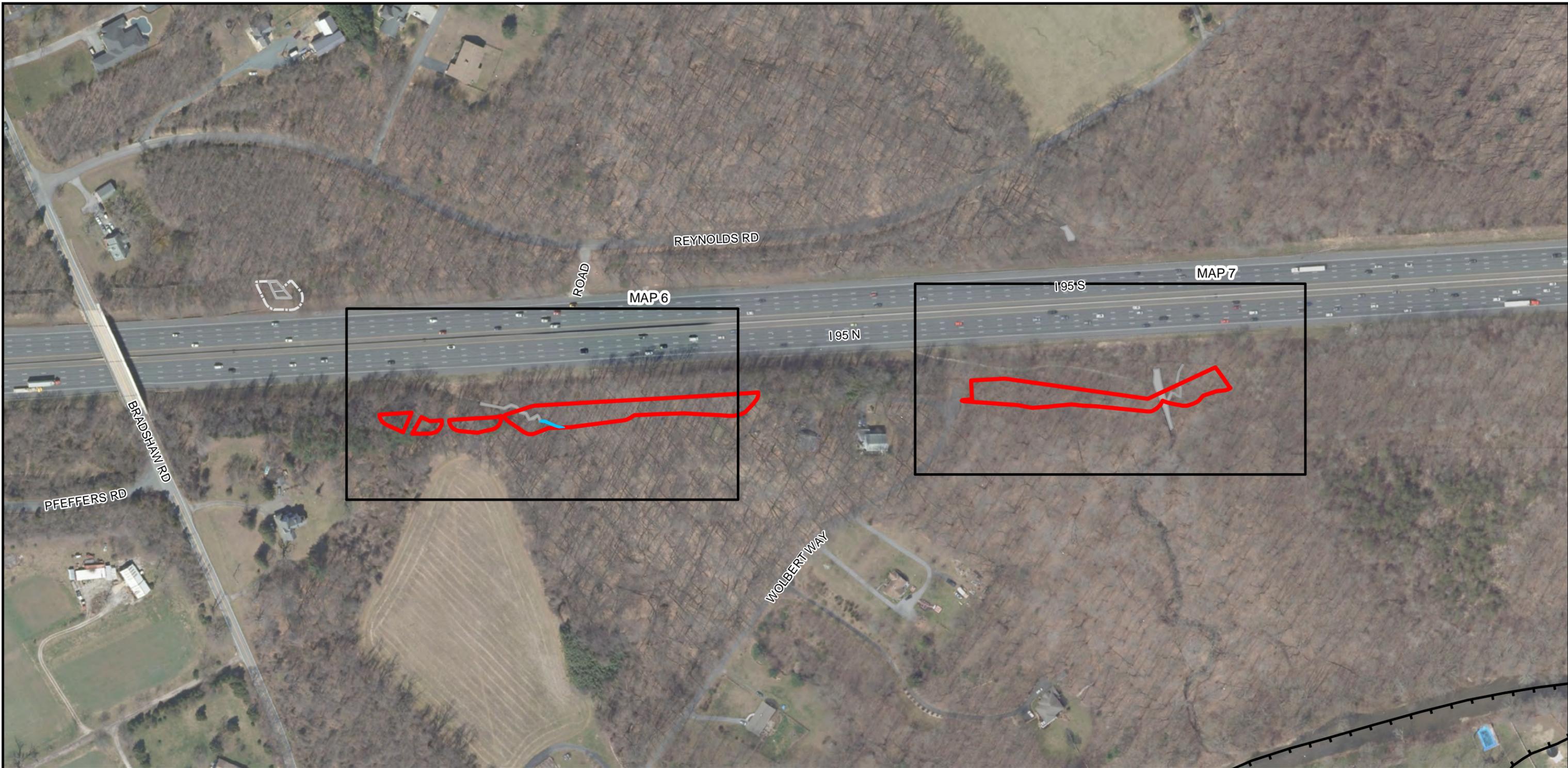
Delineated Wetlands

- PEM
- PFO
- Prev. Del. Wetlands

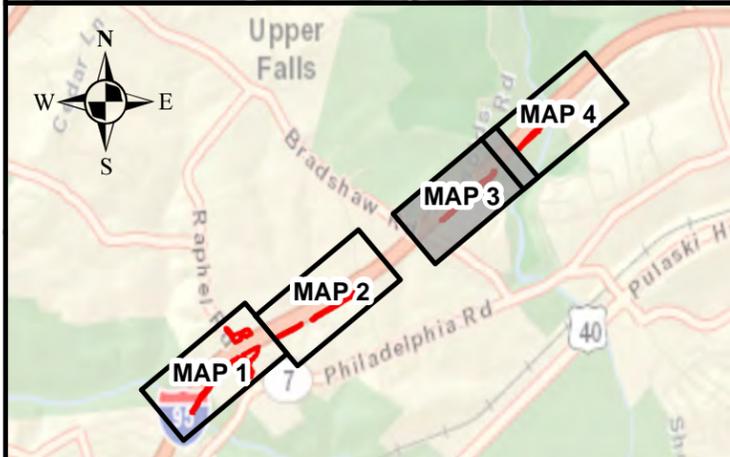


DATE: FEBRUARY 2021





I-95 ETL NORTHBOUND EXTENSION PHASE I - KH-3009 SUPPLEMENTAL DELINEATION OVERVIEW MAP 3



Legend

- Supplemental Study Area
- Map Boundary
- 100-Year Floodplain
- Floodway

Data Plots

- Upland
- Wetland
- 25-ft Wetland Buffer
- Prev. Del. 25-ft Wetland Buffer

Delineated Streams

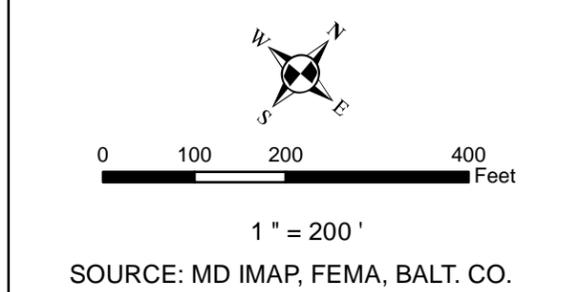
- Ephemeral
- Intermittent
- Culverted Streams
- Prev. Del. Streams

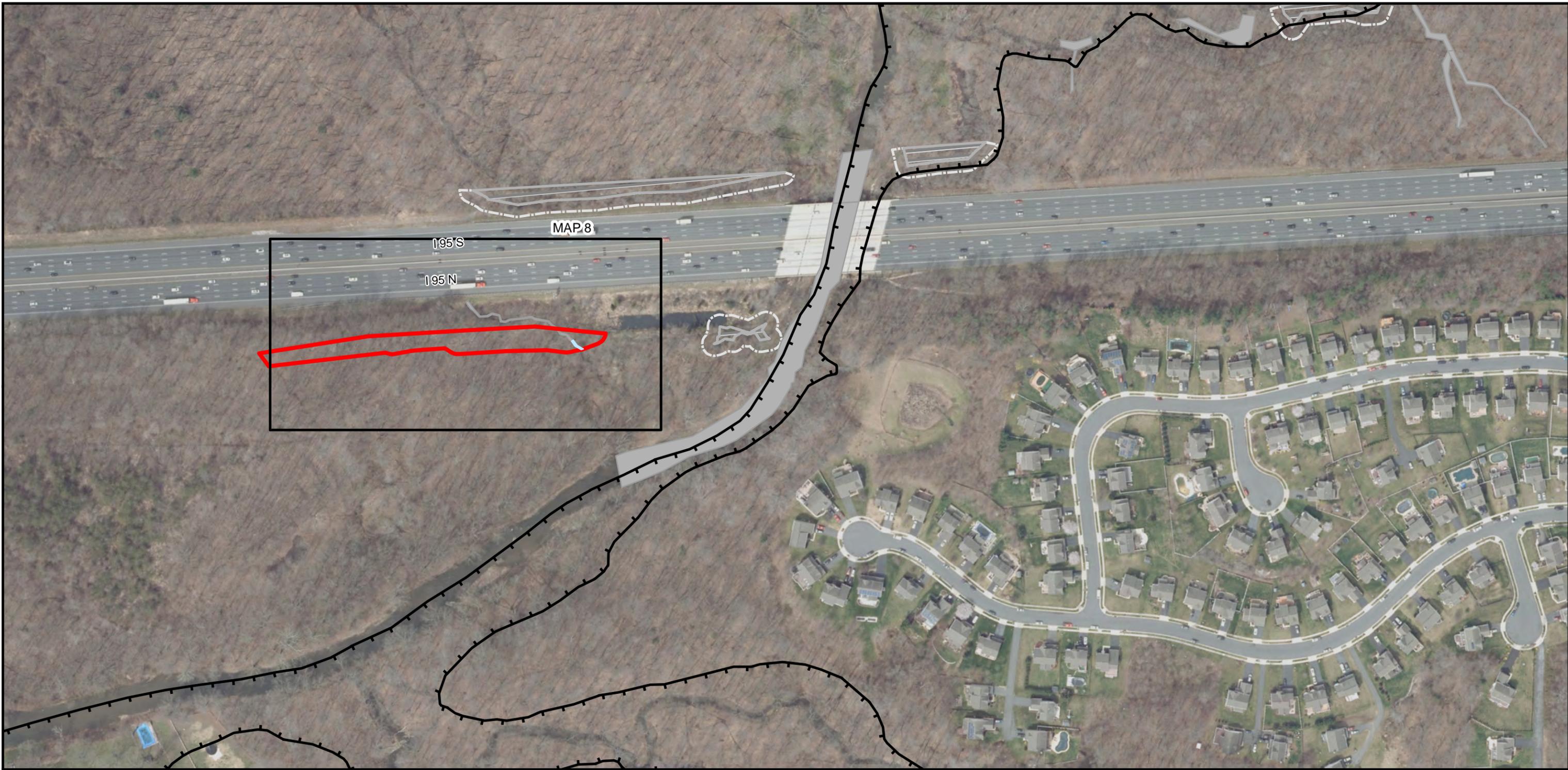
Delineated Wetlands

- PEM
- PFO
- Prev. Del. Wetlands

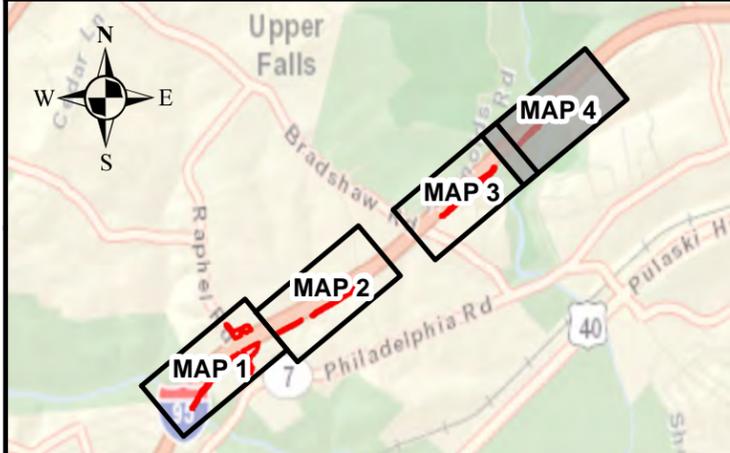


DATE: FEBRUARY 2021





I-95 ETL NORTHBOUND EXTENSION PHASE I - KH-3009 SUPPLEMENTAL DELINEATION OVERVIEW MAP 4



Legend

- Supplemental Study Area
- Map Boundary
- 100-Year Floodplain
- Floodway

Data Plots

- Upland
- Wetland
- 25-ft Wetland Buffer
- Prev. Del. 25-ft Wetland Buffer

Delineated Streams

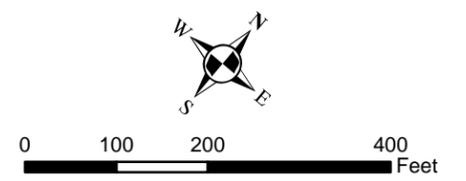
- Ephemeral
- Intermittent
- Culverted Streams
- Prev. Del. Streams

