APPENDIX D
WETLAND, UPLAND, AND STREAM DATASHEETS

WETLAND, UPLAND, AND STREAM DATASHEETS

A. KH-3019: MD 152 Interchange / I-95 NB ETL Two-Lane Extension /MD 152 Noise Wall

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 10/30/2018
Applicant/Owner: MDTA State: MD Sampling Point: WET A-1
Investigator(s): ET/KJH Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Trail Local relief (concave, convex, none): Concave Slope (%): 3
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.441102 Long: -76.344533 Datum: WGS84
Soil Map Unit Name: RuD 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 ◉	No ○	**Is the Sampled Area within a Wetland?** **Yes** ☑ **No** ☐
Hydric Soil Present?	Yes ◉	No ○	
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:
Perched depression in disturbed area near sewer line.
Photos 393 & 394

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches): 2
Water Table Present?	Yes ☑	No ☐	Depth (inches): 8
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches): 0

Wetland Hydrology Present? **Yes** ◉ **No** ○

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

Remarks:
Hydrology data collected during wettest season on record. Wetland perched on compacted sewer line access trail.

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

Sampling Point: WET A-1

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Sapling Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Herb Stratum (Plot size: 5' R)			
1. Microstegium vimineum	60	yes	FAC
2. Aster sp	20	no	
3. Carex sp.	10	no	
4. Persicaria sagittata	30	yes	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	120 = Total Cover		

50% of total cover: 60.0 20% of total cover: 24.0

Woody Vine Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 = 0
FACW species		x 2 = 0
FAC species		x 3 = 0
FACU species		x 4 = 0
UPL species		x 5 = 0
Column Totals:	(A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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: WET A-1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 5/2	90	7.5YR 4/6	10	C	PL	Silt Clay Loam	Gravel mixed in

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: Gravel

Depth (inches): 12

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks: Positive Alpha-Alpha-Dipyridyl test in upper six inches.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 1/17/2019
Applicant/Owner: MDTA State: MD Sampling Point: UPL A-1
Investigator(s): ET/KJH Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): None Slope (%): 3
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.441086 Long: -76.344871 Datum: WGS84
Soil Map Unit Name: RuD NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☑, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
Highly disturbed

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:
Hydrology data collected during wettest season on record.

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

Sampling Point: UPL A-1

Tree Stratum (Plot size: 20' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipifera	25	yes	FACU
2. Pyrus calleryana	10	yes	UPL
3.			
4.			
5.			
6.			
	35 = Total Cover		

50% of total cover: 17.5 20% of total cover: 7.0

Sapling Stratum (Plot size: 20' R)			
1. Liquidambar styraciflua	40	yes	FAC
2.			
3.			
4.			
5.			
6.			
	40 = Total Cover		

50% of total cover: 20.0 20% of total cover: 8.0

Shrub Stratum (Plot size: 20' R)			
1. Liquidambar styraciflua	20	yes	FAC
2.			
3.			
4.			
5.			
6.			
	20 = Total Cover		

50% of total cover: 10.0 20% of total cover: 4.0

Herb Stratum (Plot size: 20' R)			
1. Lonicera japonica	2	no	FACU
2. Ilex opaca	2	no	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	4 = Total Cover		

50% of total cover: 2.0 20% of total cover: 0.8

Woody Vine Stratum (Plot size: 20' R)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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 A-1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 5/3	100					Clay Loam	Fill material mixed in
2-12	2.5YR 5/6	80					Silt Loam	Fill material
	10YR 6/8	20						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ○ **No** ●

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 10/30/2018
Applicant/Owner: MDTA State: MD Sampling Point: WET A-2
Investigator(s): ET/KJH Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 4
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.44175 Long: -76.341944 Datum: WGS84
Soil Map Unit Name: RuD NWI classification: PFO1E
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
Seep driven wetland. Drains to WUS A-1
Photos 395-396.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ◉ **No** ○

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

Remarks:
Hydrology data collected during wettest season on record.

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

Sampling Point: WET A-2

Tree Stratum (Plot size: 15' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	25	yes	FAC
2.			
3.			
4.			
5.			
6.			
	25 = Total Cover		

50% of total cover: 12.5 20% of total cover: 5.0

Sapling Stratum (Plot size: 15' R)			
1. Liquidambar styraciflua	10	yes	FAC
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		

50% of total cover: 5.0 20% of total cover: 2.0

Shrub Stratum (Plot size: 15' R)			
1. Liquidambar styraciflua	25	yes	FAC
2.			
3.			
4.			
5.			
6.			
	25 = Total Cover		

50% of total cover: 12.5 20% of total cover: 5.0

Herb Stratum (Plot size: 15' R)			
1. Microstegium vimineum	20	yes	FAC
2. Leersia virginica	15	yes	FACW
3. Liquidambar styraciflua	5	no	FAC
4. Lonicera japonica	2	no	FACU
5. Smilax rotundifolia	5	no	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	47 = Total Cover		

50% of total cover: 23.5 20% of total cover: 9.4

Woody Vine Stratum (Plot size: 15' R)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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: WET A-2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/1	95	5YR 3/4	5	C	PL	Clay Loam	
4-9	10YR 4/1	50					Clay Loam	
	7.5YR 4/6	50					Clay Loam	
9-23	10YR 5/2	80	5YR 4/6	20	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks: Positive Alpha-alpha-Dipyridyl test in upper six inches.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 1/4/2019
Applicant/Owner: MDTA State: MD Sampling Point: UPL A-2
Investigator(s): ET/KJH Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Flat Forest Local relief (concave, convex, none): None Slope (%): 0
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.44179 Long: -76.341932 Datum: WGS84
Soil Map Unit Name: RuD NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ○ **No** ◉

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

Remarks:

Hydrology data collected during wettest season on record.

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

Sampling Point: UPL A-2

Tree Stratum (Plot size: 20' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipifera	35	yes	FACU
2. Liquidambar styraciflua	15	yes	FAC
3.			
4.			
5.			
6.			
	50 = Total Cover		

50% of total cover: 25.0 20% of total cover: 10.0

Sapling Stratum (Plot size: 20' R)			
1. Liquidambar styraciflua	25	yes	FAC
2.			
3.			
4.			
5.			
6.			
	25 = Total Cover		

50% of total cover: 12.5 20% of total cover: 5.0

Shrub Stratum (Plot size: 20' R)			
1. Liquidambar styraciflua	15	yes	FAC
2.			
3.			
4.			
5.			
6.			
	15 = Total Cover		

50% of total cover: 7.5 20% of total cover: 3.0

Herb Stratum (Plot size: 20' R)			
1. Smilax rotundifolia	15	yes	FAC
2. Lonicera japonica	5	no	FACU
3. Microstegium vimineum	20	yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	40 = Total Cover		

50% of total cover: 20.0 20% of total cover: 8.0

Woody Vine Stratum (Plot size: 20' R)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 83.3 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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 A-2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 4/3	100					Clay Loam	Fill material mixed in
5-13	7.5YR 5/6	60					Silt Loam	
	10YR 4/2	40						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ○ **No** ●

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 10/30/2018
Applicant/Owner: MDTA State: MD Sampling Point: WET A-3
Investigator(s): ET/KJH Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 3
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.442959 Long: -76.338421 Datum: WGS84
Soil Map Unit Name: RuD 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 ◉	No ○	**Is the Sampled Area within a Wetland?** **Yes** ☑ **No** ☐
Hydric Soil Present?	Yes ◉	No ○	
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:
Photos 402-403
Drains to Waters - F

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ◉ **No** ○

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

Remarks:
Hydrology data collected during wettest season on record. Extensive drainage patterns and microtopography throughout wetland indicate surface hydrology is prevalent.

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

Sampling Point: WET A-3

Tree Stratum (Plot size: 20' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	30	yes	FAC
2. Acer rubrum	20	yes	FAC
3. Quercus phellos	40	yes	FAC
4.			
5.			
6.			
	90 = Total Cover		

50% of total cover: 45.0 20% of total cover: 18.0

Sapling Stratum (Plot size: 20' R)			
1. Acer rubrum	15	yes	FAC
2. Liquidambar styraciflua	5	yes	FAC
3.			
4.			
5.			
6.			
	20 = Total Cover		

50% of total cover: 10.0 20% of total cover: 4.0

Shrub Stratum (Plot size: 20' R)			
1. Acer rubrum	5	yes	FAC
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		

50% of total cover: 2.5 20% of total cover: 1.0

Herb Stratum (Plot size: 20' R)			
1. Boehmeria cylindrica	5	yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	5 = Total Cover		

50% of total cover: 2.5 20% of total cover: 1.0

Woody Vine Stratum (Plot size: 20' R)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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: WET A-3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	80	2.5YR 4/8	5	C	PL	Clay	
	10YR 5/6	15						Fill material present
2-9	2.5Y 5/2	85	2.5 YR 3/6	15	C	PL	Clay	
9-14	10YR 5/2	50	2.5 YR 4/6	5	C	M	Silty Clay	
	10YR 5/8	45						Fill material present

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: Gravel

Depth (inches): 14

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks: Fill material throughout profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 1/4/2019

Applicant/Owner: MDTA State: MD Sampling Point: UPL A-3

Investigator(s): ET/KJH Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Convex Slope (%): 0

Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.442917 Long: -76.338338 Datum: WGS84

Soil Map Unit Name: RuD NWI classification: N/A

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

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

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

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

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ○ **No** ◉

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

Remarks:

Hydrology data collected during wettest season on record.

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

Sampling Point: UPL A-3

Tree Stratum (Plot size: 20' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus phellos	65	yes	FAC
2. Acer rubrum	20	yes	FAC
3. Pinus rigida	15	no	FACU
4.			
5.			
6.			
	100 = Total Cover		

50% of total cover: 50.0 20% of total cover: 20.0

Sapling Stratum (Plot size: 20' R)			
1. Acer rubrum	20	yes	FAC
2.			
3.			
4.			
5.			
6.			
	20 = Total Cover		

50% of total cover: 10.0 20% of total cover: 4.0

Shrub Stratum (Plot size: 20' R)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Herb Stratum (Plot size: 20' R)			
1. Smilax rotundifolia	10	yes	FAC
2. Ilex opaca	3	yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	13 = Total Cover		

50% of total cover: 6.5 20% of total cover: 2.6

Woody Vine Stratum (Plot size: 20' R)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 80.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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 A-3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 5/3	100					Loam	
4-7	10YR 5/3	50					Clay Loam	
	10YR 6/6	50						
7-13	10YR 6/8	95	2.5 YR 3/6	5	C	M	Loam	

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

Hydric Soil Indicators:

- ☐ 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ○ **No** ●

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 11/14/2018
Applicant/Owner: MDTA State: MD Sampling Point: WET A-4
Investigator(s): ET/RL Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Localized depression Local relief (concave, convex, none): Concave Slope (%): 0
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.443408 Long: -76.337091 Datum: WGS84
Soil Map Unit Name: HcA NWI classification: PFO1A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
Photos 630-631. Drains as surface flow to Waters G.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ◉ **No** ○

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

Remarks:
Hydrology data collected during wettest season on record.

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

Sampling Point: WET A-4

Tree Stratum (Plot size: 10' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	30	yes	FAC
2. Acer rubrum	25	yes	FAC
3.			
4.			
5.			
6.			
	55 = Total Cover		

50% of total cover: 27.5 20% of total cover: 11.0

Sapling Stratum (Plot size: 10' R)			
1. Acer rubrum	10	yes	FAC
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		

50% of total cover: 5.0 20% of total cover: 2.0

Shrub Stratum (Plot size: 10' R)			
1. Ilex opaca	5	yes	FACU
2. Vaccinium corymbosum	7	yes	FACW
3.			
4.			
5.			
6.			
	12 = Total Cover		

50% of total cover: 6.0 20% of total cover: 2.4

Herb Stratum (Plot size: 10' R)			
1. Carex sp.	3	yes	NI
2. Quercus phellos	2	no	FAC
3. Juncus effusus	2	no	FACW
4. Quercus alba	1	no	FACU
5. Rubus allegheniensis	5	yes	FACU
6. Smilax rotundifolia	3	yes	FAC
7.			
8.			
9.			
10.			
11.			
	16 = Total Cover		

50% of total cover: 8.0 20% of total cover: 3.2

Woody Vine Stratum (Plot size: 10' R)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 71.4 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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: WET A-4

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 5/2	90	2.5YR 3/6	10	C	M	Clay loam	
4-12	2.5Y 7/2	80	7.5YR 5/8	20	C	M	Silty Clay Loam	Some gravel and fill material mixed in

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 11/14/2018
Applicant/Owner: MDTA State: MD Sampling Point: UPL A-4
Investigator(s): ET/RL Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Roadside forest Local relief (concave, convex, none): None Slope (%): 1
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.443398 Long: -76.337211 Datum: WGS84
Soil Map Unit Name: HcA NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☑, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
Soils are heavily disturbed, lot of fill material

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks:
Hydrology data collected during wettest season on record.

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

Sampling Point: UPL A-4

Tree Stratum (Plot size: 10' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	30	yes	FAC
2. Acer rubrum	55	yes	FAC
3.			
4.			
5.			
6.			
	85 = Total Cover		
50% of total cover: 42.5	20% of total cover: 17.0		

Sapling Stratum (Plot size: 10' R)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Shrub Stratum (Plot size: 10' R)			
1. Fagus grandifolia	25	yes	FACU
2. Ilex opaca	10	yes	FACU
3.			
4.			
5.			
6.			
	35 = Total Cover		
50% of total cover: 17.5	20% of total cover: 7.0		

Herb Stratum (Plot size: 10' R)			
1. Quercus phellos	2	no	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	2 = Total Cover		
50% of total cover: 1.0	20% of total cover: 0.4		

Woody Vine Stratum (Plot size: 10' R)			
1. Smilax rotundifolia	2	no	FAC
2.			
3.			
4.			
5.			
	2 = Total Cover		
50% of total cover: 1.0	20% of total cover: 0.4		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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 A-4

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5R 4/6	80					Loam	Lots of fill material
	2.5Y 6/3	20						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 11/14/2018
Applicant/Owner: MDTA State: MD Sampling Point: WET A-5
Investigator(s): ET/RL Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Toe of slope Local relief (concave, convex, none): Concave Slope (%): 2
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.4436466 Long: -76.3364188 Datum: WGS84
Soil Map Unit Name: _____ NWI classification: PEM1E
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☑, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
Wetland is within actively grazed livestock farm. Photos: 634-635. Ponding at toe of slope along private fence. Drains to WUS A-4, WUS A-6, & WUS A-7.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ◉ **No** ○

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

Remarks:
Hydrology data collected during wettest season on record.

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

Sampling Point: WET A-5

Tree Stratum (Plot size: 20'R)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Sapling Stratum (Plot size: 20'R)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Shrub Stratum (Plot size: 20'R)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Herb Stratum (Plot size: 5' radius)			
1. Juncus effusus	30	yes	FACW
2. Carex sp.	10	no	
3. Microstegium vimineum	50	yes	FAC
4. Festuca rubra	30	yes	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	120 = Total Cover		

50% of total cover: 60.0 20% of total cover: 24.0

Woody Vine Stratum (Plot size: 20'R)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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.)

Carex sp. has been grazed by livestock and cannot be identified.

SOIL

Sampling Point: WET A-5

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR 4/1	90	2.5YR 4/8	10	C	M	Clay loam	
4-9	10YR 6/2	60	2.5YR 3/6	15	C	PL	Clay loam	
	10YR 5/4	25						
9-14	2.5Y 6/2	70	10YR 5/8	30	C	M	Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 11/16/2018
Applicant/Owner: MDTA State: MD Sampling Point: UPL A-5
Investigator(s): ET/RL Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Toe of slope Local relief (concave, convex, none): Convex Slope (%): 2
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.443853 Long: -76.33587 Datum: WGS84
Soil Map Unit Name: HcA NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches): 0
Water Table Present?	Yes ☑	No ☐	Depth (inches): 10"
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches): 8"

Wetland Hydrology Present? **Yes** ◉ **No** ○

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

Remarks:

Hydrology data collected during wettest season on record. Visited site after storm event. Water table is atypically high.

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

Sampling Point: UPL A-5

Tree Stratum (Plot size: 10' R)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Sapling Stratum (Plot size: 10' R)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Shrub Stratum (Plot size: 10' R)			
1. Quercus rubra	5	yes	FACU
2. Rosa multiflora	10	yes	FACU
3.			
4.			
5.			
6.			
	15 = Total Cover		

50% of total cover: 7.5 20% of total cover: 3.0

Herb Stratum (Plot size: 10' R)			
1. Microstegium vimineum	55	yes	FAC
2. Quercus rubra	2	no	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	57 = Total Cover		

50% of total cover: 28.5 20% of total cover: 11.4

Woody Vine Stratum (Plot size: 10' R)			
1. Lonicera japonica	30	yes	FACU
2. Smilax rotundifolia	5	no	FAC
3.			
4.			
5.			
	35 = Total Cover		

50% of total cover: 17.5 20% of total cover: 7.0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 25.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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 A-5

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/2	100					Loam	
3-8	10YR 5/6	100					Sandy loam	Lots of fill material
8-12	10YR 6/2	50	5YR 5/6	5	C	M	Sandy loam	
	10YR 5/6	45						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ○ **No** ●

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 11/27/2018
Applicant/Owner: MDTA State: MD Sampling Point: WET A-6
Investigator(s): ET/RL Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Roadside depression Local relief (concave, convex, none): Concave Slope (%): 1
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.448442 Long: -76.325118 Datum: WGS84
Soil Map Unit Name: DcB NWI classification: PFO1A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
Photos 660-661. Significant rain recently (>2.5 inches in the last week). Consists of two areas connect via surface drainage and drains outside of study area.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches): 3
Water Table Present?	Yes ☑	No ☐	Depth (inches): 6
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches): 0

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:
Hydrology data collected during wettest season on record.

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

Sampling Point: WET A-6

Tree Stratum (Plot size: 5'x10')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	60	yes	FAC
2.			
3.			
4.			
5.			
6.			
	60 = Total Cover		

50% of total cover: 30.0 20% of total cover: 12.0

Sapling Stratum (Plot size: 5'x10')			
1. Acer rubrum	15	yes	FAC
2.			
3.			
4.			
5.			
6.			
	15 = Total Cover		

50% of total cover: 7.5 20% of total cover: 3.0

Shrub Stratum (Plot size: 5'x10')			
1. Liquidambar styraciflua	5	yes	FAC
2. Fraxinus pennsylvanica	5	yes	FACW
3.			
4.			
5.			
6.			
	10 = Total Cover		

50% of total cover: 5.0 20% of total cover: 2.0

Herb Stratum (Plot size: 5'x10')			
1. Microstegium vimineum	30	yes	FAC
2. Juncus effusus	3	no	FACW
3. Carex sp.	15	yes	
4. Acer rubrum	3	no	FAC
5. Fraxinus pennsylvanica	3	no	FACW
6.			
7.			
8.			
9.			
10.			
11.			
	54 = Total Cover		

50% of total cover: 27.0 20% of total cover: 10.8

Woody Vine Stratum (Plot size: 5'x10')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 = 0
FACW species	11	x 2 = 22
FAC species	113	x 3 = 339
FACU species		x 4 = 0
UPL species		x 5 = 0
Column Totals:	124 (A)	361 (B)

Prevalence Index = B/A = 2.91

Hydrophytic Vegetation Indicators:

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

See Remarks

[1]Indicators 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.)

Carex species could not be identified. Wetland would pass Dominance Test even if Carex species is FACU or UPL.

SOIL

Sampling Point: WET A-6

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 6/2	80	2.5YR 4/6	20	C	M	Clay loam	
4-12	10YR 5/3	60	7.5YR 5/6	40	C	M	Loam	Fill material mixed in

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 11/27/2018
Applicant/Owner: MDTA State: MD Sampling Point: UPL A-6/A-8
Investigator(s): ET/RL Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Old Roadbed Local relief (concave, convex, none): None Slope (%): 0
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.449203 Long: -76.32351 Datum: WGS84
Soil Map Unit Name: CkC2 NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks:

Hydrology data collected during wettest season on record.

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

Sampling Point: UPL A-6/A-8

Tree Stratum (Plot size: 20' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	30	yes	FAC
2. Liriodendron tulipifera	15	yes	FACU
3.			
4.			
5.			
6.			
	45 = Total Cover		
50% of total cover: 22.5	20% of total cover: 9.0		

Sapling Stratum (Plot size: 20' R)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Shrub Stratum (Plot size: 20' R)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Herb Stratum (Plot size: 20' R)			
1. Lonicera japonica	15	yes	FACU
2. Rosa multiflora	15	yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	30 = Total Cover		
50% of total cover: 15.0	20% of total cover: 6.0		

Woody Vine Stratum (Plot size: 20' R)			
1. Celastrus orbiculatus	25	yes	FACU
2.			
3.			
4.			
5.			
	25 = Total Cover		
50% of total cover: 12.5	20% of total cover: 5.0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 20.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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 A-6/A-8

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 5/4	55					Loam	Fill material
	10YR 4/4	45						Fill material

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ○ **No** ●

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 11/27/2018
Applicant/Owner: MDTA State: MD Sampling Point: WET A-7 PEM
Investigator(s): ET/RL Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Toe of slope Local relief (concave, convex, none): Concave Slope (%): 1-2
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.449386 Long: -76.32242 Datum: WGS84
Soil Map Unit Name: DcB 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 ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ◉	No ○	
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:
Photos 662-663. Significant rain recently (>2.5" in last week). Continues beyond ROW fence and abuts WET A-7 PFO.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches): 1
Water Table Present?	Yes ☑	No ☐	Depth (inches): 6
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches): 0

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:
Hydrology data collected during wettest season on record.

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

Sampling Point: WET A-7 PEM

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

50% of total cover: 0.0 20% of total cover: 0.0

Sapling Stratum (Plot size: 5' R)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Shrub Stratum (Plot size: 5' R)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Herb Stratum (Plot size: 5' R)			
1. Microstegium vimineum	60	yes	FAC
2. Phalaris arundinacea	40	yes	FACW
3. Boehemeria cylindrica	30	no	FACW
4. Aster sp.	20	no	
5. Allium cernuum	15	no	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	165 = Total Cover		

50% of total cover: 82.5 20% of total cover: 33.0

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

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 = 0
FACW species		x 2 = 0
FAC species		x 3 = 0
FACU species		x 4 = 0
UPL species		x 5 = 0
Column Totals:	(A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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: WET A-7 PEM

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 5/3	100					Silt loam	
2-8	10YR 5/2	60	2.5YR 3/6	20	C	PL	Loam	
	10YR 5/6	20						Fill material
8-12	10YR 5/6	75					Loam	
	10YR 6/3	25						Fill material

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 2/19/2019
Applicant/Owner: MDTA State: MD Sampling Point: WET A-7 PFO
Investigator(s): ET/MRS Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 2
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.449288 Long: -76.322361 Datum: WGS84
Soil Map Unit Name: DcB NWI classification: PFO1A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
Photos 1503-1504 S.
South of WET A-7 PEM . Extends beyond study area.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches): _____
Water Table Present?	Yes ☑	No ☐	Depth (inches): 8
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches): 8

Wetland Hydrology Present? **Yes** ◉ **No** ○

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

Remarks:
Hydrology data collected during wettest season on record.

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

Sampling Point: WET A-7 PFO

Tree Stratum (Plot size: 30'R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	50	yes	FACW
2. Acer rubrum	15	yes	FAC
3. Nyssa sylvatica	5	no	FAC
4.			
5.			
6.			
	70 = Total Cover		

50% of total cover: 35.0 20% of total cover: 14.0

Sapling Stratum (Plot size: 30'R)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Shrub Stratum (Plot size: 30'R)			
1. Fraxinus pennsylvanica	15	yes	FACW
2.			
3.			
4.			
5.			
6.			
	15 = Total Cover		

50% of total cover: 7.5 20% of total cover: 3.0

Herb Stratum (Plot size: 30'R)			
1. Microstegium vimineum	60	yes	FAC
2. Boehmeria cylindrica	20	no	FACW
3. Lonicera japonica	10	no	FACU
4. Rosa multiflora	10	no	FACU
5. Persicaria sp.	2	no	
6.			
7.			
8.			
9.			
10.			
11.			
	102 = Total Cover		

50% of total cover: 51.0 20% of total cover: 20.4

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

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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: WET A-7 PFO

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	2.5Y 4/2	70	10YR 4/4	30	C	M	Loam	
3-8	7.5YR 4/3	100					Sandy loam	
8-12	7.5YR 4/1	60	7.5YR 4/3	40	C	M	Sandy loam	
12-14	10YR 5/6	100					Silt loam	

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

Hydric Soil Indicators:

- ☐ 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 11/27/2018

Applicant/Owner: MDTA State: MD Sampling Point: UPL A-7

Investigator(s): ET/RL Section, Township, Range: _____

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

Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.449355 Long: -76322553 Datum: WGS84

Soil Map Unit Name: DcB NWI classification: N/A

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

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

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

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

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ○ **No** ◉

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

Remarks:

Hydrology data collected during wettest season on record.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: UPL A-7

Tree Stratum (Plot size: 10' R)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Sapling Stratum (Plot size: 10' R)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Shrub Stratum (Plot size: 10' R)			
1. Rubus sp.	25	yes	
2. Liquidambar styraciflua	5	no	FAC
3.			
4.			
5.			
6.			
	30 = Total Cover		

50% of total cover: 15.0 20% of total cover: 6.0

Herb Stratum (Plot size: 10' R)			
1. Allium cernuum	60	yes	FACU
2. Boehemeria cylindrica	35	yes	UPL
3. Microstegium vimineum	40	yes	FAC
4. Aster sp.	5	no	
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	140 = Total Cover		

50% of total cover: 70.0 20% of total cover: 28.0

Woody Vine Stratum (Plot size: 10' R)			
1. Vitis sp.	5	yes	
2.			
3.			
4.			
5.			
	5 = Total Cover		

50% of total cover: 2.5 20% of total cover: 1.0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 = 0
FACW species		x 2 = 0
FAC species		x 3 = 0
FACU species		x 4 = 0
UPL species		x 5 = 0
Column Totals:	(A)	0 (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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.)

Dominance test fails b/c not all IDed to sp and no hydrology indicators. PI not applicable since no hydrology indicators.

SOIL

Sampling Point: UPL A-7

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	2.5Y 4/2	90	5YR 4/6	10	C	M	Clay loam	
2-12	10YR 5/6	60					Clay loam	
	2.5Y 5/3	40						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 11/27/2018
Applicant/Owner: MDTA State: MD Sampling Point: WET A-8
Investigator(s): ET/RL Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Old Roadbed Local relief (concave, convex, none): Concave Slope (%): 1
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.449417 Long: -76.323218 Datum: WGS84
Soil Map Unit Name: CkC2 NWI classification: PFO1A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☑, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
Photos 664-665. Wetland on disturbed remnant trail.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ◉ **No** ○

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

Remarks:
Hydrology data collected during wettest season on record.

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

Sampling Point: WET A-8

Tree Stratum (Plot size: 5'x10')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	25	yes	FAC
2.			
3.			
4.			
5.			
6.			
	25 = Total Cover		

50% of total cover: 12.5 20% of total cover: 5.0

Sapling Stratum (Plot size: 5'x10')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Shrub Stratum (Plot size: 5'x10')			
1. Fraxinus pennsylvanica	5	yes	FACW
2. Liquidambar styraciflua	15	yes	FAC
3.			
4.			
5.			
6.			
	20 = Total Cover		

50% of total cover: 10.0 20% of total cover: 4.0

Herb Stratum (Plot size: 5'x10')			
1. Carex sp.	5	yes	NI
2. Fraxinus pennsylvanica	3	yes	FACW
3. Rosa multiflora	5	yes	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	13 = Total Cover		

50% of total cover: 6.5 20% of total cover: 2.6

Woody Vine Stratum (Plot size: 5'x10')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 80.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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: WET A-8

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/1	90	5YR 3/3	10	C	M	Clay loam	
3-8	5Y 5/2	60	2.5YR 3/4	40	C	M	Loam	
8-12	10YR 5/6	70					Sandy loam	
	7.5YR 5/8	30						Fill material

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 11/29/2018
Applicant/Owner: MDTA State: MD Sampling Point: WET A-9
Investigator(s): ET/SJF Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Toe of slope Local relief (concave, convex, none): Concave Slope (%): 3
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.443211 Long: -76.341941 Datum: WGS84
Soil Map Unit Name: HcA NWI classification: PSS1E
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
Photos 0668-0669. Drains to WUS A-11.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches): _____
Water Table Present?	Yes ☑	No ☐	Depth (inches): 5
Saturation Present? (includes capillary fringe)	Yes ☐	No ☑	Depth (inches): _____

Wetland Hydrology Present? **Yes** ◉ **No** ○

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

Remarks:
Hydrology data collected during wettest season on record.

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

Sampling Point: WET A-9

Tree Stratum (Plot size: 10' R)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Sapling Stratum (Plot size: 10' R)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Shrub Stratum (Plot size: 10' R)			
1. Liquidambar styraciflua	20	yes	FAC
2.			
3.			
4.			
5.			
6.			
	20 = Total Cover		

50% of total cover: 10.0 20% of total cover: 4.0

Herb Stratum (Plot size: 10' R)			
1. Symplocarpus foetidus	30	yes	OBL
2. Smilax rotundifolia	5	no	FAC
3. Dichanthelium clandestinum	5	no	FAC
4. Carex sp.	7	no	
5. Allium cernuum	5	no	FACU
6. Leersia virginica	15	yes	FACW
7.			
8.			
9.			
10.			
11.			
	67 = Total Cover		

50% of total cover: 33.5 20% of total cover: 13.4

Woody Vine Stratum (Plot size: 10' R)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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: WET A-9

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 5/2	90	2.5YR 3/6	10	C	M	Loam	
2-6	10YR 4/2	95	7.5YR 4/4	5	C	M	Loam	
6-12	10YR 6/2	80	2.5YR 3/6	20	C	PL	Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 11/29/2018

Applicant/Owner: MDTA State: MD Sampling Point: UPL A-9/A-14

Investigator(s): ET/SJF Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 4

Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.4432 Long: -76.341816 Datum: WGS84

Soil Map Unit Name: HcA NWI classification: N/A

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

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

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

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

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ○ **No** ◉

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

Remarks:

Hydrology data collected during wettest season on record.

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

Sampling Point: UPL A-9/A-14

Tree Stratum (Plot size: 10' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	35	yes	FAC
2. Liriodendron tulipifera	30	yes	FACU
3. Acer rubrum	25	yes	FAC
4.			
5.			
6.			
	90 = Total Cover		
50% of total cover: 45.0	20% of total cover: 18.0		

Sapling Stratum (Plot size: 10' R)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Shrub Stratum (Plot size: 10' R)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Herb Stratum (Plot size: 10' R)			
1. Leersia virginica	20	yes	FACW
2. Allium cernuum	5	no	FACU
3. Dichanthelium clandestinum	3	no	FAC
4. Smilax rotundifolia	10	yes	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	38 = Total Cover		
50% of total cover: 19.0	20% of total cover: 7.6		

Woody Vine Stratum (Plot size: 10' R)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 80.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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 A-9/A-14

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 4/3	80					Sandy loam	
	2.5Y 5/6	20						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ○ **No** ●

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 12/11/2018
Applicant/Owner: MDTA State: MD Sampling Point: WET A-10 PFO
Investigator(s): ET/SLY Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): None Slope (%): 2
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.440859 Long: -76.35451 Datum: WGS84
Soil Map Unit Name: En NWI classification: PFO1A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
Photo 734 SW. Receives surface hydrology from WET A-10 PSS upslope. Adjacent to WUS 25A.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches): _____
Water Table Present?	Yes ☑	No ☐	Depth (inches): 10
Saturation Present? (includes capillary fringe)	Yes ☐	No ☑	Depth (inches): _____

Wetland Hydrology Present? **Yes** ◉ **No** ○

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

Remarks:
Hydrology data collected during wettest season on record.

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

Sampling Point: WET A-10 PFO

Tree Stratum (Plot size: 20'R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	20	yes	FAC
2. Nyssa sylvatica	35	yes	FAC
3.			
4.			
5.			
6.			
	55 = Total Cover		
50% of total cover: 27.5	20% of total cover: 11.0		

Sapling Stratum (Plot size: 20'R)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Shrub Stratum (Plot size: 20'R)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Herb Stratum (Plot size: 20'R)			
1. Microstegium vimineum	80	yes	FAC
2. Smilax rotundifolia	15	no	FAC
3. Carex sp.	3	no	
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	98 = Total Cover		
50% of total cover: 49.0	20% of total cover: 19.6		

Woody Vine Stratum (Plot size: 20'R)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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: WET A-10 PFO

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/2	95	7.5YR 4/3	5	C	PL	Loam	
3-10	7.5YR 4/1	70	5YR 6/4	30	C	M	Loam	
10-16	7.5YR 6/1	60	7.5YR 6/6	25	C	M	Clay loam	
			2.5YR 6/3	15	C	PL		
16-20	10YR 7/1	50	7.5YR 8/6	50	C	M	Clay loam	

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

Hydric Soil Indicators:

- ☐ 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 12/11/2018
Applicant/Owner: MDTA State: MD Sampling Point: WET A-10 PSS
Investigator(s): ET/SLY Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): None Slope (%): 1
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.440678 Long: -76.353994 Datum: WGS84
Soil Map Unit Name: En NWI classification: PSS1E
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
Photo 735 NW. PSS upslope of abutting PFO. Discharges some surface water to WUS A-12 and WET A-10 PFO.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ◉ **No** ○

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

Remarks:

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

Sampling Point: WET A-10 PSS

Tree Stratum (Plot size: 10'R)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Sapling Stratum (Plot size: 10'R)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Shrub Stratum (Plot size: 10'R)			
1. Liquidambar styraciflua	65	yes	FAC
2. Baccharis halimifolia	25	yes	FACW
3.			
4.			
5.			
6.			
	90 = Total Cover		

50% of total cover: 45.0 20% of total cover: 18.0

Herb Stratum (Plot size: 10'R)			
1. Dichanthelium scoparium	60	yes	FACW
2. Juncus effusus	15	yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	75 = Total Cover		

50% of total cover: 37.5 20% of total cover: 15.0

Woody Vine Stratum (Plot size: 10'R)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 = 0
FACW species		x 2 = 0
FAC species		x 3 = 0
FACU species		x 4 = 0
UPL species		x 5 = 0
Column Totals:	(A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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.)

Sweetgum volunteers are dominant in shrub layer. Area cleared but allowed to regrow.

SOIL

Sampling Point: WET A-10 PSS

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	90	5YR 4/3	10	C	M	Silt loam	Roots present
4-16	7.5YR 4/1	80	5YR 4/3	20	C	M	Silt loam	
16-20	10YR 5/1	60					Clay	Fill
	2.5Y 6/8	40						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 12/11/2018

Applicant/Owner: MDTA State: MD Sampling Point: UPL A-10/A-11

Investigator(s): ET/SLY Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): None Slope (%): 2

Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.440754 Long: -76.35286 Datum: WGS84

Soil Map Unit Name: KpA NWI classification: N/A

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

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

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

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

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ○ **No** ◉

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

Remarks:

Hydrology data collected during wettest season on record.

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

Sampling Point: UPL A-10/A-11

Tree Stratum (Plot size: 20' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Nyssa sylvatica	70	yes	FAC
2. Liquidambar styraciflua	15	no	FAC
3.			
4.			
5.			
6.			
	85 = Total Cover		

50% of total cover: 42.5 20% of total cover: 17.0

Sapling Stratum (Plot size: 20' R)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Shrub Stratum (Plot size: 20' R)			
1. Ilex opaca	3	no	FACU
2.			
3.			
4.			
5.			
6.			
	3 = Total Cover		

50% of total cover: 1.5 20% of total cover: 0.6

Herb Stratum (Plot size: 20' R)			
1. Dendrolycopodium obscurum	50	yes	FACU
2. Smilax rotundifolia	5	no	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	55 = Total Cover		

50% of total cover: 27.5 20% of total cover: 11.0

Woody Vine Stratum (Plot size: 20' R)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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 A-10/A-11

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/1	90	5YR 3/4	10	C	PL	Loam	
2-10	10YR 4/1	60	7.5 YR 4/6	10	C	M	Clay loam	
	7.5YR 5/8	30						Fill material
10-16	10YR 5/1	45	5YR 3/4	5	C	PL	Clay loam	
	7.5YR 5/8	50						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 12/11/2018
Applicant/Owner: MDTA State: MD Sampling Point: WET A-11
Investigator(s): ET/SLY Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 1
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.440935 Long: -76.355532 Datum: WGS84
Soil Map Unit Name: KpA 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 ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ◉	No ○	
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:
Photo 737 W. Large wetland discharges directly to WUS 23A. Composed of two nearby cells hydrologically connected to WUS 23A.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:
Hydrology data collected during wettest season on record.

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

Sampling Point: WET A-11

Tree Stratum (Plot size: 20'R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Nyssa sylvatica	80	yes	FAC
2.			
3.			
4.			
5.			
6.			
	80 = Total Cover		

50% of total cover: 40.0 20% of total cover: 16.0

Sapling Stratum (Plot size: 20'R)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Shrub Stratum (Plot size: 20'R)			
1. Vaccinium corymbosum	10	yes	FACW
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		

50% of total cover: 5.0 20% of total cover: 2.0

Herb Stratum (Plot size: 20'R)			
1. Microstegium vimineum	5	yes	FAC
2. Smilax rotundifolia	10	yes	FAC
3. Arisaema triphyllum	3	no	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	18 = Total Cover		

50% of total cover: 9.0 20% of total cover: 3.6

Woody Vine Stratum (Plot size: 20'R)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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: WET A-11

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	97	7.5YR 4/6	3	C	M	Loam	
6-19	10YR 5/1	70	7.5YR 5/8	30	C	M	Clay loam	

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

Hydric Soil Indicators:

- ☐ 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 12/18/2018
Applicant/Owner: MDTA State: MD Sampling Point: WET A-12
Investigator(s): ET/RL Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.440784 Long: -76.348487 Datum: WGS84
Soil Map Unit Name: RuD NWI classification: PFO1A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☑, Soil ☐, or Hydrology ☑ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
Photos 768-S, 769-N. Drains to WUS A-13

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches): 1-3"
Water Table Present?	Yes ☑	No ☐	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches): 0

Wetland Hydrology Present? **Yes** ◉ **No** ○

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

Remarks:
Hydrology data collected during wettest season on record. Significant rainfall recently. >2.5" the last week. Wetland hydrology originates from seep and is pooled atop a tarp. Adjacent property owner claims there is an underdrain here, but that could not be confirmed in the field.

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

Sampling Point: WET A-12

Tree Stratum (Plot size: 10' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	30	yes	FAC
2. Liquidambar styraciflua	15	yes	FAC
3.			
4.			
5.			
6.			
	45 = Total Cover		
50% of total cover: 22.5	20% of total cover: 9.0		

Sapling Stratum (Plot size: 10' R)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Shrub Stratum (Plot size: 10' R)			
1. Viburnum dentatum	35	yes	FAC
2. Magnolia virginiana	10	yes	FACW
3.			
4.			
5.			
6.			
	45 = Total Cover		
50% of total cover: 22.5	20% of total cover: 9.0		

Herb Stratum (Plot size: 10' R)			
1. Lonicera japonica	2	no	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	2 = Total Cover		
50% of total cover: 1.0	20% of total cover: 0.4		

Woody Vine Stratum (Plot size: 10' R)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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.)

Tarp on ground has prevented herbaceous growth in the wetland

SOIL

Sampling Point: WET A-12

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/2	100					Silt loam	
7-14	10YR 4/1	90	2.5yr 3/6	10	C	M	Silt loam	

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

Hydric Soil Indicators:

- ☐ 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 12/18/2018
Applicant/Owner: MDTA State: MD Sampling Point: UPL A-12
Investigator(s): ET/RL Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Roadside Local relief (concave, convex, none): None Slope (%): 1
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.4408 Long: -76.348571 Datum: WGS84
Soil Map Unit Name: RuD NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ○ **No** ◉

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

Remarks:

Hydrology data collected during wettest season on record.

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

Sampling Point: UPL A-12

Tree Stratum (Plot size: 10' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	15	yes	FAC
2.			
3.			
4.			
5.			
6.			
	15 = Total Cover		

50% of total cover: 7.5 20% of total cover: 3.0

Sapling Stratum (Plot size: 10' R)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Shrub Stratum (Plot size: 10' R)			
1. Liquidambar styraciflua	50	yes	FAC
2.			
3.			
4.			
5.			
6.			
	50 = Total Cover		

50% of total cover: 25.0 20% of total cover: 10.0

Herb Stratum (Plot size: 10' R)			
1. Juncus tenuis	10	yes	FAC
2. Parathelypteris noveboracensis	10	yes	FAC
3. Rubus sp.	3	no	
4. Allium cernuum	5	no	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	28 = Total Cover		

50% of total cover: 14.0 20% of total cover: 5.6

Woody Vine Stratum (Plot size: 10' R)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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 A-12

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	7.5YR 3/2	100					Loam	
8-13	10YR 2/2	100					Loam	
13-15	7.5YR 6/1	90	2.5yr 3/6	10	C	M	Sandy loam	

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

Hydric Soil Indicators:

- ☐ 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ○ **No** ●

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 12/18/2018
Applicant/Owner: MDTA State: MD Sampling Point: WET A-13
Investigator(s): ET/RL Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 3
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.443187 Long: -76.348104 Datum: WGS84
Soil Map Unit Name: En NWI classification: PFO1E
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
Photos 779-780-N, 781-S. Seep driven wetland that originates outside of study area. Consists of two nearby cells that drain to Waters G and WUS A-22.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:
Hydrology data collected during wettest season on record.

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

Sampling Point: WET A-13

Tree Stratum (Plot size: 20' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Ulmus americana	40	yes	FACW
2. Liquidambar styraciflua	10	yes	FAC
3.			
4.			
5.			
6.			
	50 = Total Cover		

50% of total cover: 25.0 20% of total cover: 10.0

Sapling Stratum (Plot size: 20' R)			
1. Magnolia virginiana	15	yes	FACW
2.			
3.			
4.			
5.			
6.			
	15 = Total Cover		

50% of total cover: 7.5 20% of total cover: 3.0

Shrub Stratum (Plot size: 20' R)			
1. Liquidambar styraciflua	5	yes	FAC
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		

50% of total cover: 2.5 20% of total cover: 1.0

Herb Stratum (Plot size: 20' R)			
1. Carex sp	10	yes	NI
2. Smilax rotundifolia	5	yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15 = Total Cover		

50% of total cover: 7.5 20% of total cover: 3.0

Woody Vine Stratum (Plot size: 20' R)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

See remarks

[1]Indicators 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.)