Delineated Wetlands

- PEM
- PFO
- Prev. Del. Wetlands

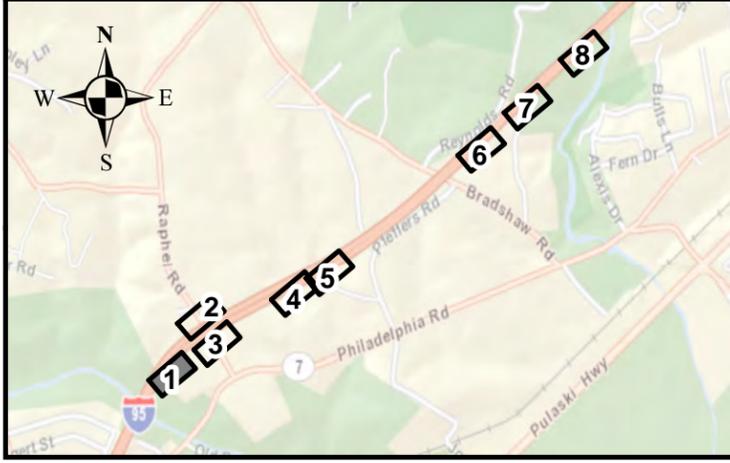
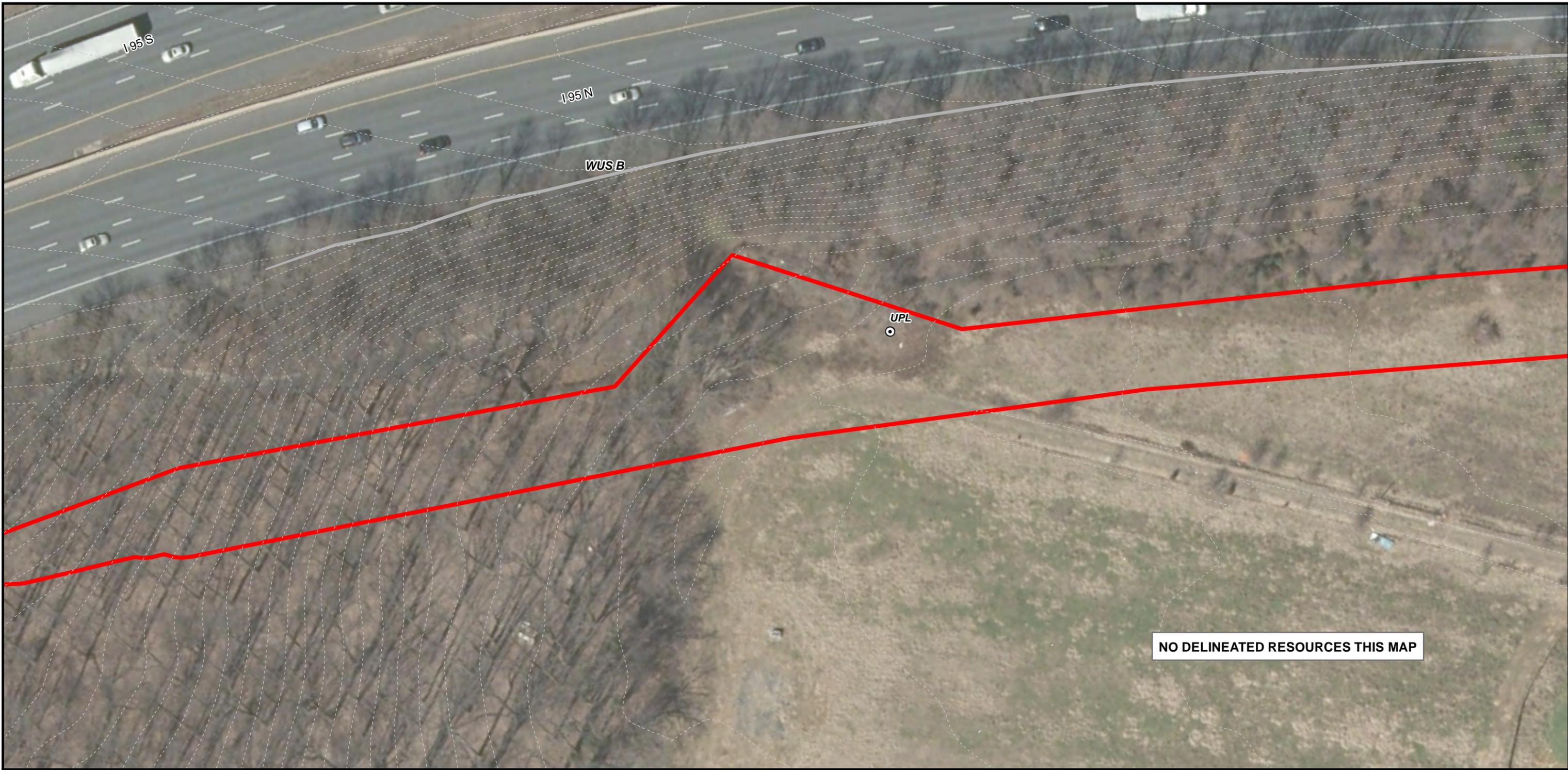


DATE: FEBRUARY 2021



1" = 200'

SOURCE: MD IMAP, FEMA, BALT. CO.



I-95 ETL NORTHBOUND EXTENSION PHASE I - KH-3009 SUPPLEMENTAL DELINEATION DELINEATED RESOURCES MAP 1

Legend

- Supplemental Study Area
- 100-Year Floodplain
- Floodway
- 2-ft Contours
- Flow Arrows

Data Plots

- Upland
- Wetland
- 25-ft Wetland Buffer
- Prev. Del. 25-ft Wetland Buffer

Delineated Streams

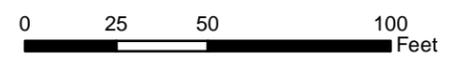
- Ephemeral
- Intermittent
- Culverted Streams
- Prev. Del. Streams

Delineated Wetlands

- PEM
- PFO
- Prev. Del. Wetlands

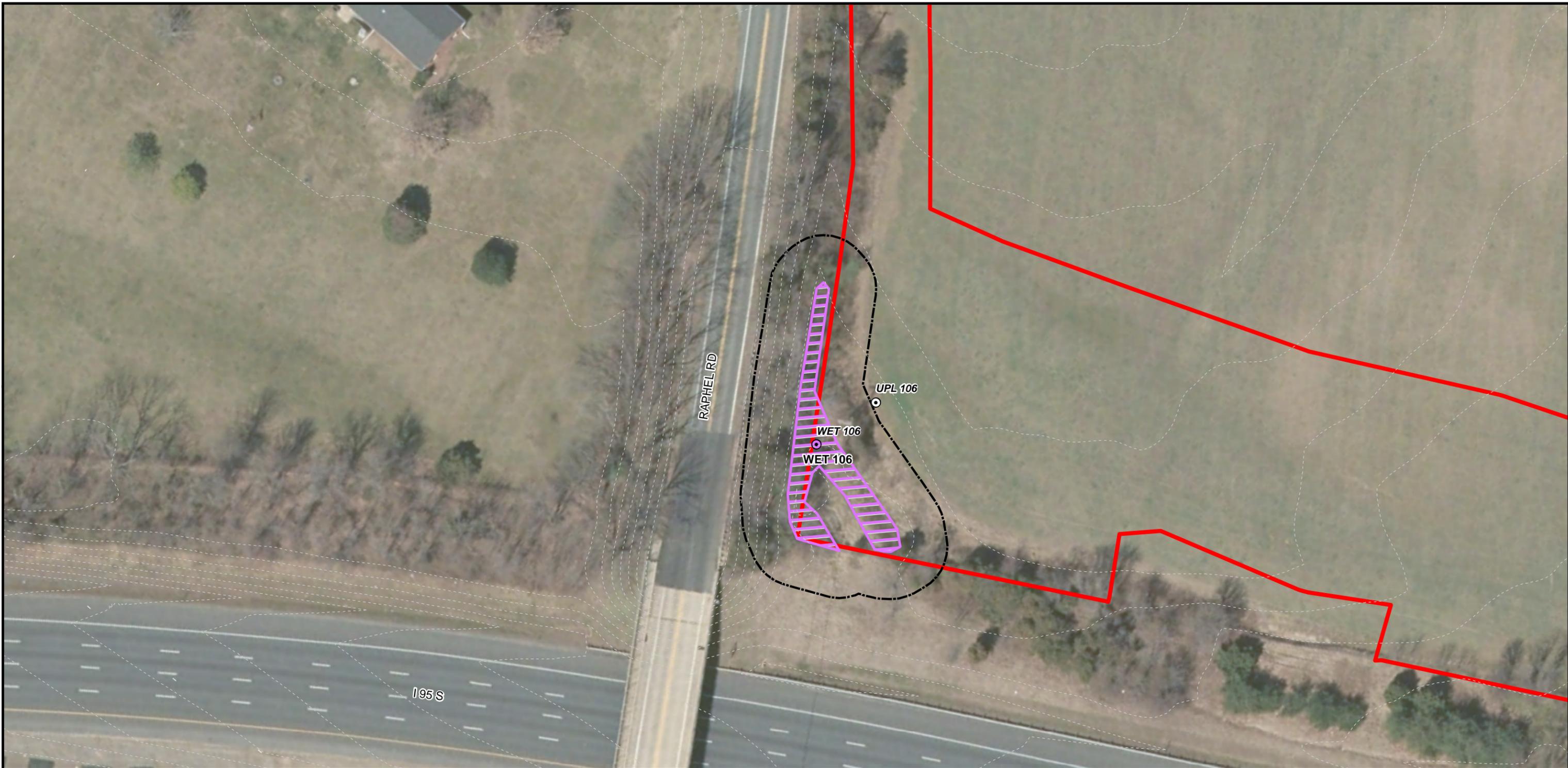


DATE: FEBRUARY 2021

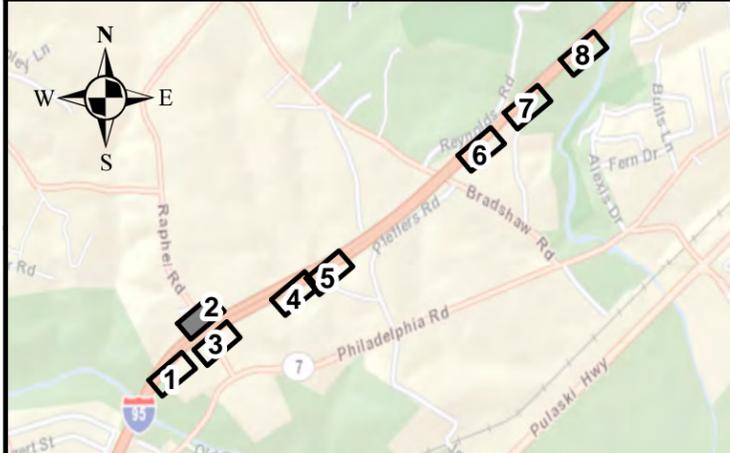


1" = 50'

SOURCE: MD IMAP, FEMA, BALT. CO.



I-95 ETL NORTHBOUND EXTENSION PHASE I - KH-3009 SUPPLEMENTAL DELINEATION DELINEATED RESOURCES MAP 2



Legend

- Supplemental Study Area
- 100-Year Floodplain
- Floodway
- 2-ft Contours
- Flow Arrows

Data Plots

- Upland
- Wetland
- 25-ft Wetland Buffer
- Prev. Del. 25-ft Wetland Buffer

Delineated Streams

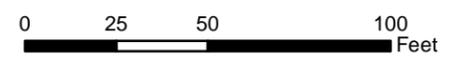
- Ephemeral
- Intermittent
- Culverted Streams
- Prev. Del. Streams

Delineated Wetlands

- PEM
- PFO
- Prev. Del. Wetlands

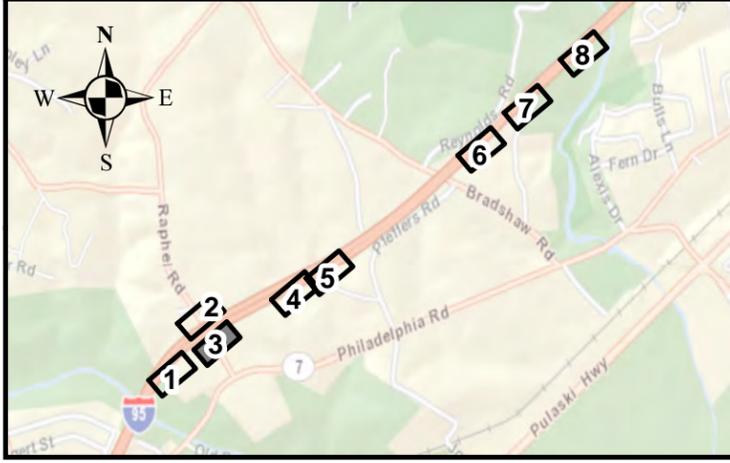


DATE: FEBRUARY 2021



1" = 50'

SOURCE: MD IMAP, FEMA, BALT. CO.



**I-95 ETL NORTHBOUND EXTENSION PHASE I - KH-3009 SUPPLEMENTAL DELINEATION
DELINEATED RESOURCES MAP 3**

Legend

- Supplemental Study Area
- 100-Year Floodplain
- Floodway
- 2-ft Contours
- Flow Arrows

Data Plots

- Upland
- Wetland
- 25-ft Wetland Buffer
- Prev. Del. 25-ft Wetland Buffer

Delineated Streams

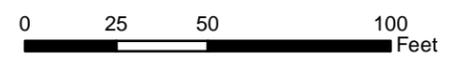
- Ephemeral
- Intermittent
- Culverted Streams
- Prev. Del. Streams

Delineated Wetlands

- PEM
- PFO
- Prev. Del. Wetlands

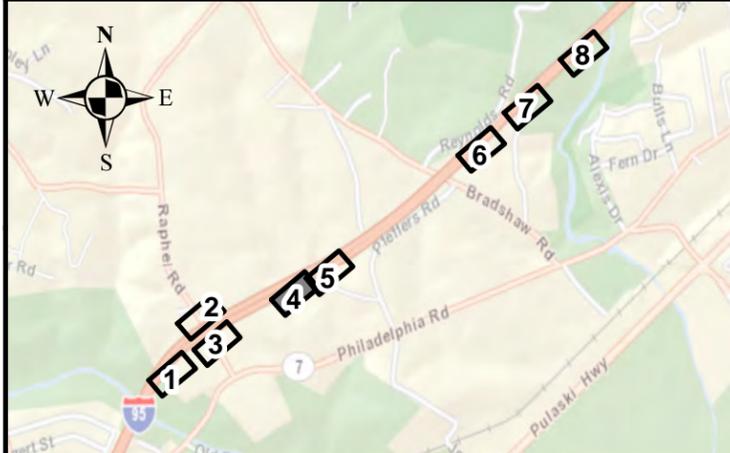


DATE: FEBRUARY 2021



1" = 50'

SOURCE: MD IMAP, FEMA, BALT. CO.

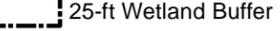


**I-95 ETL NORTHBOUND EXTENSION PHASE I - KH-3009 SUPPLEMENTAL DELINEATION
DELINEATED RESOURCES MAP 4**

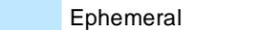
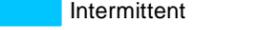
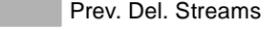
Legend

-  Supplemental Study Area
-  100-Year Floodplain
-  Floodway
-  2-ft Contours
-  Flow Arrows

Data Plots

-  Upland
-  Wetland
-  25-ft Wetland Buffer
-  Prev. Del. 25-ft Wetland Buffer

Delineated Streams

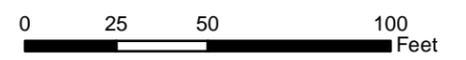
-  Ephemeral
-  Intermittent
-  Culverted Streams
-  Prev. Del. Streams

Delineated Wetlands

-  PEM
-  PFO
-  Prev. Del. Wetlands



DATE: FEBRUARY 2021

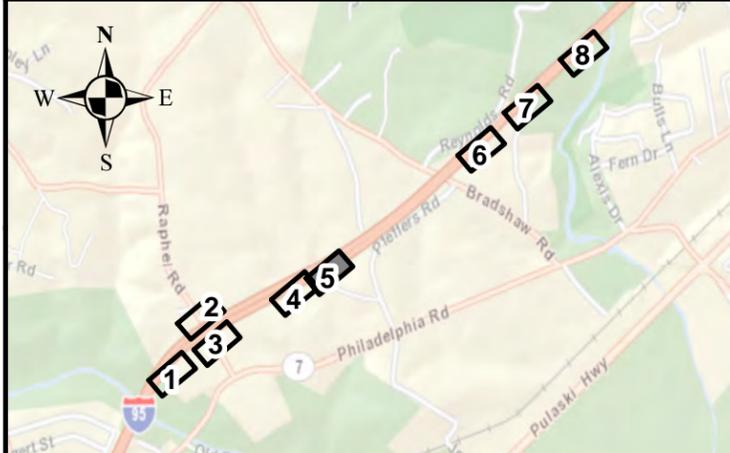


1" = 50'

SOURCE: MD IMAP, FEMA, BALT. CO.



**I-95 ETL NORTHBOUND EXTENSION PHASE I - KH-3009 SUPPLEMENTAL DELINEATION
DELINEATED RESOURCES MAP 5**



Legend

- Supplemental Study Area
- 100-Year Floodplain
- Floodway
- 2-ft Contours
- Flow Arrows

Data Plots

- Upland
- Wetland
- 25-ft Wetland Buffer
- Prev. Del. 25-ft Wetland Buffer

Delineated Streams

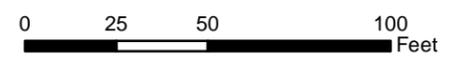
- Ephemeral
- Intermittent
- Culverted Streams
- Prev. Del. Streams

Delineated Wetlands

- PEM
- PFO
- Prev. Del. Wetlands

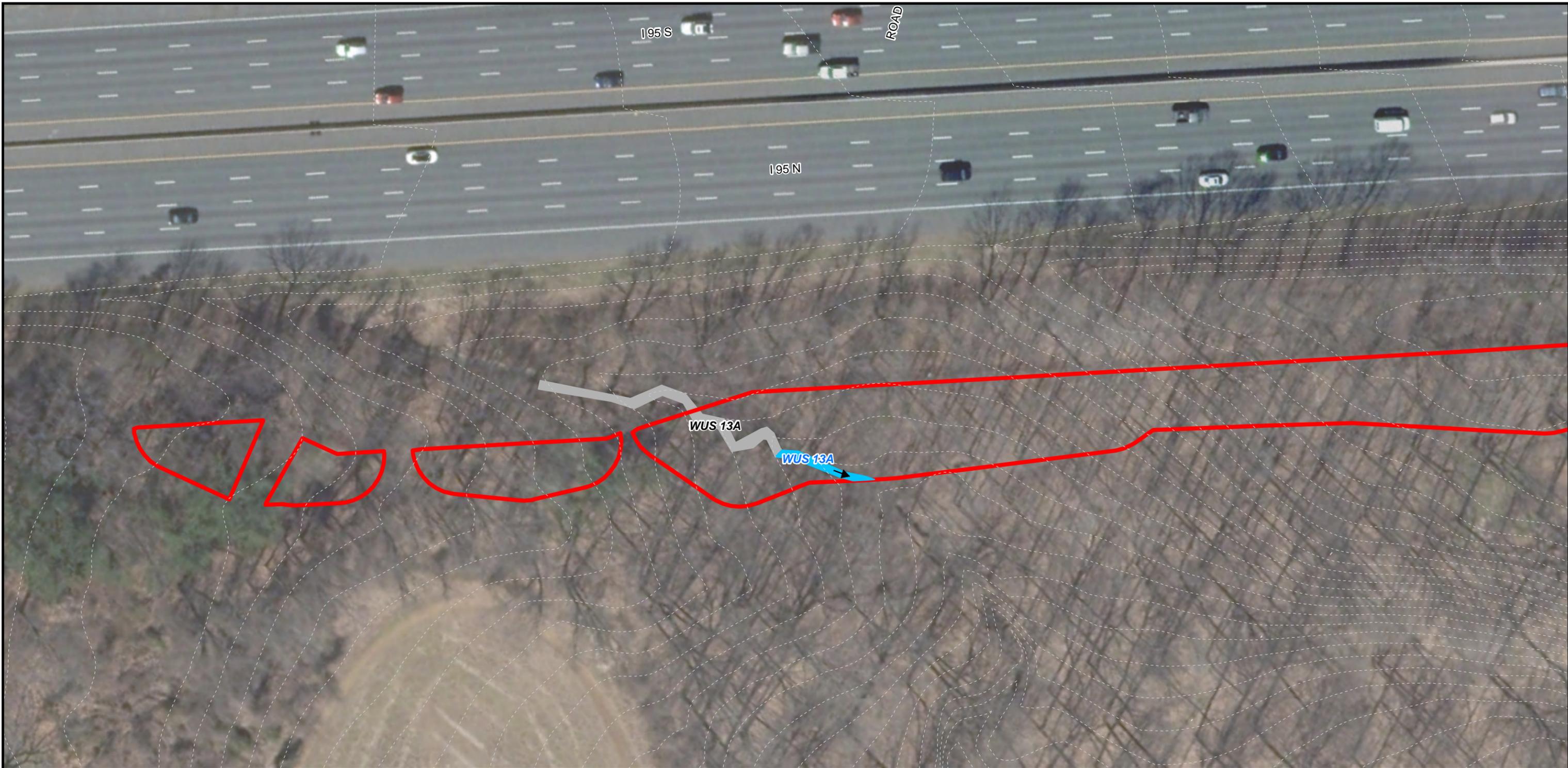


DATE: FEBRUARY 2021

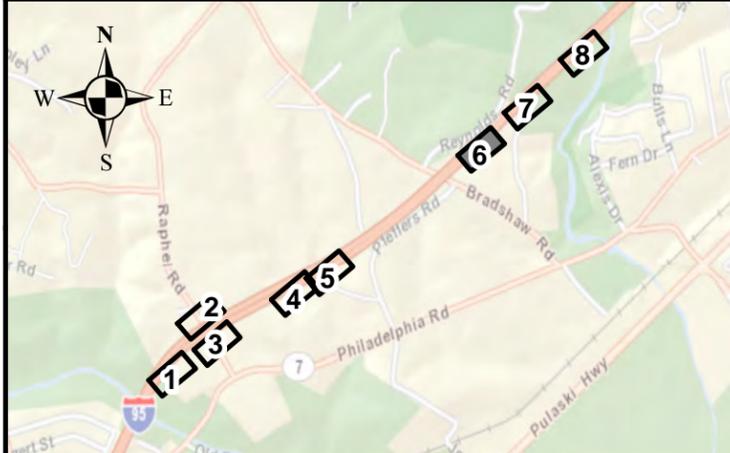


1" = 50'