Carex sp unidentifiable, but only found within the wetland. Still passes Dominance Test if Carex is FACU or UPL.

SOIL

Sampling Point: WET A-13

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/2	100					Silt loam	
7-13	10YR 4/1	85	5YR 4/6	15	C	M	Silty Clay Loam	
13-15	10YR 5/1	60	7.5YR 5/6	40	C	M	Clay loam	

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

Hydric Soil Indicators:

- ☐ 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 1/4/2019
Applicant/Owner: MDTA State: MD Sampling Point: UPL A-13
Investigator(s): ET/KJH Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Convex Slope (%): 0
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.443099 Long: -76.348206 Datum: WGS84
Soil Map Unit Name: En NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ○ **No** ◉

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

Remarks:

Hydrology data collected during wettest season on record.

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

Sampling Point: UPL A-13

Tree Stratum (Plot size: 10' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipifera	50	yes	FACU
2. Quercus palustris	25	yes	FACW
3.			
4.			
5.			
6.			
	75 = Total Cover		
50% of total cover: 37.5	20% of total cover: 15.0		

Sapling Stratum (Plot size: 10' R)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Shrub Stratum (Plot size: 10' R)			
1. Fagus grandifolia	40	yes	FACU
2.			
3.			
4.			
5.			
6.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8.0		

Herb Stratum (Plot size: 10' R)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Woody Vine Stratum (Plot size: 10' R)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.333333333 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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 A-13

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 3/2	100						Organic layer
2-4	10 YR 3/2	100					Loam	
4-9	10YR 4/4	100					Loam	
9-12	10YR 5/3	70	2.5YR 4/8	5	C	M	Silt Loam	
	10YR 4/1	25						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ○ **No** ●

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 1/4/2019
Applicant/Owner: MDTA State: MD Sampling Point: WET A-14
Investigator(s): ET/KJH Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope (%): 2
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.443546 Long: -76.341365 Datum: WGS84
Soil Map Unit Name: HcA NWI classification: PFO1A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
Photos 4893-4894 (east)
Drains to WUS A-15

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches): 2
Water Table Present?	Yes ☑	No ☐	Depth (inches): 10
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches): 0

Wetland Hydrology Present? **Yes** ◉ **No** ○

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

Remarks:
Hydrology data collected during wettest season on record. Received out-of-bank flows from Waters G during storms. Dead relic Tulip poplars in wetland indicate persistent hydrology.

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

Sampling Point: WET A-14

Tree Stratum (Plot size: 20' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	50	yes	FAC
2. Liquidambar styraciflua	15	no	FAC
3. Nyssa sylvatica	15	no	FAC
4.			
5.			
6.			
	80 = Total Cover		
50% of total cover: 40.0	20% of total cover: 16.0		

Sapling Stratum (Plot size: 20' R)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Shrub Stratum (Plot size: 20' R)			
1. Liquidambar styraciflua	5	yes	FAC
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1.0		

Herb Stratum (Plot size: 20' R)			
1. Microstegium vimineum	40	yes	FAC
2. Smilax rotundifolia	10	yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	50 = Total Cover		
50% of total cover: 25.0	20% of total cover: 10.0		

Woody Vine Stratum (Plot size: 20' R)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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.)

Dead tulip poplars in wetland

SOIL

Sampling Point: WET A-14

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 4/2	85	7.5YR 3/4	15	C	M	Clay Loam	
5-14	7.5YR 7/1	80	7.5YR 4/6	20	C	PL	Silty Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 1/4/2019
Applicant/Owner: MDTA State: MD Sampling Point: WET A-15
Investigator(s): ET/KJH Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 3
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.443704 Long: -76.33991 Datum: WGS84
Soil Map Unit Name: HcA NWI classification: PFO1E
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
Photo 4900 north

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ◉ **No** ○

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

Remarks:
Hydrology data collected during wettest season on record. Originates at a seep and conveys sheet flow to Waters G

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

Sampling Point: WET A-15

Tree Stratum (Plot size: 20' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	30	yes	FAC
2. Nyssa sylvatica	15	no	FAC
3. Liquidambar styraciflua	50	yes	FAC
4. Fagus grandifolia	25	yes	FACU
5.			
6.			
	120 = Total Cover		

50% of total cover: 60.0 20% of total cover: 24.0

Sapling Stratum (Plot size: 20' R)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Shrub Stratum (Plot size: 20' R)			
1. Ilex opaca	5	yes	FACU
2. Fagus grandifolia	10	yes	FACU
3. Liquidambar styraciflua	5	yes	FAC
4.			
5.			
6.			
	20 = Total Cover		

50% of total cover: 10.0 20% of total cover: 4.0

Herb Stratum (Plot size: 20' R)			
1. Smilax rotundifolia	20	yes	FAC
2. Juncus effusus	2	no	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	22 = Total Cover		

50% of total cover: 11.0 20% of total cover: 4.4

Woody Vine Stratum (Plot size: 20' R)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 57.1 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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.)

Non-dominant unidentifiable sedges and ferns within wetland.

SOIL

Sampling Point: WET A-15

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 5/2	90	2.5 YR 4/4	10	C	M	Clay Loam	
6-12	2.5Y 6/1	80	5 YR 4/6	20	C	M	Clay Loam	

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

Hydric Soil Indicators:

- ☐ 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 1/4/2019
Applicant/Owner: MDTA State: MD Sampling Point: UPL A-15
Investigator(s): ET/KJH Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Toe of slope Local relief (concave, convex, none): None Slope (%): 0
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.443679 Long: -76.340094 Datum: WGS84
Soil Map Unit Name: HcA NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ◉ **No** ○

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

Remarks:

Hydrology data collected during wettest season on record.

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

Sampling Point: UPL A-15

Tree Stratum (Plot size: 20' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Fagus grandifolia	70	yes	FACU
2. Quercus rubra	20	no	FACU
3. Liriodendron tulipifera	15	no	FACU
4.			
5.			
6.			
	105	= Total Cover	

50% of total cover: 52.5 20% of total cover: 21.0

Sapling Stratum (Plot size: 20' R)			
1.			
2.			
3.			
4.			
5.			
6.			
	0	= Total Cover	

50% of total cover: 0.0 20% of total cover: 0.0

Shrub Stratum (Plot size: 20' R)			
1. Liquidambar styraciflua	10	yes	FAC
2. Fagus grandifolia	10	yes	FACU
3.			
4.			
5.			
6.			
	20	= Total Cover	

50% of total cover: 10.0 20% of total cover: 4.0

Herb Stratum (Plot size: 20' R)			
1. Smilax rotundifolia	15	yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15	= Total Cover	

50% of total cover: 7.5 20% of total cover: 3.0

Woody Vine Stratum (Plot size: 20' R)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 = 0
FACW species		x 2 = 0
FAC species	25	x 3 = 75
FACU species	115	x 4 = 460
UPL species		x 5 = 0
Column Totals:	140 (A)	535 (B)

Prevalence Index = B/A = 3.82

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric 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 A-15

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	100					Silt Loam	
6-14	5Y 6/1	65	7.5 YR 5/8	35	C	M	Clay Loam	

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

Hydric Soil Indicators:

- ☐ 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 1/8/2019
Applicant/Owner: MDTA State: MD Sampling Point: WET A-16
Investigator(s): ET/KJH Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): None Slope (%): 2
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.44141 Long: -76.353472 Datum: WGS84
Soil Map Unit Name: KpB NWI classification: PFO1E
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
Receives hydro from WUS A-17. Drains to WUS 26 A, WUS A-18, and WUS A-19. Extends beyond study area.
Photos 4904-4905 W, 4912-4914 S

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:
Hydrology data collected during wettest season on record. Rain the previous night.

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

Sampling Point: WET A-16

Tree Stratum (Plot size: 10' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	60	yes	FAC
2.			
3.			
4.			
5.			
6.			
	60 = Total Cover		

50% of total cover: 30.0 20% of total cover: 12.0

Sapling Stratum (Plot size: 10' R)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Shrub Stratum (Plot size: 10' R)			
1. Acer rubrum	20	yes	FAC
2. Quercus palustris	5	yes	FACW
3.			
4.			
5.			
6.			
	25 = Total Cover		

50% of total cover: 12.5 20% of total cover: 5.0

Herb Stratum (Plot size: 10' R)			
1. Smilax rotundifolia	45	yes	FAC
2. Leersia oryzoides	15	yes	OBL
3. Lonicera japonica	3	no	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	63 = Total Cover		

50% of total cover: 31.5 20% of total cover: 12.6

Woody Vine Stratum (Plot size: 10' R)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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: WET A-16

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 4/2	100					Clay Loam	
5-12	7.5R 4/6	80					Clay	
	2.5 YR 7/1	20					Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

Alpha-alpha-Dipyridyl strip tested positive in upper 4 inches of soil profile. F3: Depleted Matrix also identified within wetland outside of plot.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 1/4/2019
Applicant/Owner: MDTA State: MD Sampling Point: UPL A-16
Investigator(s): ET/KJH Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 0
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.441199 Long: -76.353043 Datum: WGS84
Soil Map Unit Name: KpB NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches): 0.5
Water Table Present?	Yes ☑	No ☐	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches): 0

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

Hydrology data collected during wettest season on record. Rained previous night.

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

Sampling Point: UPL A-16

Tree Stratum (Plot size: 20' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus alba	50	yes	FACU
2. Liquidambar styraciflua	30	yes	FAC
3. Acer rubrum	15	no	FAC
4. Fagus grandifolia	15	no	FACU
5.			
6.			
	110 = Total Cover		
50% of total cover: 55.0	20% of total cover: 22.0		

Sapling Stratum (Plot size: 20' R)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Shrub Stratum (Plot size: 20' R)			
1. Vaccinium corymbosum	3	no	FACW
2.			
3.			
4.			
5.			
6.			
	3 = Total Cover		
50% of total cover: 1.5	20% of total cover: 0.6		

Herb Stratum (Plot size: 20' R)			
1. Smilax rotundifolia	2		FAC
2. Quercus alba	2		FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	4 = Total Cover		
50% of total cover: 2.0	20% of total cover: 0.8		

Woody Vine Stratum (Plot size: 20' R)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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 A-16

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 5/3	98	2.5 YR 4/8	2	C	M	Loam	
5-13	2.5 Y 6/4	60	7.5 YR 5/8	40	C	M	Sandy Clay Loam	

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

Hydric Soil Indicators:

- ☐ 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ○ **No** ●

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 1/4/2019
Applicant/Owner: MDTA State: MD Sampling Point: WET A-17
Investigator(s): ET/KJH Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Old Trail Local relief (concave, convex, none): Concave Slope (%): 1
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.441463 Long: -76.358029 Datum: WGS84
Soil Map Unit Name: KpA NWI classification: PFO1A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
Saturated areas north and south of the wetland did not exhibit hydric soils. Conveys surface hydrology to WET 13A and WET A-18.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ◉ **No** ○

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

Remarks:
Hydrology data collected during wettest season on record.

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

Sampling Point: WET A-17

Tree Stratum (Plot size: 10' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	20	yes	FAC
2.			
3.			
4.			
5.			
6.			
	20 = Total Cover		

50% of total cover: 10.0 20% of total cover: 4.0

Sapling Stratum (Plot size: 10' R)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Shrub Stratum (Plot size: 10' R)			
1. Viburnum dentatum	5	yes	FAC
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		

50% of total cover: 2.5 20% of total cover: 1.0

Herb Stratum (Plot size: 10' R)			
1. Smilax rotundifolia	2	yes	FAC
2. Dichanthelium scoparium	5	yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	7 = Total Cover		

50% of total cover: 3.5 20% of total cover: 1.4

Woody Vine Stratum (Plot size: 10' R)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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: WET A-17

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-7	2.5Y 4/2	95	10YR 3/6	5	C	M	Clay Loam	
7-14	10YR 5/2	85	2.5YR 4/6	15	C	M	Clay Loam	

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

Hydric Soil Indicators:

- ☐ 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 1/4/2019

Applicant/Owner: MDTA State: MD Sampling Point: UPL A-17/A-18

Investigator(s): ET/KJH Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Forest Local relief (concave, convex, none): Convex Slope (%): 0

Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.441413 Long: -76.358002 Datum: WGS84

Soil Map Unit Name: KpA NWI classification: N/A

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

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

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

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

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches): _____
Water Table Present?	Yes ☑	No ☐	Depth (inches): 6
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches): 6

Wetland Hydrology Present? **Yes** ◉ **No** ○

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

Remarks:

Hydrology data collected during wettest season on record. Rained previous night.

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

Sampling Point: UPL A-17/A-18

Tree Stratum (Plot size: 10' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus rubra	70	yes	FACU
2. Fagus grandifolia	35	yes	FACU
3. Acer rubrum	25	no	FAC
4. Nyssa sylvatica	10	no	FAC
5.			
6.			
	140 = Total Cover		
50% of total cover: 70.0	20% of total cover: 28.0		

Sapling Stratum (Plot size: 10' R)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Shrub Stratum (Plot size: 10' R)			
1. Vaccinium corymbosum	20	yes	FACW
2. Fagus grandifolia	20	yes	FACU
3.			
4.			
5.			
6.			
	40 = Total Cover		
50% of total cover: 20.0	20% of total cover: 8.0		

Herb Stratum (Plot size: 10' R)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Woody Vine Stratum (Plot size: 10' R)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 25.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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 A-17/A-18

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 2/2	100					Organic	
2-4	10 YR 3/2	100					Loam	
4-12	2.5 Y 6/3	80					Clay Loam	
	2.5 Y 6/8	20						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ○ **No** ●

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 2/6/2019
Applicant/Owner: MDTA State: MD Sampling Point: WET A-18
Investigator(s): ET/KJH Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Toe of slope Local relief (concave, convex, none): Concave Slope (%): 1
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.441251 Long: -76.35691 Datum: WGS84
Soil Map Unit Name: KpA NWI classification: PFO1A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☑ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
Photos 1246-1248E
Consists of two separate areas. Southwest area extends beyond study area. Northeast area is enclosed.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches): 0.5
Water Table Present?	Yes ☑	No ☐	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches): 0

Wetland Hydrology Present? **Yes** ◉ **No** ○

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

Remarks:
Hydrology data collected during wettest season on record.

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

Sampling Point: WET A-18

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	75	yes	FAC
2.			
3.			
4.			
5.			
6.			
	75 = Total Cover		

50% of total cover: 37.5 20% of total cover: 15.0

Sapling Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Shrub Stratum (Plot size: 30')			
1. Viburnum dentatum	35	yes	FAC
2. Vaccinium corymbosum	15	yes	FACW
3. Ilex opaca	5	no	FACU
4.			
5.			
6.			
	55 = Total Cover		

50% of total cover: 27.5 20% of total cover: 11.0

Herb Stratum (Plot size:)			
1. Smilax rotundifolia	3	no	FAC
2. Liquidambar styraciflua	45	yes	FAC
3. Vaccinium corymbosum	5	no	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	53 = Total Cover		

50% of total cover: 26.5 20% of total cover: 10.6

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

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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.)

White oak and beech on edge of wetland

SOIL

Sampling Point: WET A-18

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 5/2	85	7.5YR 5/8	15	C	M	Silty Clay Loam	
6-9	10YR 6/3	75	7.5YR 5/8	25	C	M	Loam	
9-14	10YR 6/2	60	7.5YR 5/8	40	C	M	Loam	

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

Hydric Soil Indicators:

- ☐ 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks: Alpha alpha strips tested positive in upper 4”

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 2/19/2019
Applicant/Owner: MDTA State: MD Sampling Point: WET A-19
Investigator(s): ET/MRS Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 3
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.448641 Long: -76.323678 Datum: WGS84
Soil Map Unit Name: KrB NWI classification: PFO1A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
Photos 1505-1506 S.

Extends beyond study area.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches): 1
Water Table Present?	Yes ☑	No ☐	Depth (inches): 3
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches): 0

Wetland Hydrology Present? **Yes** ◉ **No** ○

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

Remarks:
Hydrology data collected during wettest season on record.

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

Sampling Point: WET A-19

Tree Stratum (Plot size: 20' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	50	yes	FAC
2. Quercus palustris	25	yes	FACW
3.			
4.			
5.			
6.			
	75 = Total Cover		

50% of total cover: 37.5 20% of total cover: 15.0

Sapling Stratum (Plot size: 20' R)			
1. Nyssa sylvatica	20	yes	FAC
2. Acer rubrum	10	yes	FAC
3.			
4.			
5.			
6.			
	30 = Total Cover		

50% of total cover: 15.0 20% of total cover: 6.0

Shrub Stratum (Plot size: 20' R)			
1. Lindera benzoin	30	yes	FAC
2. Rosa multiflora	10	yes	FACU
3.			
4.			
5.			
6.			
	40 = Total Cover		

50% of total cover: 20.0 20% of total cover: 8.0

Herb Stratum (Plot size: 20' R)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Woody Vine Stratum (Plot size: 20' R)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 83.3 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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: WET A-19

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/1	90	7.5YR 3/3	10	C	M	Loam	
4-7	10YR 4/2	80	7.5YR 4/4	20	C	M	Silt loam	
7-12	10YR 5/2	60	7.5YR 5/6	40	C	M	Silt loam	

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

Hydric Soil Indicators:

- ☐ 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 2/19/2019
Applicant/Owner: MDTA State: MD Sampling Point: UPL A-19
Investigator(s): ET/MRS Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 3
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.448462 Long: -76.324001 Datum: WGS84
Soil Map Unit Name: DcB NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ○ **No** ◉

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

Remarks:
Hydrology data collected during wettest season on record. Surface saturated after snow melt. No hydrology indicators present

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

Sampling Point: UPL A-19

Tree Stratum (Plot size: 30' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipifera	30	yes	FACU
2. Acer rubrum	35	yes	FAC
3.			
4.			
5.			
6.			
	65 = Total Cover		

50% of total cover: 32.5 20% of total cover: 13.0

Sapling Stratum (Plot size: 30' R)			
1. Liquidambar styraciflua	5	yes	FAC
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		

50% of total cover: 2.5 20% of total cover: 1.0

Shrub Stratum (Plot size: 30' R)			
1. Lindera benzoin	25	yes	FAC
2. Acer rubrum	5	no	FAC
3.			
4.			
5.			
6.			
	30 = Total Cover		

50% of total cover: 15.0 20% of total cover: 6.0

Herb Stratum (Plot size: 30' R)			
1. Allium cernuum	50	yes	FACU
2. Lindera benzoin	10	no	FAC
3. Microstegium vimineum	10	no	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	70 = Total Cover		

50% of total cover: 35.0 20% of total cover: 14.0

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

50% of total cover: 0.0 20% of total cover: 0.0

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: 60.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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 A-19

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/2	80	10YR 5/4	20	C	M	Loam	
2-10	10YR 5/3	100					Silt loam	
10-14	10YR 5/6	100					Silt loam	

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

Hydric Soil Indicators:

- ☐ 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 2/27/2019
Applicant/Owner: MDTA State: MD Sampling Point: WET A-20
Investigator(s): ET/MRS Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Toe of slope Local relief (concave, convex, none): Concave Slope (%): 2
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.437608 Long: -76.344511 Datum: WGS84
Soil Map Unit Name: RuD NWI classification: PEM5B
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
Toe of slope phragmites wetland. Significant deposition. Two small Salix nigra in wetland, but outside of plot. Photos 5143-5144 south.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ◉ **No** ○

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

Remarks:
Hydrology data collected during wettest season on record.

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

Sampling Point: WET A-20

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

50% of total cover: 0.0 20% of total cover: 0.0

Sapling Stratum (Plot size: 30' R)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Shrub Stratum (Plot size: 30' R)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Herb Stratum (Plot size: 30' R)			
1. Phragmites australis	80	yes	FACW
2. Ficaria verna	5	no	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	85 = Total Cover		

50% of total cover: 42.5 20% of total cover: 17.0

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

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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: WET A-20

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5YR 5/3	100					Sand	
2-8	7.5YR 4/2	80	10YR 5/3	20	C	M	Sandy loam	
8-14	10YR 4/4	60	7.5YR 5/1	40	D	M	Sandy loam	

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

Hydric Soil Indicators:

- ☐ 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 2/27/2019
Applicant/Owner: MDTA State: MD Sampling Point: UPL A-20
Investigator(s): ET/MRS Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 4
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.437429 Long: -76.344347 Datum: WGS84
Soil Map Unit Name: RuD NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ○ **No** ◉

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

Remarks:
Hydrology data collected during wettest season on record.

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

Sampling Point: UPL A-20

Tree Stratum (Plot size: 30' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Fagus grandifolia	40	yes	FACU
2. Quercus rubra	35	yes	FACU
3. Acer rubrum	10	no	FAC
4.			
5.			
6.			
	85 = Total Cover		
50% of total cover: 42.5	20% of total cover: 17.0		

Sapling Stratum (Plot size: 30' R)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Shrub Stratum (Plot size: 30' R)			
1. Acer rubrum	5	yes	FAC
2. Kalmia latifolia	5	yes	FACU
3.			
4.			
5.			
6.			
	10 = Total Cover		
50% of total cover: 5.0	20% of total cover: 2.0		

Herb Stratum (Plot size: 30' R)			
1. Hedera helix	2	no	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	2 = Total Cover		
50% of total cover: 1.0	20% of total cover: 0.4		

Woody Vine Stratum (Plot size: 30' R)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 25.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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 A-20

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR 3/1	100					Loam	Organic rich
4-14	10YR 5/4	100					Loam	Some fine sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ○ **No** ●

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 2/27/2019
Applicant/Owner: MDTA State: MD Sampling Point: WET A-21
Investigator(s): ET/MRS Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Closed depression Local relief (concave, convex, none): Concave Slope (%): 0
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.442523 Long: -76.362686 Datum: WGS84
Soil Map Unit Name: HcA NWI classification: PFO1B
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
Closed depression with water stained leaves. Conveys sheet flow to WUS 20A.

Photos 5150-5151West.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:
Hydrology data collected during wettest season on record.

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

Sampling Point: WET A-21

Tree Stratum (Plot size: 20' x 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	50	yes	FAC
2. Acer rubrum	30	yes	FAC
3.			
4.			
5.			
6.			
	80 = Total Cover		

50% of total cover: 40.0 20% of total cover: 16.0

Sapling Stratum (Plot size: 20' x 20')			
1. Ulmus rubra	5	yes	FAC
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		

50% of total cover: 2.5 20% of total cover: 1.0

Shrub Stratum (Plot size: 20' x 20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Herb Stratum (Plot size: 20' x 20')			
1. Lonicera japonica	3	yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	3 = Total Cover		

50% of total cover: 1.5 20% of total cover: 0.6

Woody Vine Stratum (Plot size: 20' x 20')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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: WET A-21

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	100					Loam	Roots present
4-8	10YR 4/2	70	7.5YR 4/6	30	C	M	Loam	
8-14	10YR 4/2	60	10YR 5/4	40	C	M	Loam	

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

Hydric Soil Indicators:

- ☐ 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 2/27/2019
Applicant/Owner: MDTA State: MD Sampling Point: UPL A-21
Investigator(s): ET/MRS Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Roadside ditch Local relief (concave, convex, none): Concave Slope (%): 2
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.44258 Long: -76.363254 Datum: WGS84
Soil Map Unit Name: AdB NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
Roadside ditch that drains to WET A-21

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches): 0.25
Water Table Present?	Yes ☑	No ☐	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches): 0

Wetland Hydrology Present? **Yes** ◉ **No** ○

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

Remarks:
Hydrology data collected during wettest season on record.

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

Sampling Point: UPL A-21

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

50% of total cover: 0.0 20% of total cover: 0.0

Sapling Stratum (Plot size: 5' R)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Shrub Stratum (Plot size: 5'R)			
1. Liquidambar styraciflua	35	yes	FAC
2.			
3.			
4.			
5.			
6.			
	35 = Total Cover		

50% of total cover: 17.5 20% of total cover: 7.0

Herb Stratum (Plot size: 5' R)			
1. Microstegium vimineum	25	yes	FAC
2. Lonicera japonica	10	yes	FACU
3. Liquidambar styraciflua	5	no	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	40 = Total Cover		

50% of total cover: 20.0 20% of total cover: 8.0

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

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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 A-21

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR 3/1	100					Loam	Organic rich
4-9	10YR 4/3	80	10YR 5/6	20	C	M	Loam	
9-14	10YR 4/4	60	7.5YR 4/6	40	C	M	Loam	

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

Hydric Soil Indicators:

- ☐ 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ○ **No** ●

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MD 152 Interchange City/County: Harford County Sampling Date: 2/14/2019
Applicant/Owner: MDTA State: MD Sampling Point: UPL-1
Investigator(s): ET/AGA Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Toe of slope Local relief (concave, convex, none): Concave Slope (%): 2
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.444733 Long: -76.333318 Datum: WGS84
Soil Map Unit Name: HcA NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
Depressional toe of slope area adjacent to Waters G. Hydrology and hydric soils observed, but vegetation is most dominantly FACU.

Photos 5125-5127

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:
Hydrology data collected during wettest season on record. Standing water observed with FACU vegetation volunteering.

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

Sampling Point: UPL-1

Tree Stratum (Plot size: 20)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	65	yes	FAC
2. Liriodendron tulipifera	20	yes	FACU
3.			
4.			
5.			
6.			
	85 = Total Cover		
50% of total cover: 42.5	20% of total cover: 17.0		

Sapling Stratum (Plot size: 20)			
1. Liriodendron tulipifera	35	yes	FACU
2.			
3.			
4.			
5.			
6.			
	35 = Total Cover		
50% of total cover: 17.5	20% of total cover: 7.0		

Shrub Stratum (Plot size: 20)			
1. Liriodendron tulipifera	10	yes	FACU
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		
50% of total cover: 5.0	20% of total cover: 2.0		

Herb Stratum (Plot size: 20)			
1. Fagus grandifolia	5	yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1.0		

Woody Vine Stratum (Plot size: 20)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 20.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators 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-1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 5/2	95	10YR 5/8	5	C	M	Clay loam	
6-8	10YR 5/2	90	2.5YR 4/6	10	C	M	Clay loam	
8-14	2.5Y 6/3	80	10YR 5/8	20	C	M	Sand loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: 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 Soils[3]:

- ☐ 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)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks: Redox not strong in upper 6”

Wetland Function-Value Evaluation Form

Total area of wetland 0.35ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Highway ROW Distance to nearest roadway or other development 100'

Dominant wetland systems present PFO1C Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? Mid

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET 12A

Latitude 39.44134 Longitude -76.36161

Prepared by: ET/SLY Date 12/12/2018

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5, 7, 9, 10, 13, 15	X	
Floodflow Alteration	Y	3, 5, 7, 9, 13, 14, 15	X	
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	2, 3, 9, 10, 13		
Nutrient Removal	Y	3, 10, 12, 13, 14		
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	5, 6, 7, 8, 9, 10, 13, 14	X	
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.42ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Highway ROW Distance to nearest roadway or other development 40'

Dominant wetland systems present PEM5B Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? Mid

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET 13A

Latitude 39.44118 Longitude -76.35833

Prepared by: ET/SLY Date 12/12/2018

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5		
Floodflow Alteration	Y	5,9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1,2,16	X	
Nutrient Removal	Y	3,4,8,9	X	
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.28ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest Distance to nearest roadway or other development 40'

Dominant wetland systems present PFO1E Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET 17A

Latitude 39.44264 Longitude -76.35332

Prepared by: ET/AGA Date 2/14/2019

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,7,10,13,15	X	
Floodflow Alteration	Y	2,5,6,7,8,9,10,13	X	
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	4,5,9,10		
Nutrient Removal	Y	7,13,14		
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	7, 8		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.08ac Human made? Y Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use Highway Distance to nearest roadway or other development 0'

Dominant wetland systems present PFO1H Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET 35A

Latitude 39.44243 Longitude -76.34940

Prepared by: ET/KJH Date 1/17/2019

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,7,9		
Floodflow Alteration	Y	2,3,6,9,13	X	
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	2,5,10		
Nutrient Removal	Y	2,3,4,5,10	X	
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.06ac Human made? Y Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use Highway Distance to nearest roadway or other development 0'

Dominant wetland systems present PFO1J Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET 36A

Latitude 39.44262 Longitude -76.34965

Prepared by: ET/KJH Date 1/17/2019

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,7,9		
Floodflow Alteration	Y	2,3,6,9,13	X	
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	2,5,10		
Nutrient Removal	Y	3,4,5,10	X	
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.02ac Human made? Y Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use Highway Distance to nearest roadway or other development 0'

Dominant wetland systems present PFO1J Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET 37A

Latitude 39.44244 Longitude -76.35012

Prepared by: ET/KJH Date 1/17/2019

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,7,9		
Floodflow Alteration	Y	2,3,6,9,13	X	
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	2,5,10		
Nutrient Removal	Y	3,4,5,10	X	
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.02ac Human made? N Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use Highway Distance to nearest roadway or other development 0'

Dominant wetland systems present PFO1A Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET 94A

Latitude 39.44310 Longitude -76.35000

Prepared by: ET/KJH Date 1/17/2019

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5		
Floodflow Alteration	Y	2,3,5,6,9	X	
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	2		
Nutrient Removal	Y	3,4,9		
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.05ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest Distance to nearest roadway or other development 0'

Dominant wetland systems present PEM1A Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET A-1

Latitude 39.4411 Longitude -76.3445

Prepared by: ET/KJH Date 1/17/2019

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	4,5,7,9	X	
Floodflow Alteration	Y	2,5,9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	9,10,13		
Nutrient Removal	Y	4,9		
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.01ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest Distance to nearest roadway or other development 165'

Dominant wetland systems present PFO1E Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET A-2

Latitude 39.4417 Longitude -76.3419

Prepared by: ET/KJH Date 10/30/2018

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,7,8,9,10,13	X	
Floodflow Alteration	Y	2,3,5,9,13	X	
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	4,9,10,13		
Nutrient Removal	Y	4,10		
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	5,7,8		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.59ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest Distance to nearest roadway or other development 130'

Dominant wetland systems present PFO1C Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 2 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET A-3

Latitude 39.4429 Longitude -76.3384

Prepared by: ET/KJH Date 10/30/2018

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5, 7, 9, 13, 15		
Floodflow Alteration	Y	2,3,5,6,7,8,9,10,13,14,18	X	
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	3, 5, 10, 12, 14, 15, 16	X	
Nutrient Removal	Y	3,4,5,7,8,9,10,11,12,13,14	X	
Production Export	Y	7, 10		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	7, 8, 10, 13		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.01ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest Distance to nearest roadway or other development 160'

Dominant wetland systems present PFO1A Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET A-4

Latitude 39.4434 Longitude -76.3370

Prepared by: ET/RL Date 11/14/2018

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,8		
Floodflow Alteration	Y	2,3,5,9	X	
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	4,9		
Nutrient Removal	Y	4,10		
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	5,7,8		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.16ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Farm, Forest Distance to nearest roadway or other development 0'

Dominant wetland systems present PEM1E Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET A-5

Latitude 39.4436 Longitude -76.33642

Prepared by: ET/RL Date 11/14/2018

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,7,9,13,15	X	
Floodflow Alteration	Y	2,5,7,9,13		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	2,4,9,10,13		
Nutrient Removal	Y	4,5,7,9,10		
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.03ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest Distance to nearest roadway or other development 85'

Dominant wetland systems present PFO1A Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? Mid

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET A-6

Latitude 39.44844 Longitude -76.32511

Prepared by: ET/RL Date 11/27/2018

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,8		
Floodflow Alteration	Y	3,5,9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	2,4,9		
Nutrient Removal	Y	4,7,10	X	
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	5,7,8		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.04ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest Distance to nearest roadway or other development 85'

Dominant wetland systems present PFO1A/PEM1A Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? Mid

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET A-7

Latitude 39.44928 Longitude -76.32236

Prepared by: ET/RL Date 11/27/2018

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,8		
Floodflow Alteration	Y	3,5,9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	2,4,9		
Nutrient Removal	Y	4,7,8,9,10	X	
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	5,7,8		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.02ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest Distance to nearest roadway or other development 0'

Dominant wetland systems present PFO1A Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? Mid

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET A-8

Latitude 39.44941 Longitude -76.32321

Prepared by: ET/RL Date 11/27/2018

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,8		
Floodflow Alteration	Y	5,6,9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	2,4,5,9	X	
Nutrient Removal	Y	3,4,7,10	X	
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	5,7,8		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.02ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest, Yard Distance to nearest roadway or other development 0'

Dominant wetland systems present PSS1E Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET A-9

Latitude 39.44321 Longitude -76.34194

Prepared by: ET/SJF Date 11/29/2018

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,7,10		
Floodflow Alteration	Y	2,3,6,7,10,13,15	X	
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	4,9,10,13		
Nutrient Removal	Y	4,10		
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	7,8		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.22ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest, Private Property Distance to nearest roadway or other development 0'

Dominant wetland systems present PFO1A/PSS1E Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET A-10

Latitude 39.44067 Longitude -76.35399

Prepared by: ET/SLY Date 12/11/2018

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,13,15		
Floodflow Alteration	Y	2,3,5,9,13,18	X	
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1,2,4,9		
Nutrient Removal	Y	4,7,8,9,10,11	X	
Production Export	Y	7, 10		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	7, 8, 13		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.33ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest Distance to nearest roadway or other development 150

Dominant wetland systems present PFO1C Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET A-11

Latitude 39.44093 Longitude -76.35553

Prepared by: ET/SLY Date 12/11/2018

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5, 7, 10, 13, 15		
Floodflow Alteration	Y	3, 5, 6, 7, 8, 9, 10, 13, 18	X	
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	3, 5, 10, 12, 14, 15, 16	X	
Nutrient Removal	Y	3,4,5,7,8,9,10,11,12,13,14	X	
Production Export	Y	7, 10, 14		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	7, 8, 10, 13		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.01ac Human made? N Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use Forest, Yard Distance to nearest roadway or other development 0'

Dominant wetland systems present PFO1A Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET A-12

Latitude 39.44078 Longitude -76.34848

Prepared by: ET/RL Date 12/18/2018

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,7,10,13	X	
Floodflow Alteration	Y	2,3,7,13,15	X	
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	N			
Nutrient Removal	N			
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.04ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? _____

Adjacent land use Forest Distance to nearest roadway or other development 40'

Dominant wetland systems present PFO1E Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET A-13

Latitude 39.44318 Longitude -76.34810

Prepared by: ET/KJH Date 12/18/2018

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N _____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,7,10,13,15	X	
Floodflow Alteration	Y	5,7,9,13		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	4,5,9,10		
Nutrient Removal	Y	7,13,14		
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	7, 8		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.21ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest Distance to nearest roadway or other development 85'

Dominant wetland systems present PFO1A Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET A-14

Latitude 39.44354 Longitude -76.34136

Prepared by: ET/KJH Date 1/4/2019

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,7,8,13		
Floodflow Alteration	Y	3,5,6,7,8,9,10,13,15,16	X	
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1,2,3,4,9,10,11,12	X	
Nutrient Removal	Y	3,4,7,10,13,14	X	
Production Export	Y	1,4,10,13		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	1,3,4,5,6,7,8,17		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.03ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest, Highway Distance to nearest roadway or other development 0'

Dominant wetland systems present PFO1E Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET A-15

Latitude 39.44370 Longitude -76.33991

Prepared by: ET/KJH Date 1/4/2019

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,7,9,13		
Floodflow Alteration	Y	2,3,5,9,13	X	
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	2,4,9,10,16	X	
Nutrient Removal	Y	4,7,8,10		
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	5,7,8		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.92ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest Distance to nearest roadway or other development 0'

Dominant wetland systems present PFO1E Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 2 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET A-16

Latitude 39.44141 Longitude -76.35347

Prepared by: ET/KJH Date 1/8/2019

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,7,8,13,15		
Floodflow Alteration	Y	2,3,5,6,7,8,9,10,13	X	
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1,2,5,10,12,14	X	
Nutrient Removal	Y	3,4,5,7,10,11	X	
Production Export	Y	10		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	7, 8, 10		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.07ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest Distance to nearest roadway or other development 65'

Dominant wetland systems present PFO1A Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET A-17

Latitude 39.44146 Longitude -76.35802

Prepared by: ET/KJH Date 1/4/2019

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,8		
Floodflow Alteration	Y	3,5,9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1,2,4,9		
Nutrient Removal	Y	3,4,7,10	X	
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	7,8		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.16ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest Distance to nearest roadway or other development 165'

Dominant wetland systems present PFO1A Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET A-18

Latitude 39.44125 Longitude -76.35691

Prepared by: ET/KJH Date 2/6/2019

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,8		
Floodflow Alteration	Y	3,5,9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1,2,4,9		
Nutrient Removal	Y	3,4,7,10	X	
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	5,7,8		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.12ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest Distance to nearest roadway or other development 120'

Dominant wetland systems present PFO1A Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? Mid

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET A-19

Latitude 39.44864 Longitude -76.32367

Prepared by: ET/MRS Date 2/19/2019

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,8		
Floodflow Alteration	Y	3,5,9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1,2,4,9		
Nutrient Removal	Y	3,4,7,10	X	
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	5,7,8		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.05ac Human made? N Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use Highway Distance to nearest roadway or other development 0'

Dominant wetland systems present PEM5B Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET A-20

Latitude 39.43760 Longitude -76.34451

Prepared by: ET/MRS Date 2/27/2019

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5		
Floodflow Alteration	Y	2,3,5,6,9	X	
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	2		
Nutrient Removal	Y	3,4,9		
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.05ac Human made? N Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use Forest Distance to nearest roadway or other development 10'

Dominant wetland systems present PFO1B Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET A-21

Latitude 39.44252 Longitude -76.36268

Prepared by: ET/MRS Date 2/28/2019

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,8,9		
Floodflow Alteration	Y	3,5,9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1,2,4		
Nutrient Removal	Y	3,4,7,10	X	
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.33ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Highway, Yard Distance to nearest roadway or other development 0'

Dominant wetland systems present PEM1E/PFO1E Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? Mid

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET B

Latitude 39.44168 Longitude -76.36055

Prepared by: ET/SLY Date 12/12/2018

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,7,9,13		
Floodflow Alteration	Y	3,5,7,9,15		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	2, 5,10,13,15	X	
Nutrient Removal	Y	3, 4,7, 8, 9, 10	X	
Production Export	Y	7, 8		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	7, 8, 9,		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.02ac Human made? N Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use Highway Distance to nearest roadway or other development 0'

Dominant wetland systems present PEM1E/PFO1E Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? Mid

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET C

Latitude 39.44178 Longitude -76.36129

Prepared by: ET/SLY Date 12/12/2018

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5		
Floodflow Alteration	Y	3,5,9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	2		
Nutrient Removal	Y	3, 4,7, 8, 9, 10	X	
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.03ac Human made? N Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use Highway Distance to nearest roadway or other development 0'

Dominant wetland systems present PFO1C Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? Mid

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET L1

Latitude 39.44175 Longitude -76.35891

Prepared by: ET/SLY Date 12/12/2018

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,8		
Floodflow Alteration	Y	3,5,9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1,2,4		
Nutrient Removal	Y	3, 4,7	X	
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.03ac Human made? N Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use Highway Distance to nearest roadway or other development 0'

Dominant wetland systems present PEM5B Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET L2

Latitude 39.44178 Longitude -76.35953

Prepared by: ET/MRS Date 2/27/2019

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5		
Floodflow Alteration	Y	2,3,5,6,9	X	
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	2		
Nutrient Removal	Y	3,4,9		
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.03ac Human made? N Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use Highway Distance to nearest roadway or other development 0'

Dominant wetland systems present PEM5B Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET N

Latitude 39.44164 Longitude -76.35586

Prepared by: ET/MRS Date 2/27/2019

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5		
Floodflow Alteration	Y	2,3,5,6,9	X	
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	2		
Nutrient Removal	Y	3,4,9		
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.01ac Human made? N Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use Highway Distance to nearest roadway or other development 0'

Dominant wetland systems present PFO1A Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? Mid

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET O

Latitude 39.44177 Longitude -76.36103

Prepared by: ET/SLY Date 12/12/2018

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5		
Floodflow Alteration	Y	3,5,9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	2		
Nutrient Removal	Y	3, 4,7, 8, 9, 10	X	
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.03ac Human made? N Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use Highway Distance to nearest roadway or other development 0'

Dominant wetland systems present PEM1A Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. Wetland A

Latitude 39.44128 Longitude -76.34679

Prepared by: ET Date 2/28/2019

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,7,9		
Floodflow Alteration	Y	2,3,6,9,13	X	
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	2,5,10		
Nutrient Removal	Y	3,4,10		
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.03 ac Human made? Y Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use Highway Distance to nearest roadway or other development 0'

Dominant wetland systems present PEM1H Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. Wetland C

Latitude 39.44163 Longitude -76.34514

Prepared by: ET Date 2/28/2019

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,7		
Floodflow Alteration	Y	2,3,6,9,13	X	
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	2,3,5,10		
Nutrient Removal	Y	2,3,4,5,10	X	
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.15ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest Distance to nearest roadway or other development 40'

Dominant wetland systems present PFO/PEM1E Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. Wetland H

Latitude 39.44442 Longitude -76.33560

Prepared by: ET/RL Date 11/28/2018

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,7,10,13,15	X	
Floodflow Alteration	Y	2,5,6,7,8,9,10,13	X	
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	4,5,9,10		
Nutrient Removal	Y	7,13,14		
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	7, 8		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.05ac Human made? N Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use Forest, Highway Distance to nearest roadway or other development 40'

Dominant wetland systems present PFO1A Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. Wetland KK

Latitude 39.44506 Longitude -76.33618

Prepared by: ET Date 2/28/2019

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field_____

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,8,9		
Floodflow Alteration	Y	3,5,9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1,2,4		
Nutrient Removal	Y	3,4,7,10	X	
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.02ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest Distance to nearest roadway or other development 50'

Dominant wetland systems present PFO1E Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. Wetland L

Latitude 39.44505 Longitude -76.33384

Prepared by: ET/RL Date 11/28/2018

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,8	X	
Floodflow Alteration	Y	3,5,9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	4		
Nutrient Removal	Y	7		
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.05ac Human made? Y Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use Highway Distance to nearest roadway or other development 0'