SOURCE: MD IMAP, FEMA, BALT. CO.



**I-95 ETL NORTHBOUND EXTENSION PHASE I - KH-3009 SUPPLEMENTAL DELINEATION
DELINEATED RESOURCES MAP 6**



Legend

- Supplemental Study Area
- 100-Year Floodplain
- Floodway
- 2-ft Contours
- Flow Arrows

Data Plots

- Upland
- Wetland
- 25-ft Wetland Buffer
- Prev. Del. 25-ft Wetland Buffer

Delineated Streams

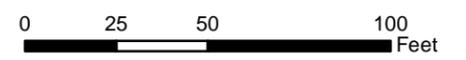
- Ephemeral
- Intermittent
- Culverted Streams
- Prev. Del. Streams

Delineated Wetlands

- PEM
- PFO
- Prev. Del. Wetlands

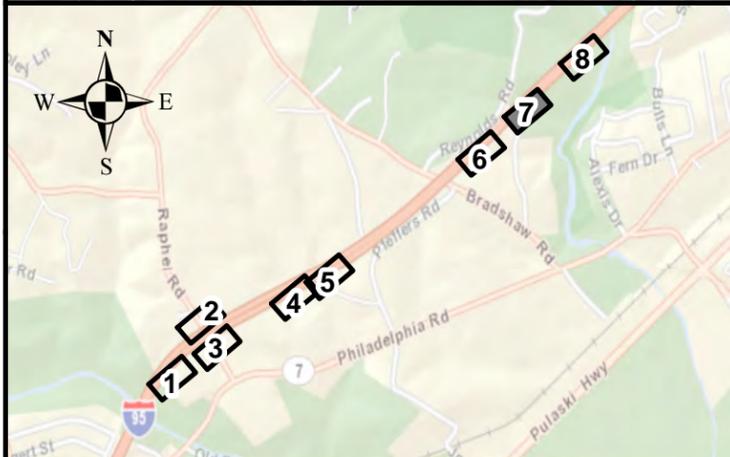
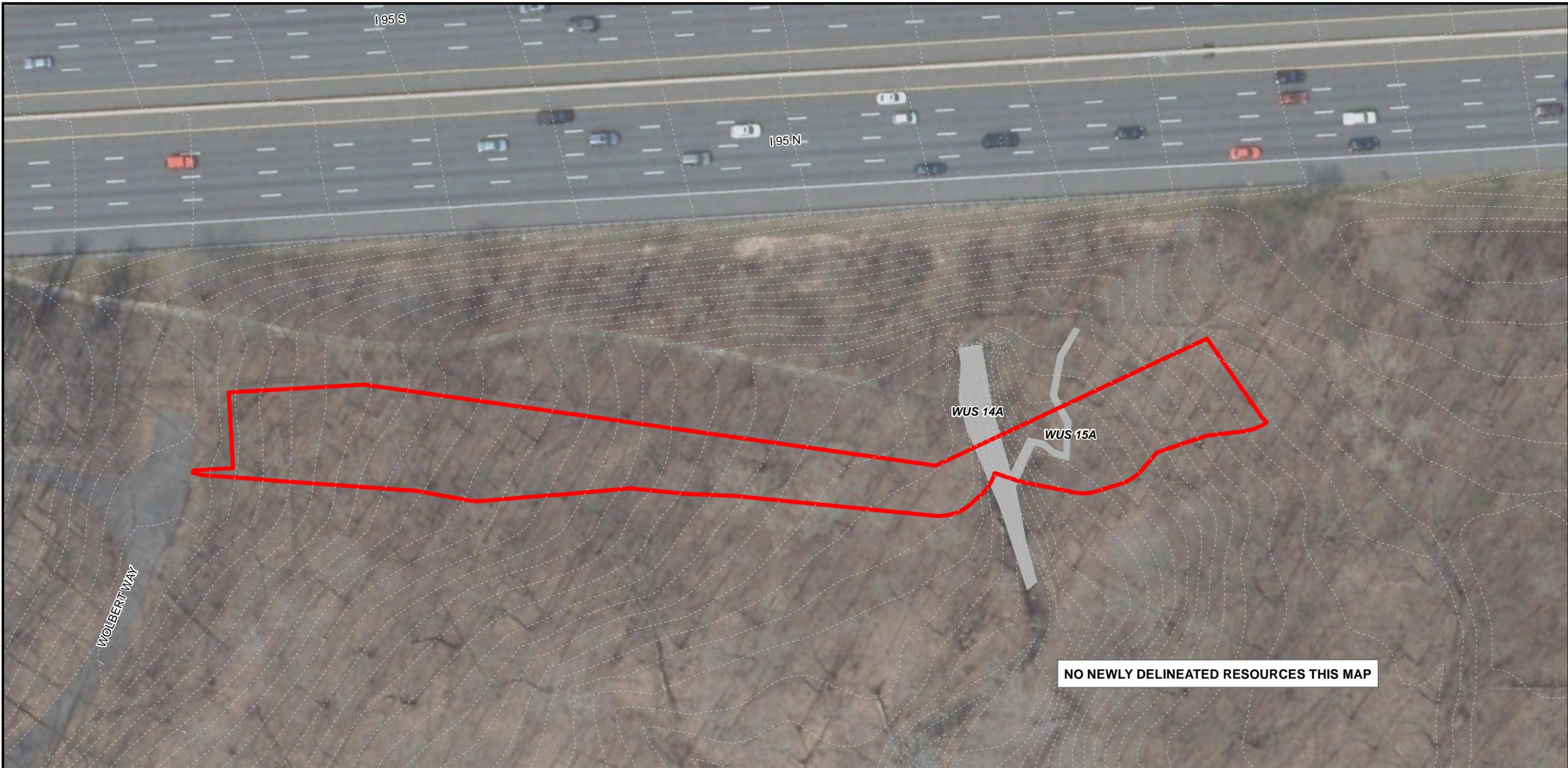


DATE: FEBRUARY 2021



1" = 50'

SOURCE: MD IMAP, FEMA, BALT. CO.



I-95 ETL NORTHBOUND EXTENSION PHASE I - KH-3009 SUPPLEMENTAL DELINEATION DELINEATED RESOURCES MAP 7

Legend		Data Plots	Delineated Streams	Delineated Wetlands
Supplemental Study Area	Upland	Ephemeral	PEM	
100-Year Floodplain	Wetland	Intermittent	PFO	
Floodway	25-ft Wetland Buffer	Culverted Streams	Prev. Del. Wetlands	
2-ft Contours	Prev. Del. 25-ft Wetland Buffer	Prev. Del. Streams		
Flow Arrows				

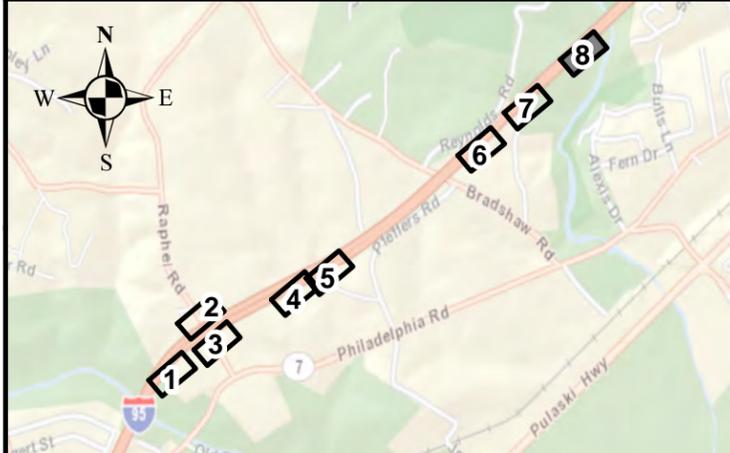
DATE: FEBRUARY 2021

1" = 50'

SOURCE: MD IMAP, FEMA, BALT. CO.



I-95 ETL NORTHBOUND EXTENSION PHASE I - KH-3009 SUPPLEMENTAL DELINEATION DELINEATED RESOURCES MAP 8



Legend

- Supplemental Study Area
- 100-Year Floodplain
- Floodway
- 2-ft Contours
- Flow Arrows

Data Plots

- Upland
- Wetland
- 25-ft Wetland Buffer
- Prev. Del. 25-ft Wetland Buffer

Delineated Streams

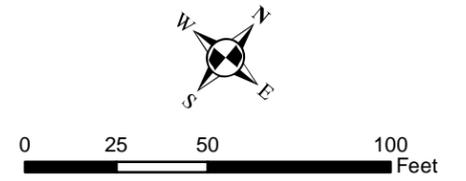
- Ephemeral
- Intermittent
- Culverted Streams
- Prev. Del. Streams

Delineated Wetlands

- PEM
- PFO
- Prev. Del. Wetlands



DATE: FEBRUARY 2021



1" = 50'

SOURCE: MD IMAP, FEMA, BALT. CO.



APPENDIX D WETLAND, UPLAND, AND STREAM DATASHEETS

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: ETL Phase I KH-3009 City/County: Baltimore County Sampling Date: 2021-01-19
 Applicant/Owner: MDTA State: Maryland Sampling Point: UPL
 Investigator(s): GB, MM Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): None Slope (%): 3
 Subregion (LRR or MLRA): S 148 Lat: 39.4180298 Long: -76.4066234 Datum: WGS 84
 Soil Map Unit Name: Chillum silt loam, 5 to 10% slopes NWI classification: NA

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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ True Aquatic Plants (B14) ___ High Water Table (A2) ___ Hydrogen Sulfide Odor (C1) ___ Saturation (A3) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Water Marks (B1) ___ Presence of Reduced Iron (C4) ___ Sediment Deposits (B2) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Drift Deposits (B3) ___ Thin Muck Surface (C7) ___ Algal Mat or Crust (B4) ___ Other (Explain in Remarks) ___ Iron Deposits (B5) ___ Inundation Visible on Aerial Imagery (B7) ___ Water-Stained Leaves (B9) ___ Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> 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 <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

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

Sampling Point: UPL

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u>30 ft r</u>)				
1. <u>Platanus occidentalis</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
2. <u>Fraxinus pennsylvanica</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
3. <u>Acer rubrum</u>	<u>8</u>		<u>FAC</u>	
4. <u>Liriodendron tulipifera</u>	<u>2</u>		<u>FACU</u>	
5. _____				
6. _____				
	<u>50%</u> = Total Cover			
	50% of total cover: <u>25</u>		20% of total cover: <u>10</u>	
Sapling Stratum (Plot size: <u>30 ft r</u>)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
	_____ = Total Cover			
	50% of total cover: _____		20% of total cover: _____	
Shrub Stratum (Plot size: <u>30 ft r</u>)				
1. <u>Rosa multiflora</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
	<u>30%</u> = Total Cover			
	50% of total cover: <u>15</u>		20% of total cover: <u>6</u>	
Herb Stratum (Plot size: <u>30 ft r</u>)				
1. <u>Allium canadense</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	
2. <u>Microstegium vimineum</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. <u>Allium ascalonicum</u>	<u>8</u>		<u>NI</u>	
4. <u>Lonicera japonica</u>	<u>5</u>		<u>FACU</u>	
5. <u>Potentilla indica</u>	<u>5</u>		<u>FACU</u>	
6. <u>Rosa multiflora</u>	<u>5</u>		<u>FACU</u>	
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
	<u>53%</u> = Total Cover			
	50% of total cover: <u>27</u>		20% of total cover: <u>11</u>	
Woody Vine Stratum (Plot size: <u>30 ft r</u>)				
1. <u>Vitis sp</u>	<u>10</u>	<input checked="" type="checkbox"/>		
2. _____				
3. _____				
4. _____				
5. _____				
	<u>10%</u> = Total Cover			
	50% of total cover: <u>5</u>		20% of total cover: <u>2</u>	
Remarks: (Include photo numbers here or on a separate sheet.)				

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>40</u>	x 2 = <u>80</u>
FAC species <u>18</u>	x 3 = <u>54</u>
FACU species <u>67</u>	x 4 = <u>268</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>125</u> (A)	<u>402</u> (B)

Prevalence Index = B/A = 3.2

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤3.0¹

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Five 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 (DBH).

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

SOIL

Sampling Point: UPL

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0 - 1	10YR 4/3	100					Loam	
1 - 3	10YR 4/6	100					Loam	
3 - 10	10YR 5/6	100					Loam	
-								
-								
-								
-								
-								
-								
-								

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

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (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 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 Soils³:

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

³Indicators 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 – Eastern Mountains and Piedmont Region

Project/Site: ETL Phase I KH-3009 City/County: Baltimore County Sampling Date: 2021-01-19
 Applicant/Owner: MDTA State: Maryland Sampling Point: WET 104
 Investigator(s): GB, MM Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): Concave Slope (%): 1
 Subregion (LRR or MLRA): S 148 Lat: 39.4175110 Long: -76.4033909 Datum: WGS 84
 Soil Map Unit Name: Beltsville silt loam, 2 to 5% slopes NWI classification: PEM1A

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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input checked="" type="checkbox"/> Surface Water (A1) _____ True Aquatic Plants (B14) <input checked="" type="checkbox"/> High Water Table (A2) _____ Hydrogen Sulfide Odor (C1) _____ Saturation (A3) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Water Marks (B1) _____ Presence of Reduced Iron (C4) _____ Sediment Deposits (B2) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Drift Deposits (B3) _____ Thin Muck Surface (C7) _____ Algal Mat or Crust (B4) _____ Other (Explain in Remarks) _____ Iron Deposits (B5) _____ Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) _____ Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) <input checked="" type="checkbox"/> 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) <input checked="" type="checkbox"/> Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>1"</u> Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>0</u> Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Receives hydrology from roadway/adjacent field runoff. Drains to WUS 103.

Remarks:

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

Sampling Point: WET 104

<p><u>Tree Stratum</u> (Plot size: <u>30 ft r</u>)</p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:40%;"></th> <th style="width:10%; text-align: center;">Absolute % Cover</th> <th style="width:10%; text-align: center;">Dominant Species?</th> <th style="width:10%; text-align: center;">Indicator Status</th> </tr> </thead> <tbody> <tr><td>1. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>2. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>3. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>4. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>5. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>6. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td colspan="4" style="text-align: right;">_____ = Total Cover</td></tr> <tr><td colspan="4" style="text-align: center;">50% of total cover: _____ 20% of total cover: _____</td></tr> </tbody> </table> <p><u>Sapling Stratum</u> (Plot size: <u>30 ft r</u>)</p> <table style="width:100%; border-collapse: collapse;"> <tbody> <tr><td>1. <u>Fraxinus pennsylvanica</u></td><td style="text-align: center;">5</td><td style="text-align: center;">✓</td><td style="text-align: center;">FACW</td></tr> <tr><td>2. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>3. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>4. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>5. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>6. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td colspan="4" style="text-align: right;">_____ = Total Cover</td></tr> <tr><td colspan="4" style="text-align: center;">50% of total cover: <u>3</u> 20% of total cover: <u>1</u></td></tr> </tbody> </table> <p><u>Shrub Stratum</u> (Plot size: <u>30 ft r</u>)</p> <table style="width:100%; border-collapse: collapse;"> <tbody> <tr><td>1. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>2. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>3. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>4. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>5. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>6. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td colspan="4" style="text-align: right;">_____ = Total Cover</td></tr> <tr><td colspan="4" style="text-align: center;">50% of total cover: _____ 20% of total cover: _____</td></tr> </tbody> </table> <p><u>Herb Stratum</u> (Plot size: <u>30 ft r</u>)</p> <table style="width:100%; border-collapse: collapse;"> <tbody> <tr><td>1. <u>Typha latifolia</u></td><td style="text-align: center;">40</td><td style="text-align: center;">✓</td><td style="text-align: center;">OBL</td></tr> <tr><td>2. <u>Toxicodendron radicans</u></td><td style="text-align: center;">10</td><td>_____</td><td style="text-align: center;">FAC</td></tr> <tr><td>3. <u>Juncus effusus</u></td><td style="text-align: center;">5</td><td>_____</td><td style="text-align: center;">FACW</td></tr> <tr><td>4. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>5. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>6. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>7. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>8. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>9. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>10. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>11. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td colspan="4" style="text-align: right;">_____ = Total Cover</td></tr> <tr><td colspan="4" style="text-align: center;">50% of total cover: <u>28</u> 20% of total cover: <u>11</u></td></tr> </tbody> </table> <p><u>Woody Vine Stratum</u> (Plot size: <u>30 ft r</u>)</p> <table style="width:100%; border-collapse: collapse;"> <tbody> <tr><td>1. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>2. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>3. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>4. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>5. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td colspan="4" style="text-align: right;">_____ = Total Cover</td></tr> <tr><td colspan="4" style="text-align: center;">50% of total cover: _____ 20% of total cover: _____</td></tr> </tbody> </table>		Absolute % Cover	Dominant Species?	Indicator Status	1. _____	_____	_____	_____	2. _____	_____	_____	_____	3. _____	_____	_____	_____	4. _____	_____	_____	_____	5. _____	_____	_____	_____	6. _____	_____	_____	_____	_____ = Total Cover				50% of total cover: _____ 20% of total cover: _____				1. <u>Fraxinus pennsylvanica</u>	5	✓	FACW	2. _____	_____	_____	_____	3. _____	_____	_____	_____	4. _____	_____	_____	_____	5. _____	_____	_____	_____	6. _____	_____	_____	_____	_____ = Total Cover				50% of total cover: <u>3</u> 20% of total cover: <u>1</u>				1. _____	_____	_____	_____	2. _____	_____	_____	_____	3. _____	_____	_____	_____	4. _____	_____	_____	_____	5. _____	_____	_____	_____	6. _____	_____	_____	_____	_____ = Total Cover				50% of total cover: _____ 20% of total cover: _____				1. <u>Typha latifolia</u>	40	✓	OBL	2. <u>Toxicodendron radicans</u>	10	_____	FAC	3. <u>Juncus effusus</u>	5	_____	FACW	4. _____	_____	_____	_____	5. _____	_____	_____	_____	6. _____	_____	_____	_____	7. _____	_____	_____	_____	8. _____	_____	_____	_____	9. _____	_____	_____	_____	10. _____	_____	_____	_____	11. _____	_____	_____	_____	_____ = Total Cover				50% of total cover: <u>28</u> 20% of total cover: <u>11</u>				1. _____	_____	_____	_____	2. _____	_____	_____	_____	3. _____	_____	_____	_____	4. _____	_____	_____	_____	5. _____	_____	_____	_____	_____ = Total Cover				50% of total cover: _____ 20% of total cover: _____				<p>Dominance Test worksheet:</p> <p>Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)</p> <p>Total Number of Dominant Species Across All Strata: <u>2</u> (B)</p> <p>Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)</p> <hr/> <p>Prevalence Index worksheet:</p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:40%;"></th> <th style="width:10%; text-align: center;">Total % Cover of:</th> <th style="width:10%;"></th> <th style="width:10%; text-align: center;">Multiply by:</th> <th style="width:10%;"></th> </tr> </thead> <tbody> <tr><td>OBL species</td><td style="text-align: center;"><u>40</u></td><td>x 1 =</td><td style="text-align: center;"><u>40</u></td><td></td></tr> <tr><td>FACW species</td><td style="text-align: center;"><u>10</u></td><td>x 2 =</td><td style="text-align: center;"><u>20</u></td><td></td></tr> <tr><td>FAC species</td><td style="text-align: center;"><u>10</u></td><td>x 3 =</td><td style="text-align: center;"><u>30</u></td><td></td></tr> <tr><td>FACU species</td><td style="text-align: center;"><u>0</u></td><td>x 4 =</td><td style="text-align: center;"><u>0</u></td><td></td></tr> <tr><td>UPL species</td><td style="text-align: center;"><u>0</u></td><td>x 5 =</td><td style="text-align: center;"><u>0</u></td><td></td></tr> <tr><td>Column Totals:</td><td style="text-align: center;"><u>60</u></td><td>(A)</td><td style="text-align: center;"><u>90</u></td><td>(B)</td></tr> </tbody> </table> <p style="text-align: right;">Prevalence Index = B/A = <u>1.5</u></p> <hr/> <p>Hydrophytic Vegetation Indicators:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0¹ <input type="checkbox"/> 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation¹ (Explain) <p>¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p> <hr/> <p>Definitions of Five Vegetation Strata:</p> <p>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 (DBH).</p> <p>Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.</p> <p>Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.</p> <p>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.</p> <p>Woody vine – All woody vines, regardless of height.</p> <hr/> <p>Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>		Total % Cover of:		Multiply by:		OBL species	<u>40</u>	x 1 =	<u>40</u>		FACW species	<u>10</u>	x 2 =	<u>20</u>		FAC species	<u>10</u>	x 3 =	<u>30</u>		FACU species	<u>0</u>	x 4 =	<u>0</u>		UPL species	<u>0</u>	x 5 =	<u>0</u>		Column Totals:	<u>60</u>	(A)	<u>90</u>	(B)
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UPL species	<u>0</u>	x 5 =	<u>0</u>																																																																																																																																																																																																																					
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<p>Remarks: (Include photo numbers here or on a separate sheet.)</p>																																																																																																																																																																																																																								