Dominant wetland systems present PEM1B Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. Wetland LL

Latitude 39.44448 Longitude -76.33730

Prepared by: ET Date 2/28/2019

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field_____

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,7,9		
Floodflow Alteration	Y	2,3,6,9,13	X	
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	2,5,10		
Nutrient Removal	Y	3,4,10		
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.06ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest, Highway Distance to nearest roadway or other development 40'

Dominant wetland systems present PFO1B Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. Wetland MM

Latitude 39.44434 Longitude -76.33780

Prepared by: ET Date 2/28/2019

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,8,9		
Floodflow Alteration	Y	3,5,9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1,2,4		
Nutrient Removal	Y	3,4,7,10	X	
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.01ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Highway, Forest Distance to nearest roadway or other development 20'

Dominant wetland systems present PFO1D Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. Wetland SS

Latitude 39.44248 Longitude -76.34480

Prepared by: ET Date 2/28/2019

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,7,8,9		
Floodflow Alteration	Y	2,3,6,9,10,13,16	X	
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1,2,3,5,10	X	
Nutrient Removal	Y	3,4,5,10		
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.10ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest Distance to nearest roadway or other development 10'

Dominant wetland systems present PFO1D Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. Wetland UU

Latitude 39.44268 Longitude -76.34389

Prepared by: ET Date 2/28/2019

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5, 7, 10, 13, 15	X	
Floodflow Alteration	Y	3, 5, 6, 7, 8, 9, 10, 13, 18	X	
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	3, 5, 10, 12, 14, 15, 16	X	
Nutrient Removal	Y	3,4,5,7,8,9,10,11,12,13,14	X	
Production Export	Y	7, 10, 14		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	7, 8, 10, 13		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.02ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Highway, Forest Distance to nearest roadway or other development 20'

Dominant wetland systems present PFO1A Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. Wetland VV

Latitude 39.44308 Longitude -76.34167

Prepared by: ET Date 2/28/2019

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,7		
Floodflow Alteration	Y	2,3,6,9,10,13	X	
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1,2,10		
Nutrient Removal	Y	3,4		
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: MD 152 Interchange		**Feature ID:** WUS A-1	**Stream Order:**
Date: 10/30/2018	**State:** MD	**Photos:** 398-399	
Crew: ET/KJH	**County:** Harford	**Last Flag Number:** WUS 8A&B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Standing water, receives surface hydrology from WET A-2.			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: Out of study area	Downstream: Waters E	Adjacent/Abutting: WET A-2

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 2-4'	☑ Silts	☑ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 3"	☑ Cobbles	☑ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Minor erosion	Side slope: ☐ ≥1:1 ☐ 2:1 ☑ 3:1 ☐ ≤4:1			
Notes: Originates as headcut at ROW fence. Receives stormwater run off from adjacent housing development.					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php										Month: Sept	Year: 2018		
● No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	●	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet			

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
☑ Yes	☐ Clear, natural line impressed on the bank	☑ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	☐ Water staining	☑ Scour
	☐ Shelving	☑ Presence of flood litter/debris	☐ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☑ Leaf litter disturbed	☑ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: MD 152 Interchange		**Feature ID:** WUS A-2	**Stream Order:**
Date: 11/14/2018	**State:** MD	**Photos:** 624-625	
Crew: ET/RL	**County:** Harford	**Last Flag Number:** WUS A-2-5A&B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	● RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Well defined bed and banks, ample base flow during delineation			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: Outside study area	Downstream: Waters G	Adjacent/Abutting: WET A-3, WUS A-3

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 4'	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 1-6"	☐ Cobbles	✓ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		
☐ Other:	Moderate erosion	Side slope: ✓ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			LB: Forest
Notes: Incised and headcut has formed					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php														Month: October	Year: 2018
● No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	●	○			
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6			
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet					

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
✓ Yes	☐ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	☐ Water staining	✓ Scour
	✓ Shelving	☐ Presence of flood litter/debris	✓ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	✓ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☐ Leaf litter disturbed	☐ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: MD 152 Interchange		**Feature ID:** WUS A-3	**Stream Order:**
Date: 11/14/2018	**State:** MD	**Photos:** 626-627	
Crew: ET/RL	**County:** Harford	**Last Flag Number:** WUS A-3-8A&B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	● RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Ample baseflow observed			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: Outside of Study Area	Downstream: Waters G	Adjacent/Abutting: WUS A-2

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 3'	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 6"	✓ Cobbles	✓ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Major Erosion	Side slope: ✓ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: Nearly vertical banks					

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php										Month: October	Year: 2018	
●	No rain	○	0-0.5	○	○	○	○	○	○	○	○	○	○	○	●	○
○	Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○	Heavy Rain	●	>1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet		

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks		Ordinary High Water Mark					
✓	Yes	☐	Clear, natural line impressed on the bank	☐	Sediment deposition	☐	Sediment sorting
☐	No	☐	Changes in the character of soil	☐	Water staining	✓	Scour
		☐	Shelving	☐	Presence of flood litter/debris	✓	Observed/predicted flow events
		✓	Vegetation matted down, bent, or absent	✓	Destruction of terrestrial veg.	☐	Abrupt change in plant community
		✓	Leaf litter disturbed	✓	Presence of wrack line	☐	Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line		Mean High Water Mark indicated by:		Chemical Characteristics	
☐	Oil or scum line along shore objects	☐	Survey to available datum	☐	Water is clear
☐	Fine shell or debris deposits (foreshore)	☐	Physical markings	☐	Water is discolored
☐	Physical markings/characteristics	☐	Vegetation lines/changes in types	☐	Oily film
☐	Tidal gauges			☐	Other:
Notes:					

Waters of the U.S. Data Sheet

Project: MD 152 Interchange		**Feature ID:** WUS A-4	**Stream Order:**
Date: 11/14/2018	**State:** MD	**Photos:** 628-629	
Crew: ET/RL	**County:** Harford	**Last Flag Number:** WUS A-4-7A&B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	● RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Well defined channel, ample base flow			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: Outside study area	Downstream: Waters G	Adjacent/Abutting:

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 3	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 1-12"	☐ Cobbles	✓ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		
☐ Other:	Moderate erosion	Side slope: ✓ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			LB: Forest
Notes:					

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php										Month: October	Year: 2018	
●	No rain	○	0-0.5	○	○	○	○	○	○	○	○	○	○	○	●	○
○	Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○	Heavy Rain	●	>1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet		

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks		Ordinary High Water Mark					
✓	Yes	☐	Clear, natural line impressed on the bank	☐	Sediment deposition	☐	Sediment sorting
☐	No	☐	Changes in the character of soil	☐	Water staining	✓	Scour
		✓	Shelving	☐	Presence of flood litter/debris	✓	Observed/predicted flow events
		✓	Vegetation matted down, bent, or absent	✓	Destruction of terrestrial veg.	☐	Abrupt change in plant community
		☐	Leaf litter disturbed	☐	Presence of wrack line	☐	Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line		Mean High Water Mark indicated by:		Chemical Characteristics	
☐	Oil or scum line along shore objects	☐	Survey to available datum	☐	Water is clear
☐	Fine shell or debris deposits (foreshore)	☐	Physical markings	☐	Water is discolored
☐	Physical markings/characteristics	☐	Vegetation lines/changes in types	☐	Oily film
☐	Tidal gauges			☐	Other:
Notes:					

Waters of the U.S. Data Sheet

Project: MD 152 Interchange		**Feature ID:** WUS A-5	**Stream Order:**
Date: 11/14/2018	**State:** MD	**Photos:** 632-633	
Crew: ET/RL	**County:** Harford	**Last Flag Number:** WUS A-5-4	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing during delineation but likely dries up in summer			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: Outside study area	Downstream: Waters G	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 1-3'	✓ Silts	✓ Sands	☐ Muck	RB: Forest and pasture
☐ Artificial (man-made)	Depth: 1-6"	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability: Minor erosion	☐ Bedrock	☐ Concrete		LB: Forest and pasture
☐ Other:		Side slope: ✓ ≥1:1 ✓ 2:1 ✓ 3:1 ✓ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php														Month: October	Year: 2018
● No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	○	●	○		
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6			
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet					

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
✓ Yes	☐ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	☐ Water staining	☐ Scour
	☐ Shelving	☐ Presence of flood litter/debris	✓ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	✓ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☐ Leaf litter disturbed	☐ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: MD 152 Interchange		**Feature ID:** WUS A-6	**Stream Order:**
Date: 11/14/2018	**State:** MD	**Photos:** 636-637	
Crew: ET/RL	**County:** Harford	**Last Flag Number:** WUS A-6-3	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			◉ Non-RPW with abutting wetland Wet A-5
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Poorly defined channel, minimal flow. Likely significant flow from wetland after storm events			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: WET A-5	Downstream: Waters G	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 2'	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 1"	☐ Cobbles	✓ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		
☐ Other:	Stable	Side slope: ☐ ≥1:1 ✓ 2:1 ✓ 3:1 ☐ ≤4:1			LB: Forest
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php												Month: October	Year: 2018
◉ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	◉	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	◉ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet			

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
✓ Yes	☐ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	☐ Water staining	✓ Scour
	☐ Shelving	☐ Presence of flood litter/debris	✓ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	✓ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☐ Leaf litter disturbed	☐ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: MD 152 Interchange		**Feature ID:** WUS A-7	**Stream Order:**
Date: 11/14/2018	**State:** MD	**Photos:** 638-639	
Crew: ET/RL	**County:** Harford	**Last Flag Number:** WUS A-7-6	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			◉ Non-RPW with abutting wetland Wet A-5
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Poorly defined channel, minimal flow. Likely significant flow from wetland after storm events			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: WET A-5	Downstream: Waters G	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 3'	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 0-1"	☐ Cobbles	✓ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		
☐ Other:	Stable	Side slope: ☐ ≥1:1 ✓ 2:1 ✓ 3:1 ☐ ≤4:1			LB: Forest
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php												Month: October	Year: 2018
◉ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	◉	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	◉ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet			

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
✓ Yes	☐ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	☐ Water staining	✓ Scour
	☐ Shelving	☐ Presence of flood litter/debris	✓ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	✓ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☐ Leaf litter disturbed	☐ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: MD 152 Interchange		**Feature ID:** WUS A-8	**Stream Order:**
Date: 11/16/2018	**State:** MD	**Photos:** 4547-4548	
Crew: ET/RL	**County:** Harford	**Last Flag Number:** WUS A-8-2	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Head cut and well formed channel			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: Wetland H	Downstream: Waters G	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 3'	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 1-6"	✓ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		
☐ Other:	Moderately stable	Side slope: ☐ ≥1:1 ✓ 2:1 ✓ 3:1 ☐ ≤4:1			LB: Forest
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php												Month: October	Year: 2018
● No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	●	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet			

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
✓ Yes	☐ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	☐ Water staining	✓ Scour
	☐ Shelving	☐ Presence of flood litter/debris	✓ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	✓ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☐ Leaf litter disturbed	☐ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: MD 152 Interchange		**Feature ID:** WUS A-9	**Stream Order:**
Date: 11/16/2018	**State:** MD	**Photos:** 4549-4552	
Crew: ET/RL	**County:** Harford	**Last Flag Number:** WUS A-9-2a/b	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing during visit, channel well defined at downstream extent			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: Waterline Pressure Vault	Downstream: Waters G	Adjacent/Abutting: Wetland H

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 4'	✓ Silts	✓ Sands	✓ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 3"	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability: Stable	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ✓ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php												Month: October	Year: 2018
● No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	●	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet			

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
✓ Yes	☐ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	☐ Water staining	☐ Scour
	☐ Shelving	☐ Presence of flood litter/debris	✓ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	✓ Destruction of terrestrial veg.	✓ Abrupt change in plant community
	☐ Leaf litter disturbed	☐ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: MD 152 Interchange		**Feature ID:** WUS A-10	**Stream Order:**
Date: 3/18/2019	**State:** MD	**Photos:** WUS A-10 U, WUS A-10 D	
Crew: ET	**County:** Harford	**Last Flag Number:** Not flagged	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Baseflow observed. Regulatory agencies suggested intermittent classification.			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: WET A-16	Downstream: WUS 25A	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 4'	☑ Silts	☐ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 4"	☐ Cobbles	☐ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Mostly stable	Side slope: ☐ ≥1:1 ☑ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: Previously delineated as WET M. Occurs within old ditch					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php												Month: February	Year: 2019
● No rain	● 0-0.5	○	○	○	○	○	○	○	○	○	○	○	○	○	●
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet			

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
☑ Yes	☐ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	☐ Water staining	☐ Scour
	☐ Shelving	☐ Presence of flood litter/debris	☑ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☐ Leaf litter disturbed	☐ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: MD 152 Interchange		**Feature ID:** WUS A-11	**Stream Order:** 1
Date: 11/29/2018	**State:** MD	**Photos:** 0670-0672	
Crew: ET/SJF	**County:** Harford	**Last Flag Number:** WUS A-11-4	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing during field visit after rain, groundwater fed from pipe			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: Groundwater seep	Downstream: Waters G	Adjacent/Abutting: Wet A-9

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 1-3'	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 2"	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		
☐ Other:	Moderate erosion	Side slope: ☐ ≥1:1 ✓ 2:1 ☐ 3:1 ☐ ≤4:1			LB: Forest
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php										Month: October	Year: 2018		
● No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	●	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet			

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
✓ Yes	☐ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	☐ Water staining	✓ Scour
	☐ Shelving	☐ Presence of flood litter/debris	✓ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☐ Leaf litter disturbed	✓ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: MD 152 Interchange		**Feature ID:** WUS A-12	**Stream Order:** 1
Date: 11/29/2018	**State:** MD	**Photos:** 0673-0674	
Crew: ET/SJF	**County:** Harford	**Last Flag Number:** WUS A-12-3	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			◉ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing during field visit after rain. Receives surface hydrology from WET A-10.			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: WET A-10	Downstream: WUS 25A	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 1'	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 2"	☐ Cobbles	✓ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		
☐ Other:	Moderate erosion	Side slope: ✓ ≥1:1	✓ 2:1	☐ 3:1 ☐ ≤4:1	LB: Forest
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php										Month: October	Year: 2018	
◉ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	◉	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	◉ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet		

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
✓ Yes	☐ Clear, natural line impressed on the bank	☐ Sediment deposition	✓ Sediment sorting
☐ No	☐ Changes in the character of soil	☐ Water staining	☐ Scour
	☐ Shelving	☐ Presence of flood litter/debris	✓ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☐ Leaf litter disturbed	☐ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: MD 152 Interchange		**Feature ID:** WUS A-13	**Stream Order:**
Date: 12/18/2018	**State:** MD	**Photos:** 772-U, 773-D	
Crew: ET/RL	**County:** Harford	**Last Flag Number:** WUS A-13-7	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Baseflow during site visit after rain event. More flow than adjacent ditches.			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: WET A-12	Downstream: Culvert	Adjacent/Abutting: NA

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 2-5'	☑ Silts	☑ Sands	☐ Muck	RB: Forest
☑ Artificial (man-made)	Depth: 1-3"	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☑ Concrete		LB: Roadside
☐ Other:	Stable	Side slope: ☐ ≥1:1 ☐ 2:1 ☑ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php														Month: November	Year: 2018
● No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	●	○			
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6			
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet					

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
☑ Yes	☐ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	☑ Water staining	☐ Scour
	☐ Shelving	☐ Presence of flood litter/debris	☑ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☑ Leaf litter disturbed	☐ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: MD 152 Interchange		**Feature ID:** WUS A-14	**Stream Order:**
Date: 12/18/2018	**State:** MD	**Photos:** 778-U, 779-D	
Crew: ET/RL	**County:** Harford	**Last Flag Number:** WUS A-14-3	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Baseflow during site visit. Emerges from groundwater seep.			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: Groundwater seep	Downstream: WUS 25B	Adjacent/Abutting: NA

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 3'	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 1"	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		
☐ Other:	Stable	Side slope: ☐ ≥1:1 ☐ 2:1 ☐ 3:1 ✓ ≤4:1			LB: Forest
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													
		Month: November										Year: 2018			
● No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	●	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet			

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
✓ Yes	☐ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	✓ Water staining	☐ Scour
	☐ Shelving	☐ Presence of flood litter/debris	✓ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	✓ Leaf litter disturbed	☐ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: MD 152 Interchange		**Feature ID:** WUS A-15	**Stream Order:**
Date: 1/4/2019	**State:** MD	**Photos:** 4896U-4897D	
Crew: ET/KJH	**County:** Harford	**Last Flag Number:** WUS A-15-7A&B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Standing water in channel, receives groundwater from wetland			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: WET A-14	Downstream: Waters G	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 2-10'	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 3"	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		
☐ Other:	Minor erosion	Side slope: ☐ ≥1:1 ☐ 2:1 ☐ 3:1 ✓ ≤4:1			LB: Forest
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php														Month: November	Year: 2018
● No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	●	○			
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6			
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet					

Non-tidal tributary has: (*check all that apply; include photos for each & list photo #)*

Bed and Banks	Ordinary High Water Mark		
✓ Yes	☐ Clear, natural line impressed on the bank	✓ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	☐ Water staining	✓ Scour
	☐ Shelving	✓ Presence of flood litter/debris	✓ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	✓ Leaf litter disturbed	✓ Presence of wrack line	☐ Other:

Tidal tributary has: (*check all that apply; include photos for each & list photo #)*

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: MD 152 Interchange		**Feature ID:** WUS A-16	**Stream Order:**
Date: 1/4/2019	**State:** MD	**Photos:** 4898D, 4899U	
Crew: ET/KJH	**County:** Harford	**Last Flag Number:** WUS A-16-4A&B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	◉ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Shallow standing water, 1.6" of rain the week prior			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: Outside study area	Downstream: Waters G	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 2-4'	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 3"	☐ Cobbles	✓ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		
☐ Other:	Minor erosion	Side slope: ☐ ≥1:1 ☐ 2:1 ☐ 3:1 ✓ ≤4:1			LB: Forest
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php												Month: November	Year: 2018
◉ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	◉	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	◉ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet			

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
✓ Yes	☐ Clear, natural line impressed on the bank	✓ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	☐ Water staining	✓ Scour
	☐ Shelving	✓ Presence of flood litter/debris	✓ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	✓ Leaf litter disturbed	✓ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: MD 152 Interchange		**Feature ID:** WUS A-17	**Stream Order:**
Date: 1/8/2019	**State:** MD	**Photos:** 4902U & 4903D	
Crew: ET/KJH	**County:** Harford	**Last Flag Number:** WUS A-17-3	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing during site visit			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: None	Downstream: WET A-16	Adjacent/Abutting: WET A-16

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 1-4'	☑ Silts	☑ Sands	☐ Muck	RB: Scrub shrub & grass
☐ Artificial (man-made)	Depth: 1-5"	☐ Cobbles	☑ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Minor erosion	Side slope: ☑ ≥1:1 ☑ 2:1 ☐ 3:1 ☑ ≤4:1			
Notes: Flagged at headcut.					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php														Month: November	Year: 2018
● No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	●	○			
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6			
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet					

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
☑ Yes	☐ Clear, natural line impressed on the bank	☑ Sediment deposition	☑ Sediment sorting
☐ No	☐ Changes in the character of soil	☐ Water staining	☑ Scour
	☐ Shelving	☑ Presence of flood litter/debris	☐ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☑ Leaf litter disturbed	☑ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: MD 152 Interchange		**Feature ID:** WUS A-18	**Stream Order:**
Date: 1/8/2019	**State:** MD	**Photos:** 4908U-4909D	
Crew: ET/KJH	**County:** Harford	**Last Flag Number:** WUS A-18-15A&B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing during site visit. Well defined, incised channel.			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: Outside of study area	Downstream: WET A-16	Adjacent/Abutting: WET A-16, WUS A-19

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 3-4'	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 2-6"	☐ Cobbles	✓ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Moderate erosion	Side slope: ✓ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php														Month: November	Year: 2018
● No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	●	○			
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6			
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet					

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark			
✓ Yes	☐ Clear, natural line impressed on the bank	✓ Sediment deposition	☐ Sediment sorting	
☐ No	☐ Changes in the character of soil	☐ Water staining	✓ Scour	
	☐ Shelving	✓ Presence of flood litter/debris	☐ Observed/predicted flow events	
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community	
	✓ Leaf litter disturbed	✓ Presence of wrack line	☐ Other:	

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: MD 152 Interchange		**Feature ID:** WUS A-19	**Stream Order:**
Date: 1/8/2019	**State:** MD	**Photos:** 4910U, 4911D	
Crew: ET/KJH	**County:** Harford	**Last Flag Number:** WUS A-19-3A&B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Shallow flows, drains wetland			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: WET A-16	Downstream: WUS A-18	Adjacent/Abutting: WET A-16

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 1-3'	☑ Silts	☐ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 1-2"	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		
☐ Other:	Stable	Side slope: ☑ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			LB: Forest
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php														Month: November	Year: 2018
● No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	●	○			
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6			
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet					

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
☑ Yes	☐ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	☐ Water staining	☑ Scour
	☐ Shelving	☐ Presence of flood litter/debris	☐ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☑ Leaf litter disturbed	☐ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: MD 152 Interchange		**Feature ID:** WUS A-20	**Stream Order:**
Date: 1/8/2019	**State:** MD	**Photos:** 4915U & 4916D	
Crew: ET/KJH	**County:** Harford	**Last Flag Number:** WUS A-20 6	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing during site visit, iron film and deposits in water			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: None	Downstream: WUS 23A	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 1-3'	☑ Silts	☐ Sands	☑ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 1-3"	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		
☐ Other:	Stable	Side slope: ☑ ≥1:1 ☐ 2:1 ☐ 3:1 ☑ ≤4:1			LB: Forest
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php														Month: November	Year: 2018
● No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	●	○			
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6			
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet					

Non-tidal tributary has: (*check all that apply; include photos for each & list photo #)*

Bed and Banks	Ordinary High Water Mark		
☑ Yes	☐ Clear, natural line impressed on the bank	☑ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	☐ Water staining	☑ Scour
	☐ Shelving	☑ Presence of flood litter/debris	☐ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☑ Leaf litter disturbed	☑ Presence of wrack line	☐ Other:

Tidal tributary has: (*check all that apply; include photos for each & list photo #)*

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: MD 152 Interchange		**Feature ID:** WUS A-21	**Stream Order:**
Date: 1/17/2019	**State:** MD	**Photos:** 4983U, 4984D	
Crew: ET/KJH	**County:** Harford	**Last Flag Number:** WUS A-21-3A&B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Shallow flows with iron sheen and flocculate. Drains wetland. Concrete channel.			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: WET 94A (US of Culvert)	Downstream: Waters QQ (DS of Culvert)	Adjacent/Abutting: Wetland 35A & 36A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 4'	☑ Silts	☐ Sands	☐ Muck	RB: Forest
☑ Artificial (man-made)	Depth: 1"	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☑ Concrete		
☐ Other:	Stable	Side slope: ☐ ≥1:1 ☑ 2:1 ☐ 3:1 ☐ ≤4:1			LB: Forest
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php												Month: November	Year: 2018
● No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	●	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet			

Non-tidal tributary has: (*check all that apply; include photos for each & list photo #)*

Bed and Banks	Ordinary High Water Mark		
☑ Yes	☑ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	☑ Water staining	☐ Scour
	☐ Shelving	☐ Presence of flood litter/debris	☑ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☐ Leaf litter disturbed	☐ Presence of wrack line	☐ Other:

Tidal tributary has: (*check all that apply; include photos for each & list photo #)*

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: MD 152 Interchange		**Feature ID:** WUS A-22	**Stream Order:**
Date: 1/17/2019	**State:** MD	**Photos:** 4995U, 4996D	
Crew: ET/KJH	**County:** Harford	**Last Flag Number:** WUS A-22-4A&B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing during site visit. Iron flocculate present.			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: WET A-13	Downstream: WUS 25B	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 3-4'	✓ Silts	✓ Sands	☐ Muck	RB: Forest
✓ Artificial (man-made)	Depth: 1-5"	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	✓ Concrete		LB: Forest
☐ Other:	Stable	Side slope: ☐ ≥1:1 ✓ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php														Month: November	Year: 2018
● No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	●	○			
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6			
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet					

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
✓ Yes	✓ Clear, natural line impressed on the bank	✓ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	✓ Water staining	✓ Scour
	✓ Shelving	✓ Presence of flood litter/debris	✓ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	✓ Leaf litter disturbed	✓ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: MD 152 Interchange		**Feature ID:** WUS A-23	**Stream Order:**
Date: 2/6/2019	**State:** MD	**Photos:** 1249D, 1250U	
Crew: ET/KJH	**County:** Harford	**Last Flag Number:** WUS A-23-8	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Standing water, drains a wetland, hydric soils			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: WET B	Downstream: Outside study area	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 1-4'	✓ Silts	☐ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 1-4"	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		
☐ Other:	Stable	Side slope: ☐ ≥1:1 ☐ 2:1 ☐ 3:1 ✓ ≤4:1			LB: Lawn
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php														Month: December	Year: 2018
● No rain	● 0-0.5	○	○	○	○	○	○	○	○	○	○	○	●	○			
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6			
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet					

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
✓ Yes	☐ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	✓ Water staining	✓ Scour
	☐ Shelving	✓ Presence of flood litter/debris	☐ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	✓ Abrupt change in plant community
	✓ Leaf litter disturbed	✓ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: MD 152 Interchange		**Feature ID:** WUS A-24	**Stream Order:**
Date: 2/6/2019	**State:** MD	**Photos:** 1254U, 1255D	
Crew: ET/KJH	**County:** Harford	**Last Flag Number:** WUS A-24-6	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Standing water, drains a stormwater pond			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: Stormwater pond (outside study area)	Downstream: WET A-3	Adjacent/Abutting: WET A-3

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 2-3'	☑ Silts	☐ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 1-5"	☐ Cobbles	☐ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Minor erosion	Side slope: ☑ ≥1:1 ☐ 2:1 ☐ 3:1 ☑ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													
		Month: December										Year: 2018			
● No rain	● 0-0.5	○	○	○	○	○	○	○	○	○	○	○	●	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet			

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
☑ Yes	☐ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	☐ Water staining	☑ Scour
	☐ Shelving	☑ Presence of flood litter/debris	☐ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☑ Leaf litter disturbed	☐ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: MD 152 Interchange		**Feature ID:** WUS A-25	**Stream Order:**
Date: 2/27/2019	**State:** MD	**Photos:** 5140 D, 5142 U	
Crew: ET/MRS	**County:** Harford	**Last Flag Number:** WUS A-25-4	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Baseflow observed			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: Out of study area	Downstream: Out of study area	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 2-3'	☑ Silts	☑ Sands	☐ Muck	RB: Forest
☑ Artificial (man-made)	Depth: 3"	☑ Cobbles	☑ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☑ Concrete		LB: Forest
☐ Other:	Minor erosion	Side slope: ☐ ≥1:1 ☐ 2:1 ☐ 3:1 ☑ ≤4:1			
Notes: Roadside ditch with mostly natural substrate. Flows into culvert under MD 152 to SWM pond					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php												Month: January	Year: 2019
● No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	○	○	●
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet			

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
☑ Yes	☑ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	☑ Water staining	☑ Scour
	☐ Shelving	☑ Presence of flood litter/debris	☑ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☑ Leaf litter disturbed	☑ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Stream Datasheet

Project: MD 152 Interchange **Date:** 11/2/18 **Stream ID:** WUS A-26 (Formerly WUS B-1)

Staff: SE/IM **Flow Type:** Perennial ☐ Intermittent ☐ Ephemeral ☒

Flow Direction: South **Drains Into:** Culvert under I-95

Fed By: Precipitation

Bank Height: 6.0" **Water Depth:** 1.5" **Width:** 3.0'

Channel Gradient (%): 1 **Bank Stability:** Stable

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

Mesohabitat: % Run: 60 % Riffle: 40 % Pool: _____

Substrate:

Cobble	☐	Gravel	☐	Sand	☐	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

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

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Stream is culverted under I-95 and likely discharges into a downstream WUS.

Other Comments: This feature was previously delineated by SEI as WUS B-1 but was changed to WUS A-26 since it is located within the MD 152 Interchange study area.

Stream Datasheet

Project: MD 152 Interchange **Date:** 11/2/18 **Stream ID:** WUS A-27 (Formerly WUS B-2)

Staff: SE/IM **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: South **Drains Into:** Drop culvert under I-95

Fed By: Precipitation/Groundwater

Bank Height: 6.0" **Water Depth:** 1.0" **Width:** 1.0'

Channel Gradient (%): 1 **Bank Stability:** Stable

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

Mesohabitat: % Run: 100 % Riffle: _____ % Pool: _____

Substrate:

Cobble	☐	Gravel	☐	Sand	☐	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

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

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Stream is culverted under I-95 and likely discharges into a downstream WUS.

Other Comments: Orange floc is present in the stream, indicating it most likely receives groundwater. This feature was previously delineated by SEI as WUS B-2 but was changed to WUS A-27 since it is located within the MD 152 Interchange study area.

Waters of the U.S. Data Sheet

Project: MD 152 Interchange		**Feature ID:** WUS 13A-b	**Stream Order:**
Date: 12/12/2018	**State:** MD	**Photos:** 741U, 742D	
Crew: ET/SLY	**County:** Harford	**Last Flag Number:**	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			◉ Non-RPW with abutting wetland WET 13A
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Stormwater outfall from median inlet			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: None	Downstream: WET 13A	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 1'	☑ Silts	☑ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 3"	☐ Cobbles	☐ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Minor erosion	Side slope: ☐ ≥1:1 ☐ 2:1 ☐ 3:1 ☑ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php										Month: October	Year: 2018	
◉ No rain	◉ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	◉	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet		

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
☑ Yes	☐ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	☑ Water staining	☐ Scour
	☐ Shelving	☑ Presence of flood litter/debris	☐ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☐ Leaf litter disturbed	☐ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: MD 152 Interchange		**Feature ID:** WUS 20A	**Stream Order:**
Date: 12/12/2018	**State:** MD	**Photos:** 744U, 745D	
Crew: ET/SLY	**County:** Harford	**Last Flag Number:**	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	● RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Ample baseflow observed			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: Outside study area	Downstream: Outside study area	Adjacent/Abutting: WUS 21A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 6-10'	✓ Silts	✓ Sands	☐ Muck	RB: Forested
☐ Artificial (man-made)	Depth: 6-12"	✓ Cobbles	✓ Gravel	✓ Other:	
✓ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete	Riprap	
☐ Other:	Highly eroded	Side slope: ✓ ≥1:1 ✓ 2:1 ☐ 3:1 ☐ ≤4:1			LB: Forested
Notes: Flows south outside study area					

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php										Month: October	Year: 2018	
●	No rain	●	0-0.5	○	○	○	○	○	○	○	○	○	○	○	●	○
○	Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○	Heavy Rain	○	>1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet		

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks		Ordinary High Water Mark					
✓	Yes	✓	Clear, natural line impressed on the bank	✓	Sediment deposition	☐	Sediment sorting
☐	No	☐	Changes in the character of soil	✓	Water staining	✓	Scour
		☐	Shelving	✓	Presence of flood litter/debris	✓	Observed/predicted flow events
		☐	Vegetation matted down, bent, or absent	☐	Destruction of terrestrial veg.	☐	Abrupt change in plant community
		☐	Leaf litter disturbed	✓	Presence of wrack line	☐	Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line		Mean High Water Mark indicated by:		Chemical Characteristics	
☐	Oil or scum line along shore objects	☐	Survey to available datum	☐	Water is clear
☐	Fine shell or debris deposits (foreshore)	☐	Physical markings	☐	Water is discolored
☐	Physical markings/characteristics	☐	Vegetation lines/changes in types	☐	Oily film
☐	Tidal gauges			☐	Other:
Notes:					

Waters of the U.S. Data Sheet

Project: MD 152 Interchange		**Feature ID:** WUS 21A	**Stream Order:**
Date: 12/12/2018	**State:** MD	**Photos:** 748U, 749D	
Crew: ET/SLY	**County:** Harford	**Last Flag Number:**	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Baseflow observed with no recent precipitation			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: WUS E	Downstream: WUS 20A	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 2-3'	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 6"	☐ Cobbles	✓ Gravel	☐ Other:	
✓ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	✓ Concrete		LB: Mowed grass
☐ Other:	Highly eroded	Side slope: ✓ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php														Month: October	Year: 2018
● No rain	● 0-0.5	○	○	○	○	○	○	●	○	○	○	○	○	○	○		
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6			
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet					

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
✓ Yes	☐ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	✓ Water staining	✓ Scour
	☐ Shelving	✓ Presence of flood litter/debris	✓ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☐ Leaf litter disturbed	☐ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: MD 152 Interchange		**Feature ID:** WUS 23A	**Stream Order:**
Date: 12/12/2018	**State:** MD	**Photos:** 738U, 739D	
Crew: ET/SLY	**County:** Harford	**Last Flag Number:** WUS 23A-12A/B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	● RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Ample baseflow observed			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: Outside study area	Downstream: Outside study area	Adjacent/Abutting: WUS 25A, 26A, 29A, 30A, A-20; WET 17A, 18A, A-11

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 6-8'	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 1'	☐ Cobbles	✓ Gravel	☐ Other:	
✓ Manipulated (man-altered)	Bank Erosion/stability: Highly eroded	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:		Side slope: ✓ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: Highly degraded channel. Iron flocculant observed, potential restoration					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php												Month: October	Year: 2018
● No rain	● 0-0.5	○	○	○	○	○	○	○	○	○	○	○	●	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet			

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
✓ Yes	✓ Clear, natural line impressed on the bank	✓ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	✓ Water staining	✓ Scour
	✓ Shelving	☐ Presence of flood litter/debris	✓ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☐ Leaf litter disturbed	✓ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: MD 152 Interchange		**Feature ID:** WUS 24B	**Stream Order:**
Date: 12/18/2018	**State:** MD	**Photos:** 776-U, 777-D	
Crew: ET/RL	**County:** Harford	**Last Flag Number:**	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing during field visit, significant incision			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: None	Downstream: WUS 25B	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 4'	☑ Silts	☑ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 1-3"	☑ Cobbles	☐ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		
☐ Other:	Severe erosion	Side slope: ☑ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			LB: Forest
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php												Month: November	Year: 2018
● No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	●	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet			

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
☑ Yes	☑ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	☐ Water staining	☑ Scour
	☐ Shelving	☐ Presence of flood litter/debris	☑ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☑ Leaf litter disturbed	☐ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: MD 152 Interchange		**Feature ID:** WUS 25A	**Stream Order:**
Date: 12/11/2018	**State:** MD	**Photos:** 732U, 733D	
Crew: ET/SLY	**County:** Harford	**Last Flag Number:**	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	● RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flow observed during site visit			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: Outside of study area	Downstream: WUS 23A	Adjacent/Abutting: WUS A-10, WUS A-12

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 6'	☑ Silts	☑ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 3-12"	☐ Cobbles	☑ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		
☐ Other:	Major erosion	Side slope: ☑ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			LB: Forest
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php										Month: October	Year: 2018	
● No rain	● 0-0.5	○	○	○	○	○	○	○	○	○	○	○	●	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet		

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
☑ Yes	☐ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☑ Changes in the character of soil	☑ Water staining	☑ Scour
	☐ Shelving	☑ Presence of flood litter/debris	☑ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☑ Leaf litter disturbed	☑ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: MD 152 Interchange		**Feature ID:** WUS 26A	**Stream Order:** 1
Date: 12/11/2018	**State:** MD	**Photos:** 727U, 728D	
Crew: ET/SLY	**County:** Harford	**Last Flag Number:**	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flow observed			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: WET A-16	Downstream: WUS 23A	Adjacent/Abutting: WET A-16

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 1'	☑ Silts	☑ Sands	☐ Muck	RB: Mowed grass
☐ Artificial (man-made)	Depth: 3"	☐ Cobbles	☐ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Mostly stable	Side slope: ☐ ≥1:1 ☐ 2:1 ☑ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php														Month: October	Year: 2018
● No rain	● 0-0.5	○	○	○	○	○	○	○	○	○	○	○	●	○			
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6			
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet					

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
☑ Yes	☐ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	☐ Water staining	☑ Scour
	☐ Shelving	☐ Presence of flood litter/debris	☑ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☐ Leaf litter disturbed	☐ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: MD 152 Interchange		**Feature ID:** WUS 29A	**Stream Order:**
Date: 2/14/2019	**State:** MD	**Photos:** 5131 US , 5132 DS	
Crew: ET/AGA	**County:** Harford	**Last Flag Number:** N/A	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			◉ Non-RPW with adjacent wetland WET 17A
Describe rational for hydrologic class: Delineated by JMT as ephemeral, observed flow after heavy precipitation			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: None	Downstream: WUS 23A	Adjacent/Abutting: WET 17A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 2'	☑ Silts	☑ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 6"	☐ Cobbles	☑ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		
☐ Other:	Moderate erosion	Side slope: ☑ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			LB: Mowed grass
Notes: Appears to be a roadside ditch					

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php										Month: January	Year: 2019	
◉	No rain	○	0-0.5	○	○	○	○	○	○	○	○	○	○	○	○	◉
○	Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○	Heavy Rain	◉	>1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet		

Non-tidal tributary has: (*check all that apply; include photos for each & list photo #)*

Bed and Banks		Ordinary High Water Mark					
☑	Yes	☑	Clear, natural line impressed on the bank	☐	Sediment deposition	☐	Sediment sorting
☐	No	☐	Changes in the character of soil	☐	Water staining	☑	Scour
		☐	Shelving	☑	Presence of flood litter/debris	☐	Observed/predicted flow events
		☑	Vegetation matted down, bent, or absent	☐	Destruction of terrestrial veg.	☐	Abrupt change in plant community
		☑	Leaf litter disturbed	☐	Presence of wrack line	☐	Other:

Tidal tributary has: (*check all that apply; include photos for each & list photo #)*

High Tide Line		Mean High Water Mark indicated by:		Chemical Characteristics	
☐	Oil or scum line along shore objects	☐	Survey to available datum	☐	Water is clear
☐	Fine shell or debris deposits (foreshore)	☐	Physical markings	☐	Water is discolored
☐	Physical markings/characteristics	☐	Vegetation lines/changes in types	☐	Oily film
☐	Tidal gauges			☐	Other:
Notes:					

Waters of the U.S. Data Sheet

Project: MD 152 Interchange		**Feature ID:** WUS 30A	**Stream Order:**
Date: 2/14/2019	**State:** MD	**Photos:** 5133 US, 5134 DS	
Crew: ET/AGA	**County:** Harford	**Last Flag Number:** N/A	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Delineated by JMT, flow observed after heavy storm event within 48 hrs prior to investigation			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: WUS 18A	Downstream: WUS 23A	Adjacent/Abutting: WUS 18A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 2-5'	☑ Silts	☑ Sands	☐ Muck	RB: Forested
☐ Artificial (man-made)	Depth: 6"	☐ Cobbles	☑ Gravel	☑ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☑ Concrete	Some riprap near WUS 23A	
☐ Other:	Moderately stable	Side slope: ☐ ≥1:1 ☑ 2:1 ☐ 3:1 ☐ ≤4:1			LB: Mowed grass
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php														Month: January	Year: 2019
● No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	○	○	●		
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6			
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet					

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
☑ Yes	☑ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	☑ Water staining	☐ Scour
	☐ Shelving	☑ Presence of flood litter/debris	☑ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☑ Leaf litter disturbed	☑ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: I-95 5th Lane Widening		**Feature ID:** B	**Stream Order:** 1
Date: 4/5/2017	**State:** MD	**Photos:** 51-52	
Crew: ET/MH	**County:** Harford	**Last Flag Number:** B-11A&B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	● RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing at time of survey			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: Outside of study area	Downstream: Flows into a grate	Adjacent/Abutting: Wetlands A & C, Waters D

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 1-5'		✓ Silts	✓ Sands	✓ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 2-6"		✓ Cobbles	✓ Gravel	☐ Other:	
✓ Manipulated (man-altered)	Bank Erosion/stability:		☐ Bedrock	✓ Concrete	Rip rap	
☐ Other:	Stable		Side slope: ☐ ≥1:1 ✓ 2:1 ✓ 3:1 ✓ ≤4:1			LB: Forest, mowed grass, highway
Notes: Some areas of bank erosion						

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php														Month: February	Year: 2017
● No rain	○ 0-0.5	○	○	○	●	○	○	○	○	○	○	○	○	○	○		
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6			
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet					

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
✓ Yes	✓ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	✓ Water staining	☐ Scour
	☐ Shelving	✓ Presence of flood litter/debris	✓ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	✓ Leaf litter disturbed	✓ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: I-95 5th Lane Widening		**Feature ID:** D	**Stream Order:** 1
Date: 4/5/2017	**State:** MD	**Photos:** 56	
Crew: ET/MH	**County:** Harford	**Last Flag Number:** D-8A&B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Partially wet channel. Flow observed upstream portion of channel			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: Outside of Study Area	Downstream: Waters B	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 2-5 ft	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 2 inches	☐ Cobbles	☐ Gravel	✓ Other: Riprap	
✓ Manipulated (man-altered)	Bank Erosion/stability: moderate erosion	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:		Side slope: ☐ ≥1:1 ✓ 2:1 ✓ 3:1 ☐ ≤4:1			
Notes: Channel appears to flow underground at old culvert crossing					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php														Month: February	Year: 2017
● No rain	○ 0-0.5	○	○	○	●	○	○	○	○	○	○	○	○	○	○		
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6			
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet					

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
✓ Yes	✓ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	✓ Water staining	☐ Scour
	☐ Shelving	☐ Presence of flood litter/debris	✓ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	✓ Leaf litter disturbed	☐ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: I-95 5th Lane Widening		**Feature ID:** E	**Stream Order:** 1
Date: 4/5/2017	**State:** MD	**Photos:** 57 -58	
Crew: ET/MH	**County:** Harford	**Last Flag Number:** E-14A&B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing at time of survey. Channel continues outside of study area			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: Outside of Study Area	Downstream: Outside of Study Area/Waters G	Adjacent/Abutting: Wetland PP

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 2-5ft	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 3in	☐ Cobbles	☐ Gravel	☐ Other:	
✓ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	✓ Concrete		LB: Forest
☐ Other:	Moderately stable	Side slope: ✓ ≥1:1 ✓ 2:1 ✓ 3:1 ☐ ≤4:1			
Notes: Concrete channel at downstream portion of channel. Flows in culvert under I-95 and beyond study area to Waters G.					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php														Month: February	Year: 2017
● No rain	○ 0-0.5	○	○	○	●	○	○	○	○	○	○	○	○	○	○		
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6			
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet					