SOIL

Sampling Point: WET 104

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0 - 1	10YR 3/2	100					Clay Loam	
1 - 3	10YR 4/2	90	5Y 4/6	10	C	M	Clay Loam	
3 - 12	10YR 4/1	65	5YR 3/4	35	C	M	Clay Loam	
-								
-								
-								
-								
-								
-								
-								

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

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (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 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 Soils³:

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

³Indicators 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 – Eastern Mountains and Piedmont Region

Project/Site: ETL Phase I KH-3009 City/County: Baltimore County Sampling Date: 2021-01-19
 Applicant/Owner: MDTA State: Maryland Sampling Point: UPL 104
 Investigator(s): GB, MM Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): None Slope (%): 1
 Subregion (LRR or MLRA): S 148 Lat: 39.4175110 Long: -76.4033893 Datum: WGS 84
 Soil Map Unit Name: Beltsville silt loam, 0 to 2% slopes NWI classification: NA

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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ True Aquatic Plants (B14) <input checked="" type="checkbox"/> High Water Table (A2) ___ Hydrogen Sulfide Odor (C1) ___ Saturation (A3) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Water Marks (B1) ___ Presence of Reduced Iron (C4) ___ Sediment Deposits (B2) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Drift Deposits (B3) ___ Thin Muck Surface (C7) ___ Algal Mat or Crust (B4) ___ Other (Explain in Remarks) ___ Iron Deposits (B5) ___ Inundation Visible on Aerial Imagery (B7) ___ Water-Stained Leaves (B9) ___ Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> ___ 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)
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Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>7</u> Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	

Remarks:

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

Sampling Point: UPL 104

Tree Stratum (Plot size: <u>30 ft r</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			

Sapling Stratum (Plot size: <u>30 ft r</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			

Shrub Stratum (Plot size: <u>30 ft r</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Pyrus calleryana</u>	<u>8</u>	<input checked="" type="checkbox"/>	<u>NI</u>
2. <u>Liquidambar styraciflua</u>	<u>2</u>	<input checked="" type="checkbox"/>	<u>FAC</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
_____ = Total Cover			
50% of total cover: <u>5</u> 20% of total cover: <u>2</u>			

Herb Stratum (Plot size: <u>30 ft r</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Microstegium vimineum</u>	<u>40</u>	<input checked="" type="checkbox"/>	<u>FAC</u>
2. <u>Juncus effusus</u>	<u>5</u>	_____	<u>FACW</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
_____ = Total Cover			
50% of total cover: <u>23</u> 20% of total cover: <u>9</u>			

Woody Vine Stratum (Plot size: <u>30 ft r</u>)	Absolute % Cover	Dominant Species?	Indicator Status
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: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>5</u>	x 2 = <u>10</u>
FAC species <u>42</u>	x 3 = <u>126</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>47</u> (A)	<u>136</u> (B)

Prevalence Index = B/A = 2.9

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is >50%
 - 3 - Prevalence Index is ≤3.0¹
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five 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 (DBH).

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 _____

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

SOIL

Sampling Point: UPL 104

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0 - 2	10YR 5/3	95	10YR 5/6	5	C	M	Clay Loam	
2 - 12	10YR 5/6	100					Clay Loam	
-								
-								
-								
-								
-								
-								
-								
-								

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

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (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 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 Soils³:

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

³Indicators 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 – Eastern Mountains and Piedmont Region

Project/Site: ETL Phase I KH-3009 City/County: Baltimore County Sampling Date: 2021-01-19
 Applicant/Owner: MDTA State: Maryland Sampling Point: WET 105
 Investigator(s): GB, MM Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 1
 Subregion (LRR or MLRA): S 148 Lat: 39.4226685 Long: -76.3967173 Datum: WGS 84
 Soil Map Unit Name: Issue silt loam, occasionally flooded NWI classification: PFO1C

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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input checked="" type="checkbox"/> Surface Water (A1) _____ True Aquatic Plants (B14) <input checked="" type="checkbox"/> High Water Table (A2) _____ Hydrogen Sulfide Odor (C1) _____ Saturation (A3) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Water Marks (B1) _____ Presence of Reduced Iron (C4) _____ Sediment Deposits (B2) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Drift Deposits (B3) _____ Thin Muck Surface (C7) _____ Algal Mat or Crust (B4) _____ Other (Explain in Remarks) _____ Iron Deposits (B5) _____ Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) _____ Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> 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)
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Field Observations: Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u><1</u> Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>9</u> Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Receives hydrology from groundwater and runoff. Drains to WUS 11A.

Remarks:

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

Sampling Point: WET 105

<p><u>Tree Stratum</u> (Plot size: <u>30 ft r</u>)</p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:40%;"></th> <th style="width:15%;">Absolute % Cover</th> <th style="width:15%;">Dominant Species?</th> <th style="width:10%;">Indicator Status</th> </tr> </thead> <tbody> <tr> <td>1. <u>Acer rubrum</u></td> <td style="text-align: center;"><u>70</u></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><u>FAC</u></td> </tr> <tr> <td>2. <u>Fraxinus pennsylvanica</u></td> <td style="text-align: center;"><u>5</u></td> <td></td> <td style="text-align: center;"><u>FACW</u></td> </tr> <tr> <td>3. _____</td> <td></td> <td></td> <td></td> </tr> <tr> <td>4. _____</td> <td></td> <td></td> <td></td> </tr> <tr> <td>5. _____</td> <td></td> <td></td> <td></td> </tr> <tr> <td>6. _____</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p style="text-align: right;"><u>75%</u> = Total Cover</p> <p style="text-align: center;">50% of total cover: <u>38</u> 20% of total cover: <u>15</u></p> <p><u>Sapling Stratum</u> (Plot size: <u>30 ft r</u>)</p> <table style="width:100%; border-collapse: collapse;"> <tbody> <tr> <td>1. <u>Acer rubrum</u></td> <td style="text-align: center;"><u>3</u></td> <td></td> <td style="text-align: center;"><u>FAC</u></td> </tr> <tr> <td>2. _____</td> <td></td> <td></td> <td></td> </tr> <tr> <td>3. _____</td> <td></td> <td></td> <td></td> </tr> <tr> <td>4. _____</td> <td></td> <td></td> <td></td> </tr> <tr> <td>5. _____</td> <td></td> <td></td> <td></td> </tr> <tr> <td>6. _____</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p style="text-align: right;"><u>3%</u> = Total Cover</p> <p style="text-align: center;">50% of total cover: <u>2</u> 20% of total cover: <u>1</u></p> <p><u>Shrub Stratum</u> (Plot size: <u>30 ft r</u>)</p> <table style="width:100%; border-collapse: collapse;"> <tbody> <tr><td>1. _____</td><td></td><td></td><td></td></tr> <tr><td>2. _____</td><td></td><td></td><td></td></tr> <tr><td>3. _____</td><td></td><td></td><td></td></tr> <tr><td>4. _____</td><td></td><td></td><td></td></tr> <tr><td>5. _____</td><td></td><td></td><td></td></tr> <tr><td>6. _____</td><td></td><td></td><td></td></tr> </tbody> </table> <p style="text-align: right;">_____ = Total Cover</p> <p style="text-align: center;">50% of total cover: _____ 20% of total cover: _____</p> <p><u>Herb Stratum</u> (Plot size: <u>30 ft r</u>)</p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:40%;"></th> <th style="width:15%;">Absolute % Cover</th> <th style="width:15%;">Dominant Species?</th> <th style="width:10%;">Indicator Status</th> </tr> </thead> <tbody> <tr> <td>1. <u>Microstegium vimineum</u></td> <td style="text-align: center;"><u>60</u></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><u>FAC</u></td> </tr> <tr> <td>2. <u>Juncus effusus</u></td> <td style="text-align: center;"><u>10</u></td> <td></td> <td style="text-align: center;"><u>FACW</u></td> </tr> <tr> <td>3. <u>Lonicera japonica</u></td> <td style="text-align: center;"><u>5</u></td> <td></td> <td style="text-align: center;"><u>FACU</u></td> </tr> <tr> <td>4. <u>Allium ascalonicum</u></td> <td style="text-align: center;"><u>3</u></td> <td></td> <td style="text-align: center;"><u>NI</u></td> </tr> <tr> <td>5. _____</td> <td></td> <td></td> <td></td> </tr> <tr> <td>6. _____</td> <td></td> <td></td> <td></td> </tr> <tr> <td>7. _____</td> <td></td> <td></td> <td></td> </tr> <tr> <td>8. _____</td> <td></td> <td></td> <td></td> </tr> <tr> <td>9. _____</td> <td></td> <td></td> <td></td> </tr> <tr> <td>10. _____</td> <td></td> <td></td> <td></td> </tr> <tr> <td>11. _____</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p style="text-align: right;"><u>78%</u> = Total Cover</p> <p style="text-align: center;">50% of total cover: <u>39</u> 20% of total cover: <u>16</u></p> <p><u>Woody Vine Stratum</u> (Plot size: <u>30 ft r</u>)</p> <table style="width:100%; border-collapse: collapse;"> <tbody> <tr><td>1. _____</td><td></td><td></td><td></td></tr> <tr><td>2. _____</td><td></td><td></td><td></td></tr> <tr><td>3. _____</td><td></td><td></td><td></td></tr> <tr><td>4. _____</td><td></td><td></td><td></td></tr> <tr><td>5. _____</td><td></td><td></td><td></td></tr> </tbody> </table> <p style="text-align: right;">_____ = Total Cover</p> <p style="text-align: center;">50% of total cover: _____ 20% of total cover: _____</p>		Absolute % Cover	Dominant Species?	Indicator Status	1. <u>Acer rubrum</u>	<u>70</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	2. <u>Fraxinus pennsylvanica</u>	<u>5</u>		<u>FACW</u>	3. _____				4. _____				5. _____				6. _____				1. <u>Acer rubrum</u>	<u>3</u>		<u>FAC</u>	2. _____				3. _____				4. _____				5. _____				6. _____				1. _____				2. _____				3. _____				4. _____				5. _____				6. _____					Absolute % Cover	Dominant Species?	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(7.6 cm) or larger in diameter at breast height (DBH).</p> <p>Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.</p> <p>Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.</p> <p>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.</p> <p>Woody vine – All woody vines, regardless of height.</p> <p>Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____</p>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>15</u>	x 2 = <u>30</u>	FAC species <u>133</u>	x 3 = <u>399</u>	FACU species <u>5</u>	x 4 = <u>20</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>153</u> (A)	<u>449</u> (B)
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SOIL

Sampling Point: WET 105

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0 - 3	10YR 4/1	95	10YR 3/4	5	C	M	Sandy Clay	
3 - 6	7.5YR 4/6	95	7.5YR 4/1	5	D	M	Sandy Clay	
6 - 10	2.5YR 5/4	100					Sandy Clay	
-								
-								
-								
-								
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-								
-								