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
✓ Yes	✓ Clear, natural line impressed on the bank	✓ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	☐ Water staining	☐ Scour
	☐ Shelving	✓ Presence of flood litter/debris	✓ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	✓ Leaf litter disturbed	✓ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: MD 152 Interchange		**Feature ID:** WUS E	**Stream Order:**
Date: 12/12/2018	**State:** MD	**Photos:** 746U, 747D	
Crew: ET/SLY	**County:** Harford	**Last Flag Number:**	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	◉ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: No baseflow observed			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: None	Downstream: WUS 21A	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 2-3'	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 3"	☐ Cobbles	✓ Gravel	☐ Other:	
✓ Manipulated (man-altered)	Bank Erosion/stability: Highly eroded	☐ Bedrock	✓ Concrete		LB: Mowed grass
☐ Other:		Side slope: ✓ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													
		Month: October										Year: 2018			
◉ No rain	◉ 0-0.5	○	○	○	○	○	○	◉	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet			

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
✓ Yes	☐ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	☐ Water staining	✓ Scour
	☐ Shelving	☐ Presence of flood litter/debris	☐ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☐ Leaf litter disturbed	☐ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: I-95 5th Lane Widening		**Feature ID:** F	**Stream Order:** 1
Date: 7/7/2017	**State:** MD	**Photos:** 726-728	
Crew: ET/KJH	**County:** Harford	**Last Flag Number:** F-12A&B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	● RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Fed by groundwater from wetland outside of study area. Likely dries during summer.			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: Outside of study area	Downstream: Waters G	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 1-4'	✓ Silts	✓ Sands	✓ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 6"	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		
☐ Other:	Mostly stable	Side slope: ☐ ≥1:1 ✓ 2:1 ☐ 3:1 ✓ ≤4:1			LB: Forest
Notes: Mostly stable in upper reach. Banks become eroded and channel incised at confluence with Waters G.					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php														Month: March	Year: 2017
● No rain	● 0-0.5	○	○	○	●	○	○	○	○	○	○	○	○	○	○		
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6			
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet					

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
✓ Yes	✓ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	✓ Water staining	✓ Scour
	☐ Shelving	✓ Presence of flood litter/debris	✓ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	✓ Leaf litter disturbed	✓ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: I-95 5th Lane Widening		**Feature ID:** G	**Stream Order:**
Date: 7/7/2017	**State:** MD	**Photos:** 715-716	
Crew: ET/KJH	**County:** Harford	**Last Flag Number:** G-310A&B; multiple numbered segments	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	● RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Heavy base flow at time of survey.			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: Outside of study area	Downstream: Outside of study area, Winter's Run	Adjacent/Abutting: Waters B, E, F, J, NN, QQ, RR, TT; Wetlands SS, UU, VV

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 4-15'	✓ Silts	✓ Sands	✓ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 4-24"	✓ Cobbles	✓ Gravel	✓ Other:	
✓ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	✓ Concrete	Large rip rap	
☐ Other:	Minor erosion	Side slope: ☐ ≥1:1 ✓ 2:1 ✓ 3:1 ☐ ≤4:1			LB: Forest
Notes: Large rip rap at culvert outfall east of I-95. Concrete apron at head wall west of I-95. Some areas of bank erosion					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php														Month: March	Year: 2017
● No rain	● 0-0.5	○	○	○	●	○	○	○	○	○	○	○	○	○	○		
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6			
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet					

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
✓ Yes	✓ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	☐ Water staining	✓ Scour
	✓ Shelving	✓ Presence of flood litter/debris	✓ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☐ Leaf litter disturbed	✓ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: I-95 5th Lane Widening		**Feature ID:** I	**Stream Order:** 1
Date: 4/11/2017	**State:** MD	**Photos:** 62-63	
Crew: ET/MH	**County:** Harford	**Last Flag Number:** I-4A&B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Water in channel observed. No channel upstream. Algae indicates prolonged water presence.			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: None	Downstream: Waters J	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 1'	☑ Silts	☐ Sands	☐ Muck	RB: Forest
☑ Artificial (man-made)	Depth: 4"	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		
☐ Other:	Stable	Side slope: ☐ ≥1:1 ☐ 2:1 ☑ 3:1 ☐ ≤4:1			LB: Mowed grass
Notes: Manmade stormwater conveyance at toe of slope. Flows to Waters J					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php												Month: March	Year: 2017
● No rain	● 0-0.5	○	○	○	●	○	○	○	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet			

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
☑ Yes	☐ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	☑ Water staining	☐ Scour
	☐ Shelving	☐ Presence of flood litter/debris	☑ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☑ Leaf litter disturbed	☐ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: I-95 5th Lane Widening		**Feature ID:** J	**Stream Order:**
Date: 4/11/2017	**State:** MD	**Photos:** 64-65	
Crew: ET/MH	**County:** Harford	**Last Flag Number:** J-4A&B (downstream of I-95) J-10A&B (upstream of I-95)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	● RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Steadily flowing, incised channel			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: Outside of study area	Downstream: Outside of study area/Waters G	Adjacent/Abutting: Waters I, II, JJ; Wetland LL

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 2'	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 2-6"	✓ Cobbles	✓ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		
☐ Other:	Moderate erosion	Side slope: ✓ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			LB: Forest
Notes: Incised channel with steep banks. Flows to perennial Waters G outside of study area.					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php														Month: March	Year: 2017
● No rain	● 0-0.5	○	○	○	●	○	○	○	○	○	○	○	○	○	○		
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6			
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet					

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
✓ Yes	☐ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	✓ Water staining	✓ Scour
	☐ Shelving	☐ Presence of flood litter/debris	✓ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	✓ Leaf litter disturbed	✓ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: I-95 5th Lane Widening		**Feature ID:** K	**Stream Order:** 1
Date: 4/11/2017	**State:** MD	**Photos:** 66-67	
Crew: ET/MH	**County:** Harford	**Last Flag Number:** K-3B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing during survey			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: Culvert under I-95	Downstream: Outside of study area/Waters G	Adjacent/Abutting:

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 1-3'		☐ Silts	☑ Sands	☐ Muck	RB: Mowed Grass, Forest
☐ Artificial (man-made)	Depth: 3"		☐ Cobbles	☑ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:		☐ Bedrock	☐ Concrete		LB: Mowed Grass, Forest
☐ Other:	Moderate erosion		Side slope: ☑ ≥1:1 ☑ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: Flows beyond ROW fence to Waters G outside of study area						

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php												Month: March	Year: 2017
● No rain	● 0-0.5	○	○	○	●	○	○	○	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet			

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
☑ Yes	☑ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	☑ Water staining	☐ Scour
	☐ Shelving	☑ Presence of flood litter/debris	☑ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☐ Leaf litter disturbed	☐ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: I-95 5th Lane Widening		**Feature ID:** M	**Stream Order:**
Date: 4/19/2017	**State:** MD	**Photos:** 258-259	
Crew: ET/MH	**County:** Harford	**Last Flag Number:** M-4A&B (downstream of culvert); M-9A&B (upstream)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	● RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing at time of study			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: Outside of Study Area	Downstream: Outside of Study Area	Adjacent/Abutting: Waters HH

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 3-8 ft	☑ Silts	☑ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 2 in	☑ Cobbles	☑ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☑ Concrete		LB: Forest
☐ Other:	Stable	Side slope: ☑ ≥1:1 ☑ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: Bank partially concrete, flows through culvert under I-95					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php														Month: March	Year: 2017
● No rain	● 0-0.5	○	○	○	●	○	○	○	○	○	○	○	○	○	○		
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6			
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet					

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
☑ Yes	☑ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	☐ Water staining	☐ Scour
	☐ Shelving	☐ Presence of flood litter/debris	☑ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☐ Leaf litter disturbed	☑ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: I-95 5th Lane Widening		**Feature ID:** N	**Stream Order:**
Date: 4/19/2017	**State:** MD	**Photos:** 261-262	
Crew: ET/MH	**County:** Harford	**Last Flag Number:** N-4A&B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Some base flow during site visit. Likely intercepts groundwater at culvert outfall.			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: Waters WW	Downstream: Outside of study area, Waters G	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 3'	☐ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 2-6"	☐ Cobbles	✓ Gravel	✓ Other:	
✓ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete	Rip rap	
☐ Other:	Minor erosion	Side slope: ☐ ≥1:1 ✓ 2:1 ✓ 3:1 ☐ ≤4:1			LB: Forest
Notes: Emerges from culvert carrying Waters WW, channel bed lined with riprap					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php														Month: March	Year: 2017
● No rain	● 0-0.5	○	○	○	●	○	○	○	○	○	○	○	○	○	○		
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6			
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet					

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
✓ Yes	✓ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	✓ Water staining	☐ Scour
	☐ Shelving	✓ Presence of flood litter/debris	✓ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	✓ Leaf litter disturbed	✓ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: I-95 5th Lane Widening		**Feature ID:** Y	**Stream Order:**
Date: 5/4/2017	**State:** MD	**Photos:** 331-332	
Crew: ET/MRS	**County:** Harford	**Last Flag Number:** Y-83A&B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	● RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Heavy base flow during survey			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: Outside of study area	Downstream: Outside of study area	Adjacent/Abutting: Wetlands Z, AA & BB; Waters CC, DD, EE, OO

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 3-8'	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 6-24"	✓ Cobbles	✓ Gravel	✓ Other:	
✓ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete	Rip rap	
☐ Other:	Areas of erosion	Side slope: ✓ ≥1:1 ✓ 2:1 ☐ 3:1 ☐ ≤4:1			LB: Forest
Notes: Originates from culvert under MD 24 and flows outside of ROW. Iron flocculent present. Some eroded undercut banks.					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php														Month: March	Year: 2017
● No rain	● 0-0.5	○	○	○	●	○	○	○	○	○	○	○	○	○	○		
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6			
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet					

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
☐ Yes	✓ Clear, natural line impressed on the bank	✓ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	✓ Water staining	✓ Scour
	☐ Shelving	✓ Presence of flood litter/debris	✓ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	✓ Leaf litter disturbed	✓ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: I-95 5th Lane Widening		**Feature ID:** HH	**Stream Order:** 1
Date: 5/18/2017	**State:** MD	**Photos:** 458-460	
Crew: ET/MRS	**County:** Harford	**Last Flag Number:** HH-10A&B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			◉ Non-RPW with abutting wetland GG
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Drains wetland GG. Some standing water observed.			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: Wetland GG	Downstream: Waters M	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 1-6'	✓ Silts	☐ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 3"	☐ Cobbles	✓ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	✓ Bedrock	☐ Concrete		
☐ Other:	Upper stable, lower incised	Side slope: ✓ ≥1:1 ✓ 2:1 ✓ 3:1 ☐ ≤4:1			LB: Forest
Notes: Upper reach stable. Incised mid section. Drains over bedrock to Waters M					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php														Month: April	Year: 2017
◉ No rain	○ 0-0.5	○	○	○	◉	○	○	○	○	○	○	○	○	○	○		
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6			
○ Heavy Rain	◉ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet					

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
✓ Yes	☐ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	✓ Water staining	✓ Scour
	☐ Shelving	☐ Presence of flood litter/debris	☐ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	✓ Leaf litter disturbed	☐ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: I-95 5th Lane Widening		**Feature ID:** II	**Stream Order:**
Date: 5/18/2017	**State:** MD	**Photos:** 463-464	
Crew: ET/MRS	**County:** Harford	**Last Flag Number:** II-3A&B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		◉ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: No flow observed. Deep incision indicates storm flow			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: Outside of study area	Downstream: Waters J	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 12'	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 6"	✓ Cobbles	✓ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		
☐ Other:	Highly unstable	Side slope: ✓ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			LB: Forest
Notes: Deeply incised. Unstable banks					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php														Month: April	Year: 2017
◉ No rain	○ 0-0.5	○	○	○	◉	○	○	○	○	○	○	○	○	○	○		
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6			
○ Heavy Rain	◉ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet					

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
✓ Yes	☐ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	☐ Water staining	✓ Scour
	☐ Shelving	✓ Presence of flood litter/debris	☐ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	✓ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☐ Leaf litter disturbed	✓ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: I-95 5th Lane Widening		**Feature ID:** JJ	**Stream Order:** 1
Date: 5/18/2017	**State:** MD	**Photos:** 465-466	
Crew: ET/MRS	**County:** Harford	**Last Flag Number:** JJ-3A&B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			◉ Non-RPW with abutting wetland KK
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: No flow observed. Deep incision indicates storm flow. Receives hydrology from Wetland KK.			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: Wetland KK	Downstream: Waters J	Adjacent/Abutting: Wetland LL

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 12'	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 6"	☐ Cobbles	✓ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Highly unstable	Side slope: ✓ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: Deeply incised. Unstable banks					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php														Month: April	Year: 2017
◉ No rain	○ 0-0.5	○	○	○	◉	○	○	○	○	○	○	○	○	○	○		
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6			
○ Heavy Rain	◉ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet					

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
✓ Yes	☐ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	☐ Water staining	✓ Scour
	☐ Shelving	✓ Presence of flood litter/debris	☐ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	✓ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☐ Leaf litter disturbed	✓ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: I-95 5th Lane Widening		**Feature ID:** NN	**Stream Order:**
Date: 5/23/2017	**State:** MD	**Photos:** 484-485	
Crew: ET/MRS	**County:** Harford	**Last Flag Number:** NN-5A&B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		◉ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: No flow observed one day after rain event.			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: None	Downstream: Waters G	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 1-3'	✓ Silts	☐ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 3"	☐ Cobbles	✓ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		
☐ Other:	Stable	Side slope: ☐ ≥1:1 ✓ 2:1 ☐ 3:1 ☐ ≤4:1			LB: Forest
Notes: Table erosional channel that drains to perennial Waters G					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php														Month: April	Year: 2017
◉ No rain	◉ 0-0.5	○	○	○	◉	○	○	○	○	○	○	○	○	○	○		
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6			
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet					

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
✓ Yes	☐ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	☐ Water staining	☐ Scour
	☐ Shelving	✓ Presence of flood litter/debris	☐ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☐ Leaf litter disturbed	☐ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: I-95 5th Lane Widening		**Feature ID:** QQ	**Stream Order:** 1
Date: 5/23/2017	**State:** MD	**Photos:** 501-503	
Crew: ET/MRS	**County:** Harford	**Last Flag Number:** QQ-6A&B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Originates at pipe outfall. Pipe originates outside of study area. Baseflow observed.			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: Outside of study area	Downstream: Waters G	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 2-4'	☐ Silts	☑ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 6"	☐ Cobbles	☐ Gravel	☑ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete	Rip rap	
☐ Other:	Stable	Side slope: ☐ ≥1:1 ☐ 2:1 ☑ 3:1 ☐ ≤4:1			LB: Forest
Notes: Heavily armored with rip rap					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php														Month: April	Year: 2017
● No rain	● 0-0.5	○	○	○	●	○	○	○	○	○	○	○	○	○	○		
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6			
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet					

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
☑ Yes	☐ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	☑ Water staining	☐ Scour
	☐ Shelving	☐ Presence of flood litter/debris	☑ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☐ Leaf litter disturbed	☐ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: I-95 5th Lane Widening		**Feature ID:** RR	**Stream Order:**
Date: 5/24/2017	**State:** MD	**Photos:** 506-507	
Crew: ET/MH	**County:** Harford	**Last Flag Number:** RR-5A&B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	◉ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Some standing water observed after storm, but no baseflow.			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: None	Downstream: Waters G	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 2'	☑ Silts	☐ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 2"	☐ Cobbles	☐ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☑ Concrete		LB: Forest
☐ Other:	Stable	Side slope: ☐ ≥1:1 ☐ 2:1 ☑ 3:1 ☐ ≤4:1			
Notes: Concrete lining at confluence with Waters G					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php														Month: April	Year: 2017
◉ No rain	◉ 0-0.5	○	○	○	◉	○	○	○	○	○	○	○	○	○	○		
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6			
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet					

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
☑ Yes	☐ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☑ Changes in the character of soil	☐ Water staining	☐ Scour
	☐ Shelving	☑ Presence of flood litter/debris	☐ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☑ Leaf litter disturbed	☑ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: I-95 5th Lane Widening		**Feature ID:** TT	**Stream Order:** 1
Date: 7/7/2017	**State:** MD	**Photos:** 717 & 718	
Crew: ET/KJH	**County:** Harford	**Last Flag Number:** TT-5A&B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	◉ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Dry channel with bed and bank			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: None	Downstream: Waters G	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 1-6'	☑ Silts	☐ Sands	☑ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 3"	☐ Cobbles	☐ Gravel	☑ Other: Leaves	
☑ Manipulated (man-altered)	Bank Erosion/stability: Moderately stable	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ☑ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php												Month: May	Year: 2017
○ No rain	○ 0-0.5	○	○	○	○	◉	○	○	○	○	○	○	○	○	○
◉ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	◉ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet			

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
☑ Yes	☐ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	☑ Water staining	☑ Scour
	☐ Shelving	☐ Presence of flood litter/debris	☐ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☑ Leaf litter disturbed	☐ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: I-95 5th Lane Widening		**Feature ID:** WW	**Stream Order:**
Date: 7/7/2017	**State:** MD	**Photos:** 724 & 725	
Crew: ET/KJH	**County:** Harford	**Last Flag Number:** WW-3A&B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	◉ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Minimal to no flow in channel. Significant rain prior to delineation.			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: Outside study area	Downstream: Waters N	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 4-6'		☑ Silts	☑ Sands	☐ Muck	RB: Volunteer hedgerow
☐ Artificial (man-made)	Depth: 3"		☑ Cobbles	☑ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:		☐ Bedrock	☐ Concrete		LB: Volunteer hedgerow
☐ Other:	Moderate erosion		Side slope: ☑ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:						

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php														Month: May	Year: 2017
◉ No rain	○ 0-0.5	○	○	○	○	◉	○	○	○	○	○	○	○	○	○		
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6			
○ Heavy Rain	◉ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet					

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
☑ Yes	☐ Clear, natural line impressed on the bank	☑ Sediment deposition	☑ Sediment sorting
☐ No	☐ Changes in the character of soil	☐ Water staining	☑ Scour
	☐ Shelving	☑ Presence of flood litter/debris	☐ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☑ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☑ Leaf litter disturbed	☑ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

WETLAND, UPLAND, AND STREAM DATASHEETS

B. KH-3022: Clayton Road Overpass Reconstruction

Stream Datasheet

Project: Clayton Road Overpass **Date:** 11/2/18 **Stream ID:** WUS B-4

Staff: SE/IM **Flow Type:** Perennial ☐ Intermittent ☐ Ephemeral ☒

Flow Direction: North **Drains Into:** WUS A-3

Fed By: Precipitation

Bank Height: 2.0' **Water Depth:** Dry **Width:** 4.0'

Channel Gradient (%): 3-4 **Bank Stability:** Moderately stable

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

Mesohabitat: % Run: 50 % Riffle: 20 % Pool: 30

Substrate:

Cobble	☒	Gravel	☒	Sand	☐	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

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

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Discharges into Waters G and eventually discharges into Otter Point Creek, a traditional navigable water.

Other Comments:

WETLAND, UPLAND, AND STREAM DATASHEETS

C. KH-3021: MD 24 Interchange / Two-Lane ETL / Winters Run Bridge

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford County Sampling Date: 12/6/18

Applicant/Owner: MDTA State: MD Sampling Point: WET C-1

Investigator(s): WT SH RS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-3

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 39.4585775 Long: -76.3100312 Datum: NAD83

Soil Map Unit Name: Delanco silt loam, (DcA) 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	☑	No	☐	**Is the Sampled Area Within a Wetland?**	Yes ☑	No ☐
Hydric Soil Present?	Yes	☑	No	☐			
Wetland Hydrology Present?	Yes	☑	No	☐			

Remarks:
WET C-1 is abuts Waters Y, it is the PEM portion while WET C-2 is a PSS portion of the same wetland. There is a collapsed RCP under MD 24 that has resulted in significant ponding in the area.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes	☑	No	☐	Depth (inches):	0.5"
Water Table Present?	Yes	☑	No	☐	Depth (inches):	10"
Saturation Present? (includes capillary fringe)	Yes	☑	No	☐	Depth (inches):	0"

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks:
Flags: WET C-1(1-14)

Receives hydrology from runoff from adjacent uplands and roadway along with overflow from Waters Y.

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

Sampling Point: WET C-1

Tree Stratum (Plot size: 30')

		Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
		0	= Total Cover	

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

Sapling/Shrub Stratum (Plot size: 30')

1.	*Liquidambar styraciflua*	10	Yes	FAC
2.	*Salix nigra*	10	Yes	OBL
3.	*Baccharis halimifolia*	5	No	FAC
4.	*Phragmites australis*	5	No	FACW
5.				
6.				
7.				
8.				
		30	= Total Cover	

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

Herb Stratum (Plot size: 30')

1.	*Polygonum sp.*	80	Yes	NI
2.	*Hibiscus moscheutos*	5	No	OBL
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		85	= Total Cover	

50% of total cover: 42.5 20% of total cover: 17

Woody Vine Stratum (Plot size: 30')

1.				
2.				
3.				
4.				
5.				
		0	= Total Cover	

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

Dominance Test Worksheet:

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

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

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

Prevalence Index Worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

x 2 - Dominance Test is > 50%

____ 3 - Prevalence Index is $\leq$ 3.0[1]

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes ☑ No ☐

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

SOIL

Sampling Point: WET C-1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/1	95	2.5YR 3/4	5	C	M	Silty clay loam	Saturated
12-15	10YR 4/2	85	2.5YR 3/4	10	D	M	Silty clay	Saturated
			10YR 6/6	5	C	M		
15-20	10YR 5/6	80	10YR 5/2	20	D	M	Sandy clay	Saturated

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford County Sampling Date: 12/6/18

Applicant/Owner: MDTA State: MD Sampling Point: UPL C-1/C-2

Investigator(s): WT, SH, RS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 0-3

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 39.4586212 Long: -76.3096764 Datum: NAD83

Soil Map Unit Name: Delanco silt loam, (DcA) NWI classification: N/A

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

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

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

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

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

Remarks:

Area is a forested upland located southeast of WET C-1/C-2. Area as recently been submerged due to a partially collapsed RCP under MD 24.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

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

Remarks:

Water stained leaves present from recent flooding, but there are no other hydrologic indicators observed. Data point was taken along hillslope where water had been previously ponded. There was draining in progress during the field investigation to complete a repair of the collapsed RCP.

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

Sampling Point: UPL C-1/C-2

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Liriodendron tulipifera*	30	Yes	FACU
2. *Quercus rubra*	20	Yes	FACU
3. *Ilex opaca*	20	Yes	FAC
4. *Quercus alba*	10	No	FACU
5.			
6.			
7.			
8.			
	80 = Total Cover		
50% of total cover: 40		20% of total cover: 16	

Sapling/Shrub Stratum (Plot size: 30')			
1. *Kalmia latifolia*	80	Yes	FACU
2. *Fagus grandifolia*	20	No	FACU
3. *Liquidambar styraciflua*	20	No	FAC
4.			
5.			
6.			
7.			
8.			
	120 = Total Cover		
50% of total cover: 60		20% of total cover: 24	

Herb Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	0 = Total Cover		
50% of total cover:		20% of total cover:	

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

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	25	(A/B)

Prevalence Index Worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes ☐ No ☑

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

SOIL

Sampling Point: UPL C-1/C-2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 6/3	90	10YR 4/1	10	D	M	Silt loam	
2-6	10YR 6/3	85	10YR 6/8	10	C	M		
			10YR 4/1	5	D	M	Sandy clay	
6-20	10YR 6/8	95	10YR 6/4	5	C	M	Sandy clay	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford County Sampling Date: 12/6/18

Applicant/Owner: MDTA State: MD Sampling Point: WET C-2

Investigator(s): WT SH RS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-3

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 39.4583884 Long: -76.3102522 Datum: NAD83

Soil Map Unit Name: Delanco silt loam, (DcA) NWI classification: PSS1A

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

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

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

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

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

Remarks:

WET C-2 is abuts Waters Y, it is the PSS portion while WET C-1 is a PEM portion of the same wetland.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes	☑	No	☐	Depth (inches):	1"
Water Table Present?	Yes	☑	No	☐	Depth (inches):	8"
Saturation Present? (includes capillary fringe)	Yes	☑	No	☐	Depth (inches):	0"

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks:

Flags: WET C-2 (1-6)

Receives hydrology from runoff from adjacent uplands.

Collapsed RCP under MD 24 has resulted in significant ponding in area.

Sampling Point: WET C-2

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

Tree Stratum (Plot size: 30')

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

50% of total cover: 2.5 20% of total cover: 1

Sapling/Shrub Stratum (Plot size: 30')

1. *Liquidambar styracilfua*	30	Yes	FAC
2. *Baccharis halimifolia*	30	Yes	FAC
3. *Salix nigra*	5	No	OBL
4.			
5.			
6.			
7.			
8.			
	65 = Total Cover		

50% of total cover: 32.5 20% of total cover: 13

Herb Stratum (Plot size: 30')

1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	0 = Total Cover		

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

Woody Vine Stratum (Plot size: 30')

1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

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

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index Worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes ☑ No ☐

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

SOIL

Sampling Point: WET C-2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/1	90	10YR 2/1	5	D	M	Silty clay loam	Saturated
			2.5YR 4/3	5	C	M		
2-20	10YR 5/1	80	10YR 5/8	15	C	M	Silty clay	Saturated
			10YR 6/1	5	C	M		

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford County Sampling Date: 12/11/18

Applicant/Owner: MDTA State: MD Sampling Point: WET C-3

Investigator(s): SH RS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 5-10

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 39.459166 Long: -76.303333 Datum: NAD83

Soil Map Unit Name: Betlsville silt loam, (BeC) 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	☑	No	☐	**Is the Sampled Area Within a Wetland?**	Yes ☑	No ☐
Hydric Soil Present?	Yes	☑	No	☐			
Wetland Hydrology Present?	Yes	☑	No	☐			

Remarks:

WET C-3 is located south of I-95 northbound and at the end of WUS C-9.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☑	Depth (inches):	
Water Table Present?	Yes	☑	No	☐	Depth (inches):	14"
Saturation Present? (includes capillary fringe)	Yes	☑	No	☐	Depth (inches):	8"

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks:

WET C-3 receives hydrology from flow from WUS C-9 and runoff from adjacent uplands.

Flags: WET C-3 (1-9)

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

Sampling Point: WET C-3

Tree Stratum (Plot size: 30')

		Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
		0	= Total Cover	

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

Sapling/Shrub Stratum (Plot size: 30')

1.	*Liquidambar styraciflua*	10	Yes	FAC
2.	*Acer rubrum*	10	Yes	FAC
3.				
4.				
5.				
6.				
7.				
8.				
		20	= Total Cover	

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

Herb Stratum (Plot size: 30')

1.	*Poa sp.*	60	Yes	NI
2.	*Microstegium vimineum*	50	Yes	FAC
3.	*Dichanthelium clandestinum*	20	No	FACW
4.	*Juncus effusus*	10	No	OBL
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		140	= Total Cover	

50% of total cover: 70 20% of total cover: 28

Woody Vine Stratum (Plot size: 30')

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

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

Dominance Test Worksheet:

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

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

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

Prevalence Index Worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes ☑ No ☐

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

SOIL

Sampling Point: WET C-3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/2	65	10YR 2/2	20	D	M	Silty clay	
			10YR 4/6	15	C	M		
6-12	10YR 3/2	100					Clay	Saturated
12-24	10YR 5/1	95	10YR 3/6	5	C	M	Clay	Saturated

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford County Sampling Date: 12/11/18

Applicant/Owner: MDTA State: MD Sampling Point: UPL C-3

Investigator(s): SH RS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 5-10

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 39.45944 Long: -76.303611 Datum: NAD83

Soil Map Unit Name: Beltsville silt loam, (BeC) NWI classification: N/A

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

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

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

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

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

Remarks:

Area is an upland hillslope northwest of WET C-3

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

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

Remarks:

No hydrology observed.

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

Sampling Point: UPL C-3

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pinus virginiana*	30	Yes	FACU
2. *Liquidambar styraciflua*	30	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		

Sapling/Shrub Stratum (Plot size: 30')			
1. *Pinus virginiana*	70	Yes	FACU
2. *Juniperus virginiana*	30	Yes	FACU
3. *Ilex opaca*	5	No	FAC
4.			
5.			
6.			
7.			
8.			
	105 = Total Cover		
50% of total cover: 52.5	20% of total cover: 21		

Herb Stratum (Plot size: 30')			
1. *Poa sp.*	30	Yes	NI
2. *Lonicera japonica*	10	No	FACU
3. *Andropogon virginicus*	10	No	FAC
4. *Ilex opaca*	5	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	55 = Total Cover		
50% of total cover: 27.5	20% of total cover: 11		

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

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	25	(A/B)

Prevalence Index Worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes ☐ No ☑

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

SOIL

Sampling Point: UPL C-3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/3	100					Sandy loam	
6-12	5YR 5/8	90	10YR 5/1	10	D	M	Silty Clay	
12-20	10YR 4/2	80	10YR 5/6	20	C	M	Clay	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

Fill material, consolidated.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford County Sampling Date: 1/4/19

Applicant/Owner: MDTA State: MD Sampling Point: WET C-4

Investigator(s): SH RS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 39.46543 Long: -76.28705 Datum: NAD83

Soil Map Unit Name: Elkton silt loam, (En) NWI classification: PFO1A

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

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

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

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

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

Remarks:

WET C-4 is a ponded area located north of WUS C-18.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches):	5"	
Water Table Present?	Yes ☑	No ☐	Depth (inches):	0"	
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches):	0"	**Wetland Hydrology Present?** Yes ☑ No ☐

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

Remarks:

Receives hydrology from sheetflow runoff of adjacent uplands and non-jurisdictional ephemeral channels.

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

Sampling Point: WET C-4

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Liquidambar styraciflua*	20	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		

Sapling/Shrub Stratum (Plot size: 30')			
1. *Acer rubrum*	15	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3		

Herb Stratum (Plot size: 30')			
1. *Ilex opaca*	5	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		

Woody Vine Stratum (Plot size: 30')			
1. *Vitis sp.*	10	Yes	NI
2.			
3.			
4.			
5.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index Worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes ☑ No ☐

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

Area is mostly a non-vegetated ponded area. Listed species were located along the edge of the ponded water.

SOIL

Sampling Point: WET C-4

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/2	90	10YR 6/2	5	D	M	Silty clay	Saturated
			10YR 4/6	5	C	M		
3-6	10YR 5/2	80	10YR 5/6	20	C	M	Clay	Saturated
6-12	10YR 3/1	95	10YR 6/1	5	D	M	Silty clay	Saturated, organic bodies

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: Gravel

Depth (inches): 12”

Hydric Soil Present? Yes [x] No [ ]

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford County Sampling Date: 1/4/19

Applicant/Owner: MDTA State: MD Sampling Point: UPL C-4

Investigator(s): SH RS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 39.46543 Long: -76.28706 Datum: NAD83

Soil Map Unit Name: Elkton silt loam, (En) NWI classification: N/A

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

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

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

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

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

Remarks:

Area is an upland hillslope located northeast of WET C-4.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? Yes ☐ No ☑

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

Remarks:

No observed hydrology.

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

Sampling Point: UPL C-4

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Liquidambar styraciflua*	20	Yes	FAC
2. *Quercus montana*	20	Yes	UPL
3. *Ulmus americana*	10	Yes	FAC
4.			
5.			
6.			
7.			
8.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		

Sapling/Shrub Stratum (Plot size: 30')			
1. *Acer rubrum*	5	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		

Herb Stratum (Plot size: 30')			
1. *Microstegium vimineum*	30	Yes	FAC
2. *Allium vineale*	10	Yes	FACU
3. *Lonicera japonica*	10	Yes	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		

Woody Vine Stratum (Plot size: 30')			
1. *Toxicodendron radicans*	5	Yes	FAC
2. *Vitis labrusca*	5	Yes	FAC
3.			
4.			
5.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	6	(A)
Total Number of Dominant Species Across All Strata:	9	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	66.7	(A/B)

Prevalence Index Worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes ☑ No ☐

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

SOIL

Sampling Point: UPL C-4

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/4	100					Silty clay loam	
4-10	10YR 5/6	90	10YR 2/2	5	D	M	Silty clay loam	Gravel
			10YR 6/6	5	C	M		

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: Gravel

Depth (inches): 10”

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford County Sampling Date: 1/7/19

Applicant/Owner: MDTA State: MD Sampling Point: WET C-5

Investigator(s): SH RS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 39.465 Long: -76.2878 Datum: NAD83

Soil Map Unit Name: Russett fine sandy loam, (RuD) NWI classification: PFO1B

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

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

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

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

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

Remarks:

WET C-5 is located adjacent to WUS C-18.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches):	1.5"	
Water Table Present?	Yes ☐	No ☑	Depth (inches):		
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches):	0"	**Wetland Hydrology Present?** Yes ☑ No ☐

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

Remarks:

Receives hydrology from sheetflow runoff and groundwater seeps.

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

Sampling Point: WET C-5

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Liquidambar styraciflua*	30	Yes	FAC
2. *Acer rubrum*	20	Yes	FAC
3. *Platanus occidentalis*	15	Yes	FACW
4.			
5.			
6.			
7.			
8.			
	65 = Total Cover		
50% of total cover: 32.5		20% of total cover: 13	

Sapling/Shrub Stratum (Plot size: 30')			
1. *Acer rubrum*	20	Yes	FAC
2. *Liquidambar styraciflua*	20	Yes	FAC
3. *Ilex opaca*	10	No	FAC
4. *Vaccinium corymbosum*	5	No	FACW
5.			
6.			
7.			
8.			
	55 = Total Cover		
50% of total cover: 27.5		20% of total cover: 11	

Herb Stratum (Plot size: 30')			
1. *Microstegium vimineum*	30	Yes	FAC
2. *Vaccinium corymbosum*	5	No	FACW
3. *Smilax rotundifloia*	5	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	40 = Total Cover		
50% of total cover: 20		20% of total cover: 8	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0		20% of total cover: 0	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	6	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index Worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes ☑ No ☐

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

SOIL

Sampling Point: WET C-5

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/2	95	10YR 3/4	5	C	M	Silty clay	Saturated
6-8	10YR 4/2	90	10YR 6/1	10	D	M	Silty clay	Saturated
8-10	2.5YR 5/6	80	10YR 6/6	15	C	M	Clay	Saturated
			10YR 4/2	5	D	M		
10-20	10YR 5/3	60	10YR 6/6	25	C	M	Clay	Saturated
			10YR 5/1	15	D	M		

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford County Sampling Date: 1/4/19

Applicant/Owner: MDTA State: MD Sampling Point: UPL C-5/C-6

Investigator(s): SH RS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 39.46455 Long: -76.28796 Datum: NAD83

Soil Map Unit Name: Russett fine sandy loam, (RuD) NWI classification: N/A

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

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

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

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

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

Remarks:

Area is a forested upland located south of WET C-6

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? Yes ☐ No ☑

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

Remarks:

No hydrology observed.

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

Sampling Point: UPL C-5/C-6

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus alba*	30	Yes	FACU
2. *Quercus rubra*	15	Yes	FACU
3. *Fagus grandifolia*	15	Yes	FACU
4. *Ilex opaca*	10	No	FAC
5. *Prunus serotina*	5	No	FACU
6.			
7.			
8.			
	75 = Total Cover		
50% of total cover: 37.5		20% of total cover:	15

Sapling/Shrub Stratum (Plot size: 30')			
1. *Kalmia latifolia*	10	Yes	FACU
2. *Ilex opaca*	5	Yes	FAC
3. *Prunus serotina*	5	Yes	FACU
4.			
5.			
6.			
7.			
8.			
	20 = Total Cover		
50% of total cover: 10		20% of total cover:	4

Herb Stratum (Plot size: 30')			
1. *Smilax rotundifolia*	10	Yes	FAC
2. *Kalmia latifolia*	10	Yes	FACU
3. *Lonicera japonica*	5	Yes	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	25 = Total Cover		
50% of total cover: 12.5		20% of total cover:	5

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = 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:	9	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	22	(A/B)

Prevalence Index Worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes ☐ No ☑

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

SOIL

Sampling Point: UPL C-5/C-6

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 5/4	95	10YR 3/2	5	D	M	Clay loam	
3-12	10YR 4/4	90	10YR 5/8	10	C	M	Silty clay	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: Gravel

Depth (inches): 12”

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford County Sampling Date: 1/4/19

Applicant/Owner: MDTA State: MD Sampling Point: WET C-6

Investigator(s): SH RS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 39.4648 Long: -76.28787 Datum: NAD83

Soil Map Unit Name: Russett fine sandy loam, (RuD) NWI classification: PFO1A

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

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

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

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

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

Remarks:

WET C-6 is located south of WUS C-18. WET C-6 drains into WUS C-20.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes	☑	No	☐	Depth (inches):	0.5"
Water Table Present?	Yes	☑	No	☐	Depth (inches):	0"
Saturation Present? (includes capillary fringe)	Yes	☑	No	☐	Depth (inches):	0"

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks:

Receives hydrology from sheetflow runoff from adjacent uplands.

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

Sampling Point: WET C-6

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Liquidambar styraciflua*	20	Yes	FAC
2. *Prunus serotina*	15	Yes	FACU
3. *Acer rubrum*	5	No	FAC
4.			
5.			
6.			
7.			
8.			
	40	= Total Cover	
50% of total cover: 20		20% of total cover: 8	

Sapling/Shrub Stratum (Plot size: 30')			
1. *Vaccinium corymbosum*	15	Yes	FACW
2. *Prunus serotina*	5	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	20	= Total Cover	
50% of total cover: 10		20% of total cover: 4	

Herb Stratum (Plot size: 30')			
1. *Microstegium vimineum*	20	Yes	FAC
2. *Vaccinium corymbosum*	10	Yes	FACW
3. *Smilax rotundifolia*	5	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	35	= Total Cover	
50% of total cover: 17.5		20% of total cover: 7	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
50% of total cover: 0		20% of total cover: 0	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	67	(A/B)

Prevalence Index Worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes ☑ No ☐

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

SOIL

Sampling Point: WET C-6

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/2	100					Silty clay	Saturated
3-8	10YR 4/1	95	10YR 2/1	5	D	M	Sandy clay loam	Saturated
8-14	2.5Y 7/1	75	10YR 6/6	15	C	M	Sandy clay	Saturated
			10YR 3/2	10	D	M		
14-20	2.5Y 7/1	50	7.5YR 5/6	40	C	M	Clay	Saturated
			10YR 3/2	10	D	M		

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford County Sampling Date: 1/7/19

Applicant/Owner: MDTA State: MD Sampling Point: WET C-7

Investigator(s): SH RS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-3

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 39.46411 Long: -76.28944 Datum: NAD83

Soil Map Unit Name: Hatboro-Codorus complex, (Hca) NWI classification: PFO1A

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☑	No	☐	**Is the Sampled Area Within a Wetland?**	Yes ☑	No ☐
Hydric Soil Present?	Yes	☑	No	☐			
Wetland Hydrology Present?	Yes	☑	No	☐			

Remarks:

WET C-7 is located southeast of WUS C-27 and west of WUS C-21.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☑ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes	☑	No	☐	Depth (inches):	0"
Water Table Present?	Yes	☑	No	☐	Depth (inches):	0"
Saturation Present? (includes capillary fringe)	Yes	☑	No	☐	Depth (inches):	0"

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Receives hydrology from WUS C-27 and sheetflow runoff from adjacent uplands.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET C-7

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Liquidambar styraciflua*	40	Yes	FAC
2. *Acer rubrum*	20	Yes	FAC
3. *Nyssa sylvatica*	20	Yes	FAC
4.			
5.			
6.			
7.			
8.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		

Sapling/Shrub Stratum (Plot size: 30')			
1. *Acer rubrum*	10	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		

Herb Stratum (Plot size: 30')			
1. *Microstegium vimineum*	70	Yes	FAC
2. *Ilex opaca*	5	No	FAC
3. *Juncus effusus*	5	No	OBL
4. *Dichanthelium clandestinum*	5	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	85 = Total Cover		
50% of total cover: 42.5	20% of total cover: 17		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET C-7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	100					Silt loam	Saturated
4-10	10YR 5/2	80	10YR 5/6	15	C	M	Sandy clay	Saturated
			10YR 3/1	5	D	M		
10-14	10YR 5/6	95	10YR 4/2	5	D	M	Sandy clay	Saturated

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: Gravel

Depth (inches): 14”

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford County Sampling Date: 1/7/19

Applicant/Owner: MDTA State: MD Sampling Point: UPL C-7/C-8

Investigator(s): RS SH Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 0-3

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 39.46416 Long: -76.28932 Datum: NAD83

Soil Map Unit Name: Hatboro-Codorus complex, (HcA) NWI classification: N/A

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑	**Is the Sampled Area Within a Wetland?**	Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑		
Wetland Hydrology Present?	Yes ☐	No ☑		

Remarks:

Area is a forested hillslope located northeast of WET C-7.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches): _____
Water Table Present?	Yes ☐	No ☑	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes ☐	No ☑	Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No hydrology observed.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL C-7/C-8

Tree Stratum (Plot size: 30')

		Absolute % Cover	Dominant Species?	Indicator Status
1.	*Quercus rubra*	25	Yes	FACU
2.	*Liquidambar styraciflua*	25	Yes	FAC
3.	*Quercus montana*	15	Yes	UPL
4.	*Fagus grandifolia*	15	Yes	FACU
5.	*Acer rubrum*	10	No	FAC
6.	*Ilex opaca*	10	No	FAC
7.				
8.				
		100	= Total Cover	

50% of total cover: 50 20% of total cover: 20

Sapling/Shrub Stratum (Plot size: 30')

1.	*Liquidambar styraciflua*	20	Yes	FAC
2.	*Acer rubrum*	10	Yes	FAC
3.	*Kalmia latifolia*	10	Yes	FACU
4.				
5.				
6.				
7.				
8.				
		40	= Total Cover	

50% of total cover: 20 20% of total cover: 8

Herb Stratum (Plot size: 30')

1.	*Kalmia latifolia*	5	Yes	FACU
2.	*Smilax rotundifolia*	5	Yes	FAC
3.	*Ilex opaca*	5	Yes	FAC
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		15	= Total Cover	

50% of total cover: 7.5 20% of total cover: 3

Woody Vine Stratum (Plot size: 30')

1.				
2.				
3.				
4.				
5.				
		0	= Total Cover	

50% of total cover: 20% of total cover:

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across All Strata:	10	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ____ 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UPL C-7/C-8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 5/2	100					Sandy loam	
3-10	10YR 5/4	100					Sandy loam	
10-20	10YR 6/6	100					Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford County Sampling Date: 1/7/19

Applicant/Owner: MDTA State: MD Sampling Point: WET C-8

Investigator(s): SH RS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 39.46431 Long: -76.28891 Datum: NAD83

Soil Map Unit Name: Hatboro-Cordorus complex, (HcA) NWI classification: PFO1A

Are climatic/hydrologic conditions on the site typical for this time of year? Yes [x] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [x] 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 [x]	No [ ]	**Is the Sampled Area Within a Wetland?**	Yes [x]	No [ ]
Hydric Soil Present?	Yes [x]	No [ ]			
Wetland Hydrology Present?	Yes [x]	No [ ]			

Remarks:

WET C-8 is located along WUS C-21. There is an ATV trail on the north edge that may be contributing to the hydrology of the wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [x] Surface Water (A1)
- [x] High Water Table (A2)
- [x] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Mari Deposits (B15) **(LLR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [x] Sparsely Vegetated Concave Surface (B8)
- [x] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [x] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes [x]	No [ ]	Depth (inches):	0.5"	
Water Table Present?	Yes [x]	No [ ]	Depth (inches):	6"	
Saturation Present? (includes capillary fringe)	Yes [x]	No [ ]	Depth (inches):	0"	**Wetland Hydrology Present?** Yes [x] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Receives hydrology from sheetflow runoff and a groundwater seep.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET C-8

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Ilex opaca*	60	Yes	FAC
2. *Liquidambar styraciflua*	30	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	90 = Total Cover		
50% of total cover: 45		20% of total cover: 18	

Sapling/Shrub Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
50% of total cover:		20% of total cover:	

Herb Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	0 = Total Cover		
50% of total cover:		20% of total cover:	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:		20% of total cover:	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

Area is sparsely vegetated. Identified tree species were along the edge of the sparsely vegetated area.

SOIL

Sampling Point: WET C-8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/2	85	10YR 6/6	15	C	M	Silty clay	Saturated
8-14	2.5YR 5/1	85	10YR 4/6	15	C	M	Silty clay	Saturated

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: Gravel

Depth (inches): 14”

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford County Sampling Date: 1/8/19

Applicant/Owner: MDTA State: MD Sampling Point: WET C-9

Investigator(s): SH RS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 39.46441 Long: -76.29019 Datum: NAD83

Soil Map Unit Name: Hatboro-codorus complex, (HcA) NWI classification: PFO1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes [x] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [x] 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 [x]	No [ ]	**Is the Sampled Area Within a Wetland?**	Yes [x]	No [ ]
Hydric Soil Present?	Yes [x]	No [ ]			
Wetland Hydrology Present?	Yes [x]	No [ ]			

Remarks:

WET C-9 is located west of C-26.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [x] Surface Water (A1)
- [x] High Water Table (A2)
- [x] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Mari Deposits (B15) **(LLR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [x] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [x] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [x] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes [x]	No [ ]	Depth (inches):	6.5"	
Water Table Present?	Yes [x]	No [ ]	Depth (inches):	12"	
Saturation Present? (includes capillary fringe)	Yes [x]	No [ ]	Depth (inches):	0"	**Wetland Hydrology Present?** Yes [x] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WET C-9 receives hydrology from groundwater seeps and runoff from adjacent uplands.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET C-9

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Liquidambar styraciflua*	40	Yes	FAC
2. *Acer rubrum*	25	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	65 = Total Cover		
50% of total cover: 32.5	20% of total cover: 13		

Sapling/Shrub Stratum (Plot size: 30')			
1. *Liquidambar styraciflua*	30	Yes	FAC
2. *Acer rubrum*	20	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		

Herb Stratum (Plot size: 30')			
1. *Phragmites australis*	20	Yes	FACW
2. *Microstegium vimineum*	20	Yes	FAC
3. *Juncus effusus*	10	No	OBL
4. *Ilex opaca*	5	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	55 = Total Cover		
50% of total cover: 27.5	20% of total cover: 11		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	6	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species		x1=
FACW species		x2=
FAC species		x3=
FACU species		x4=
UPL species		x5=
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is ≤ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET C-9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100					Silty clay loam	Saturated
4-8	10YR 5/2	90	10YR 5/4	10	C	M	Silty clay	Saturated
8-20	2.5YR 4/3	90	10YR 5/2	10	D	M	Clay	Saturated

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford County Sampling Date: 1/8/19

Applicant/Owner: MDTA State: MD Sampling Point: UPL C-9

Investigator(s): SH RS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 5-15

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 39.46454 Long: -76.2903 Datum: NAD83

Soil Map Unit Name: Russett fine sandy loam, (RuE) NWI classification: N/A

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑	**Is the Sampled Area Within a Wetland?**	Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑		
Wetland Hydrology Present?	Yes ☐	No ☑		

Remarks:

UPL C-9 is a hillslope located north of WET C-4.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches): _____
Water Table Present?	Yes ☐	No ☑	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes ☐	No ☑	Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No hydrology observed.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL C-9

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Liquidambar styraciflua*	30	Yes	FAC
2. *Juniperus virginiana*	20	Yes	FACU
3. *Acer rubrum*	15	Yes	FAC
4.			
5.			
6.			
7.			
8.			
	65	= Total Cover	
50% of total cover: 32.5		20% of total cover: 13	

Sapling/Shrub Stratum (Plot size: 30')			
1. *Baccharis halimifolia*	20	Yes	FAC
2. *Acer rubrum*	10	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	30	= Total Cover	
50% of total cover: 15		20% of total cover: 6	

Herb Stratum (Plot size: 30')			
1. *Allium vineale*	20	Yes	FACU
2. *Lonicera japonica*	15	Yes	FACU
3. *Ilex opaca*	5	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	40	= Total Cover	
50% of total cover: 20		20% of total cover: 8	

Woody Vine Stratum (Plot size: 30')			
1. *Lonicera japonica*	10	Yes	FACU
2.			
3.			
4.			
5.			
	10	= Total Cover	
50% of total cover: 5		20% of total cover: 2	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	8	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ____ 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UPL C-9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/3	100					Silty clay loam	
6-12	10YR 4/3	85	10YR 6/8	15	C	M	Silty clay	
12-20	10YR 4/3	70	10YR 6/8	20	C	M	Silty clay	
			5YR 5/6	10	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford County Sampling Date: 1/8/19

Applicant/Owner: MDTA State: MD Sampling Point: WET C-10

Investigator(s): SH RS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Toe of slope Local relief (concave, convex, none): Concave Slope (%): 0-3

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 39.45969 Long: -76.30965 Datum: NAD83

Soil Map Unit Name: Delanco silt loam, (DcA) NWI classification: PFO1A

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☐ No ☑ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☑

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☑	No	☐	**Is the Sampled Area Within a Wetland?**	Yes ☑	No ☐
Hydric Soil Present?	Yes	☑	No	☐			
Wetland Hydrology Present?	Yes	☑	No	☐			

Remarks:

Collapsed pipe under MD 24 has resulted in significant ponding of Waters Y downstream and WUS C-28.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☑ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes	☑	No	☐	Depth (inches):	2"
Water Table Present?	Yes	☑	No	☐	Depth (inches):	0"
Saturation Present? (includes capillary fringe)	Yes	☑	No	☐	Depth (inches):	0"

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Receives hydrology from sheetflow runoff and overflow from WUS C-28/Waters Y

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET C-10

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Liquidambar styraciflua*	40	Yes	FAC
2. *Acer rubrum*	20	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		
50% of total cover: 30		20% of total cover: 12	

Sapling/Shrub Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
50% of total cover: 0		20% of total cover: 0	

Herb Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	0 = Total Cover		
50% of total cover: 0		20% of total cover: 0	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0		20% of total cover: 0	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

No herbaceous layer present due to consistent flooding, tree stratum bordered the edge of wetland.

SOIL

Sampling Point: WET C-10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/2	75	10YR 5/8	15	C	M	Silty clay	Saturated
			10YR 5/8	10	C	PL		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: Gravel/riprap

Depth (inches): 8”

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford County Sampling Date: 1/8/19

Applicant/Owner: MDTA State: MD Sampling Point: UPL C-10

Investigator(s): SH RS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 4

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 39.45965 Long: -76.30973 Datum: NAD83

Soil Map Unit Name: Delanco silt loam, (DcA) NWI classification: N/A

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area Within a Wetland?**	Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑		
Wetland Hydrology Present?	Yes ☐	No ☑		

Remarks:

UPL C-10 is located southwest and up slope from WET C-10.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches): _____	
Water Table Present?	Yes ☐	No ☑	Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes ☐	No ☑	Depth (inches): _____	**Wetland Hydrology Present?** Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No hydrology observed.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL C-10

Tree Stratum (Plot size: 30')

		Absolute % Cover	Dominant Species?	Indicator Status
1.	*Liquidambar styraciflua*	30	Yes	FAC
2.	*Acer rubrum*	20	Yes	FAC
3.	*Juniperus virginiana*	10	Yes	FACU
4.				
5.				
6.				
7.				
8.				
		60	= Total Cover	

50% of total cover: 30 20% of total cover: 10

Sapling/Shrub Stratum (Plot size: 30')

1.	*Juniperus virginiana*	10	Yes	FACU
2.	*Acer rubrum*	10	Yes	FAC
3.	*Baccharis halimifolia*	10	Yes	FAC
4.				
5.				
6.				
7.				
8.				
		30	= Total Cover	

50% of total cover: 15 20% of total cover: 6

Herb Stratum (Plot size: 30')

1.	*Lonicera japonica*	20	Yes	FACU
2.	*Dichanthelium clandestinum*	15	Yes	FACW
3.	*Rosa multiflora*	10	Yes	FACU
4.	*Allium vineale*	5	No	FACU
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		50	= Total Cover	

50% of total cover: 20 20% of total cover: 10

Woody Vine Stratum (Plot size: 30')

1.				
2.				
3.				
4.				
5.				
		0	= Total Cover	

50% of total cover: 0 20% of total cover: 0

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across All Strata:	9	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	56	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species		x1=
FACW species		x2=
FAC species		x3=
FACU species		x4=
UPL species		x5=
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- x 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is ≤ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UPL C-10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/4	100					Sand	
4-12	2.5YR 4/6	100					Sandy clay	
12-20	2.5YR 4/6	85	10YR 3/2	15	D	M	Sandy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford County Sampling Date: 1/29/19

Applicant/Owner: MDTA State: MD Sampling Point: WET C-11

Investigator(s): WT, RS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 39.45215 Long: -76.32212 Datum: NAD83

Soil Map Unit Name: Hatboro silt loam (Hb) NWI classification: PFO1A

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☑	No	☐	**Is the Sampled Area Within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes	☑	No	☐	
Wetland Hydrology Present?	Yes	☑	No	☐	

Remarks:

WET C-11 is located north of Winters Run Road and northwest of Waters W.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☑ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes	☑	No	☐	Depth (inches):	5"
Water Table Present?	Yes	☑	No	☐	Depth (inches):	0"
Saturation Present? (includes capillary fringe)	Yes	☑	No	☐	Depth (inches):	0"

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WET C-11 receives hydrology from runoff from adjacent uplands.

Flags: WET C-11 (1-9)

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET C-11

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus pennsylvanica*	60	Yes	FACW
2. *Acer rubrum*	10	No	FAC
3. *Quercus palustris*	10	No	FACW
4.			
5.			
6.			
7.			
8.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		

Sapling/Shrub Stratum (Plot size: 30')			
1. *Acer rubrum*	15	Yes	FAC
2. *Nyssa sylvatica*	10	Yes	FAC
3. *Lindera benzoin*	10	Yes	FACW
4.			
5.			
6.			
7.			
8.			
	35 = Total Cover		
50% of total cover: 17.5	20% of total cover: 7		

Herb Stratum (Plot size: 30')			
1. *Symplocarpus foetidus*	20	Yes	OBL
2. *Rosa multiflora*	5	No	FACU
3. *Allium canadense*	5	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

Area is iced over therefore only a small herbaceous layer was visible.

SOIL

Sampling Point: WET C-11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	85	7.5YR 5/6	15	C	M	Silt loam	Saturated
4-8	10YR 5/2	80	7.5YR 4/6	20	C	M	Silty clay	Saturated
8-20	10YR 4/4	100					Clay	Saturated

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford County Sampling Date: 1/29/19

Applicant/Owner: MDTA State: MD Sampling Point: UPL C-11/C-12

Investigator(s): WT, RS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 15-25

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 39.452048 Long: -76.322111 Datum: NAD83

Soil Map Unit Name: Legore silty clay loam (LgD3) NWI classification: None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑	**Is the Sampled Area Within a Wetland?**	Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑		
Wetland Hydrology Present?	Yes ☐	No ☑		

Remarks:

Area is a forested hillslope located south of WET C-11 and north of Winters Run Road.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches): _____
Water Table Present?	Yes ☐	No ☑	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes ☐	No ☑	Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No hydrology observed.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL C-11/C-12

Tree Stratum (Plot size: 30')

		Absolute % Cover	Dominant Species?	Indicator Status
1.	*Liriodendron tulipifera*	50	Yes	FACU
2.	*Liquidambar styraciflua*	10	No	FAC
3.				
4.				
5.				
6.				
7.				
8.				
		60	= Total Cover	

50% of total cover: 30 20% of total cover: 12

Sapling/Shrub Stratum (Plot size: 30')

1.	*Acer rubrum*	10	Yes	FAC
2.	*Rosa multiflora*	10	Yes	FACU
3.	*Lindera benzoin*	5	Yes	FACW
4.				
5.				
6.				
7.				
8.				
		25	= Total Cover	

50% of total cover: 12.5 20% of total cover: 5

Herb Stratum (Plot size: 30')

1.	*Rosa multiflora*	20	Yes	FACU
2.	*Lonicera japonica*	15	Yes	FACU
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		35	= Total Cover	

50% of total cover: 17.5 20% of total cover: 7

Woody Vine Stratum (Plot size: 30')

1.				
2.				
3.				
4.				
5.				
		0	= Total Cover	

50% of total cover: 20% of total cover:

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	17	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ____ 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UPL C-11/C-12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/3	100					Silt loam	
6-13	7.5YR 5/4	100					Silt loam	
13-20	7.5YR 5/4	100					Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford County Sampling Date: 1/29/19

Applicant/Owner: MDTA State: MD Sampling Point: WET C-12

Investigator(s): WT, RS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 39.45158 Long: -76.32185 Datum: NAD83

Soil Map Unit Name: Codorus silt loam (Cu) NWI classification: PFO1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area Within a Wetland?**	Yes ☑	No ☐
Hydric Soil Present?	Yes ☑	No ☐			
Wetland Hydrology Present?	Yes ☑	No ☐			

Remarks:

WET C-12 is located west of Winters Run Road and north of Waters FF.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☑ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches):	2"	
Water Table Present?	Yes ☑	No ☐	Depth (inches):	0"	
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches):	0"	**Wetland Hydrology Present?** Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WET C-12 receives hydrology from runoff from adjacent uplands and groundwater.

Flags: WET C-12 (1-6)

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET C-12

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus pennsylvanica*	60	Yes	FACW
2. *Acer rubrum*	20	Yes	FAC
3. *Platanus occidentalis*	10	No	FACW
4.			
5.			
6.			
7.			
8.			
	90	= Total Cover	
50% of total cover: 45		20% of total cover: 18	

Sapling/Shrub Stratum (Plot size: 30')			
1. *Acer rubrum*	30	Yes	FAC
2. *Lindera benzoin*	30	Yes	FACW
3. *Platanus occidentalis*	10	No	FACW
4.			
5.			
6.			
7.			
8.			
	70	= Total Cover	
50% of total cover: 35		20% of total cover: 14	

Herb Stratum (Plot size: 30')			
1. *Cinna arundinacea*	15	Yes	FACW
2. *Toxicodendron radicans*	10	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	25	= Total Cover	
50% of total cover: 12.5		20% of total cover: 5	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET C-12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	5YR 5/1	90	7.5YR 5/6	10	C	M	Silt loam	Saturated
4-20	10YR 5/2	70	7.5YR 4/4	30	C	M	Silt loam	Saturated

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford County Sampling Date: 3/12/19

Applicant/Owner: MDTA State: MD Sampling Point: WET C-13

Investigator(s): WT, RS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 39.4625233 Long: -76.288106 Datum: NAD83

Soil Map Unit Name: Elkton silt loam (En) NWI classification: PFO1A

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area Within a Wetland?**	Yes ☑	No ☐
Hydric Soil Present?	Yes ☑	No ☐			
Wetland Hydrology Present?	Yes ☑	No ☐			

Remarks:

WET C-13 is located north of WUS C-18. WUS C-23 and WUS C-17 flows southwest through the wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☑ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches):	0.5"	
Water Table Present?	Yes ☑	No ☐	Depth (inches):	0"	
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches):	0"	**Wetland Hydrology Present?** Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WET C-13 receives hydrology from WUS C-23 and WUS C-17

Flags: WET C-13 (1-10)

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET C-13

Tree Stratum (Plot size: 30')

		Absolute % Cover	Dominant Species?	Indicator Status
1.	*Liquidambar styraciflua*	30	Yes	FAC
2.	*Acer rubrum*	25	Yes	FAC
3.				
4.				
5.				
6.				
7.				
8.				
		55	= Total Cover	

50% of total cover: 27.5 20% of total cover: 11

Sapling/Shrub Stratum (Plot size: 30')

1.	*Diospyros virginiana*	10	Yes	FAC
2.	*Liquidambar styraciflua*	10	Yes	FAC
3.	*Lyonia ligustrina*	10	Yes	FACW
4.				
5.				
6.				
7.				
8.				
		30	= Total Cover	

50% of total cover: 15 20% of total cover: 6

Herb Stratum (Plot size: 30')

1.	*Microstegium vimineum*	60	Yes	FAC
2.	*Miscanthus sinensis*	15	No	UPL
3.	*Juncus effuses*	10	No	OBL
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		85	= Total Cover	

50% of total cover: 42.5 20% of total cover: 17

Woody Vine Stratum (Plot size: 30')

1.				
2.				
3.				
4.				
5.				
		0	= Total Cover	

50% of total cover: 20% of total cover:

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	6	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ____ 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET C-13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	90	7.5YR 4/6	10	C	M	Silt loam	Saturated
4-10	2.5YR 4/4	100					Silty clay	Saturated
10-20	2.5YR 4/6	100					Clay	Saturated with gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford County Sampling Date: 3/12/19

Applicant/Owner: MDTA State: MD Sampling Point: UPL-13

Investigator(s): WT, RS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 39.465241 Long: -76.288107 Datum: NAD83

Soil Map Unit Name: Elkton silt loam (En) NWI classification: None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☑	No	☐	
Hydric Soil Present?	Yes	☐	No	☑	**Is the Sampled Area Within a Wetland?** Yes ☐ No ☑
Wetland Hydrology Present?	Yes	☐	No	☑	

Remarks:

Area is an upland located north of WET C-13.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes	☐	No	☑	Depth (inches): _____
Water Table Present?	Yes	☐	No	☑	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☑	Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No hydrology observed,

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL C-13

Tree Stratum (Plot size: 30')

		Absolute % Cover	Dominant Species?	Indicator Status
1.	*Quercus alba*	60	Yes	FACU
2.	*Liquidambar styraciflua*	15	No	FAC
3.	*Juniperus virginiana*	5	No	FACU
4.	*Prunus serotina*	5	No	FACU
5.	*Pinus virginiana*	5	No	FACU
6.	*Ilex opaca*	5	No	FAC
7.				
8.				
		95	= Total Cover	

50% of total cover: 47.5 20% of total cover: _____

Sapling/Shrub Stratum (Plot size: 30')

1.	*Liquidambar styraciflua*	10	Yes	FAC
2.				
3.				
4.				
5.				
6.				
7.				
8.				
		10	= Total Cover	

50% of total cover: 5 20% of total cover: 2

Herb Stratum (Plot size: 30')

1.	*Microstegium vimineum*	30	Yes	FAC
2.	*Allium vineale*	30	Yes	FACU
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		60	= Total Cover	

50% of total cover: 30 20% of total cover: 12

Woody Vine Stratum (Plot size: 30')

1.	*Toxicodendron radicans*	5	Yes	FAC
2.				
3.				
4.				
5.				
		5	= Total Cover	

50% of total cover: 2.5 20% of total cover: 1

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 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		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UPL C-13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-9	10R 4/6	100					Clay	
9-14	2.5YR 4/6	100					Clay	
14-20	2.5YR 4/6	80	10YR 5/8	20	C	M	Sandy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.38 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Roadway Distance to nearest roadway or other development 15 ft.

Dominant wetland systems present PEM/PSS Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET C-1/C-2

Latitude 39.45857 Longitude -76.31002

Prepared by: RS Date 12/11/18

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	7, 8, 13, 1		
Floodflow Alteration	Y	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 13, 16, 18	X	Receives sheetflow from roadway and uplands along with overflow from WUS Y
Fish and Shellfish Habitat	Y	3, 4, 14, 15, 17		
Sediment/Toxicant Retention	Y	1, 2, 3, 5, 9, 10, 12, 16	X	
Nutrient Removal	N	3, 4, 10		A lot of vegetation was wiped out by the ponding due to pipe collapse
Production Export	N	2, 4		Deer tracks noted
Sediment/Shoreline Stabilization	Y	1, 2, 3, 4, 7, 9		
Wildlife Habitat	N	3, 17		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N	1		
Visual Quality/Aesthetics	N	6		
ES Endangered Species Habitat	N			
Other				

Notes: Wetland receives more than normal water flow due to failed pipe downstream on WUS Y. Emergency repair in progress during site visit on 12/6/18. Most vegetation has been destroyed through high water flood events

* Refer to backup list of numbered considerations.

Wet C-1/C-2 is combined PSS/PEM wetland cover types

Wetland Function-Value Evaluation Form

Total area of wetland 0.17 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forested/roadway Distance to nearest roadway or other development 97 ft.

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET C-3

Latitude 39.45912 Longitude -76.30349

Prepared by: RS Date 12/17/18

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N	7, 9		
Floodflow Alteration	Y	2, 3, 4, 5, 6, 8, 9, 10	X	Located on slope off o fI-95 Northbound, between WUS-C9 and WUS-C8.
Fish and Shellfish Habitat	N	3		
Sediment/Toxicant Retention	Y	1, 2, 3, 9, 10, 11, 13, 14	X	
Nutrient Removal	N	3, 9, 10, 12		
Production Export	N	2		
Sediment/Shoreline Stabilization		2, 3, 4, 6, 15		
Wildlife Habitat	N	1, 3		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland <0.01 AC Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forested Distance to nearest roadway or other development 113 ft.

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET C-4

Latitude 39.46543 Longitude -76.28705

Prepared by: RS Date 1/14/19

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		7, 9, 10, 13,		
Floodflow Alteration	Y	2, 3, 4, 5, 6, 7, 8, 9, 15	X	
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1, 2, 3, 9, 12, 13, 14	X	
Nutrient Removal	N	3, 5		
Production Export	N	2		
Sediment/Shoreline Stabilization	N	3, 4		
Wildlife Habitat	N	3, 6, 7		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.06 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forested Distance to nearest roadway or other development 225 ft.

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET C-5

Latitude 39.465 Longitude -76.2878

Prepared by: RS Date 1/14/19

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N	7, 9, 10		
Floodflow Alteration	Y	2, 3, 5, 6, 7, 8, 9	X	
Fish and Shellfish Habitat	N	1, 14		
Sediment/Toxicant Retention	Y	1, 2, 3, 5, 9, 10, 12	X	
Nutrient Removal	N	3, 4, 10		
Production Export	N	2		
Sediment/Shoreline Stabilization	N	2, 3, 4, 6, 14		
Wildlife Habitat	N	3, 6, 7		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.01 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forested Distance to nearest roadway or other development 295 ft.

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET C-6

Latitude 39.4648 Longitude -76.28787

Prepared by: RS Date 1/14/19

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N	7, 10		
Floodflow Alteration	Y	2, 3, 5, 6, 8, 9	X	
Fish and Shellfish Habitat	N	1		
Sediment/Toxicant Retention	N	1, 2, 3, 9		
Nutrient Removal	N	3, 5		
Production Export	N	2		
Sediment/Shoreline Stabilization	N	2, 3, 4,14		
Wildlife Habitat	N	1, 3, 6, 7		
Recreation	N			
Educational/Scientific Value	N	2		
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.07 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forested Distance to nearest roadway or other development 290 ft.

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET C-7

Latitude 39.46411 Longitude -76.28944

Prepared by: RS Date 1/14/19

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N	7, 8, 13		WUS C-27 feeds into wetland
Floodflow Alteration	Y	2, 3, 4, 5, 6, 9, 10, 14, 16	X	Adjacent to WUS 27, flat area can hold water
Fish and Shellfish Habitat	N	14		
Sediment/Toxicant Retention	Y	1, 2, 3, 5, 9, 10, 11, 12, 13, 14	X	Intermittent WUS C-27
Nutrient Removal	N	3, 4, 12		
Production Export	N	2		
Sediment/Shoreline Stabilization	N	1, 2, 3, 4		
Wildlife Habitat	N	1		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.02 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forested Distance to nearest roadway or other development 296 ft.

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET C-8

Latitude 39.46431 Longitude -76.28891

Prepared by: RS Date 1/14/19

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N	15		
Floodflow Alteration	Y	5, 6, 7, 8, 9, 10	X	Can collect overflow from WUS C-21
Fish and Shellfish Habitat	N	1		
Sediment/Toxicant Retention	Y	1, 2, 3, 5, 9	X	
Nutrient Removal	N	3, 4		
Production Export	N	2		
Sediment/Shoreline Stabilization	N	1, 2, 3		
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.02 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forested Distance to nearest roadway or other development 97 ft.

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET C-9

Latitude 39.46441 Longitude -76.2909

Prepared by: RS Date 1/14/19

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N	13		
Floodflow Alteration	Y	2, 3, 4, 5, 6, 7, 9	X	Receives roadside runoff
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1, 2, 3, 5, 9	X	
Nutrient Removal	N	3, 4, 5,10		
Production Export	N	2		
Sediment/Shoreline Stabilization	N	1, 2, 3		
Wildlife Habitat	N	1, 3, 7		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland <0.01 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Roadway, scrub-shrub Distance to nearest roadway or other development 45 ft.

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET C-10

Latitude 39.45967 Longitude -76.30958

Prepared by: RS Date 1/14/19

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N	7, 9		
Floodflow Alteration	Y	2, 3, 4, 5, 6, 7, 8, 9, 10	X	Overflow from WUS C-28
Fish and Shellfish Habitat	N	4, 14, 15, 17		
Sediment/Toxicant Retention	Y	1, 2, 3, 9, 10, 12, 14	X	
Nutrient Removal	N	3, 4, 5		
Production Export	N	2		
Sediment/Shoreline Stabilization	N	1, 3, 4		
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.13 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forested/Roadway Distance to nearest roadway or other development 18'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET C-11

Latitude 39.45215 Longitude -76.32212

Prepared by: RS Date 2/7/19

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N	5, 9, 10		
Floodflow Alteration	Y	1, 2, 3, 4, 5, 6, 7, 8, 9,10, 15	X	Adjacent to WUS W
Fish and Shellfish Habitat	N	1		
Sediment/Toxicant Retention	Y	1, 2, 3, 5, 9		Can hold water for extended periods
Nutrient Removal	Y	3, 4, 5, 9, 10		Lots of vegetation in wetland
Production Export	N	2, 8		
Sediment/Shoreline Stabilization	N	3, 4		
Wildlife Habitat	N	3, 20		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N	17		
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.07 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forested/Roadway Distance to nearest roadway or other development 48'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET C-12

Latitude 39.45158 Longitude -76.32185

Prepared by: RS Date 2/7/19

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N	5, 7, 13		
Floodflow Alteration	Y	2, 3, 4, 5, 6, 7, 8, 9, 13, 16	X	Associated with WUS FF
Fish and Shellfish Habitat	N	1, 14, 15		
Sediment/Toxicant Retention	Y	1, 2, 3, 9, 10, 11, 12, 13, 14	X	WUS FF flows through wetland
Nutrient Removal	N	3, 6, 12, 14		
Production Export	N	2		
Sediment/Shoreline Stabilization	N	2, 5		
Wildlife Habitat	N	3		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.05 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forest Distance to nearest roadway or other development 95 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 2 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET C-13

Latitude 39.4625233 Longitude -76.288106

Prepared by: RS Date 3/14/19

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N	5		
Floodflow Alteration	Y	2, 3, 4, 5, 7, 9, 10	X	Receives flow from two streams
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	N	1, 2, 3, 9		Receives runoff from adjacent uplands
Nutrient Removal	N	3		
Production Export	N	2		
Sediment/Shoreline Stabilization	N	2, 3, 4		
Wildlife Habitat	N	3, 6, 7		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.01 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forested/roadway Distance to nearest roadway or other development 118 ft.

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. Wetland AA

Latitude 39.45749 Longitude -76.31119

Prepared by: RS Date 12/17/18

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N	13		
Floodflow Alteration	Y	2, 5, 6, 8, 9, 10	X	Adjacent to Waters Y and Waters OO, can collect overflow from Waters Y
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	N	1, 2, 14		
Nutrient Removal	N	3, 4, 5		
Production Export	N	2,		
Sediment/Shoreline Stabilization	N	2, 3		
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.05 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forested and roadway Distance to nearest roadway or other development 67 ft.

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. Wetland BB

Latitude 39.45599 Longitude -76.31309

Prepared by: RS Date 12/11/18

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N	7,10,15		
Floodflow Alteration	Y	2, 3, 4, 5, 6, 7, 8, 9, 10, 13, 15	X	Located within cloverleaf of MD 24 and I 95 adjacent to Waters Y
Fish and Shellfish Habitat	N	1, 2, 4		
Sediment/Toxicant Retention	Y	1, 2, 5, 9, 12, 13		
Nutrient Removal	Y	3, 4, 5, 12, 13, 14		
Production Export	N	2,		
Sediment/Shoreline Stabilization	N	3, 4, 9, 14		
Wildlife Habitat	N	1, 3		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N	1, 2, 22		
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.05 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? Yes

Adjacent land use Forested/roadway Distance to nearest roadway or other development 115 ft.

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin?

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. Wetland P

Latitude 39.455214 Longitude -76.309607

Prepared by: RS Date 12/17/18

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	5, 6, 7, 8, 10	X	Isolated wetland collects and stores water
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1, 2, 3, 5, 9	X	Runoff from adjacent uplands
Nutrient Removal	N	3, 5, 10		
Production Export	N	2		
Sediment/Shoreline Stabilization	N	3		
Wildlife Habitat	N	3, 7		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.02 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forested/roadway Distance to nearest roadway or other development 22 ft.

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. Wetland S

Latitude 39.45262 Longitude -76.31754

Prepared by: RS Date 12/21/18

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	3, 4, 5, 6, 7, 8, 9, 10,	X	Can receive flood flow from Waters V and runoff from roadway and uplands
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1, 2, 3, 9		Can hold water due to relatively flat area where ponded water currently exists
Nutrient Removal	Y	3, 5, 8, 9		
Production Export	N	7		
Sediment/Shoreline Stabilization	N	1, 2, 3,		
Wildlife Habitat	N	3, 7		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.01 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forested/roadway Distance to nearest roadway or other development 15 ft.

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? NA

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. Wetland T

Latitude 39.45646 Longitude -76.3103

Prepared by: RS Date 12/17/18

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	3, 4, 5, 6, 7, 8, 9	X	Receives flow from runoff from roadway and uplands
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	N	1, 2		
Nutrient Removal	N	3, 4		
Production Export	N	2, 7		
Sediment/Shoreline Stabilization	N	1, 2, 3		
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.14 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Roadway, developed Distance to nearest roadway or other development 40 ft.

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. Wetland X

Latitude 39.45296 Longitude -76.31681

Prepared by: RS Date 12/20/18

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N	7, 9,		
Floodflow Alteration	Y	2, 3, 4, 5, 6, 7, 8, 9, 10, 13	X	Receives flow from stream and runoff from roadway and uplands
Fish and Shellfish Habitat	N	8, 17		
Sediment/Toxicant Retention	Y	1, 2, 3, 5, 10, 12, 13, 15, 16	X	Receives flow from stream and runoff from roadway and uplands
Nutrient Removal	Y	3, 5, 8, 9, 12, 13		
Production Export	N	2, 4, 7		Deer tracks
Sediment/Shoreline Stabilization	Y	2, 3, 4, 6, 15		
Wildlife Habitat	N	7, 13, 16		Deer tracks
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland <0.01 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forested Distance to nearest roadway or other development 120 ft.

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? NA

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. Wetland Z

Latitude 39.45695 Longitude -76.3114

Prepared by: RS Date 1/4/19

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 3, 5, 6, 7, 8, 9, 10	X	Small pocked wetland adjacent but not connected to Waters Y
Fish and Shellfish Habitat	N	1		
Sediment/Toxicant Retention	N	1, 3, 5		
Nutrient Removal	N	3, 4, 5		
Production Export	N			
Sediment/Shoreline Stabilization	N	1		
Wildlife Habitat	N	1, 3, 4		
Recreation	N			
Educational/Scientific Value	N	2		
Uniqueness/Heritage	N	10		
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 12/5/18 **Stream ID:** WUS C-1

Staff: WT SH RS **Flow Type:** Perennial ☐ Intermittent ☐ Ephemeral ☒

Flow Direction: South **Drains Into:** WUS C-2

Fed By: Drainage from adjacent uplands.

Bank Height: 1-2' **Water Depth:** 0.5-2" **Width:** 1-3'

Channel Gradient (%): 3 **Bank Stability:** Stable

Avg. Bank Slope: Vertical ☐ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 20 % Riffle: 40 % Pool: 40

Substrate:

Cobble	☐	Gravel	☐	Sand	☒	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☒	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☒
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: WUS C-1 flows south into WUS C-2, which flows South into Waters Y, which flows southwest into Winters Run, which flows south into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments:

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 12/5/18 **Stream ID:** WUS C-2

Staff: SH RS WT **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: Southwest **Drains Into:** Waters Y

Fed By: WUS C-1, Seep, and runoff from adjacent uplands

Bank Height: 1.5' **Water Depth:** 2-3" **Width:** 3-5'

Channel Gradient (%): 2 **Bank Stability:** Stable

Avg. Bank Slope: Vertical ☐ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 40 % Riffle: 20 % Pool: 20

Substrate:

Cobble	☐	Gravel	☐	Sand	☒	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☒

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☒
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: WUS C-2 flows south into Waters Y, which flows Southwest into Winters Run, which flows south into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments:

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 12/6/18 **Stream ID:** WUS C-3

Staff: SH RS **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: South **Drains Into:** Waters Y

Fed By: WUS C-5, WUS C-6, WET C-1, runoff from adjacent uplands

Bank Height: 2' **Water Depth:** 0.5-4" **Width:** 3-8'

Channel Gradient (%): 2 **Bank Stability:** Stable

Avg. Bank Slope: Vertical ☐ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 0 % Riffle: 60 % Pool: 40

Substrate:

Cobble	☐	Gravel	☐	Sand	☒	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☒

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☒

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☒
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: WUS C-3 flows south into Waters Y, which flows southwest into Winters Run, which flows south into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments: WUS C-3 is culverted under the MD24 onramp to I-95 south.

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 12/6/18 **Stream ID:** WUS C-4

Staff: SH RS **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: North **Drains Into:** Waters Y

Fed By: Two outfalls of unknown origin.

Bank Height: 10' **Water Depth:** 0.5-2" **Width:** 8-10'

Channel Gradient (%): 2 **Bank Stability:** Unstable

Avg. Bank Slope: Vertical ☒ 2:1 ☐ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 85 % Riffle: 10 % Pool: 5

Substrate:

Cobble ☒	Gravel ☒	Sand ☒	Silt ☒
Veg ☐	Riprap ☒	Concrete ☐	Muck ☒

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☒

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☒	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☐	Scour	☒
Sediment deposition	☒	Multiple observed/predicted flow events	☐
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: WUS C-4 flows north into Waters Y, which flows southwest into Winters Run, which flows south into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments: Stream is heavily incised with riprap at upstream extent.

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 12/6/18 **Stream ID:** WUS C-5

Staff: WT SH RS **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: West **Drains Into:** WUS C-3

Fed By: Roadside runoff

Bank Height: 2-3' **Water Depth:** 0.5-2" **Width:** 2-3'

Channel Gradient (%): 2 **Bank Stability:** Moderately stable

Avg. Bank Slope: Vertical ☒ 2:1 ☐ 3:1 ☐ 4:1 or greater ☒

Mesohabitat: % Run: 45 % Riffle: 50 % Pool: 5

Substrate:

Cobble	☐	Gravel	☐	Sand	☒	Silt	☒
Veg	☐	Riprap	☒	Concrete	☐	Muck	☒

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☒

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☐
Sediment deposition	☒	Multiple observed/predicted flow events	☒
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: WUS C-5 flows west into WUS C-3, which flows south into Waters Y, which flows southwest into Winters Run, which flows south into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments: Some riprap at downstream extent/WUS C-3/C-5 confluence.

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 12/6/18 **Stream ID:** WUS C-6

Staff: WT SH RS **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: East **Drains Into:** WUS C-3

Fed By: Runoff from adjacent roadway and uplands

Bank Height: 2-3' **Water Depth:** 1-2" **Width:** 3-4'

Channel Gradient (%): 3 **Bank Stability:** Stable

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☐ 4:1 or greater ☒

Mesohabitat: % Run: 20 % Riffle: 75 % Pool: 5

Substrate:

Cobble ☐	Gravel ☐	Sand ☒	Silt ☒
Veg ☐	Riprap ☐	Concrete ☐	Muck ☒

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☐
Sediment deposition	☒	Multiple observed/predicted flow events	☒
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: WUS C-6 flows east into WUS C-3, which flows south into Waters Y, which flows southwest into Winters Run, which flows south into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments: Some riprap at downstream extent/WUS C-3/C-5 confluence.

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 12/11/18 **Stream ID:** WUS C-7

Staff: SH RS **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: Southeast **Drains Into:** WUS C-8

Fed By: Stream exits culvert from under I-95

Bank Height: 3-4' **Water Depth:** 1-2" **Width:** 4-5'

Channel Gradient (%): 2 **Bank Stability:** Moderately stable

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☐ 4:1 or greater ☒

Mesohabitat: % Run: 15 % Riffle: 35 % Pool: 50

Substrate:

Cobble ☐	Gravel ☐	Sand ☒	Silt ☒
Veg ☐	Riprap ☒	Concrete ☐	Muck ☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☒

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☒
Changes in character of soil	☒	Destruction of terrestrial veg.	☐
Shelving	☒	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☒
Sediment deposition	☐	Multiple observed/predicted flow events	☒
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: WUS C-7 flows southeast into WUS C-8, which flows southeast into Haha Branch, which flows south into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments: Stream is culverted at upstream extent under I-95. Flow observed after a period of heavy rain.

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 12/11/18 **Stream ID:** WUS C-8

Staff: SH RS **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: Southeast **Drains Into:** Haha Branch

Fed By: WUS C-7, WUS C-11, WUS C-12, Roadside runoff

Bank Height: 5-6' **Water Depth:** 1-3" **Width:** 4-5'

Channel Gradient (%): 3 **Bank Stability:** Moderately unstable

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☐ 4:1 or greater ☒

Mesohabitat: % Run: 30 % Riffle: 50 % Pool: 20

Substrate:

Cobble	☒	Gravel	☒	Sand	☒	Silt	☒
Veg	☐	Riprap	☒	Concrete	☐	Muck	☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☒

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☒
Changes in character of soil	☒	Destruction of terrestrial veg.	☐
Shelving	☒	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☒
Leaf litter disturbed or washed away	☒	Scour	☒
Sediment deposition	☒	Multiple observed/predicted flow events	☒
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: WUS C-8 flows southeast into Haha Branch, which flows south into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments: WUS C-8 is severely incised. Attempted stabilization of stream with riprap at upper extent.

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 12/11/18 **Stream ID:** WUS C-9

Staff: SH RS **Flow Type:** Perennial ☐ Intermittent ☐ Ephemeral ☒

Flow Direction: Southwest **Drains Into:** WET C-3

Fed By: Roadside runoff

Bank Height: 1-2' **Water Depth:** 1-3" **Width:** 2-3'

Channel Gradient (%): 2 **Bank Stability:** Stable

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☒ 4:1 or greater ☐

Mesohabitat: % Run: 55 % Riffle: 15 % Pool: 30

Substrate:

Cobble	☒	Gravel	☒	Sand	☒	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☒

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☐
Sediment deposition	☒	Multiple observed/predicted flow events	☒
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: WUS C-9 flows southwest into WET C-3, which sheetflows south into WUS C-11/C-12, which flows into WUS C-8, which flows southeast into Haha Branch, which flows south into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments: Flags begin at end of riprap. WUS C-9 loses bed and banks as it flows into WET C-3 which sheetflows into WUS C-11 and C-12 with no visible defined channel.

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 12/11/18 **Stream ID:** WUS C-10

Staff: SH RS **Flow Type:** Perennial ☒ Intermittent ☐ Ephemeral ☐

Flow Direction: Southeast **Drains Into:** Otter Point Creek

Fed By: Tributaries

Bank Height: 3-4' **Water Depth:** 3-8" **Width:** 12'

Channel Gradient (%): 1 **Bank Stability:** Stable

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☒ 4:1 or greater ☐

Mesohabitat: % Run: 25 % Riffle: 45 % Pool: 30

Substrate:

Cobble ☒	Gravel ☒	Sand ☒	Silt ☒
Veg ☐	Riprap ☒	Concrete ☐	Muck ☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☒

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☒	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☒
Sediment deposition	☒	Multiple observed/predicted flow events	☒
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: WUS C-10 is Haha Branch, which flows south into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments: WUS C-10 is culverted at upstream extend under I-95. Some riprap has been placed on banks at culvert opening to stabilize some minor erosion.