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

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (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 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 Soils³:

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

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

Restrictive Layer (if observed):

Type: Gravel
 Depth (inches): 10

Hydric Soil Present? Yes No

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: ETL Phase I KH-3009 City/County: Baltimore County Sampling Date: 2021-01-19
 Applicant/Owner: MDTA State: Maryland Sampling Point: UPL 105
 Investigator(s): GB, MM Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): None Slope (%): 3
 Subregion (LRR or MLRA): S 148 Lat: 39.4226685 Long: -76.3999480 Datum: WGS 84
 Soil Map Unit Name: Russett fine sandy loam, 5 to 10% slopes NWI classification: NA
 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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

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

Sampling Point: UPL 105

Tree Stratum (Plot size: <u>30 ft r</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Acer rubrum</u>	<u>65</u>	<input checked="" type="checkbox"/>	<u>FAC</u>
2. <u>Fraxinus pennsylvanica</u>	<u>5</u>		<u>FACW</u>
3. _____			
4. _____			
5. _____			
6. _____			
<u>70%</u> = Total Cover			
50% of total cover: <u>35</u> 20% of total cover: <u>14</u>			
Sapling Stratum (Plot size: <u>30 ft r</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Acer rubrum</u>	<u>50</u>	<input checked="" type="checkbox"/>	<u>FAC</u>
2. <u>Fraxinus pennsylvanica</u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>FACW</u>
3. _____			
4. _____			
5. _____			
6. _____			
<u>65%</u> = Total Cover			
50% of total cover: <u>33</u> 20% of total cover: <u>13</u>			
Shrub Stratum (Plot size: <u>30 ft r</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			
Herb Stratum (Plot size: <u>30 ft r</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Alliaria petiolata</u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>FACU</u>
2. <u>Lonicera japonica</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FACU</u>
3. <u>Allium ascalonicum</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>NI</u>
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			
<u>35%</u> = Total Cover			
50% of total cover: <u>18</u> 20% of total cover: <u>7</u>			
Woody Vine Stratum (Plot size: <u>30 ft r</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Vitis sp</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>NI</u>
2. _____			
3. _____			
4. _____			
5. _____			
<u>5%</u> = Total Cover			
50% of total cover: <u>3</u> 20% of total cover: <u>1</u>			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 43 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>20</u>	x 2 = <u>40</u>
FAC species <u>115</u>	x 3 = <u>345</u>
FACU species <u>25</u>	x 4 = <u>100</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>160</u> (A)	<u>485</u> (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤3.0¹

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Five 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 (DBH).

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

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

SOIL

Sampling Point: UPL 105

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0 - 2	10YR 4/3	90	10YR 4/6	10	C	M	Clay	
2 - 8	10YR 3/3	90	10YR 5/8	10	C	M	Clay	
-								
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¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (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 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 Soils³:

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

³Indicators 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 – Eastern Mountains and Piedmont Region

Project/Site: ETL Phase I KH-3009 City/County: Baltimore County Sampling Date: 2021-01-19
 Applicant/Owner: MDTA State: Maryland Sampling Point: WET 106
 Investigator(s): GB, MM Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1
 Subregion (LRR or MLRA): S 148 Lat: 39.4247437 Long: -76.3981125 Datum: WGS 84
 Soil Map Unit Name: Beltsville silt loam, 0 to 2% slopes NWI classification: PEM1C

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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input checked="" type="checkbox"/> Surface Water (A1) _____ True Aquatic Plants (B14) <input checked="" type="checkbox"/> High Water Table (A2) _____ Hydrogen Sulfide Odor (C1) _____ Saturation (A3) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Water Marks (B1) _____ Presence of Reduced Iron (C4) _____ Sediment Deposits (B2) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Drift Deposits (B3) _____ Thin Muck Surface (C7) _____ Algal Mat or Crust (B4) _____ Other (Explain in Remarks) _____ Iron Deposits (B5) _____ Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) _____ Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> 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) <input checked="" type="checkbox"/> Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u><1</u> Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>4</u> Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Receives hydrology from roadway/adjacent farm field runoff.

Remarks:

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

Sampling Point: WET 106

<p><u>Tree Stratum</u> (Plot size: <u>30 ft r</u>)</p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:40%;"></th> <th style="width:10%; text-align: center;">Absolute % Cover</th> <th style="width:10%; text-align: center;">Dominant Species?</th> <th style="width:10%; text-align: center;">Indicator Status</th> </tr> </thead> <tbody> <tr><td>1. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>2. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>3. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>4. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>5. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>6. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td colspan="4" style="text-align: right;">_____ = Total Cover</td></tr> <tr><td colspan="4" style="text-align: center;">50% of total cover: _____ 20% of total cover: _____</td></tr> </tbody> </table> <p><u>Sapling Stratum</u> (Plot size: <u>30 ft r</u>)</p> <table style="width:100%; border-collapse: collapse;"> <tbody> <tr><td>1. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>2. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>3. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>4. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>5. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>6. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td colspan="4" style="text-align: right;">_____ = Total Cover</td></tr> <tr><td colspan="4" style="text-align: center;">50% of total cover: _____ 20% of total cover: _____</td></tr> </tbody> </table> <p><u>Shrub Stratum</u> (Plot size: <u>30 ft r</u>)</p> <table style="width:100%; border-collapse: collapse;"> <tbody> <tr><td>1. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>2. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>3. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>4. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>5. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>6. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td colspan="4" style="text-align: right;">_____ = Total Cover</td></tr> <tr><td colspan="4" style="text-align: center;">50% of total cover: _____ 20% of total cover: _____</td></tr> </tbody> </table> <p><u>Herb Stratum</u> (Plot size: <u>30 ft r</u>)</p> <table style="width:100%; border-collapse: collapse;"> <tbody> <tr><td>1. <u>Microstegium vimineum</u></td><td style="text-align: center;"><u>30</u></td><td style="text-align: center;"><input checked="" type="checkbox"/></td><td style="text-align: center;"><u>FAC</u></td></tr> <tr><td>2. <u>Lonicera japonica</u></td><td style="text-align: center;"><u>5</u></td><td style="text-align: center;"><input type="checkbox"/></td><td style="text-align: center;"><u>FACU</u></td></tr> <tr><td>3. <u>Toxicodendron radicans</u></td><td style="text-align: center;"><u>5</u></td><td style="text-align: center;"><input type="checkbox"/></td><td style="text-align: center;"><u>FAC</u></td></tr> <tr><td>4. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>5. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>6. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>7. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>8. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>9. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>10. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>11. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td colspan="4" style="text-align: right;">_____ = Total Cover</td></tr> <tr><td colspan="4" style="text-align: center;">50% of total cover: <u>20</u> 20% of total cover: <u>8</u></td></tr> </tbody> </table> <p><u>Woody Vine Stratum</u> (Plot size: <u>30 ft r</u>)</p> <table style="width:100%; border-collapse: collapse;"> <tbody> <tr><td>1. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>2. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>3. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>4. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>5. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td colspan="4" style="text-align: right;">_____ = Total Cover</td></tr> <tr><td colspan="4" style="text-align: center;">50% of total cover: _____ 20% of total cover: _____</td></tr> </tbody> </table>		Absolute % Cover	Dominant Species?	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(7.6 cm) or larger in diameter at breast height (DBH).</p> <p>Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.</p> <p>Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.</p> <p>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.</p> <p>Woody vine – All woody vines, regardless of height.</p> <hr/> <p>Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>		Total % Cover of:	Multiply by:	OBL species	<u>0</u>	x 1 = <u>0</u>	FACW species	<u>0</u>	x 2 = <u>0</u>	FAC species	<u>35</u>	x 3 = <u>105</u>	FACU species	<u>5</u>	x 4 = <u>20</u>	UPL species	<u>0</u>	x 5 = <u>0</u>	Column Totals:	<u>40</u> (A)	<u>125</u> (B)
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SOIL

Sampling Point: WET 106

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0 - 2	10YR 4/2	70	10YR 5/8	30	C	M	Sandy Clay	Gravel present
2 - 8	10YR 3/2	100					Sandy Clay	Gravel present
-								
-								
-								
-								
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- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators 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 – Eastern Mountains and Piedmont Region

Project/Site: ETL Phase I KH-3009 City/County: Baltimore County Sampling Date: 2021-01-19
 Applicant/Owner: MDTA State: Maryland Sampling Point: UPL 106
 Investigator(s): GB, MM Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): None Slope (%): 1
 Subregion (LRR or MLRA): S 148 Lat: 39.4226685 Long: -76.3999481 Datum: WGS 84
 Soil Map Unit Name: Beltsville silt loam, 0 to 2% slopes NWI classification: NA

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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ True Aquatic Plants (B14) ___ High Water Table (A2) ___ Hydrogen Sulfide Odor (C1) ___ Saturation (A3) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Water Marks (B1) ___ Presence of Reduced Iron (C4) ___ Sediment Deposits (B2) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Drift Deposits (B3) ___ Thin Muck Surface (C7) ___ Algal Mat or Crust (B4) ___ Other (Explain in Remarks) ___ Iron Deposits (B5) ___ Inundation Visible on Aerial Imagery (B7) ___ Water-Stained Leaves (B9) ___ Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> ___ 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)
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Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	

Remarks:

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

Sampling Point: UPL 106

<u>Tree Stratum</u> (Plot size: <u>30 ft r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:														
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)														
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)														
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33</u> (A/B)														
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
_____ = Total Cover				Prevalence Index worksheet:														
50% of total cover: _____ 20% of total cover: _____				<table style="width:100%; border: none;"> <tr> <td style="width:50%;">Total % Cover of:</td> <td style="width:50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>40</u></td> <td>x 3 = <u>120</u></td> </tr> <tr> <td>FACU species <u>55</u></td> <td>x 4 = <u>220</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>95</u> (A)</td> <td><u>340</u> (B)</td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>40</u>	x 3 = <u>120</u>	FACU species <u>55</u>	x 4 = <u>220</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>95</u> (A)	<u>340</u> (B)
Total % Cover of:	Multiply by:																	
OBL species <u>0</u>	x 1 = <u>0</u>																	
FACW species <u>0</u>	x 2 = <u>0</u>																	
FAC species <u>40</u>	x 3 = <u>120</u>																	
FACU species <u>55</u>	x 4 = <u>220</u>																	
UPL species <u>0</u>	x 5 = <u>0</u>																	
Column Totals: <u>95</u> (A)	<u>340</u> (B)																	
_____ = Total Cover				Prevalence Index = B/A = <u>3.6</u>														
50% of total cover: <u>5</u> 20% of total cover: <u>2</u>				Hydrophytic Vegetation Indicators:														
<u>Sapling Stratum</u> (Plot size: <u>30 ft r</u>)				<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)														
1. <u>Pyrus calleryana</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>NI</u>	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.														
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
_____ = Total Cover				Definitions of Five Vegetation Strata:														
50% of total cover: <u>5</u> 20% of total cover: <u>2</u>				<p>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 (DBH).</p> <p>Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.</p> <p>Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.</p> <p>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.</p> <p>Woody vine – All woody vines, regardless of height.</p>														
<u>Shrub Stratum</u> (Plot size: <u>30 ft r</u>)																		
1. <u>Rosa multiflora</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FACU</u>															
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
_____ = Total Cover																		
50% of total cover: _____ 20% of total cover: _____																		
<u>Herb Stratum</u> (Plot size: <u>30 ft r</u>)																		
1. <u>Microstegium vimineum</u>	<u>40</u>	<input checked="" type="checkbox"/>	<u>FAC</u>															
2. <u>Goldenrod sp</u>	<u>15</u>	_____	_____															
3. <u>Rosa multiflora</u>	<u>15</u>	_____	<u>FACU</u>															
4. <u>Lonicera japonica</u>	<u>10</u>	_____	<u>FACU</u>															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
8. _____	_____	_____	_____															
9. _____	_____	_____	_____															
10. _____	_____	_____	_____															
11. _____	_____	_____	_____															
_____ = Total Cover																		
50% of total cover: <u>40</u> 20% of total cover: <u>16</u>																		
<u>Woody Vine Stratum</u> (Plot size: <u>30 ft r</u>)																		
1. _____	_____	_____	_____															
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
_____ = Total Cover																		
50% of total cover: _____ 20% of total cover: _____																		
Remarks: (Include photo numbers here or on a separate sheet.)				Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>														