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 12/11/18 **Stream ID:** WUS C-11

Staff: SH RS **Flow Type:** Perennial ☐ Intermittent ☐ Ephemeral ☒

Flow Direction: West **Drains Into:** WUS C-8

Fed By: WET C-3

Bank Height: 5' **Water Depth:** 0" **Width:** 3'

Channel Gradient (%): 5 **Bank Stability:** Unstable

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☐ 4:1 or greater ☒

Mesohabitat: % Run: 100 % Riffle: 0 % Pool: 0

Substrate: Cobble ☐ Gravel ☐ Sand ☒ Silt ☒
Veg ☐ Riprap ☐ Concrete ☐ Muck ☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☒
Changes in character of soil	☒	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☒
Leaf litter disturbed or washed away	☒	Scour	☒
Sediment deposition	☐	Multiple observed/predicted flow events	☒
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: WUS C-11 flows west into WUS C-8, which flows southeast into Haha Branch, which flows south into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments: WUS C-11 drains WET C-3 and is heavily incised.

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 12/11/18 **Stream ID:** WUS C-12

Staff: SH RS **Flow Type:** Perennial ☐ Intermittent ☐ Ephemeral ☒

Flow Direction: South **Drains Into:** WUS C-8

Fed By: WET C-3

Bank Height: 3-4' **Water Depth:** 0" **Width:** 3-5'

Channel Gradient (%): 3 **Bank Stability:** Moderately unstable

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☐ 4:1 or greater ☒

Mesohabitat: % Run: 100 % Riffle: 0 % Pool: 0

Substrate:

Cobble ☐	Gravel ☐	Sand ☒	Silt ☒
Veg ☐	Riprap ☐	Concrete ☐	Muck ☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☒
Changes in character of soil	☒	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☒
Leaf litter disturbed or washed away	☒	Scour	☒
Sediment deposition	☐	Multiple observed/predicted flow events	☒
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: WUS C-12 flows south into WUS C-8, which flows southeast into Haha Branch, which flows south into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments: WUS C-12 drains WET C-3 and is moderately incised.

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 12/19/18 **Stream ID:** WUS C-13

Staff: SH RS **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: South **Drains Into:** Outside of study area

Fed By: Unknown

Bank Height: 5-6' **Water Depth:** 1-2" **Width:** 6-8'

Channel Gradient (%): 2 **Bank Stability:** Moderately stable

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☐ 4:1 or greater ☒

Mesohabitat: % Run: 80 % Riffle: 5 % Pool: 15

Substrate:

Cobble	☒	Gravel	☒	Sand	☒	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☐

Channel Characteristics: Natural ☐ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☒
Changes in character of soil	☒	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☐	Scour	☒
Sediment deposition	☒	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: WUS C-13 flows south into an unnamed tributary to Haha Branch, which flows south into Haha Branch, which flows south into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments: Base flow at time of visit, stream is heavily incised.

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 12/19/18 **Stream ID:** WUS C-14

Staff: SH RS **Flow Type:** Perennial ☐ Intermittent ☐ Ephemeral ☒

Flow Direction: Southwest **Drains Into:** WUS C-13

Fed By: Runoff from adjacent uplands.

Bank Height: 3-4' **Water Depth:** 0" **Width:** 3-6'

Channel Gradient (%): 2 **Bank Stability:** Moderately stable

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☒ 4:1 or greater ☐

Mesohabitat: % Run: 100 % Riffle: 0 % Pool: 0

Substrate:

Cobble	☐	Gravel	☒	Sand	☒	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☐	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: WUS C-14 flows southwest into WUS C-13, which flows south into an unnamed tributary to Haha Branch, which flows south into Haha Branch, which flows south into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments: No flow at time of site visit, but channel has well defined bed and banks.

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 12/19/18 **Stream ID:** WUS C-15

Staff: SH RS **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: West **Drains Into:** WUS C-13

Fed By: Seep and runoff from adjacent uplands.

Bank Height: 2-7' **Water Depth:** 0.5-1" **Width:** 8-10'

Channel Gradient (%): 1 **Bank Stability:** Unstable

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☐ 4:1 or greater ☒

Mesohabitat: % Run: 90 % Riffle: 0 % Pool: 10

Substrate:

Cobble ☐	Gravel ☒	Sand ☒	Silt ☒
Veg ☐	Riprap ☐	Concrete ☐	Muck ☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☒
Changes in character of soil	☒	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☐	Scour	☐
Sediment deposition	☒	Multiple observed/predicted flow events	☐
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: WUS C-15 flows west into WUS C-13, which flows south into an unnamed tributary to Haha Branch, which flows south into Haha Branch, which flows south into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments: Minor flow observed at time of field visit. Stream banks are heavily eroded.

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 12/19/18 **Stream ID:** WUS C-16

Staff: SH RS **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: South **Drains Into:** WUS C-13

Fed By: Upslope roadside area with wet vegetation but without hydric soil.

Bank Height: 1-5' **Water Depth:** 0.5-1" **Width:** 2-5'

Channel Gradient (%): 2 **Bank Stability:** Moderately stable

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☐ 4:1 or greater ☒

Mesohabitat: % Run: 100 % Riffle: 0 % Pool: 0

Substrate:

Cobble ☐	Gravel ☒	Sand ☒	Silt ☒
Veg ☐	Riprap ☐	Concrete ☐	Muck ☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☒
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☐
Leaf litter disturbed or washed away	☐	Scour	☒
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: WUS C-16 flows south into WUS C-13, which flows south into an unnamed tributary to Haha Branch, which flows south into Haha Branch, which flows south into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments: Minor flow observed at time of field visit.

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 12/19/18 **Stream ID:** WUS C-17

Staff: SH RS **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: South **Drains Into:** WUS C-18

Fed By: Roadside toe of slope ditch and runoff from adjacent uplands.

Bank Height: 2-3' **Water Depth:** 1-2" **Width:** 4-5'

Channel Gradient (%): 2 **Bank Stability:** Stable

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☒ 4:1 or greater ☐

Mesohabitat: % Run: 70 % Riffle: 5 % Pool: 25

Substrate:

Cobble	☐	Gravel	☒	Sand	☒	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☒

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☐	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: WUS C-17 flows south into WUS C-18, which flows southwest into WUS C-21, which flows south into an unnamed tributary to Haha Branch, which flows into Haha Branch, which flows south into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments: WUS C-17 loses its channel at downstream extent due to ATV tracks, but the hydrological connection is still visible.

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 1/4/19 **Stream ID:** WUS C-18

Staff: SH RS **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: Southwest **Drains Into:** WUS C-21

Fed By: WUS C-19, WET C-4, WET C-5, WUS C-20, WUS C-17

Bank Height: 1-3.5' **Water Depth:** 2-3" **Width:** 1-3'

Channel Gradient (%): 2 **Bank Stability:** Moderately stable

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☒ 4:1 or greater ☐

Mesohabitat: % Run: 40 % Riffle: 40 % Pool: 20

Substrate:

Cobble	☒	Gravel	☒	Sand	☒	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☒	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☒
Sediment deposition	☐	Multiple observed/predicted flow events	☒
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: WUS C-18 flows southwest into WUS C-21, which flows into an unnamed tributary to Haha Branch, which flows south into Haha Branch, which flows south into Otter Point Creek, flows into the Bush River, a TNW.

Other Comments:

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 1/4/19 **Stream ID:** WUS C-19

Staff: SH RS **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: Northwest **Drains Into:** WUS C-18

Fed By: RCP outfall with unknown origin

Bank Height: 8" **Water Depth:** 1-2" **Width:** 2-3'

Channel Gradient (%): 2 **Bank Stability:** Stable

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☒ 4:1 or greater ☐

Mesohabitat: % Run: 60 % Riffle: 40 % Pool: 0

Substrate:

Cobble	☒	Gravel	☒	Sand	☒	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☒

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☐
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☒
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: WUS C-19 flows northwest into WUS C-18, which flows southwest into WUS C-21, which flows into an unnamed tributary to Haha Branch, which flows south into Haha Branch, which flows south into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments: Riprap at upstream extent.

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 1/4/19 **Stream ID:** WUS C-20

Staff: SH RS **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: Northwest **Drains Into:** WUS C-18

Fed By: WET C-6

Bank Height: 8" **Water Depth:** 1-2" **Width:** 2-3'

Channel Gradient (%): 2-3 **Bank Stability:** Stable

Avg. Bank Slope: Vertical ☐ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 90 % Riffle: 10 % Pool: 0

Substrate:

Cobble ☒	Gravel ☒	Sand ☒	Silt ☒
Veg ☐	Riprap ☐	Concrete ☐	Muck ☒

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☐
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☒
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: WUS C-20 flows northwest into WUS C-18, which flows south into WUS C-21, which flows into an unnamed tributary to Haha Branch, which flows south into Haha Branch, which flows south into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments:

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 1/4/19 **Stream ID:** WUS C-21

Staff: SH RS **Flow Type:** Perennial ☒ Intermittent ☐ Ephemeral ☐

Flow Direction: Southwest **Drains Into:** Haha Branch

Fed By: WUS C-18, WUS C-22, WUS C-23

Bank Height: 4-6' **Water Depth:** 3-8" **Width:** 4-10'

Channel Gradient (%): 1-2 **Bank Stability:** Moderately stable

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☒ 4:1 or greater ☐

Mesohabitat: % Run: 90 % Riffle: 10 % Pool: 0

Substrate:

Cobble	☒	Gravel	☒	Sand	☒	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☒

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☒
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: WUS C-21 flows south into an unnamed tributary to Haha Branch, which flows south into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments:

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 1/4/19 **Stream ID:** WUS C-22

Staff: SH RS **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: South **Drains Into:** WUS C-21

Fed By: Runoff from adjacent uplands.

Bank Height: 1-3' **Water Depth:** 1-2" **Width:** 2'

Channel Gradient (%): 3 **Bank Stability:** Unstable

Avg. Bank Slope: Vertical ☒ 2:1 ☐ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 40 % Riffle: 40 % Pool: 20

Substrate:

Cobble ☐	Gravel ☐	Sand ☒	Silt ☒
Veg ☐	Riprap ☐	Concrete ☐	Muck ☒

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☐
Changes in character of soil	☐	Destruction of terrestrial veg.	☒
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☒
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: WUS C-22 flows south into WUS C-21, which flows south into an unnamed tributary to Haha Branch, which flows into Haha Branch, which flows south into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments:

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 1/7/19 **Stream ID:** WUS C-23

Staff: SH RS **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: Southwest **Drains Into:** WUS C-21

Fed By: WUS C-17 and runoff from adjacent uplands

Bank Height: 6" **Water Depth:** 0.5-1" **Width:** 2'

Channel Gradient (%): 3 **Bank Stability:** Moderately stable

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☐ 4:1 or greater ☒

Mesohabitat: % Run: 85 % Riffle: 10 % Pool: 5

Substrate:

Cobble	☐	Gravel	☒	Sand	☒	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☐
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☒	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☒
Sediment deposition	☐	Multiple observed/predicted flow events	☒
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: WUS C-23 flows southwest into WUS C-21, which flows south into an unnamed tributary to Haha Branch, which flows into Haha Branch, which flows south into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments:

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 1/7/19 **Stream ID:** WUS C-24

Staff: SH RS **Flow Type:** Perennial ☒ Intermittent ☐ Ephemeral ☐

Flow Direction: Southeast **Drains Into:** WUS C-21

Fed By: WUS C-25, WET C-7, WUS C-26, outside of study area

Bank Height: 3' **Water Depth:** 1-3" **Width:** 3-4'

Channel Gradient (%): 2 **Bank Stability:** Moderately stable

Avg. Bank Slope: Vertical ☒ 2:1 ☐ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 80 % Riffle: 10 % Pool: 10

Substrate:

Cobble	☐	Gravel	☒	Sand	☒	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☒	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☒
Sediment deposition	☐	Multiple observed/predicted flow events	☒
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: WUS C-24 flows southeast into WUS C-21, which flows south into Haha Branch, which flows south into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments:

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 1/7/19 **Stream ID:** WUS C-25

Staff: SH RS **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: Southeast **Drains Into:** WUS C-24

Fed By: RCP from under I-95

Bank Height: 3-5' **Water Depth:** 1" **Width:** 3-5'

Channel Gradient (%): 3 **Bank Stability:** Unstable at downstream extent

Avg. Bank Slope: Vertical ☒ 2:1 ☐ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 80 % Riffle: 10 % Pool: 10

Substrate:

Cobble ☒	Gravel ☒	Sand ☒	Silt ☒
Veg ☐	Riprap ☐	Concrete ☐	Muck ☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☒

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☒
Changes in character of soil	☒	Destruction of terrestrial veg.	☐
Shelving	☒	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☒
Sediment deposition	☐	Multiple observed/predicted flow events	☒
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: WUS C-25 flows southeast into WUS C-24, which flows southeast into WUS C-21, which flows south into Haha Branch, which flow south into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments: Flows from 18" RCP from under I-95.

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 1/7/19 **Stream ID:** WUS C-26

Staff: SH RS **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: South **Drains Into:** WUS C-24

Fed By: WET C-9, groundwater, and runoff from adjacent uplands

Bank Height: 2-5' **Water Depth:** 1" **Width:** 2-5'

Channel Gradient (%): 3 **Bank Stability:** Moderately stable

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☒ 4:1 or greater ☐

Mesohabitat: % Run: 80 % Riffle: 15 % Pool: 5

Substrate:

Cobble	☒	Gravel	☐	Sand	☒	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☒	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☒
Sediment deposition	☐	Multiple observed/predicted flow events	☒
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: WUS C-26 flows south into WUS C-24, which flows southeast into WUS C-21, which flows south into Haha Branch, which flows south into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments:

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 1/7/19 **Stream ID:** WUS C-27

Staff: SH RS **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: South **Drains Into:** WET C-7

Fed By: RCP under I-95

Bank Height: 2-5' **Water Depth:** 1-2" **Width:** 2-5'

Channel Gradient (%): 2 **Bank Stability:** Stable

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☒ 4:1 or greater ☐

Mesohabitat: % Run: 80 % Riffle: 15 % Pool: 5

Substrate:

Cobble	☒	Gravel	☐	Sand	☒	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☒

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☒

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☒	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☒
Sediment deposition	☐	Multiple observed/predicted flow events	☒
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: WUS C-27 flows south into WET C-7, which drains south into WUS C-24, which flows southeast into WUS C-21, which flows south into Haha Branch, which flows into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments: WUS C-27 exits a RCP from under I-95 and is culverted under a foot bridge.

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 1/8/19 **Stream ID:** WUS C-28/Waters Y

Staff: SH RS **Flow Type:** Perennial ☒ Intermittent ☐ Ephemeral ☐

Flow Direction: Southeast **Drains Into:** Winters Run

Fed By: WUS C-29, WET C-10

Bank Height: 2' **Water Depth:** 4-6" **Width:** 1-3'

Channel Gradient (%): 2 **Bank Stability:** Stable

Avg. Bank Slope: Vertical ☐ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 40 % Riffle: 40 % Pool: 20

Substrate:

Cobble	☒	Gravel	☐	Sand	☒	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☒

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☒
Sediment deposition	☐	Multiple observed/predicted flow events	☒
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: WUS C-28/Waters Y flows southeast into Winters Run, which flows south into Otter Point Creek, which flows south into the Bush River, a TNW.

Other Comments: Culverted under I-95 off ramp to MD 24 northbound. A collapsed pipe downstream has caused significant ponding to occur in the area.

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 1/8/19 **Stream ID:** WUS C-29

Staff: SH RS **Flow Type:** Perennial ☒ Intermittent ☐ Ephemeral ☐

Flow Direction: West **Drains Into:** WUS C-28/Waters Y

Fed By: Unknown, stream extends beyond study area.

Bank Height: 1-2' **Water Depth:** 2-3" **Width:** 2-3'

Channel Gradient (%): 3 **Bank Stability:** Stable

Avg. Bank Slope: Vertical ☐ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 60 % Riffle: 20 % Pool: 20

Substrate:

Cobble	☒	Gravel	☐	Sand	☒	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☐	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☒
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: WUS C-29 flows west into Waters Y, which flows southwest into Waters U, which is Winters Run, which flows south into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments: WUS extends beyond fence outside of the study area

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 1/29/19 **Stream ID:** WUS C-30

Staff: WT, RS **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: Southwest **Drains Into:** Waters Y

Fed By: Stormwater management pond

Bank Height: 1-2' **Water Depth:** 5-8" **Width:** 5-7'

Channel Gradient (%): 2-3 **Bank Stability:** Stable

Avg. Bank Slope: Vertical ☐ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 90 % Riffle: 5 % Pool: 5

Substrate:

Cobble	☒	Gravel	☒	Sand	☒	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☒

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☒
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☐	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: WUS C-30 flows southwest into Waters Y, which flows southwest into Waters U, which flows into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments:

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 3/22/18 **Stream ID:** WUS C-31

Staff: WT, RS **Flow Type:** Perennial ☐ Intermittent ☐ Ephemeral ☒

Flow Direction: Southwest **Drains Into:** Haha Branch

Fed By: WET D-1, runoff from uplands

Bank Height: 4-6" **Water Depth:** 0" **Width:** 2'

Channel Gradient (%): 1 **Bank Stability:** Stable

Avg. Bank Slope: Vertical ☐ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 0 % Riffle: 0 % Pool: 0

Substrate:

Cobble	☐	Gravel	☐	Sand	☒	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☒

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☐
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☐
Sediment deposition	☒	Multiple observed/predicted flow events	☐
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: WUS C-31 flows southwest into WET C-4, which drains southwest into WUS C-18, which flows southwest into WUS C-21, which flows south into an unnamed tributary to Haha Branch, which flows south into Haha Branch, which flows into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments:

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 12/10/18 **Stream ID:** Waters U

Staff: RS, SH **Flow Type:** Perennial ☒ Intermittent ☐ Ephemeral ☐

Flow Direction: South **Drains Into:** Otter Point Creek

Fed By: Beyond study area

Bank Height: 2-4' **Water Depth:** 6-20" **Width:** 50-70'

Channel Gradient (%): 1 **Bank Stability:** Stable

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☒ 4:1 or greater ☐

Mesohabitat: % Run: 50 % Riffle: 30 % Pool: 20

Substrate:

Cobble ☒	Gravel ☒	Sand ☒	Silt ☒
Veg ☐	Riprap ☐	Concrete ☒	Muck ☐

Channel Characteristics: Natural ☒ Artificial ☒ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☐
Sediment deposition	☒	Multiple observed/predicted flow events	☒
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Waters U is Winters Run, which flows south into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments: Concrete banks where I-95 crosses over stream.

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 12/10/18 **Stream ID:** Waters V

Staff: RS, SH **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: Southwest **Drains Into:** Waters U

Fed By: Wetland S, Wetland X, runoff from uplands

Bank Height: 1-2' **Water Depth:** 0.5-2" **Width:** 2-5'

Channel Gradient (%): 1 **Bank Stability:** Stable

Avg. Bank Slope: Vertical ☐ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 100 % Riffle: 0 % Pool: 0

Substrate:

Cobble ☐	Gravel ☒	Sand ☒	Silt ☒
Veg ☐	Riprap ☐	Concrete ☐	Muck ☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☒
Leaf litter disturbed or washed away	☒	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☒
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Waters V flows southwest into Waters U, which is Winters Run, which flows south into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments: Flow observed at time of site visit.

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 12/10/18 **Stream ID:** Waters W

Staff: RS, SH **Flow Type:** Perennial ☒ Intermittent ☐ Ephemeral ☐

Flow Direction: Southeast **Drains Into:** Waters U (Winters Run)

Fed By: Beyond study area

Bank Height: 1-2' **Water Depth:** 4-8" **Width:** 2-5'

Channel Gradient (%): 1 **Bank Stability:** Moderately stable

Avg. Bank Slope: Vertical ☐ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 80 % Riffle: 10 % Pool: 10

Substrate:

Cobble	☒	Gravel	☒	Sand	☒	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☒
Sediment deposition	☐	Multiple observed/predicted flow events	☒
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Waters W flows southeast into Waters U, which is Winters Run, which flows south into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments:

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 12/5/18 **Stream ID:** Waters Y

Staff: WT, RS **Flow Type:** Perennial ☒ Intermittent ☐ Ephemeral ☐

Flow Direction: Southwest **Drains Into:** Waters U (Winters Run)

Fed By: Multiple tributaries and wetlands

Bank Height: 1-4' **Water Depth:** 3-8" **Width:** 3-8'

Channel Gradient (%): 1 **Bank Stability:** Moderately stable

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☒ 4:1 or greater ☐

Mesohabitat: % Run: 70 % Riffle: 20 % Pool: 10

Substrate:

Cobble	☒	Gravel	☒	Sand	☒	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☒

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☐
Sediment deposition	☒	Multiple observed/predicted flow events	☒
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Waters Y flows southwest into Waters U, which is Winters Run, which flows south into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments:

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 12/5/18 **Stream ID:** Waters CC

Staff: RS. SH **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: Southwest **Drains Into:** Waters Y

Fed By: Wetland BB

Bank Height: 6-8" **Water Depth:** 1-3" **Width:** 1-2'

Channel Gradient (%): 3 **Bank Stability:** Stable

Avg. Bank Slope: Vertical ☐ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 100 % Riffle: 0 % Pool: 0

Substrate:

Cobble	☐	Gravel	☐	Sand	☒	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☒

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☒
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☒
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Waters CC flows southwest into Waters Y, which flows southwest into Waters U, which is Winters Run, which flows south into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments: Fed by wetland Wetland BB.

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 12/5/18 **Stream ID:** Waters DD

Staff: RS, SH **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: West **Drains Into:** Waters Y

Fed By: Spring seep

Bank Height: 4-6" **Water Depth:** 1-2" **Width:** 1-3'

Channel Gradient (%): 1 **Bank Stability:** Stable

Avg. Bank Slope: Vertical ☐ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 100 % Riffle: 0 % Pool: 0

Substrate:

Cobble	☐	Gravel	☒	Sand	☒	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☒

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☐
Leaf litter disturbed or washed away	☐	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Waters DD flows west into Waters Y, which flows southwest into Waters U, which is Winters Run, which flows south into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments: Fed by a spring seep.

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 12/5/18 **Stream ID:** Waters EE

Staff: WT, RS, SH **Flow Type:** Perennial ☒ Intermittent ☐ Ephemeral ☐

Flow Direction: South **Drains Into:** Waters Y

Fed By: Beyond study area

Bank Height: 2-3' **Water Depth:** 2-6" **Width:** 4-8'

Channel Gradient (%): 1 **Bank Stability:** Moderately stable

Avg. Bank Slope: Vertical ☐ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 60 % Riffle: 20 % Pool: 20

Substrate:

Cobble	☒	Gravel	☒	Sand	☒	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☒	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☐	Scour	☐
Sediment deposition	☒	Multiple observed/predicted flow events	☒
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Waters EE flows south into Waters Y, which flows southwest into Waters U, which is Winters Run, which flows south into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments: Extends north beyond the study area.

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 12/10/18 **Stream ID:** Waters FF

Staff: RS, SH **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: South **Drains Into:** Waters U (Winters Run)

Fed By: WET C-12

Bank Height: 6-12" **Water Depth:** 1-5" **Width:** 1-4'

Channel Gradient (%): 1 **Bank Stability:** Stable

Avg. Bank Slope: Vertical ☐ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 80 % Riffle: 10 % Pool: 10

Substrate:

Cobble ☐	Gravel ☐	Sand ☒	Silt ☒
Veg ☐	Riprap ☐	Concrete ☒	Muck ☒

Channel Characteristics: Natural ☒ Artificial ☒ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☐
Changes in character of soil	☐	Destruction of terrestrial veg.	☒
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Waters FF flows south into Waters U, which is Winters Run, which flows south into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments: Fed by a wetland and flows under Winters Run road into a concrete channel.

Stream Datasheet

Project: KH-3021 MD 24 Interchange **Date:** 12/5/18 **Stream ID:** Waters OO

Staff: WT, RS **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: South **Drains Into:** Waters Y

Fed By: Outfall at the upstream extent

Bank Height: 1' **Water Depth:** 1" **Width:** 4'

Channel Gradient (%): 3 **Bank Stability:** Stable

Avg. Bank Slope: Vertical ☐ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 100 % Riffle: 0 % Pool: 0

Substrate:

Cobble	☒	Gravel	☐	Sand	☐	Silt	☒
Veg	☐	Riprap	☐	Concrete	☒	Muck	☐

Channel Characteristics: Natural ☐ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☐
Leaf litter disturbed or washed away	☐	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☒
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Waters OO flows south into Waters Y, which flows southwest into Waters U, which is Winters Run, which flows south into Otter Point Creek, which flows into the Bush River, a TNW.

Other Comments:

WETLAND, UPLAND, AND STREAM DATASHEETS

D. KH-3029: Abingdon Road Overpass

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Abingdon/Harford Sampling Date: 02/26/19

Applicant/Owner: MDTA State: MD Sampling Point: UPL D-1

Investigator(s): NJV, DGV Section, Township, Range:

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 2-3

Subregion (LRR or MLRA): MLRA 149A Lat: 39.465796 Long: -76.286791 Datum: NAD83

Soil Map Unit Name: Beltsville silt loam, 5-10% slopes NWI classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area Within a Wetland?**	Yes ☐	No ☑
Hydric Soil Present?	Yes ☐	No ☑			
Wetland Hydrology Present?	Yes ☐	No ☑			

Remarks: Forested hillslope lacking hydrology.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches):		
Water Table Present?	Yes ☐	No ☑	Depth (inches):		
Saturation Present? (includes capillary fringe)	Yes ☐	No ☑	Depth (inches):	**Wetland Hydrology Present?**	Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL D-1

Tree Stratum (Plot size: 30')

		Absolute % Cover	Dominant Species?	Indicator Status
1.	*Juniperus virginiana*	30	Y	FACU
2.	*Liquidambar styraciflua*	20	Y	FAC
3.	*Ulmus americana*	15	Y	FAC
4.				
5.				
6.				
7.				
8.				
		65	= Total Cover	

50% of total cover: 32.5 20% of total cover: 13

Sapling/Shrub Stratum (Plot size: 30')

1.	*Juniperus virginiana*	10	Y	FACU
2.				
3.				
4.				
5.				
6.				
7.				
8.				
		10	= Total Cover	

50% of total cover: 5 20% of total cover: 2

Herb Stratum (Plot size: 30')

1.	*Microstegium vimineum*	10	Y	FAC
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		10	= Total Cover	

50% of total cover: 5 20% of total cover: 2

Woody Vine Stratum (Plot size: 30')

1.				
2.				
3.				
4.				
5.				
			= Total Cover	

50% of total cover: 20% of total cover:

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 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		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UPL D-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	100					silty clay	
2-12	10YR 4/3	100					sandy clay with gravel	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Abingdon/Harford Sampling Date: 02/26/19

Applicant/Owner: MDTA State: MD Sampling Point: WET D-1

Investigator(s): NJV, DGV Section, Township, Range:

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 2-3

Subregion (LRR or MLRA): MLRA 149A Lat: 39.465663 Long: -76.286867 Datum: NAD 83

Soil Map Unit Name: Elkton silt loam NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☑	No	☐			
Hydric Soil Present?	Yes	☑	No	☐	**Is the Sampled Area Within a Wetland?**	Yes ☑	No ☐
Wetland Hydrology Present?	Yes	☑	No	☐			

Remarks: Slope wetland located outside of right-of-way fence. Continues beyond study area.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes	☐	No	☑	Depth (inches):	
Water Table Present?	Yes	☑	No	☐	Depth (inches):	0.5
Saturation Present? (includes capillary fringe)	Yes	☑	No	☐	Depth (inches):	0.5

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Water filled auger hole to within ½ inch of ground surface.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET D-1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Liquidambar styraciflua*	50	Y	FAC
2. *Acer rubrum*	20	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	70	= Total Cover	
50% of total cover: 35		20% of total cover: 14	

Sapling/Shrub Stratum (Plot size: 30')			
1. *Acer rubrum*	5	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5	= Total Cover	
50% of total cover: 2.5		20% of total cover: 1	

Herb Stratum (Plot size: 30')			
1. *Microstegium vimineum*	5	Y	FAC
2. *Scirpus cyperinus*	3	Y	OBL
3. *Juncus effusus*	2	Y	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	10	= Total Cover	
50% of total cover: 5		20% of total cover: 2	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	6	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET D-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	100					silty clay	
2-12	10YR 4/2	80	5YR 4/6	20	C	M	clay loam	included gravel pieces

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 1853 SF Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Highway and church/daycare Distance to nearest roadway or other development 50 feet

Dominant wetland systems present PFO1A Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Headwaters

How many tributaries contribute to the wetland? None Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET D-1

Latitude 39.465663 Longitude -76.286867

Prepared by: NJV Date 2/26/19

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office_____ Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	13, 15	X	Wetland is comprised of hillside seeps.
Floodflow Alteration	Y	2, 3, 9		Because the wetland is located on hillslopes, flood storage is limited
Fish and Shellfish Habitat	N			No connectivity to streams that support fish or shellfish.
Sediment/Toxicant Retention	Y	1		Hillslopes above the wetland are a potential source of sediment.
Nutrient Removal	N			
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	24		Wetland area is contiguous with broad forested areas to the south.
Recreation	N			Wetland is adjacent to I-95 and church/daycare.
Educational/Scientific Value	N			Small, seasonally wet area is surrounded by highway and developed land.
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			Highway and Abingdon Road overpass is in view from wetland area.
ES Endangered Species Habitat	N			No endangered species are known to inhabit the area.
Other				

Notes:

* Refer to backup list of numbered considerations.

WETLAND, UPLAND, AND STREAM DATASHEETS

E. KH-3027: MD 152 Park and Ride Facility Relocation Wall

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford Sampling Date: 7/13/18 (1/4/19)

Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: WET E-1

Investigator(s): CJ, SG Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR S, MLRA 149A Lat: 39.4441 Long: -76.3486 Datum: NAD 83

Soil Map Unit Name: KpB – Keyport silt loam, 2 to 5 percent slopes NWI classification: PFO1A/C

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area Within a Wetland?**	Yes ☑	No ☐
Hydric Soil Present?	Yes ☑	No ☐			
Wetland Hydrology Present?	Yes ☑	No ☐			

Remarks: Moderate quality wetland fed by large seep. Data plot taken near southern boundary of WET E-1 in a marginal area; other areas were more saturated. Wetland drains to WUS E-1.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☑ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches):	0-3	
Water Table Present?	Yes ☑	No ☐	Depth (inches):	1	
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches):	0	**Wetland Hydrology Present?** Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Hydrology updated on 01/04/2019. Presence of standing water, saturation and water-table was much more prevalent due to heavy precipitation in the fall and early winter of 2018.

Sampling Point: WET E-1

VEGETATION (Four Strata) – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Liquidambar styraciflua*	60	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		

50% of total cover: 30 20% of total cover: 12

Sapling/Shrub Stratum (Plot size: 30')			
1. *Acer saccharum*	10	Y	FACU
2. *Nyssa sylvatica*	5	N	FAC
3. *Vaccinium corymbosum*	15	Y	FACW
4.			
5.			
6.			
7.			
8.			
	30 = Total Cover		

50% of total cover: 15 20% of total cover: 6

Herb Stratum (Plot size: 30')			
1. *Lonicera japonica*	10	Y	FACU
2. *Ilex opaca*	5	Y	FAC
3. *Vaccinium corymbosum*	10	Y	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	25 = Total Cover		

50% of total cover: 12.5 20% of total cover: 5

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: 20% of total cover:

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	67	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- x 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is ≤ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET E-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/1	100					Silt Loam	
2-8	2.5Y 4/1	100					Clay Loam	
8+	2.5Y 4/1	85	7.5YR 5/6	15	C	M	Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Soils updated on 1/4/2019

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford Sampling Date: 7/13/18

Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: UPL E-1

Investigator(s): CJ, SG Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 39.4446 Long: -76.3483 Datum: NAD 83

Soil Map Unit Name: KpB – Keyport silt loam, 2 to 5 percent slopes NWI classification: None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area Within a Wetland?**	Yes ☐	No ☑
Hydric Soil Present?	Yes ☐	No ☑			
Wetland Hydrology Present?	Yes ☐	No ☑			

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes ☐	No ☐	Depth (inches): _____		
Water Table Present?	Yes ☐	No ☐	Depth (inches): _____		
Saturation Present? (includes capillary fringe)	Yes ☐	No ☐	Depth (inches): _____	**Wetland Hydrology Present?**	Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL E-1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	50	Y	FAC
2. *Liquidambar styraciflua*	20	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	70	= Total Cover	
50% of total cover: 35		20% of total cover: 14	

Sapling/Shrub Stratum (Plot size: 30')			
1. *Ilex opaca*	30	Y	FAC
2. *Acer rubrum*	15	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	45	= Total Cover	
50% of total cover: 22.5		20% of total cover: 9	

Herb Stratum (Plot size: 30')			
1. *Ilex opaca*	10	Y	FAC
2. *Smilax rotundifolia*	10	Y	FAC
3. *Acer rubrum*	5	Y	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	25	= Total Cover	
50% of total cover: 12.5		20% of total cover: 5	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	7	(A)
Total Number of Dominant Species Across All Strata:	7	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- x 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UPL E-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 4/6	100					Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: roots

Depth (inches): 10

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford Sampling Date: 7/13/18

Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: WET E-2

Investigator(s): CJ, SG Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 5

Subregion (LRR or MLRA): LRR S, MLRA 149A Lat: 39.4450 Long: -76.3497 Datum: NAD 83

Soil Map Unit Name: KpB – Keyport silt loam, 2 to 5 percent slopes NWI classification: PFO1A

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area Within a Wetland?**	Yes ☑	No ☐
Hydric Soil Present?	Yes ☑	No ☐			
Wetland Hydrology Present?	Yes ☑	No ☐			

Remarks: Low quality wetland. Fed by stormwater management facility upslope from wetland and likely also groundwater. WET E-2 is part of a larger wetland complex, WET E-2A, but is separated by a man-made berm.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches): _____
Water Table Present?	Yes ☐	No ☑	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes ☐	No ☑	Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET E-2

Tree Stratum (Plot size: 30')

		Absolute % Cover	Dominant Species?	Indicator Status
1.	*Liquidambar styraciflua*	50	Y	FAC
2.	*Diospyros virginiana*	20	Y	FAC
3.				
4.				
5.				
6.				
7.				
8.				
		70	= Total Cover	

50% of total cover: 35 20% of total cover: 14

Sapling/Shrub Stratum (Plot size: 30')

1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
			= Total Cover	

50% of total cover: 20% of total cover:

Herb Stratum (Plot size: 30')

1.	*Dichanthelium clandestinum*	20	Y	FACW
2.	*Onoclea sensibilis*	30	Y	FACW
3.	*Thelypteris noveboracensis*	30	Y	FAC
4.	*Liquidambar styraciflua*	5	N	FAC
5.	*Vaccinium corymbosum*	10	N	FACW
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		95	= Total Cover	

50% of total cover: 47.5 20% of total cover: 19

Woody Vine Stratum (Plot size: 30')

1.				
2.				
3.				
4.				
5.				
			= Total Cover	

50% of total cover: 20% of total cover:

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- x 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET E-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/1	100					Sandy clay loam	
8-15+	10YR 5/1	100					Sandy clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford Sampling Date: 7/13/18

Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: UPL E-2

Investigator(s): CJ, SG Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR or MLRA): LRR S, MLRA 149A Lat: 39.4449 Long: -76.3499 Datum: NAD 83

Soil Map Unit Name: KpB – Keyport silt loam, 2 to 5 percent slopes NWI classification: None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area Within a Wetland?**	Yes ☐	No ☑
Hydric Soil Present?	Yes ☐	No ☑			
Wetland Hydrology Present?	Yes ☐	No ☑			

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes ☐	No ☐	Depth (inches): _____		
Water Table Present?	Yes ☐	No ☐	Depth (inches): _____		
Saturation Present? (includes capillary fringe)	Yes ☐	No ☐	Depth (inches): _____	**Wetland Hydrology Present?**	Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL E-2

Tree Stratum (Plot size: 30')

		Absolute % Cover	Dominant Species?	Indicator Status
1.	*Acer rubrum*	70	Y	FAC
2.				
3.				
4.				
5.				
6.				
7.				
8.				
		70	= Total Cover	

50% of total cover: 35 20% of total cover: 14

Sapling/Shrub Stratum (Plot size: 30')

1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
			= Total Cover	

50% of total cover: 20% of total cover:

Herb Stratum (Plot size: 30')

1.	*Polygonum cuspidatum*	10	N	UPL
2.	*Festuca* sp.	10	N	NA
3.	*Microstegium vimineum*	60	Y	FAC
4.	*Acer rubrum*	10	N	FAC
5.	*Toxicodendron radicans*	5	N	FAC
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		95	= Total Cover	

50% of total cover: 47.5 20% of total cover: 19

Woody Vine Stratum (Plot size: 30')

1.				
2.				
3.				
4.				
5.				
			= Total Cover	

50% of total cover: 20% of total cover:

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- x 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UPL E-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/4	100					Silty Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: Roots

Depth (inches): 8

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford Sampling Date: 07/05/2018

Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: WET E-3 PFO

Investigator(s): LL, MC Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA): LRR S, MLRA 149A Lat: 39.4490 Long: -76.3538 Datum: NAD 83

Soil Map Unit Name: KpB – Keyport silt loam, 2 to 5 percent slopes NWI classification: PFO1E

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area Within a Wetland?**	Yes ☑	No ☐
Hydric Soil Present?	Yes ☑	No ☐			
Wetland Hydrology Present?	Yes ☑	No ☐			

Remarks: High quality wetland, (152 Park and Ride at Franklinville Road).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☑ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☑ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches):		
Water Table Present?	Yes ☑	No ☐	Depth (inches):	6	
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches):	0	

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Surface water is not reflected at the wetland data point but is present within portions of the wetland.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET E-3 PFO

Tree Stratum (Plot size: 30')

		Absolute % Cover	Dominant Species?	Indicator Status
1.	*Nyssa sylvatica*	45	Yes	FAC
2.	*Liquidambar styraciflua*	35	Yes	FAC
3.	*Magnolia virginiana*	20	No	FACW
4.	*Acer rubrum*	30	Yes	FAC
5.				
6.				
7.				
8.				
		130	= Total Cover	

50% of total cover: 65 20% of total cover: 26

Sapling/Shrub Stratum (Plot size: 30')

1.	*Vaccinium corymbosum*	40	Yes	FACW
2.	*Nyssa sylvatica*	40	Yes	FAC
3.				
4.				
5.				
6.				
7.				
8.				
		80	= Total Cover	

50% of total cover: 40 20% of total cover: 16

Herb Stratum (Plot size: 30')

1.	Moss sp.	15	Yes	NI
2.	*Smilax rotundifolia*	1	No	FAC
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		16	= Total Cover	

50% of total cover: 8 20% of total cover: 3.2

Woody Vine Stratum (Plot size: 30')

1.				
2.				
3.				
4.				
5.				
			= Total Cover	

50% of total cover: 20% of total cover:

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- x 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

-Buttressed roots, moss trim lines and shallow root systems
-5-10% upland inclusions

SOIL

Sampling Point: WET E-3 PFO

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/2	100					Silt Loam	
2-7	10YR 3/1	95	10YR 5/1	5	D	M	Clay Loam	
7-13	10YR 5/1	60	7.5YR 5/8	4	C	PL	Clay Loam	
	10YR 3/1	36						
13-18+	10YR 5/1	70	10YR 3/1	25	D	M	Clay	
			7.5YR 5/8	5	C	PL	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford Sampling Date: 12/18/18

Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: WET E-3 PEM

Investigator(s): EM, AS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Swale/depression Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA): LRR S, MLRA 149A Lat: 39.4490 Long: -76.3538 Datum: NAD 83

Soil Map Unit Name: KpB – Keyport silt loam, 2 to 5 percent 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	☑	No	☐			
Hydric Soil Present?	Yes	☑	No	☐	**Is the Sampled Area Within a Wetland?**	Yes ☑	No ☐
Wetland Hydrology Present?	Yes	☑	No	☐			

Remarks: Moderate quality wetland. Fed by unmanaged stormwater from road and likely also groundwater. Part of a large, mostly PFO, wetland complex.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes	☐	No	☑	Depth (inches):	
Water Table Present?	Yes	☐	No	☑	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☑	No	☐	Depth (inches):	0-2

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET E-3 PEM

Tree Stratum (Plot size: 30')

		Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
			= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Sapling/Shrub Stratum (Plot size: 30')

1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
			= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 30')

1.	*Typha latifolia*	45	Y	OBL
2.	*Juncus effusus*	20	Y	OBL
3.	*Festuca* sp.	25	Y	NA
4.	*Smilax rotundifolia*	2	N	FAC
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		92	= Total Cover	

50% of total cover: 46 20% of total cover: 18.4

Woody Vine Stratum (Plot size: 30')

1.				
2.				
3.				
4.				
5.				
			= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

x 1 - Rapid Test for Hydrophytic Vegetation

x 2 - Dominance Test is > 50%

___ 3 - Prevalence Index is $\leq$ 3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET E-3 PEM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/3	100					Mucky clay	
2-9	10YR 5/2	90	10YR 5/5	10	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: Gravel

Depth (inches): 9

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford Sampling Date: 07/18/2018

Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: UPL E-3/E-5

Investigator(s): LL, MC Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR or MLRA): LRR S, MLRA 149A Lat: 39.4499 -76.3546 Datum: NAD 83

Soil Map Unit Name: KpB – Keyport silt loam, 2 to 5 percent slopes NWI classification: N/A

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑	**Is the Sampled Area Within a Wetland?**	Yes ☐	No ☑
Hydric Soil Present?	Yes ☐	No ☑			
Wetland Hydrology Present?	Yes ☐	No ☑			

Remarks: Moderate quality wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches):	–	
Water Table Present?	Yes ☐	No ☑	Depth (inches):	–	
Saturation Present? (includes capillary fringe)	Yes ☐	No ☑	Depth (inches):	–	**Wetland Hydrology Present?** Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL E-3/E-5

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus velutina*	30	Yes	UPL
2. *Quercus prinus*	25	Yes	UPL
3. *Prunus serotina*	15	No	FACU
4. *Quercus rubra*	15	No	FACU
5. *Acer rubrum*	20	No	FAC
6.			
7.			
8.			
	105	= Total Cover	
50% of total cover: 52.5		20% of total cover:	21

Sapling/Shrub Stratum (Plot size: 30')			
1. *Nyssa sylvatica*	40	Yes	FAC
2. *Vaccinium corymbosm*	20	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	60	= Total Cover	
50% of total cover: 30		20% of total cover:	12

Herb Stratum (Plot size: 30')			
1. *Smilax rotundifolia*	3	No	FAC
2. *Vaccinium angustifolium*	15	Yes	FACU
3. Moss sp.	–	–	–
4. *Lycopodium obscurum*	5	Yes	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	23	= Total Cover	
50% of total cover: 11.5		20% of total cover:	4.6

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	33%	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ____ 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UPL E-3/E-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/2	100					Loam	
2-4	10YR 4/4	100					Loam	
4-6	10YR 6/3	100					Loam	
6-9	10YR 4/3	100					Loam	
9+	7.5YR 6/8	100					Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford Sampling Date: 07/05/2018

Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: WET E-4

Investigator(s): LS, CJ Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA): LRR S, MLRA 149A Lat: 39.4508 Long: -76.357 Datum: NAD 83

Soil Map Unit Name: KpB – Keyport silt loam, 2 to 5 percent slopes NWI classification: PFO1E

Are climatic/hydrologic conditions on the site typical for this time of year? Yes [x] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [x] 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 [x]	No [ ]	**Is the Sampled Area Within a Wetland?**	Yes [x]	No [ ]
Hydric Soil Present?	Yes [x]	No [ ]			
Wetland Hydrology Present?	Yes [x]	No [ ]			

Remarks: High quality wetland; drains into WUS E-2 and WUS E-3. See stream datasheets for more detail.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [x] Saturation (A3)
- [x] Water Marks (B1)
- [x] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Mari Deposits (B15) **(LLR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [x] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [x] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [x] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes [ ]	No [x]	Depth (inches):	–	
Water Table Present?	Yes [ ]	No [x]	Depth (inches):	–	
Saturation Present? (includes capillary fringe)	Yes [x]	No [ ]	Depth (inches):	0	**Wetland Hydrology Present?** Yes [x] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

-Many drainage patterns throughout the system, and areas of water-stained leaves.

-Surface water is not reflected at the wetland data point but is present within portions of the wetland.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET E-4

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Liquidambar styraciflua*	45	Yes	FAC
2. *Quercus phellos*	30	Yes	FACW
3. *Acer rubrum*	45	Yes	FAC
4. *Nyssa sylvatica*	30	Yes	FAC
5.			
6.			
7.			
8.			
	150 = Total Cover		
50% of total cover: 75	20% of total cover: 30		

Sapling/Shrub Stratum (Plot size: 30')			
1. *Viburnum dentatum*	30	Yes	FAC
2. *Clethra alnifolia*	20	No	FACW
3. *Kalmia latifolia*	15	No	FACU
4. *Nyssa sylvatica*	40	Yes	FAC
5. *Fagus grandifolia*	20	No	FACU
6.			
7.			
8.			
	125 = Total Cover		
50% of total cover: 62.5	20% of total cover: 25		

Herb Stratum (Plot size: 30')			
1. *Microstegium vimineum*	50	Yes	FAC
2. *Arisaema triphyllum*	40	Yes	FACW
3. *Smilax rotundifolia*	10	No	FAC
4. *Polygonum* sp.	10	No	–
5. *Clethra alnifolia*	30	Yes	FACW
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	140 = Total Cover		
50% of total cover: 70	20% of total cover: 28		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- x 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET E-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/1	100					Mucky Loam	Saturated
2-6	10YR 4/1	70	10YR 6/6	25	C	M	Clay Loam	Saturated
			10YR 2/1	5	D	M		
6-14+	GLEY 1 6/N	75	10YR 7/8	25	C	M	Clay	Moist

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☑ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Wetland is mosaic (approximately 70/30); several large upland inclusions (30%); numerous drainage patterns; seems entire wetland system is underlain by clay, and the wetland is mainly perched.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford Sampling Date: 07/18/2018

Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: UPL E-4

Investigator(s): LL, MC Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): None Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR or MLRA): LRR S, MLRA 149A Lat: 39.4507 -76.3565 Datum: NAD 83

Soil Map Unit Name: KpB – Keyport silt loam, 2 to 5 percent slopes NWI classification: N/A

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑	**Is the Sampled Area Within a Wetland?**	Yes ☐	No ☑
Hydric Soil Present?	Yes ☐	No ☑			
Wetland Hydrology Present?	Yes ☐	No ☑			

Remarks: Moderate quality wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches):	–	
Water Table Present?	Yes ☐	No ☑	Depth (inches):	–	
Saturation Present? (includes capillary fringe)	Yes ☐	No ☑	Depth (inches):	–	**Wetland Hydrology Present?** Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

-Very dry-no evidence of saturation outside of the wetland

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL E-4

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fagus grandifolia*	50	Yes	FACU
2. *Quercus alba*	70	Yes	FACU
3. *Liquidambar styraciflua*	20	No	FAC
4. *Quercus phellos*	15	No	FACW
5.			
6.			
7.			
8.			
	155 = Total Cover		
50% of total cover: 77.5	20% of total cover: 31		

Sapling/Shrub Stratum (Plot size: 30')			
1. *Acer rubrum*	40	Yes	FAC
2. *Fagus grandifolia*	50	Yes	FACU
3. *Nyssa sylvatica*	10	No	FAC
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		

Herb Stratum (Plot size: 30')			
1. *Vaccinium angustifolium*	40	Yes	FACU
2. *Mitchella repens*	15	Yes	FACU
3. *Smilax rotundifolia*	15	Yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	7	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	29%	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ____ 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UPL E-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 4/6	100					Fibric Loam	Friable soils
1-4	10YR 3/3	100					Silt Loam	Friable soils
4-10+	2.5Y 7/4	100					Loam	Friable soils
10+	Too friable to pull soil core							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford Sampling Date: 12/18/18

Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: WET E-5

Investigator(s): EM, AS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR or MLRA): LRR S, MLRA 149A Lat: 39.4485 Long: -76.3545 Datum: NAD 83

Soil Map Unit Name: LyB – Loamy and clayey land, 0 to 5 percent slopes NWI classification: PFO1E

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area Within a Wetland?**	Yes ☑	No ☐
Hydric Soil Present?	Yes ☑	No ☐			
Wetland Hydrology Present?	Yes ☑	No ☐			

Remarks:

Moderate-quality seep. Fed by groundwater and runoff from upslope. Connects to WET E-3, a larger groundwater-fed PFO wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☑ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☑ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches):	0-3	
Water Table Present?	Yes ☑	No ☐	Depth (inches):	0	
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches):	0-8	**Wetland Hydrology Present?** Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET E-5

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer saccharinum*	40	Y	FAC
2. *Liquidambar styraciflua*	20	Y	FAC
3. *Acer rubrum*	30	Y	FAC
4.			
5.			
6.			
7.			
8.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		

Sapling/Shrub Stratum (Plot size: 30')			
1. *Smilax rotundifolia*	10	Y	FAC
2. *Kalmia latifolia*	10	Y	FACU
3. *Ilex opaca*	10	Y	FAC
4.			
5.			
6.			
7.			
8.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		

Herb Stratum (Plot size: 30')			
1. *Microstegium vimineum*	15	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	6	(A)
Total Number of Dominant Species Across All Strata:	7	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	86	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- x 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

Buttressed roots on maples

SOIL

Sampling Point: WET E-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/2	100					Sandy clay	
3-12	10YR 6/2	75	10YR 5/6	20	C	M	Sandy clay	
			10YR 5/2	5	D	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford Sampling Date: 12/18/18

Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: WET E-6

Investigator(s): EM, AS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 5

Subregion (LRR or MLRA): LRR S, MLRA 149A Lat: 39.4488 Long: -76.3585 Datum: NAD 83

Soil Map Unit Name: KpB – Keyport silt loam, 2 to 5 percent slopes NWI classification: PFO1B/E

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area Within a Wetland?**	Yes ☑	No ☐
Hydric Soil Present?	Yes ☑	No ☐			
Wetland Hydrology Present?	Yes ☑	No ☐			

Remarks:

Datasheet for the two forested seep polygons located east of WUS E-2, WET E-6 and WET E-6A. WUS E-4 dissipates into WET E-6 and flows downslope towards WUS E-2. WET E-6 does not have a surface connection with WUS E-2, but would still likely be considered an adjacent wetland. WET E-6A does have a surface connection with WUS E-6. Both polygons are likely also fed by seeping groundwater and adjacent upland runoff. Wetland mosaic – 70% wetland, 30% upland. Moderate quality wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☑ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☑ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☑ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches):	4	
Water Table Present?	Yes ☑	No ☐	Depth (inches):	0	
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches):	0-14+	**Wetland Hydrology Present?** Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET E-6

Tree Stratum (Plot size: 30')

		Absolute % Cover	Dominant Species?	Indicator Status
1.	*Acer rubrum*	40	Y	FAC
2.	*Fagus grandifolia*	30	Y	FACU
3.				
4.				
5.				
6.				
7.				
8.				
		70	= Total Cover	

50% of total cover: 35 20% of total cover: 14

Sapling/Shrub Stratum (Plot size: 30')

1.	*Liquidambar styraciflua*	40	Y	FAC
2.	*Smilax rotundifolia*	15	Y	FAC
3.	*Fagus grandifolia*	10	N	FACU
4.				
5.				
6.				
7.				
8.				
		65	= Total Cover	

50% of total cover: 32.5 20% of total cover: 13

Herb Stratum (Plot size: 30')

1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
			= Total Cover	

50% of total cover: 20% of total cover:

Woody Vine Stratum (Plot size: 30')

1.				
2.				
3.				
4.				
5.				
			= Total Cover	

50% of total cover: 20% of total cover:

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	75	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- x 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET E-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/2	80	10YR 5/4	20	C	M	Sandy clay	
3-14+	10YR 5/2	60	10YR 6/4	40	C	M	Sandy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford Sampling Date: 12/18/18

Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: UPL E-6

Investigator(s): EM, AS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 3

Subregion (LRR or MLRA): LRR S, MLRA 149A Lat: 39.4489 Long: -76.3584 Datum: NAD 83

Soil Map Unit Name: KpB – Keyport silt loam, 2 to 5 percent slopes NWI classification: None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑	**Is the Sampled Area Within a Wetland?**	Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑		
Wetland Hydrology Present?	Yes ☐	No ☑		

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches): _____
Water Table Present?	Yes ☐	No ☑	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes ☐	No ☑	Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL E-6

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fagus grandifolia*	40	Y	FACU
2. *Quercus rubra*	10	N	FACU
3. *Liquidambar styraciflua*	20	Y	FAC
4. *Quercus alba*	10	N	FACU
5. *Quercus velutina*	20	Y	NI
6.			
7.			
8.			
	100	= Total Cover	
50% of total cover: 50		20% of total cover: 20	

Sapling/Shrub Stratum (Plot size: 30')			
1. *Kalmia latifolia*	30	Y	FACU
2. *Fagus grandifolia*	10	Y	FACU
3. *Quercus alba*	5	N	FACU
4. *Acer rubrum*	10	Y	FAC
5. *Smilax rotundifolia*	5	N	FAC
6. *Vaccinium corymbosum*	5	N	FACW
7.			
8.			
	65	= Total Cover	
50% of total cover: 32.5		20% of total cover: 13	

Herb Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	40	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ____ 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UPL E-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/2	100					Silty clay	
3-6	7.5YR 5/5	95	10YR 3/2	5	D	C	Silty clay	
6-14+	7.5YR 5/5	100					Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford Sampling Date: 12/20/18

Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: WET E-7

Investigator(s): EM, AS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Valley bottom Local relief (concave, convex, none): Concave Slope (%): 0-1

Subregion (LRR or MLRA): LRR S, MLRA 149A Lat: 39.4499 Long: -76.3583 Datum: NAD 83

Soil Map Unit Name: KpB – Keyport silt loam, 2 to 5 percent slopes 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 ☑	No ☐	**Is the Sampled Area Within a Wetland?**	Yes ☑	No ☐
Hydric Soil Present?	Yes ☑	No ☐			
Wetland Hydrology Present?	Yes ☑	No ☐			

Remarks:

Datasheet for the two forested wetland polygons that are fed by WUS E-2 losing definition and overflowing its banks, WET E-7 and WET E-7A. Both polygons also appear to receive some hydrology from groundwater and adjacent upland runoff. Mosaic wetland – 80% wetland, 20% upland. Moderate quality wetlands. WET E-7 drains to WUS E-5 and WUS E-6; WET E7A drains into WUS E-7, see stream datasheets for more detail.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☑ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches):	0-3	
Water Table Present?	Yes ☑	No ☐	Depth (inches):	0	
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches):	0	**Wetland Hydrology Present?** Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET E-7

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	20	Y	FAC
2. *Liquidambar styraciflua*	20	Y	FAC
3. *Acer negundo*	10	Y	FAC
4. *Ilex opaca*	10	Y	FAC
5. *Fagus grandifolia*	10	Y	FACU
6. *Nyssa sylvatica*	10	Y	FAC
7. *Quercus phellos*	5	N	FACW
8.			
	85	= Total Cover	
50% of total cover: 42.5		20% of total cover:	17

Sapling/Shrub Stratum (Plot size: 30')			
1. *Lindera benzoin*	15	Y	FACW
2. *Vaccinium corymbosum*	15	Y	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	30	= Total Cover	
50% of total cover: 15		20% of total cover:	6

Herb Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Woody Vine Stratum (Plot size: 30')			
1. *Toxicodendron radicans*	10	Y	FAC
2.			
3.			
4.			
5.			
	10	= Total Cover	
50% of total cover: 5		20% of total cover:	2

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	8	(A)
Total Number of Dominant Species Across All Strata:	9	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	89	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- x 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET E-7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	100					Clay loam	
4-10	10YR 5/1	80	10YR 5/4	20	C	M	Clay	
10-14+	10YR 4/1	90	10YR 5/6	10	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford Sampling Date: 12/20/18

Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: UPL E-7/E-8

Investigator(s): EM, AS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 5

Subregion (LRR or MLRA): LRR S, MLRA 149A Lat: 39.4499 Long: -76.3593 Datum: NAD 83

Soil Map Unit Name: BeB – Beltsville silt loam, 2 to 5 percent slopes NWI classification: None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☑	No	☐	
Hydric Soil Present?	Yes	☑	No	☐	**Is the Sampled Area Within a Wetland?** Yes ☐ No ☑
Wetland Hydrology Present?	Yes	☐	No	☑	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes	☐	No	☑	Depth (inches): _____
Water Table Present?	Yes	☐	No	☑	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☑	Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL E-7/E-8

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Liquidambar styraciflua*	40	Y	FAC
2. *Acer rubrum*	30	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	70	= Total Cover	
50% of total cover: 35		20% of total cover: 14	

Sapling/Shrub Stratum (Plot size: 30')			
1. *Acer rubrum*	20	Y	FAC
2. *Liquidambar styraciflua*	10	Y	FAC
3. *Vaccinium corymbosum*	5	N	FACW
4.			
5.			
6.			
7.			
8.			
	35	= Total Cover	
50% of total cover: 17.5		20% of total cover: 7	

Herb Stratum (Plot size: 30')			
1. *Fagus grandifolia*	5	N	FACU
2. *Lycopodium dendroideum*	40	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	45	= Total Cover	
50% of total cover: 22.5		20% of total cover: 9	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	80	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- x 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UPL E-7/E-8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/1	80	10YR 3/3/	20	C	M	Silty clay	
4-12	10YR 4/1	90	10YR 5/6	10	C	M	Silty clay	
12-14+	7.5YR 6/6	50					Silty clay	
	7.5YR 5/2	50						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford Sampling Date: 12/20/18

Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: WET E-8 PFO

Investigator(s): EM, AS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 5

Subregion (LRR or MLRA): LRR S, MLRA 149A Lat: 39.4498 Long: -76.3593 Datum: NAD 83

Soil Map Unit Name: KrB – Kinkora silt loam, 3 to 8 percent slopes NWI classification: PFO1B/E

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area Within a Wetland?**	Yes ☑	No ☐
Hydric Soil Present?	Yes ☑	No ☐			
Wetland Hydrology Present?	Yes ☑	No ☐			

Remarks:

Datasheet for multiple forested wetland polygons fed by hillside seeps and runoff north of WUS E-2 (WET E-8, E-8A, E-8B, E-8C, E-8D). These wetland polygons are mosaics – 60% wetland, 40% upland. Moderate quality wetland. WET E-8A and WET E-8D flow into WUS E-2, while the other polygons do not have surface connection to tributaries but are within 100 feet.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☑ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches):	2	
Water Table Present?	Yes ☑	No ☐	Depth (inches):	0	
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches):	0-8	**Wetland Hydrology Present?** Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET E-8 PFO

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	30	Y	FAC
2. *Quercus phellos*	25	Y	FACW
3. *Liquidambar styraciflua*	30	Y	FAC
4.			
5.			
6.			
7.			
8.			
	85 = Total Cover		
50% of total cover: 42.5		20% of total cover: 17	

Sapling/Shrub Stratum (Plot size: 30')			
1. *Fagus grandifolia*	10	Y	FACU
2. *Acer rubrum*	30	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	40 = Total Cover		
50% of total cover: 20		20% of total cover: 8	

Herb Stratum (Plot size: 30')			
1. *Osmunda regalis*	5	Y	NI
2. *Smilax rotundifolia*	20	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	25 = Total Cover		
50% of total cover: 12.5		20% of total cover: 5	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:		20% of total cover:	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	83%	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- x 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET E-8 PFO

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	100					Silty clay	
2-6	10YR 4/1	90	10YR 5/6	10	C	M	Silty clay	
6-8+	10YR 4/1	60	10YR 5/6	40	C	M	Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford Sampling Date: 12/26/18

Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: WET E-8 PEM

Investigator(s): EM, AM Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR or MLRA): LRR S, MLRA 149A Lat: 39.4509 Long: -76.3576 Datum: NAD 83

Soil Map Unit Name: BeB – Beltsville silt loam, 2 to 4 percent slopes NWI classification: PEM1E

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area Within a Wetland?**	Yes ☑	No ☐
Hydric Soil Present?	Yes ☑	No ☐			
Wetland Hydrology Present?	Yes ☑	No ☐			

Remarks:

Fed by culvert, road runoff, and groundwater. Moderate quality wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches):	3	
Water Table Present?	Yes ☑	No ☐	Depth (inches):	0	
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches):	0	

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET E-8 PEM

Tree Stratum (Plot size: 30')

		Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
			= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Sapling/Shrub Stratum (Plot size: 30')

1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
			= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 30')

1.	*Scirpus cyperinus*	10	Y	OBL
2.	*Juncus effusus*	10	Y	OBL
3.	*Dichanthelium clandestinum*	10	Y	FACW
4.	*Smilax rotundifolia*	20	Y	FAC
5.	*Festuca* sp.	15	Y	NA
6.	*Carex* sp.	5	N	NA
7.				
8.				
9.				
10.				
11.				
12.				
		70	= Total Cover	

50% of total cover: 35 20% of total cover: 14

Woody Vine Stratum (Plot size: 30')

1.				
2.				
3.				
4.				
5.				
			= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- x 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET E-8 PEM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 5/2	95	10YR 5/4	5	C	M,PL	Sandy clay	
3-12+	10YR 5/2	70	10YR 5/4	10	C	M	Sandy clay	
			10YR 4/1	20	D	M	Sandy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford Sampling Date: 12/26/18

Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: WET E-9

Investigator(s): EM, AM Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 3

Subregion (LRR or MLRA): LRR S, MLRA 149A Lat: 39.4501 Long: -76.3602 Datum: NAD 83

Soil Map Unit Name: KrB – Kinkora silt loam, 3 to 8 percent slopes NWI classification: PFO1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area Within a Wetland?**	Yes ☑	No ☐
Hydric Soil Present?	Yes ☑	No ☐			
Wetland Hydrology Present?	Yes ☑	No ☐			

Remarks:
Datasheet for forested wetland polygons (WET E-9 and WET E-9A) fed by hillside seeps and runoff east of WUS E-8. Mosaic – 80% wetland, 20% upland. Moderate quality wetland. Does not have surface connection to WUS E-8 but is located within 100 feet.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches):	2	
Water Table Present?	Yes ☑	No ☐	Depth (inches):	0	
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches):	0-6	**Wetland Hydrology Present?** Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET E-9

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	35	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	35 = Total Cover		
50% of total cover: 17.5	20% of total cover: 7		

Sapling/Shrub Stratum (Plot size: 30')			
1. *Vaccinium corymbosum*	5	Y	FACW
2. *Smilax rotundifolia*	10	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3		

Herb Stratum (Plot size: 30')			
1. *Dichanthelium clandestinum*	5	Y	FACW
2. *Juncus effusus*	5	Y	OBL
3. *Lonicera japonica*	2	N	FACU
4. *Smilax rotundifolia*	15	Y	FAC
5. *Cinna arundinacea*	5	Y	FACW
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	32 = Total Cover		
50% of total cover: 16	20% of total cover: 6.4		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	7	(A)
Total Number of Dominant Species Across All Strata:	7	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- x 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET E-9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 5/3	80	10YR 5/8	20	C	M	Sandy clay loam	
6-12+	10YR 5/2	80	10YR 4/6	20	C	M	Sandy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford Sampling Date: 12/26/18

Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: UPL E-9/E-10

Investigator(s): EM, AM Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR or MLRA): LRR S, MLRA 149A Lat: 39.4503 Long: -76.3603 Datum: NAD 83

Soil Map Unit Name: KrB – Kinkora silt loam, 3 to 8 percent slopes NWI classification: None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area Within a Wetland?**	Yes ☐	No ☑
Hydric Soil Present?	Yes ☐	No ☑			
Wetland Hydrology Present?	Yes ☑	No ☐			

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches):	2	
Water Table Present?	Yes ☑	No ☐	Depth (inches):	0	
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches):	8	**Wetland Hydrology Present?** Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL E-9/E-10

Tree Stratum (Plot size: 30')

		Absolute % Cover	Dominant Species?	Indicator Status
1.	*Liquidambar styraciflua*	40	Y	FAC
2.	*Acer rubrum*	30	Y	FAC
3.	*Prunus serotina*	10	N	FACU
4.				
5.				
6.				
7.				
8.				
		80	= Total Cover	

50% of total cover: 40 20% of total cover: 16

Sapling/Shrub Stratum (Plot size: 30')

1.	*Liquidambar styraciflua*	5	N	FAC
2.	*Lindera benzoin*	10	Y	FACW
3.	*Smilax rotundifolia*	15	Y	FAC
4.	*Rosa multiflora*	5	N	FACU
5.				
6.				
7.				
8.				
		35	= Total Cover	

50% of total cover: 17.5 20% of total cover: 7

Herb Stratum (Plot size: 30')

1.	*Smilax rotundifolia*	5	N	FAC
2.	*Cinna arundinacea*	10	Y	FACW
3.	*Microstegium vimineum*	20	Y	FAC
4.	*Lonicera japonica*	2	N	FACU
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		37	= Total Cover	

50% of total cover: 18.5 20% of total cover: 7.4

Woody Vine Stratum (Plot size: 30')

1.	*Vitis* sp.	5	Y	NA
2.				
3.				
4.				
5.				
		5	= Total Cover	

50% of total cover: 2.5 20% of total cover: 1

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	6	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- x 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UPL E-9/E-10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 5/3	95	10YR 4/6	5	C	M	Sandy clay loam	
8-12+	10YR 6/3	70	10YR 7/8	30	C	M	Sandy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford Sampling Date: 12/26/18

Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: WET E-10

Investigator(s): EM, AS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Toe of Slope Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR or MLRA): LRR S, MLRA 149A Lat: 39.4502 Long: -76.3605 Datum: NAD 83

Soil Map Unit Name: AV – Alluvial land NWI classification: PEM1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☑	No	☐	**Is the Sampled Area Within a Wetland?**	Yes ☑	No ☐
Hydric Soil Present?	Yes	☑	No	☐			
Wetland Hydrology Present?	Yes	☑	No	☐			

Remarks:
Groundwater seep (old spring box nearby). Also receives runoff from adjacent road and occasional flooding from adjacent WUS E-8. Low quality wetland due to ongoing mowing and rutting caused by mowing.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☑ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes	☑	No	☐	Depth (inches):	2
Water Table Present?	Yes	☑	No	☐	Depth (inches):	0
Saturation Present? (includes capillary fringe)	Yes	☑	No	☐	Depth (inches):	0

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET E-10

Tree Stratum (Plot size: 30')

		Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
			= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Sapling/Shrub Stratum (Plot size: 30')

1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
			= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 30')

1.	*Lysimachia nummularia*	40	Y	FACW
2.	*Festuca* sp.	25	Y	NA
3.	*Carex* sp.	10	N	NA
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		75	= Total Cover	

50% of total cover: 37.5 20% of total cover: 15

Woody Vine Stratum (Plot size: 30')

1.				
2.				
3.				
4.				
5.				
			= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- x 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET E-10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/2	100					Mucky sandy clay loam	
2-15	10YR 4/1	90	10YR 4/6	10	C	M	Sandy clay	
15-17+	10YR 4/2	85	10YR 4/6	5	C	M	Sandy clay	
			10YR 6/1	10	D	M	Sandy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5)
- [ ] Organic Bodies (A6) **(LRR P, T, U)**
- [ ] 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- [ ] Muck Presence (A8) **(LRR U)**
- [ ] 1 cm Muck (A9) **(LLR P, T)**
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Coast Prairie Redox (A16) **(MLRA 150A)**
- [ ] Sandy Mucky Mineral (S1) **(LLR O, S)**
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Dark Surface (S7) **(LRR P, S, T, U)**
- [ ] Polyvalue Below Surface (S8) **(LRR S, T,U)**
- [ ] Thin Dark Surface (S9) **(LRR S, T, U)**
- [ ] Loamy Mucky Mineral (F1) **(LRR O)**
- [ ] Loamy Gleyed Matrix (F2)
- [x] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)
- [ ] Marl (F10) **(LRR U)**
- [ ] Depleted Ochric (F11) **(MLRA 151)**
- [ ] Iron-Manganese Masses (F12) **(LRR O, P, T)**
- [ ] Umbric Surface (F13) **(LRR P, T, U)**
- [ ] Delta Ochric (F17) **(MLRA 151)**
- [ ] Reduced Vertic (F18) **(MLRA 150A, 150B)**
- [ ] Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- [ ] Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- [ ] 1 cm Muck (A9) **(LRR O)**
- [ ] 2 cm Muck (A10) **(LRR S)**
- [ ] Reduced Vertic (F18) **(outside MLRA 150A,B)**
- [ ] Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- [ ] Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- [ ] Red Parent Material (TF2)
- [ ] Very Shallow Dark Surface (TF12) **(LRR T,U)**
- [ ] Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes [x] No [ ]

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.51 Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forested, Roadway Distance to nearest roadway or other development 190ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? Y If not, where does the wetland lie in the drainage basin? N/A

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET E-1

Latitude 39.4441 Longitude -76.3485

Prepared by: CAJ Date 1/11/19

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	4,5,7,9,13,15	Y	
Floodflow Alteration				
Fish and Shellfish Habitat				
Sediment/Toxicant Retention	Y	1,2,3,4,5,7,10,11,12		
Nutrient Removal		3,4,5,14		
Production Export				
Sediment/Shoreline Stabilization				
Wildlife Habitat	Y	5,7,8,19,20		
Recreation				
Educational/Scientific Value				
Uniqueness/Heritage				
Visual Quality/Aesthetics				
ES Endangered Species Habitat				
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 2A-0.55/E2A-0.55 Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forested, Roadway Distance to nearest roadway or other development 112 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? Y If not, where does the wetland lie in the drainage basin? N/A

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET E-2

Latitude 39.4450 Longitude -76.3496

Prepared by: CAJ Date 1/11/19

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	4,5,13,15	Y	
Floodflow Alteration				
Fish and Shellfish Habitat				
Sediment/Toxicant Retention	Y	1,2,4,5		
Nutrient Removal				
Production Export				
Sediment/Shoreline Stabilization				
Wildlife Habitat	Y	5,7,8,19		
Recreation				
Educational/Scientific Value				
Uniqueness/Heritage				
Visual Quality/Aesthetics				
ES Endangered Species Habitat				
Other				

Notes: This form applies to WET E-2 and WET E-2A

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 1.22 ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forested, Road Distance to nearest roadway or other development 41 ft

Dominant wetland systems present PFO, PEM Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? Y If not, where does the wetland lie in the drainage basin? N/A

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET E-3

Latitude 39.4497 Longitude -76.3545

Prepared by: ERM Date 12/27/18

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,13,15	Y	
Floodflow Alteration				
Fish and Shellfish Habitat				
Sediment/Toxicant Retention	Y	2,4,5, 7, 9		
Nutrient Removal				
Production Export				
Sediment/Shoreline Stabilization				
Wildlife Habitat	Y	1,3,4,5,7,8,11,17,20	Y	
Recreation				
Educational/Scientific Value				
Uniqueness/Heritage				
Visual Quality/Aesthetics				
ES Endangered Species Habitat				
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 1.25 ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forested, Roadway Distance to nearest roadway or other development 41 ft

Dominant wetland systems present PFO1E Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? Y If not, where does the wetland lie in the drainage basin? N/A

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET E-4

Latitude 39.4508 Longitude -76.3570

Prepared by: ERM Date 12/27/18

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office x Field x

Corps manual wetland delineation completed? Y x N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,13,15	Y	
Floodflow Alteration				
Fish and Shellfish Habitat				
Sediment/Toxicant Retention	Y	2,4,5, 7, 9		
Nutrient Removal				
Production Export				
Sediment/Shoreline Stabilization				
Wildlife Habitat	Y	1,3,4,5,7,8,11,17,20	Y	
Recreation				
Educational/Scientific Value				
Uniqueness/Heritage				
Visual Quality/Aesthetics				
ES Endangered Species Habitat				
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.14 ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? _____

Adjacent land use Forested, residential Distance to nearest roadway or other development 45 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? Y If not, where does the wetland lie in the drainage basin? N/A

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET E-5

Latitude 39.4485 Longitude -76.3545

Prepared by: ERM Date 12/28/18

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N _____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,8,13,15	Y	
Floodflow Alteration				
Fish and Shellfish Habitat				
Sediment/Toxicant Retention		4		
Nutrient Removal		7		
Production Export				
Sediment/Shoreline Stabilization				
Wildlife Habitat	Y	1,3,4,5,7	Y	
Recreation				
Educational/Scientific Value				
Uniqueness/Heritage				
Visual Quality/Aesthetics				
ES Endangered Species Habitat				
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.20 ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forested Distance to nearest roadway or other development 640 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET E-6

Latitude 39.4488 Longitude -76.3585

Prepared by: ERM Date 12/28/18

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,7,8,9,13	Y	
Floodflow Alteration				
Fish and Shellfish Habitat				
Sediment/Toxicant Retention		4		
Nutrient Removal		7		
Production Export				
Sediment/Shoreline Stabilization				
Wildlife Habitat		1,3,4,5		
Recreation				
Educational/Scientific Value				
Uniqueness/Heritage				
Visual Quality/Aesthetics				
ES Endangered Species Habitat				
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.32 ac Human made? N Is wetland part of a wildlife corridor?_____ or a "habitat island"?_____

Adjacent land use Forested Distance to nearest roadway or other development 200 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET E-7

Latitude 39.4499 Longitude -76.3583

Prepared by: ERM Date 1/2/18

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N_____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,7,13		
Floodflow Alteration	Y	2,3,5,6,7,8,9,10,13,14	Y	
Fish and Shellfish Habitat				
Sediment/Toxicant Retention	Y	2,3,4,10		
Nutrient Removal		3		
Production Export				
Sediment/Shoreline Stabilization				
Wildlife Habitat				
Recreation				
Educational/Scientific Value				
Uniqueness/Heritage				
Visual Quality/Aesthetics				
ES Endangered Species Habitat				
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.71 ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forested, Road Distance to nearest roadway or other development 11 ft

Dominant wetland systems present PFO, PEM Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET 08

Latitude 39.4498 Longitude -76.3593

Prepared by: ERM Date 1/2/19

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,8,10,13,15	Y	
Floodflow Alteration				
Fish and Shellfish Habitat				
Sediment/Toxicant Retention				
Nutrient Removal				
Production Export				
Sediment/Shoreline Stabilization				
Wildlife Habitat				
Recreation				
Educational/Scientific Value				
Uniqueness/Heritage				
Visual Quality/Aesthetics				
ES Endangered Species Habitat				
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.12 ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forested, residential Distance to nearest roadway or other development 60 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET E-9

Latitude 39.4501 Longitude -76.3602

Prepared by: ERM Date 1/2/19

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,8,13,15	Y	
Floodflow Alteration				
Fish and Shellfish Habitat				
Sediment/Toxicant Retention				
Nutrient Removal				
Production Export				
Sediment/Shoreline Stabilization				
Wildlife Habitat				
Recreation				
Educational/Scientific Value				
Uniqueness/Heritage				
Visual Quality/Aesthetics				
ES Endangered Species Habitat				
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.05 ac Human made? N Is wetland part of a wildlife corridor? N or a "habitat island"? Y

Adjacent land use Residential Distance to nearest roadway or other development 0 ft

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET 10

Latitude 39.4502 Longitude -76.3605

Prepared by: ERM Date 1/2/19

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5,13,15	Y	
Floodflow Alteration	Y	2,5,6,8,9,10,15	Y	
Fish and Shellfish Habitat				
Sediment/Toxicant Retention				
Nutrient Removal				
Production Export				
Sediment/Shoreline Stabilization				
Wildlife Habitat				
Recreation				
Educational/Scientific Value				
Uniqueness/Heritage				
Visual Quality/Aesthetics				
ES Endangered Species Habitat				
Other				

Notes:

* Refer to backup list of numbered considerations.

Stream Datasheet

Project: ETL Northbound Extension **Date:** 1/4/2019 **Stream ID:** WUS E-1

Staff: LGS, CEJ **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: South **Drains Into:** WUS 25B

Fed By: Groundwater Seep and WET E-1

Bank Height: 4-6 ft **Water Depth:** 3 in. **Width:** 5 ft

Channel Gradient (%): 5 **Bank Stability:** Moderate

Avg. Bank Slope: Vertical ☐ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 80 % Riffle: 10 % Pool: 10

Substrate: Cobble ☐ Gravel ☐ Sand ☒ Silt ☒
Veg ☐ Riprap ☐ Concrete ☐ Muck ☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☐
Changes in character of soil	☐	Destruction of terrestrial veg.	☒
Shelving	☒	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Flows to unnamed tributary of Winters Run via WUS 25B and WUS 24B

Other Comments:

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 7/5/18 **Stream ID:** WUS E-2

Staff: LL, MC **Flow Type:** Perennial ☒ Intermittent ☐ Ephemeral ☐

Flow Direction: SW **Drains Into:** WUS E-8, WET E-7

Fed By: WUS E-5, WUS E-6, WET E-4, WET E-7, WET 8

Bank Height: 1-4 ft **Water Depth:** 1-8 in. **Width:** 2-4 ft

Channel Gradient (%): 3 **Bank Stability:** Low to moderate

Avg. Bank Slope: Vertical ☒ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 40 % Riffle: 30 % Pool: 30

Substrate: Cobble ☐ Gravel ☒ Sand ☒ Silt ☐
Veg ☐ Riprap ☐ Concrete ☐ Muck ☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☐
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☒
Leaf litter disturbed or washed away	☐	Scour	☒
Sediment deposition	☒	Multiple observed/predicted flow events	☒
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Flows into WUS E-8, which flows into Little Gunpowder Falls, which flows into Gunpowder Falls, which becomes TNW Gunpowder River

Other Comments: Very low flow, goes subterranean in a few areas with stagnant pools. Becomes more unstable and incised in places further downstream.

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 7/5/18 **Stream ID:** WUS E-3

Staff: LL, MC **Flow Type:** Perennial ☐ Intermittent ☐ Ephemeral ☒

Flow Direction: SW **Drains Into:** WUS E-2

Fed By: WET E-4

Bank Height: 2-3 ft **Water Depth:** 0-2 in. **Width:** 3-5 ft

Channel Gradient (%): 2 **Bank Stability:** low

Avg. Bank Slope: Vertical ☒ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: NA % Riffle: NA % Pool: NA

Substrate:

Cobble	☐	Gravel	☒	Sand	☒	Silt	☐
Veg	☐	Riprap	☐	Concrete	☐	Muck	☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☐
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☒	Presence of wrack line	☒
Vegetation matted down, bent, or absent	☐	Sediment sorting	☐
Leaf litter disturbed or washed away	☐	Scour	☒
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Flows into WUS E-2, which flows into WUS E-8, which flows into Little Gunpowder Falls, which flows into Gunpowder Falls, which becomes TNW Gunpowder River

Other Comments: Headcut carrying wetland drainage to perennial stream

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 12/18/18 **Stream ID:** WUS E-4

Staff: EM, AS **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: NW **Drains Into:** WET E-6

Fed By: Groundwater, runoff from adjacent uplands

Bank Height: 0.5-2 ft **Water Depth:** 2-6 in. **Width:** 2-8 ft

Channel Gradient (%): 3 **Bank Stability:** Stable

Avg. Bank Slope: Vertical ☐ 2:1 ☒ 3:1 ☐ 4:1 or greater ☒

Mesohabitat: % Run: 20 % Riffle: 70 % Pool: 10

Substrate:

Cobble	☐	Gravel	☐	Sand	☐	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☒

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☐
Changes in character of soil	☒	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☒
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Lacks surface connection to TNW – WET E-6 does not discharge into a tributary, but could be considered an adjacent wetland to a tributary that does ultimately connect to Gunpowder River

Other Comments:

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 12/20/18 **Stream ID:** WUS E-5

Staff: EM, AS **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: West **Drains Into:** WUS E-2

Fed By: WET E-7

Bank Height: 2 ft **Water Depth:** 1-4 in. **Width:** 3-4 ft

Channel Gradient (%): 2 **Bank Stability:** Low to moderate

Avg. Bank Slope: Vertical ☒ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 50 % Riffle: _____ % Pool: 50

Substrate:

Cobble ☐	Gravel ☒	Sand ☒	Silt ☒
Veg ☐	Riprap ☐	Concrete ☐	Muck ☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☐
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☒	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☒
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Flows into WUS E-2, which flows into WUS E-8, which flows into Little Gunpowder Falls, which flows into Gunpowder Falls, which becomes TNW Gunpowder River

Other Comments: _____

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 12/20/18 **Stream ID:** WUS E-6

Staff: EM, AS **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: West **Drains Into:** WUS E-2

Fed By: WET E-7, WET E-6A

Bank Height: 2-3 ft **Water Depth:** 2-6 in. **Width:** 4-6 ft

Channel Gradient (%): 3 **Bank Stability:** low

Avg. Bank Slope: Vertical ☒ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 40 % Riffle: 40 % Pool: 20

Substrate:

Cobble ☐	Gravel ☒	Sand ☒	Silt ☒
Veg ☐	Riprap ☐	Concrete ☐	Muck ☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☐
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☒	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☐
Leaf litter disturbed or washed away	☐	Scour	☒
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Flows into WUS E-2, which flows into WUS E-8, which flows into Little Gunpowder Falls, which flows into Gunpowder Falls, which becomes TNW Gunpowder River

Other Comments:

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 12/20/18 **Stream ID:** WUS E-7

Staff: EM, AS **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: W **Drains Into:** WUS E-8

Fed By: WET E-7A

Bank Height: 3-4 ft **Water Depth:** 2-12 in. **Width:** 8-10 ft

Channel Gradient (%): 3 **Bank Stability:** low

Avg. Bank Slope: Vertical ☒ 2:1 ☐ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 30 % Riffle: 60 % Pool: 10

Substrate:

Cobble ☐	Gravel ☒	Sand ☒	Silt ☒
Veg ☐	Riprap ☐	Concrete ☐	Muck ☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☐
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☒	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☒
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Flows into WUS E-8, which flows into Little Gunpowder Falls, which flows into Gunpowder Falls, which becomes TNW Gunpowder River

Other Comments:

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 12/20/18 **Stream ID:** WUS E-8

Staff: EM, AS **Flow Type:** Perennial ☒ Intermittent ☐ Ephemeral ☐

Flow Direction: S **Drains Into:** Little Gunpowder Falls

Fed By: WUS E-9, WUS E-2, WUS E-7

Bank Height: 2-6 ft **Water Depth:** 3-18 in. **Width:** 5-12 ft

Channel Gradient (%): 3 **Bank Stability:** low

Avg. Bank Slope: Vertical ☒ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 70 % Riffle: 5 % Pool: 25

Substrate:

Cobble ☒	Gravel ☒	Sand ☒	Silt ☒
Veg ☐	Riprap ☐	Concrete ☐	Muck ☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☐
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☐
Sediment deposition	☒	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Flows into Little Gunpowder Falls, which flows into Gunpowder Falls, which becomes TNW Gunpowder River

Other Comments:

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 12/26/18 **Stream ID:** WUS E-9

Staff: EM, AM **Flow Type:** Perennial ☐ Intermittent ☐ Ephemeral ☒

Flow Direction: E **Drains Into:** WUS E-8

Fed By: Uplands

Bank Height: 2-5 ft **Water Depth:** N/A **Width:** 2-6 ft

Channel Gradient (%): 5 **Bank Stability:** low

Avg. Bank Slope: Vertical ☒ 2:1 ☐ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: N/A % Riffle: N/A % Pool: N/A

Substrate:

Cobble ☐	Gravel ☒	Sand ☒	Silt ☒
Veg ☐	Riprap ☐	Concrete ☐	Muck ☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☐
Changes in character of soil	☐	Destruction of terrestrial veg.	☒
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☒
Leaf litter disturbed or washed away	☐	Scour	☒
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Flows into WUS E-8, which flows into Little Gunpowder Falls, which flows into Gunpowder Falls, which becomes TNW Gunpowder River

Other Comments:

Stream Datasheet

Project: ETL Northbound Extension **Date:** 1/4/2019 **Stream ID:** WUS 25B

Staff: LGS, CEJ **Flow Type:** Perennial ☒ Intermittent ☐ Ephemeral ☐

Flow Direction: East **Drains Into:** WUS 24B (Unnamed Tributary of Winters Run)

Fed By: Groundwater

Bank Height: 2-3' **Water Depth:** 2" **Width:** 6'

Channel Gradient (%): 5 **Bank Stability:** Moderate

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☒ 4:1 or greater ☐

Mesohabitat: % Run: 90 % Riffle: 0 % Pool: 10

Substrate:

Cobble	☐	Gravel	☐	Sand	☒	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Flows to unnamed tributary of Winters Run (WUS 24B)

Other Comments:

WETLAND, UPLAND, AND STREAM DATASHEETS

F. KH-3023: MD 24/MD 924 Park and Ride

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford County Sampling Date: 11/12/18

Applicant/Owner: MDTA State: MD Sampling Point: WET F-1

Investigator(s): HT, EB Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Depression/swale Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.462307 Long: -76.311106 Datum: NAD83

Soil Map Unit Name: Keyport silt loam, 2-5% slopes NWI classification: PFO1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes [x] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [x] 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 [x]	No [ ]	**Is the Sampled Area Within a Wetland?**	Yes [x]	No [ ]
Hydric Soil Present?	Yes [x]	No [ ]			
Wetland Hydrology Present?	Yes [x]	No [ ]			

Remarks:

Photo 2 - South

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [x] Surface Water (A1)
- [x] High Water Table (A2)
- [x] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Mari Deposits (B15) **(LLR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [x] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes [x]	No [ ]	Depth (inches):	*0.5"	
Water Table Present?	Yes [x]	No [ ]	Depth (inches):	*11"	
Saturation Present? (includes capillary fringe)	Yes [x]	No [ ]	Depth (inches):	0"	**Wetland Hydrology Present?** Yes [x] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland bisected by gravel/asphalt road crossing, wetland receives surface runoff from gravel/asphalt areas upslope.