SOIL

Sampling Point: UPL 106

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

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

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

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (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 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 Soils³:

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

³Indicators 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:

Stream Datasheet

Project: ETL Phase I KH-3009 **Date:** 1/19/21 **Stream ID:** WUS 13A
Supplemental

Staff: GB, MM **Flow Type:** Perennial Intermittent Ephemeral

Flow Direction: East **Drains Into:** Little Gunpowder Falls

Fed By: Groundwater, runoff

Bank Height: 1" **Water Depth:** 1-3" **Width:** 4-5'

Channel Gradient (%): 3 **Bank Stability:** Low

Avg. Bank Slope: Vertical 1:1 2:1 3:1 4:1 or greater

Mesohabitat: % Run: 10 % Riffle: 0 % Pool: 90

Substrate: Cobble Gravel Sand Silt
Veg Riprap Concrete Muck
Bedrock Boulder

Channel Characteristics: Natural Artificial Man-altered

OHWM:	Clear, natural line impressed on the bank	<input type="checkbox"/>	Presence of litter and debris	<input checked="" type="checkbox"/>
	Changes in character of soil	<input type="checkbox"/>	Destruction of terrestrial veg.	<input type="checkbox"/>
	Shelving	<input type="checkbox"/>	Presence of wrack line	<input checked="" type="checkbox"/>
	Vegetation matted down, bent, or absent	<input checked="" type="checkbox"/>	Sediment sorting	<input type="checkbox"/>
	Leaf litter disturbed or washed away	<input checked="" type="checkbox"/>	Scour	<input checked="" type="checkbox"/>
	Sediment deposition	<input type="checkbox"/>	Multiple observed/predicted flow events	<input type="checkbox"/>
	Water staining	<input type="checkbox"/>	Abrupt change in plant community	<input type="checkbox"/>

Photos? Upstream Downstream

Connection to Traditional Navigable Waterway: Flows to Little Gunpowder Falls.

Other Comments: Concrete channel has failed upstream and is broken into pieces; banks are unstable and eroding.

Stream Datasheet

Project: ETL Phase I KH-3009 **Date:** 1/19/21 **Stream ID:** WUS 19A
Supplemental

Staff: GB, MM **Flow Type:** Perennial Intermittent Ephemeral

Flow Direction: SE **Drains Into:** Little Gunpowder Falls

Fed By: Roadway runoff

Bank Height: 2" **Water Depth:** <1" **Width:** 4-6'

Channel Gradient (%): 2 **Bank Stability:** Low

Avg. Bank Slope: Vertical 1:1 2:1 3:1 4:1 or greater

Mesohabitat: % Run: 0 % Riffle: 0 % Pool: 10

Substrate: Cobble Gravel Sand Silt
Veg Riprap Concrete Muck
Bedrock Boulder

Channel Characteristics: Natural Artificial Man-altered

OHWM: Clear, natural line impressed on the bank	<input type="checkbox"/>	Presence of litter and debris	<input checked="" type="checkbox"/>
Changes in character of soil	<input checked="" type="checkbox"/>	Destruction of terrestrial veg.	<input type="checkbox"/>
Shelving	<input type="checkbox"/>	Presence of wrack line	<input type="checkbox"/>
Vegetation matted down, bent, or absent	<input checked="" type="checkbox"/>	Sediment sorting	<input type="checkbox"/>
Leaf litter disturbed or washed away	<input checked="" type="checkbox"/>	Scour	<input checked="" type="checkbox"/>
Sediment deposition	<input type="checkbox"/>	Multiple observed/predicted flow events	<input type="checkbox"/>
Water staining	<input type="checkbox"/>	Abrupt change in plant community	<input type="checkbox"/>

Photos? Upstream Downstream

Connection to Traditional Navigable Waterway: Flows to Little Gunpowder Falls.

Other Comments:

Stream Datasheet

Project: ETL Phase I KH-3009 **Date:** 1/19/21 **Stream ID:** WUS 103
Supplemental

Staff: GB, MM **Flow Type:** Perennial Intermittent Ephemeral

Flow Direction: North/NE **Drains Into:** WP001

Fed By: WET 104

Bank Height: 5" **Water Depth:** <1" **Width:** 2-4'

Channel Gradient (%): 2-3 **Bank Stability:** Moderate

Avg. Bank Slope: Vertical 1:1 2:1 3:1 4:1 or greater

Mesohabitat: % Run: 40 % Riffle: 30 % Pool: 30

Substrate: Cobble Gravel Sand Silt
Veg Riprap Concrete Muck
Bedrock Boulder

Channel Characteristics: Natural Artificial Man-altered

OHWM: Clear, natural line impressed on the bank	<input type="checkbox"/>	Presence of litter and debris	<input checked="" type="checkbox"/>
Changes in character of soil	<input checked="" type="checkbox"/>	Destruction of terrestrial veg.	<input type="checkbox"/>
Shelving	<input type="checkbox"/>	Presence of wrack line	<input type="checkbox"/>
Vegetation matted down, bent, or absent	<input type="checkbox"/>	Sediment sorting	<input type="checkbox"/>
Leaf litter disturbed or washed away	<input type="checkbox"/>	Scour	<input type="checkbox"/>
Sediment deposition	<input type="checkbox"/>	Multiple observed/predicted flow events	<input type="checkbox"/>
Water staining	<input type="checkbox"/>	Abrupt change in plant community	<input type="checkbox"/>

Photos? Upstream Downstream

Connection to Traditional Navigable Waterway: Flows through culvert under Raphel Road and into WP001. Does not connect to a TNW.

Other Comments:

Stream Datasheet

Project: ETL Phase I KH-3009 **Date:** 1/19/21 **Stream ID:** WUS 104
Supplemental

Staff: GB, MM **Flow Type:** Perennial Intermittent Ephemeral

Flow Direction: SW **Drains Into:** WUS 9A (unnamed tributary to Gunpowder Falls)

Fed By: Groundwater/runoff from adjacent clearing

Bank Height: 5' **Water Depth:** <1" **Width:** 5'

Channel Gradient (%): 2-3 **Bank Stability:** Low

Avg. Bank Slope: Vertical 1:1 2:1 3:1 4:1 or greater

Mesohabitat: % Run: 70 % Riffle: 30 % Pool: 0

Substrate: Cobble Gravel Sand Silt
Veg Riprap Concrete Muck
Bedrock Boulder

Channel Characteristics: Natural Artificial Man-altered

OHWM:	Clear, natural line impressed on the bank	<input type="checkbox"/>	Presence of litter and debris	<input checked="" type="checkbox"/>
	Changes in character of soil	<input checked="" type="checkbox"/>	Destruction of terrestrial veg.	<input type="checkbox"/>
	Shelving	<input type="checkbox"/>	Presence of wrack line	<input type="checkbox"/>
	Vegetation matted down, bent, or absent	<input type="checkbox"/>	Sediment sorting	<input type="checkbox"/>
	Leaf litter disturbed or washed away	<input checked="" type="checkbox"/>	Scour	<input checked="" type="checkbox"/>
	Sediment deposition	<input type="checkbox"/>	Multiple observed/predicted flow events	<input type="checkbox"/>
	Water staining	<input type="checkbox"/>	Abrupt change in plant community	<input type="checkbox"/>

Photos? Upstream Downstream

Connection to Traditional Navigable Waterway: Flows to WUS 9A, which flows to Gunpowder Falls.

Other Comments:



APPENDIX E PHOTO DOCUMENTATION



Photo 1: WET 104 (facing northwest)



Photo 2: WET 104 (facing northwest)



Photo 3: WET 105 (facing northeast)



Photo 4: WET 106 (facing southeast)



Photo 5: WUS 103, upstream (facing southeast)



Photo 6: WUS 103, downstream (facing southwest)



Photo 7: WUS 104, upstream (facing northeast)



Photo 8: WUS 104, downstream (facing southwest)



Photo 9: WUS 13A, upstream (facing west)



Photo 10: WUS 13A, downstream (facing east)



Photo 11: WUS 19A, upstream (facing northwest)



Photo 12: WUS 19A, downstream (facing southeast)



APPENDIX F SUMMARY OF DELINEATED RESOURCES

Summary of Delineated Resources									
KH-3009: Supplemental Delineation									
Wetlands									
Wetland Name	Cowardin Classification	Map	Local Waterway*	Coordinates (Dec. Degrees)		Quality	Jurisdiction Comments**	Delineated Area	
				Lat.	Long.			Ac.	SF
<i>Newly Delineated Wetlands</i>									
WET 104	PEM1A	3	None	39.419092	-76.404406	Low	Field reviewed and confirmed to be isolated by USACE and jurisdictional to MDE.	0.04	1,595
WET 105	PFO1C	5	Unnamed tributary to Gunpowder Falls	39.422686	-76.396753	Low	Field reviewed and confirmed to be jurisdictional to MDE/USACE.	0.01	594
WET 106	PEM1C	2	None	39.420574	-76.405106	Low	Field reviewed and confirmed to be isolated by USACE and jurisdictional to MDE.	0.06	2,447
Waterways									
Waterway Name	Stream Classification	Map	Local Waterway*	Coordinates (Dec. Degrees)		Quality	Jurisdiction Comments**	Delineated Length (LF)	
				Lat.	Long.			New	Previous
<i>Newly Delineated Waterways</i>									
WUS 103	Intermittent	3	None	39.419439	-76.404729	Low	Field reviewed and confirmed to be isolated by USACE and jurisdictional to MDE.	145	
WUS 104	Intermittent	4	Unnamed tributary to Big Gunpowder Falls	39.42204	-76.398304	Low	Field reviewed and confirmed to be jurisdictional to MDE/USACE.	40	
<i>Previously Delineated Waterways</i>								Delineated Length (LF)	
WUS 13A	Intermittent	6	Little Gunpowder Falls	39.429257	-76.386047	Moderate	Field reviewed and confirmed to be jurisdictional to MDE/USACE.	52	154
WUS 19A	Ephemeral	8	Little Gunpowder Falls	39.434669	-76.37851	Moderate	Field reviewed and confirmed to be still jurisdictional to USACE - grandfathered in under Rapanos.	29	271
* Nearest named USGS stream fed by the delineated resource									