*Surface water in 40% of plot.

**Water table is much higher (4" depth) within lower portion of the wetland.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET F-1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Carpinus carolinana*	35	Yes	FAC
2. *Liriodendron tulipifera*	15	Yes	FACU
3. *Quercus alba*	15	Yes	FACU
4.			
5.			
6.			
7.			
8.			
	65 = Total Cover		
50% of total cover: 37.5	20% of total cover: 13		

Sapling/Shrub Stratum (Plot size: 30')			
1. *Viburnum dentatum*	30	Yes	FAC
2. *Carpinus caroliniana*	40	Yes	FAC
3. *Nyssa sylvatica*	10	No	FAC
4.			
5.			
6.			
7.			
8.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		

Herb Stratum (Plot size: 30')			
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Woody Vine Stratum (Plot size: 30')			
1. *Smilax rotundifolia*	15	Yes	FAC
2. *Vitis* sp.	3	No	N/A
3.			
4.			
5.			
	18 = Total Cover		
50% of total cover: 9	20% of total cover: 3.6		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

Unable to identify *Vitis* sp. due to time of year. However, it is not a dominant species and would therefore not affect the outcome of the dominance test.

SOIL

Sampling Point: WET F-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5Y4/2	70	7.5YR 4/6	10	C	M	Clay loam	
	10YR 4/1	20	--	--	--	--	--	
6-14	2.5Y 5/3	80	7.5YR 4/6	15	C	M	Clay loam	w/ gravel
			10YR 5/6	5	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension/MD 24/924 Park and Ride City/County: Harford County Sampling Date: 11/14/18

Applicant/Owner: MDTA State: MD Sampling Point: UPL F-1/F-8

Investigator(s): HT, EB, CJ Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Slight concave Slope (%): 0-5%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.462533 Long: -76.311251 Datum: NAD83

Soil Map Unit Name: Keyport silt loam, 2-5% slopes NWI classification: N/A

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑	**Is the Sampled Area Within a Wetland?**	Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑		
Wetland Hydrology Present?	Yes ☑	No ☐		

Remarks:

Upland test plot for WET F-1 and F-8

Photo 23 – West

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches):	
Water Table Present?	Yes ☑	No ☐	Depth (inches):	8
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches):	0-4

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Upper 4" of soil profile was saturated.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL F-1/F-8

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	40	Yes	FAC
2. *Liriodendron tulipifera*	15	Yes	FACU
3. *Fagus grandifolia*	20	Yes	FACU
4.			
5.			
6.			
7.			
8.			
	75	= Total Cover	
50% of total cover: 37.5		20% of total cover: 15	

Sapling/Shrub Stratum (Plot size: 30')			
1. *Acer rubrum*	40	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	40	= Total Cover	
50% of total cover: 20		20% of total cover: 8	

Herb Stratum (Plot size: 30')			
1. *Lonicera japonica*	30	Yes	FACU
2. *Microstegium vimineum*	40	Yes	FAC
3. *Phragmites australis*	5	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	75	= Total Cover	
50% of total cover: 37.5		20% of total cover: 15	

Woody Vine Stratum (Plot size: 30')			
1. *Lonicera japonica*	10	Yes	FACU
2. *Smilax rotundifolia*	5	No	FAC
3. *Toxicodendron radicans*	5	No	FAC
4. *Celastrus orbiculatus*	15	Yes	FACU
5.			
	35	= Total Cover	
50% of total cover: 17.5		20% of total cover: 7	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	8	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	37.5	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ____ 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UPL F-1/F-8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	2.5Y5/3	95	10YR5/6	5	C	M	Sandy loam	
3-10	2.5Y5/6	90	10YR5/6	10	C	M	Sandy clay loam	
10-12+	2.5Y5/6	98	10YR4/6	2	C	M	Sandy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.10 ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Forest, residential, roadway Distance to nearest roadway or other development 0 feet

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? None Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET F-1

Latitude 39.462307 Longitude -76.311106

Prepared by: EB, HT Date 11/28/2018

Wetland Impact:
Type PFO Area 0.005 ac

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	2, 7, 5, 7, 9, 10, 13, 15	Y	high water table present during field visit, draining to stream via a defined outlet
Floodflow Alteration	Y	2, 3, 4, 5, 7, 9, 13, 15	Y	wetland likely receives significant runoff from the adjacent gravel road and lot
Fish and Shellfish Habitat	N	4, 8, 14, 16, 17	N	
Sediment/Toxicant Retention	Y	1, 2, 4, 9, 10	N	
Nutrient Removal	Y	3, 4, 7, 13, 15	N	
Production Export	N	1, 2, 4, 5	N	
Sediment/Shoreline Stabilization	N	2, 3, 4, 6, 9, 14	N	
Wildlife Habitat	Y	5, 7, 8, 17, 19, 21	N	deer observed, wetland was bisected by gravel access road
Recreation	N		N	
Educational/Scientific Value	N		N	
Uniqueness/Heritage	N	2, 22	N	
Visual Quality/Aesthetics	N		N	
ES Endangered Species Habitat	N		N	
Other				

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford County Sampling Date: 11/12/18

Applicant/Owner: MDTA State: MD Sampling Point: WET F-2

Investigator(s): HT, EB Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.463459 Long: -76.311722 Datum: NAD83

Soil Map Unit Name: Keyport silt loam, 2-5% slopes NWI classification: PSS1E

Are climatic/hydrologic conditions on the site typical for this time of year? Yes [x] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [x] 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 [x]	No [ ]	**Is the Sampled Area Within a Wetland?**	Yes [x]	No [ ]
Hydric Soil Present?	Yes [x]	No [ ]			
Wetland Hydrology Present?	Yes [x]	No [ ]			

Remarks:

Wetland begins at outfall from SWM facility.

Ph 12 - West

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [x] Surface Water (A1)
- [ ] High Water Table (A2)
- [x] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Mari Deposits (B15) **(LLR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [x] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes [x]	No [ ]	Depth (inches):	*0-1"	
Water Table Present?	Yes [ ]	No [x]	Depth (inches):		
Saturation Present? (includes capillary fringe)	Yes [x]	No [ ]	Depth (inches):	**0-4"	**Wetland Hydrology Present?** Yes [x] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland drains to stream (WUS F-1).

*Surface water present in approximately 25% of the plot.

**Saturation perched over compact fill material.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET F-2

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
50% of total cover:		20% of total cover:	

Sapling/Shrub Stratum (Plot size: 30')			
1. *Rosa multiflora*	15	Yes	FACU
2. *Ligustrum sinense*	25	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	40 = Total Cover		
50% of total cover:	20	20% of total cover:	8

Herb Stratum (Plot size: 30')			
1. *Scirpus polyphyllus*	15	Yes	OBL
2. *Lycopus americanus*	5	No	OBL
3. *Rosa multiflora*	10	Yes	FACU
4. *Persicaria longiseta*	10	Yes	FAC
5. *Microstegium vimineum*	20	Yes	FAC
6. *Lonicera japonica*	5	No	FACU
7. *Symphyotrichum* sp.	10	Yes	N/A
8. *Ludwigia alternifolia*	5	No	OBL
9. *Viburnum dentatum*	5	No	FAC
10. *Arthraxon hispidus*	10	Yes	FAC
11.			
12.			
	95 = Total Cover		
50% of total cover:	47.5	20% of total cover:	19

Woody Vine Stratum (Plot size: 30')			
1. *Smilax rotundifolia*	30	Yes	FAC
2.			
3.			
4.			
5.			
	30 = Total Cover		
50% of total cover:	15	20% of total cover:	6

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	6	(A)
Total Number of Dominant Species Across All Strata:	8	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	75%	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- X Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

Unable to identify *Symphyotrichum* sp. due to time of year, however, even if it had an indicator status of FACU or UPL, the dominance test would still be met (see Dominance Test Worksheet).

SOIL

Sampling Point: WET F-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	2.5Y4/2	100	--	--	--	--	Clay loam	Many rootlets
3-8	2.5Y4/1	90	7.5YR5/8	10	C	M	Clay loam	
8-12+	5Y5/2	85	7.5YR5/8	15	C	M	Sandy clay	Buried organics, fill

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension/MD 24/924 Park and Ride City/County: Harford County Sampling Date: 11/14/18

Applicant/Owner: MDTA State: MD Sampling Point: UPL F-2/F-4/F-5/F-7

Investigator(s): HT, EB, CJ Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-5%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.463304 Long: -76.311403 Datum: NAD83

Soil Map Unit Name: Keyport silt loams, 2-5% slopes NWI classification: N/A

Are climatic/hydrologic conditions on the site typical for this time of year? Yes [x] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [x] 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 [x]	No [ ]	**Is the Sampled Area Within a Wetland?**	Yes [ ]	No [x]
Hydric Soil Present?	Yes [ ]	No [x]			
Wetland Hydrology Present?	Yes [x]	No [ ]			

Remarks:

Upland test plot for WET F-2, F-4, F-5, and F-7

Photo 29 – East

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [x] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Mari Deposits (B15) **(LLR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes [x]	No [ ]	Depth (inches):	*0.5
Water Table Present?	Yes [ ]	No [x]	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes [x]	No [ ]	Depth (inches):	**0-4

Wetland Hydrology Present? Yes [x] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

*Surface water in 5% of plot
**Saturation only at 0-4" caused by surface water from precipitation rather than a high water table. For this reason, saturation was not selected as an indicator.

Sampling Point: UPL F-2/F-4/F-5/F-7

VEGETATION (Four Strata) – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fagus grandifolia*	80	Yes	FACU
2. *Acer rubrum*	20	No	FAC
3. *Nyssa sylvatica*	5	No	FAC
4. *Cornus florida*	5	No	FACU
5. *Prunus serotina*	10	No	FACU
6. *Liriodendron tulipifera*	15	No	FACU
7.			
8.			
	135 = Total Cover		
50% of total cover: 67.5	20% of total cover: 27		

Sapling/Shrub Stratum (Plot size: 30')			
1. *Nyssa sylvatica*	5	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		

Herb Stratum (Plot size: 30')			
1. *Smilax rotundifolia*	40	Yes	FAC
2. *Lonicera japonica*	15	Yes	FACU
3. *Cornus florida*	10	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	65 = Total Cover		
50% of total cover: 32.5	20% of total cover: 13		

Woody Vine Stratum (Plot size: 30')			
1. *Smilax rotundifolia*	40	Yes	FAC
2.			
3.			
4.			
5.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		

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		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UPL F-2/F-4/F-5/F-7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-1	2.5Y3/3	98	10YR4/6	2	C	M	Clay loam	
1-12+	2.5Y5/4	98	10YR4/6	2	C	M	Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.01; 0.02 ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Stormwater management, open field, forest Distance to nearest roadway or other development 50 feet

Dominant wetland systems present PSS, PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? None* Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET F-2, WET F-4

Latitude 39.463459; 39.46329 Longitude -76.311722; -76.3111746

Prepared by: EB, HT Date 11/29/2018

Wetland Impact:
Type PSS: PFO Area 0.01; 0.02 ac

Evaluation based on:
Office _____ Field X

Corps manual wetland delineation completed? Y X N _____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	2, 4, 5, 7, 9, 13	N	
Floodflow Alteration	Y	2, 5, 6, 13	Y	flow from SWM pond outfalls discharge into wetlands
Fish and Shellfish Habitat	N	4, 14, 16, 17	N	
Sediment/Toxicant Retention	Y	1, 2, 4, 9, 10, 13	N	
Nutrient Removal	N	3, 4, 7	N	
Production Export	N	4	N	
Sediment/Shoreline Stabilization	N	4, 6, 14	N	
Wildlife Habitat	N	7, 8, 17	N	Deer tracks observed
Recreation	N		N	
Educational/Scientific Value	N		N	
Uniqueness/Heritage	N	2, 22	N	
Visual Quality/Aesthetics	N		N	
ES Endangered Species Habitat	N		N	
Other				

Notes:*Non-jurisdictional SWM ponds provide hydrology to these wetlands

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford County Sampling Date: 11/12/18

Applicant/Owner: MDTA State: MD Sampling Point: WET F-3

Investigator(s): HT, EB Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 1%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.464231 Long: -76.311038 Datum: NAD83

Soil Map Unit Name: Beltsville silt loam, 2-5% slopes NWI classification: PEM1E

Are climatic/hydrologic conditions on the site typical for this time of year? Yes [x] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [x] 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	[x]	No	[ ]	**Is the Sampled Area Within a Wetland?**	Yes [x]	No [ ]
Hydric Soil Present?	Yes	[x]	No	[ ]			
Wetland Hydrology Present?	Yes	[x]	No	[ ]			

Remarks:

Wetland begins at outfall from SWM facility, contains riprap and is maintained (mowed)

Ph 13 – North, 14 – West

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [x] Surface Water (A1)
- [x] High Water Table (A2)
- [x] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [x] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Mari Deposits (B15) **(LLR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [x] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [x] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes	[x]	No	[ ]	Depth (inches):	0.5-1
Water Table Present?	Yes	[x]	No	[ ]	Depth (inches):	0
Saturation Present? (includes capillary fringe)	Yes	[x]	No	[ ]	Depth (inches):	0

Wetland Hydrology Present? Yes [x] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Flows into intermittent stream (WUS F-2)

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET F-3

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
50% of total cover:		20% of total cover:	

Sapling/Shrub Stratum (Plot size: 30')			
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
50% of total cover:		20% of total cover:	

Herb Stratum (Plot size: 30')			
1. *Phalaris arundinacea*	90	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 = Total Cover		
50% of total cover: 45		20% of total cover: 18	

Woody Vine Stratum (Plot size: 30')			
1. None			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:		20% of total cover:	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is > 50%

3 - Prevalence Index is $\leq$ 3.0[1]

Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

Vegetation is mowed/weed wacked.

SOIL

Sampling Point: WET F-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR2/2	100	--	--	--	--	Loam	w/ rootlets
3-8	10YR2/2	50	2.5Y4/3	10	C	M	Sandy loam	
	5Y3/2	40	--	--	--	--	--	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: Riprap

Depth (inches): 8

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.01 ac Human made? Yes Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Forest, commercial, roadway, SWM pond Distance to nearest roadway or other development 5 feet

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? None* Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET F-3

Latitude 39.46424 Longitude -76.311055

Prepared by: EB, HT Date 11/29/2018

Wetland Impact:
Type PEM Area 0.005 ac

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N	2, 5, 7, 9	N	
Floodflow Alteration	Y	2, 4, 5, 6, 8, 9, 13, 16	Y	Wetland located below stormwater facility
Fish and Shellfish Habitat	N	14, 16, 17	N	
Sediment/Toxicant Retention	N	1, 2, 4, 10	N	
Nutrient Removal	N	3, 4, 7	N	
Production Export	N		N	
Sediment/Shoreline Stabilization	N	3, 6	N	
Wildlife Habitat	N	7, 8	N	
Recreation	N		N	
Educational/Scientific Value	N		N	
Uniqueness/Heritage	N	2	N	
Visual Quality/Aesthetics	N		N	
ES Endangered Species Habitat	N		N	
Other				

Notes:*Non-jurisdictional SWM pond provides hydrology to this wetland

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension/MD 24/924 Park and Ride City/County: Harford County Sampling Date: 11/12/18

Applicant/Owner: MDTA State: MD Sampling Point: WET F-4

Investigator(s): HT, EB Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-1%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.463315 Long: -76.311775 Datum: NAD83

Soil Map Unit Name: Keyport silt loam, 2-5% slopes NWI classification: PFO1E

Are climatic/hydrologic conditions on the site typical for this time of year? Yes [x] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [x] 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 [x]	No [ ]	**Is the Sampled Area Within a Wetland?**	Yes [x]	No [ ]
Hydric Soil Present?	Yes [x]	No [ ]			
Wetland Hydrology Present?	Yes [x]	No [ ]			

Remarks:

Wetland begins at SWM outfall.

Photo 17 - West

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [x] Surface Water (A1)
- [x] High Water Table (A2)
- [x] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Mari Deposits (B15) **(LLR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes [x]	No [ ]	Depth (inches):	0.5-1	
Water Table Present?	Yes [x]	No [ ]	Depth (inches):	0	
Saturation Present? (includes capillary fringe)	Yes [x]	No [ ]	Depth (inches):	0	**Wetland Hydrology Present?** Yes [x] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Likely the water is leaching through the berm of the SWM facility to support hydrology.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET F-4

Tree Stratum (Plot size: 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	40	Yes	FAC
2. *Quercus alba*	10	No	FACU
3. *Liquidambar styraciflua*	5	No	FAC
4.			
5.			
6.			
7.			
8.			
	55 = Total Cover		
50% of total cover: 27.5	20% of total cover: 11		

Sapling/Shrub Stratum (Plot size: 20')			
1. *Liquidambar styraciflua*	20	Yes	FAC
2. *Platanus occidentalis*	5	No	FACW
3. *Baccharis halimifolia*	15	Yes	FAC
4. *Rosa multiflora*	10	Yes	FACU
5.			
6.			
7.			
8.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		

Herb Stratum (Plot size: 20')			
1. *Phragmites australis*	30	Yes	FACW
2. *Lonicera japonica*	10	No	FACU
3. *Microstegium vimineum*	15	Yes	FAC
4. *Phalaris arundinacea*	5	No	OBL
5. *Scirpus polyphyllus*	5	No	OBL
6. *Typha latifolia*	3	No	OBL
7.			
8.			
9.			
10.			
11.			
12.			
	68 = Total Cover		
50% of total cover: 34	20% of total cover: 13.6		

Woody Vine Stratum (Plot size: 20')			
1. *Smilax rotundifolia*	10	Yes	FAC
2.			
3.			
4.			
5.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	6	(A)
Total Number of Dominant Species Across All Strata:	7	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	85.7	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

Plot size limited to size of wetland.

SOIL

Sampling Point: WET F-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5Y4/2	90	10YR4/6	10	C	M	Clay loam	
6-12+	10YR6/6	80	10YR6/4	20	C	M	Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension/MD 24/924 Park and Ride City/County: Harford County Sampling Date: 11/12/18

Applicant/Owner: MDTA State: MD Sampling Point: WET F-5

Investigator(s): HT, EB Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-1%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.463435 Long: -76.311552 Datum: NAD83

Soil Map Unit Name: Keyport silt loam, 2-5% slopes NWI classification: PFO1E

Are climatic/hydrologic conditions on the site typical for this time of year? Yes [x] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [x] 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 [x]	No [ ]	**Is the Sampled Area Within a Wetland?**	Yes [x]	No [ ]
Hydric Soil Present?	Yes [x]	No [ ]			
Wetland Hydrology Present?	Yes [x]	No [ ]			

Remarks:

Photo 18 – West

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [x] Surface Water (A1)
- [x] High Water Table (A2)
- [x] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Mari Deposits (B15) **(LLR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [x] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes [x]	No [ ]	Depth (inches):	*0.5	
Water Table Present?	Yes [x]	No [ ]	Depth (inches):	6	
Saturation Present? (includes capillary fringe)	Yes [x]	No [ ]	Depth (inches):	0	**Wetland Hydrology Present?** Yes [x] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland depression abutting stream (WUS F-2)

*Surface water in 10% of the plot.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET F-5

Tree Stratum (Plot size: 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	40	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	40 = Total Cover		
50% of total cover: 20		20% of total cover:	8

Sapling/Shrub Stratum (Plot size: 20')			
1. *Rosa multiflora*	10	Yes	FACU
2. *Viburnum dentatum*	25	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	35 = Total Cover		
50% of total cover: 17.5		20% of total cover:	7

Herb Stratum (Plot size: 20')			
1. *Microstegium vimineum*	30	Yes	FAC
2. *Phalaris arundinacea*	25	Yes	OBL
3. *Persicaria longiseta*	10	No	FAC
4. *Lonicera japonica*	5	No	FACU
5. *Solidago* sp.	5	No	N/A
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	75 = Total Cover		
50% of total cover: 37.5		20% of total cover:	15

Woody Vine Stratum (Plot size: 30')			
1. *Smilax rotundifolia*	25	Yes	FAC
2. *Lonicera japonica*	5	No	FACU
3.			
4.			
5.			
	30 = Total Cover		
50% of total cover: 15		20% of total cover:	6

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	83.3%	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

Plot size limited by size of wetland.

SOIL

Sampling Point: WET F-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR3/2	98	7.5YR3/2	2	C	M, PL	Loam	w/ many rootlets
3-10	10YR3/1	100	--	--	--	--	Loam	w/ buried organics
10-12+	5Y4/1	95	2.5Y4/4	5	C	M	Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils [3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.02 ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Forest, roadway Distance to nearest roadway or other development 5 feet

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? None Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET F-5

Latitude 39.46343 Longitude -76.311552

Prepared by: EB, HT Date 11/30/2018

Wetland Impact:
Type PFO Area 0.02 ac

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	2, 5, 7, 9, 10, 13	Y	
Floodflow Alteration	N	2, 5, 6, 13	N	Wetland abuts intermittent stream, ditched along driveway
Fish and Shellfish Habitat	N	4, 14, 16, 17	N	
Sediment/Toxicant Retention	N	1, 2, 4, 9,10	N	
Nutrient Removal	N	4, 5, 7	N	
Production Export	N		N	
Sediment/Shoreline Stabilization	N	3, 4, 6, 14	N	
Wildlife Habitat	N	7, 8	N	
Recreation	N		N	
Educational/Scientific Value	N		N	
Uniqueness/Heritage	N	2, 22	N	
Visual Quality/Aesthetics	N		N	
ES Endangered Species Habitat	N		N	
Other				

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension/ MD 24/924 Park and Ride City/County: Harford County Sampling Date: 11/14/18

Applicant/Owner: MDTA State: MD Sampling Point: WET F-6

Investigator(s): HT, EB, CJ Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.464467 Long: -76.311597 Datum: NAD83

Soil Map Unit Name: Keyport silt loam, 2-5% slopes NWI classification: PSS1E

Are climatic/hydrologic conditions on the site typical for this time of year? Yes [x] No [ ] (If no, explain in Remarks.)

Are Vegetation [x] Soil [x] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [x] 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 [x]	No [ ]	**Is the Sampled Area Within a Wetland?**	Yes [x]	No [ ]
Hydric Soil Present?	Yes [x]	No [ ]			
Wetland Hydrology Present?	Yes [x]	No [ ]			

Remarks:

Entire area appears disturbed by past roadway/commercial development with berms/soil mounds throughout and many cut trees.

Photo 19 – West

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [x] Surface Water (A1)
- [x] High Water Table (A2)
- [x] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Mari Deposits (B15) **(LLR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [x] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes [x]	No [ ]	Depth (inches):	*0.5	
Water Table Present?	Yes [x]	No [ ]	Depth (inches):	6	
Saturation Present? (includes capillary fringe)	Yes [x]	No [ ]	Depth (inches):	0	**Wetland Hydrology Present?** Yes [x] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

*Pockets of surface water in 10% of plot.

Wetland swale drains to intermittent stream (WUS F-3).

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET F-6

Tree Stratum (Plot size: 30' x 8')	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
50% of total cover:		20% of total cover:	

Sapling/Shrub Stratum (Plot size: 30' X 8')			
1. *Viburnum dentatum*	50	Yes	FAC
2. *Carpinus caroliniana*	5	No	FAC
3. *Liquidambar styraciflua*	15	Yes	FAC
4.			
5.			
6.			
7.			
8.			
	70 = Total Cover		
50% of total cover:	35	20% of total cover:	14

Herb Stratum (Plot size: 30' x 8')			
1. *Microstegium vimineum*	15	Yes	FAC
2. *Lonicera japonica*	20	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	35 = Total Cover		
50% of total cover:	17.5	20% of total cover:	7

Woody Vine Stratum (Plot size: 30' x 8')			
1. *Smilax rotundifolia*	5	Yes	FAC
2.			
3.			
4.			
5.			
	5 = Total Cover		
50% of total cover:	2.5	20% of total cover:	1

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	80	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

Plot size limited by the size/shape of the wetland, approximately 30' x 8'

SOIL

Sampling Point: WET F-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR4/2	97	7.5YR5/4	3	C	M	Silty clay loam	w/ rootlets
6-10	2.5Y5/3	70	10YR5/6	30	C	M	Clay loam	w/ gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils [3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: gravel

Depth (inches): 10”

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.05 ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Forest, open field Distance to nearest roadway or other development 30 feet

Dominant wetland systems present PSS Contiguous undeveloped buffer zone present Yes, 30' wide

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? None Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET F-6

Latitude 39.46446 Longitude -76.311597

Prepared by: EB, HT Date 11/30/2018

Wetland Impact:
Type PSS Area 0.03 ac

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	2, 5, 7, 9, 10, 13, 15	Y	
Floodflow Alteration	Y	2, 4, 5, 6, 7, 8, 9, 13	N	
Fish and Shellfish Habitat	N	4, 14, 15, 16, 17	N	
Sediment/Toxicant Retention	Y	1, 2, 4, 10	N	
Nutrient Removal	N	3, 4, 5, 7	N	
Production Export	N	1, 2, 4	N	
Sediment/Shoreline Stabilization	N	2, 3, 4, 6, 9, 14	N	
Wildlife Habitat	N	7, 8	N	
Recreation	N		N	
Educational/Scientific Value	N		N	
Uniqueness/Heritage	N	2	N	
Visual Quality/Aesthetics	N		N	
ES Endangered Species Habitat	N		N	
Other				

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension/MD 24/924 Park and Ride City/County: Harford County Sampling Date: 11/14/18

Applicant/Owner: MDTA State: MD Sampling Point: WET F-7

Investigator(s): HT, EB Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): Concave Slope (%): 3-5%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.463697 Long: -76.311328 Datum: NAD83

Soil Map Unit Name: Keyport silt loam, 2-5% slopes NWI classification: PEM1E

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☑ Soil ☑ or Hydrology ☑ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area Within a Wetland?**	Yes ☑	No ☐
Hydric Soil Present?	Yes ☑	No ☐			
Wetland Hydrology Present?	Yes ☑	No ☐			

Remarks:

Ditch manipulated by construction of the adjacent gravel roadway.

Photo 22 – West

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches):	0.5	
Water Table Present?	Yes ☑	No ☐	Depth (inches):	0	
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches):	0	**Wetland Hydrology Present?** Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland manipulated to carry road runoff to WUS F-1.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET F-7

Tree Stratum (Plot size: 30' x 5')

		Absolute % Cover	Dominant Species?	Indicator Status
1.	None			
2.				
3.				
4.				
5.				
6.				
7.				
8.				
			= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Sapling/Shrub Stratum (Plot size: 30' x 5")

1.	None			
2.				
3.				
4.				
5.				
6.				
7.				
8.				
			= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 30' x 5')

1.	*Microstegium vimineum*	30	Yes	FAC
2.	*Dichanthelium clandestinum*	25	Yes	FACW
3.	*Scirpus* sp.	5	No	N/A
4.	*Rosa multiflora*	10	No	FACU
5.	*Lonicera japonica*	15	No	FACU
6.	*Smilax rotundifolia*	5	No	FAC
7.	*Solidago* sp.	3	No	N/A
8.				
9.				
10.				
11.				
12.				
		93	= Total Cover	

50% of total cover: 46.5 20% of total cover: 18.6

Woody Vine Stratum (Plot size: 30' X 5')

1.	None			
2.				
3.				
4.				
5.				
			= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100%	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

Unable to identify *Scirpus* sp. and *Solidago* sp. due to time of year; however, neither are dominant and therefore do not affect the result of the dominance test.

Vegetation is mowed along the edge of the adjacent road.

SOIL

Sampling Point: WET F-7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-1	2.5Y2.5/1	100	--	--	--	--	Silt Loam	w/ rootlets
1-8	2.5Y4/1	95	10YR5/6	5	C	M	Loam	
8-12	2.5Y5/2	95	7.5YR5/6	5	C	M	Sandy clay loam	
12-14+	2.5Y5/3	80	7.5YR4/6	20	C	M	Sandy clay loam	w/ gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Soils contain gravel washed in from the adjacent road.

Wetland Function-Value Evaluation Form

Total area of wetland 0.02 ac Human made? Yes Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Roadway, forest Distance to nearest roadway or other development 0 feet

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? None Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET F-7

Latitude 39.46369 Longitude -76.311328

Prepared by: EB, HT Date 11/30/2018

Wetland Impact:
Type PEM Area 0.02 ac

Evaluation based on:
Office _____ Field X

Corps manual wetland delineation completed? Y X N _____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	2, 5, 7, 9, 10, 13	Y	
Floodflow Alteration	Y	2, 3, 4, 9, 13, 15	N	
Fish and Shellfish Habitat	N	4, 14, 16, 17	N	
Sediment/Toxicant Retention	Y	1, 2, 4, 10,	N	
Nutrient Removal	N	3, 4, 7	N	
Production Export	N	1	N	
Sediment/Shoreline Stabilization	N	2, 3, 4, 6, 9,	N	
Wildlife Habitat	N	5, 7, 8	N	
Recreation	N		N	
Educational/Scientific Value	N		N	
Uniqueness/Heritage	N		N	
Visual Quality/Aesthetics	N		N	
ES Endangered Species Habitat	N		N	
Other				

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension/MD 24/924 Park and Ride City/County: Harford County Sampling Date: 11/14/18

Applicant/Owner: MDTA State: MD Sampling Point: WET F-8

Investigator(s): HT, EB, CJ Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Floodplain bench Local relief (concave, convex, none): Concave Slope (%): 0-5%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.462607 Long: -76.311062 Datum: NAD83

Soil Map Unit Name: Keyport silt loam, 2-5% slopes NWI classification: PSS1E

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☑	No	☐	**Is the Sampled Area Within a Wetland?**	Yes ☑	No ☐
Hydric Soil Present?	Yes	☑	No	☐			
Wetland Hydrology Present?	Yes	☑	No	☐			

Remarks:

Photo 24 – South

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes	☑	No	☐	Depth (inches):	*0.5
Water Table Present?	Yes	☑	No	☐	Depth (inches):	0
Saturation Present? (includes capillary fringe)	Yes	☑	No	☐	Depth (inches):	0

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland seep drains to floodplain bench abutting stream (WUS F-1)

*Surface water in 25% of the plot.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET F-8

Tree Stratum (Plot size: 10')	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
50% of total cover:		20% of total cover:	

Sapling/Shrub Stratum (Plot size: 10')			
1. *Lindera benzoin*	60	Yes	FACW
2. *Rosa multiflora*	10	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	70 = Total Cover		
50% of total cover:	35	20% of total cover:	14

Herb Stratum (Plot size: 10')			
1. *Phytolacca americana*	5	Yes	FACU
2. *Lonicera japonica*	5	Yes	FACU
3. *Hedera helix*	5	Yes	FACU
4. *Duchesnea indica*	5	Yes	UPL
5. *Boehmeria cylindrica*	20	Yes	FACW
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	40 = Total Cover		
50% of total cover:	20	20% of total cover:	8

Woody Vine Stratum (Plot size: 10')			
1. None			
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:	6	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	33%	(A/B)

Prevalence Index Worksheet:

Total % Cover of:			Multiply by:
OBL species	0	x1=	0
FACW species	80	x2=	160
FAC species	0	x3=	0
FACU species	25	x4=	100
UPL species	5	x5=	25
Column Totals:	110 (A)		285 (B)

Prevalence Index = B/A = 2.59

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ____ 2 - Dominance Test is > 50%
- X 3 - Prevalence Index is ≤ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

Plot size limited by wetland size.

SOIL

Sampling Point: WET F-8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR2/2	100	--	--	--	--	Loam	w/ organics
1-10	10YR3/2	97	7.5YR4/4	3	C	M	Loam	w/ organics
10-12+	5Y4/1	70	10YR5/6	15	C	M	Sandy loam	w/ gravel
			7.5YR4/6	15	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.002 ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Forest, Roadway Distance to nearest roadway or other development 15 feet

Dominant wetland systems present PSS Contiguous undeveloped buffer zone present Yes, 15' wide

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? None Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET F-8

Latitude 39.46260 Longitude -76.311062

Prepared by: EB, HT Date 11/30/2018

Wetland Impact:
Type PSS Area 0.002 ac

Evaluation based on:
Office _____ Field x

Corps manual wetland delineation completed? Y x N _____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	2, 4, 7, 8, 9, 13	Y	Small wetland seep drains to bench abutting stream channel
Floodflow Alteration	Y	2, 4, 5, 10, 13	N	Wetland occurs upstream from pipe culvert at gravel road crossing
Fish and Shellfish Habitat	N	4, 8, 14, 16, 17	N	
Sediment/Toxicant Retention	Y	1, 2, 4, 9, 10	N	
Nutrient Removal	N	4, 7	N	
Production Export	N	1	N	
Sediment/Shoreline Stabilization	Y	3, 4, 6, 9	N	
Wildlife Habitat	N	7, 8	N	
Recreation	N		N	
Educational/Scientific Value	N		N	
Uniqueness/Heritage	N	2, 22	N	
Visual Quality/Aesthetics	N		N	
ES Endangered Species Habitat	N		N	
Other				

Notes:

* Refer to backup list of numbered considerations.

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 11/12/18 **Stream ID:** WUS F-1

Staff: HT, EB **Flow Type:** Perennial ☒ Intermittent ☒ Ephemeral ☐

Flow Direction: South **Drains Into:** Haha Branch

Fed By: WET F-2, WET F-5, WET F-7, WUS F-2 (see datasheets)

Bank Height: 3-4 ft **Water Depth:** Approx. 6 in **Width:** 5 ft

Channel Gradient (%): 5 **Bank Stability:** Areas of moderate to severe erosion throughout

Avg. Bank Slope: Vertical ☐ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 85 % Riffle: 10 % Pool: 5

Substrate: Cobble ☒ Gravel ☒ Sand ☒ Silt ☐
Veg ☐ Riprap ☐ Concrete ☐ Muck ☐

Channel Characteristics: Natural ☐ Artificial ☐ Man-altered ☒

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☐
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☒
Sediment deposition	☒	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Flows southeast to Haha Branch, which flows south to Bush River

Other Comments: Upper section of perennial portion buried under roof shingles and concrete rubble

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 11/12/18 **Stream ID:** WUS F-2

Staff: HT, EB **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: South **Drains Into:** WUS F-1

Fed By: WET F-3 (see datasheet), stormwater pond, roadway runoff

Bank Height: 1 ft **Water Depth:** 4 in **Width:** 2 ft

Channel Gradient (%): 7 **Bank Stability:** Stable

Avg. Bank Slope: Vertical ☐ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 90 % Riffle: 5 % Pool: 5

Substrate:

Cobble	☐	Gravel	☒	Sand	☒	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☒

Channel Characteristics: Natural ☐ Artificial ☐ Man-altered ☒

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☐
Changes in character of soil	☒	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☐
Sediment deposition	☒	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Flows to WUS F-1, which flows southeast to Haha Branch which flows south to Bush River

Other Comments: Ph 15 US, 16 DS

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 11/14/18 **Stream ID:** WUS F-3

Staff: HT, EB, CJ **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: South **Drains Into:** WUS F-2

Fed By: WET F-6 (see datasheet)

Bank Height: 2 ft **Water Depth:** 2 in **Width:** 3 ft

Channel Gradient (%): 5 **Bank Stability:** Stable

Avg. Bank Slope: Vertical ☐ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 85 % Riffle: 5 % Pool: 10

Substrate: Cobble ☐ Gravel ☐ Sand ☒ Silt ☒
Veg ☐ Riprap ☐ Concrete ☐ Muck ☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☐
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Flows east to WUS F-2, which flows southwest to WUS F-1, which flows southeast to Haha Branch, which flows south to Bush River

Other Comments: Ph 20 US, 21 DS

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 11/14/18 **Stream ID:** WUS F-4

Staff: HT, EB, CJ **Flow Type:** Perennial ☐ Intermittent ☐ Ephemeral ☒

Flow Direction: West **Drains Into:** WUS F-1

Fed By: Surface runoff

Bank Height: 3 ft **Water Depth:** 6 in **Width:** 4 ft

Channel Gradient (%): 10 **Bank Stability:** Unstable, headcutting

Avg. Bank Slope: Vertical ☒ 2:1 ☐ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 100 % Riffle: 0 % Pool: 0

Substrate:

Cobble ☐	Gravel ☒	Sand ☒	Silt ☐
Veg ☐	Riprap ☐	Concrete ☐	Muck ☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☐
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☒
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Flows south to WUS F-1, which flows southeast to Haha Branch, which flows south to Bush River

Other Comments: Ph 25 US, 26 DS

WETLAND, UPLAND, AND STREAM DATASHEETS

G. KH-3020: I-95 NB Extension to Bynum Run/Noise Wall on NB I-95 North of Abingdon Road

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford Sampling Date: 2/22/2019

Applicant/Owner: MDTA State: MD Sampling Point: WET G-1

Investigator(s): Amy Gelb, Ben Spencer Section, Township, Range:

Landform (hillslope, terrace, etc.): roadside Local relief (concave, convex, none): none Slope (%): 2%

Subregion (LRR or MLRA): MLRA 147 Lat: 39.46656222 Long: -76.28519069 Datum: NAD83

Soil Map Unit Name: Russett fine sandy loam, 0-5% slopes NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☑	No	☐	**Is the Sampled Area Within a Wetland?**	Yes ☑	No ☐
Hydric Soil Present?	Yes	☑	No	☐			
Wetland Hydrology Present?	Yes	☑	No	☐			

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes	☑	No	☐	Depth (inches):	0-1"
Water Table Present?	Yes	☐	No	☑	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☑	No	☐	Depth (inches):	0"

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland collecting runoff from abutting ephemeral channel (WUS G-1)

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET G-1

Tree Stratum (Plot size: 30')

		Absolute % Cover	Dominant Species?	Indicator Status
1.	*Chamaecyparis thyoides*	90	Y	OBL
2.	*Liquidambar styraciflua*	5	N	FAC
3.	*Ilex opaca*	5	N	FAC
4.				
5.				
6.				
7.				
8.				
		100	= Total Cover	

50% of total cover: 50 20% of total cover: 20

Sapling/Shrub Stratum (Plot size: 30')

1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
			= Total Cover	

50% of total cover: 20% of total cover:

Herb Stratum (Plot size: 30')

1.	*Carex pedunculata*	20	Y	OBL
2.	*Smilax rotundifolia*	5	Y	FAC
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		25	= Total Cover	

50% of total cover: 12.5 20% of total cover: 5

Woody Vine Stratum (Plot size: 30')

1.				
2.				
3.				
4.				
5.				
			= Total Cover	

50% of total cover: 20% of total cover:

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET G-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 3/2	100					Silty clay loam	
2-16	10 YR 5/2	95	2.5 YR 5/8	5	C	M	Clay loam	Soft masses

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: Clay pan

Depth (inches): 12”

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Soil appears to be fill material, many cobbles present. Clay texture likely increases ponding of surface water.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford Sampling Date: 2/22/2019

Applicant/Owner: MDTA State: MD Sampling Point: UPL G-1

Investigator(s): Amy Gelb, Ben Spencer Section, Township, Range:

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 2-3%

Subregion (LRR or MLRA): MLRA 147 Lat: 39.46654422 Long: -76.28520323 Datum: NAD83

Soil Map Unit Name: Russett fine sandy loam, 0-5% slopes NWI classification: UPL

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area Within a Wetland?**	Yes ☐	No ☑
Hydric Soil Present?	Yes ☐	No ☑			
Wetland Hydrology Present?	Yes ☐	No ☑			

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches):		
Water Table Present?	Yes ☐	No ☑	Depth (inches):		
Saturation Present? (includes capillary fringe)	Yes ☐	No ☑	Depth (inches):	**Wetland Hydrology Present?**	Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL G-1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Chamaecyparis thyoides*	80	Y	OBL
2. *Acer rubrum*	10	N	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		

Sapling/Shrub Stratum (Plot size: 30')			
1. *Ilex opaca*	5	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		

Herb Stratum (Plot size: 30')			
1. *Lonicera japonica*	30	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	66	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UPL G-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-14	10 YR 4/4	100					Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: Clay pan

Depth (inches): 13”

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford Sampling Date: 2/22/2019

Applicant/Owner: MDTA State: MD Sampling Point: WET G-2

Investigator(s): Amy Gelb, Ben Spencer Section, Township, Range:

Landform (hillslope, terrace, etc.): none Local relief (concave, convex, none): concave Slope (%): 0-1%

Subregion (LRR or MLRA): MLRA 147 Lat: 39.46755623 Long: -76.28265367 Datum: NAD83

Soil Map Unit Name: Elkton silt loam NWI classification: PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☑	No	☐	**Is the Sampled Area Within a Wetland?**	Yes ☑	No ☐
Hydric Soil Present?	Yes	☑	No	☐			
Wetland Hydrology Present?	Yes	☑	No	☐			

Remarks:

Small depressed wetland

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes	☐	No	☑	Depth (inches):	
Water Table Present?	Yes	☐	No	☑	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☑	No	☐	Depth (inches):	0"

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Drier towards bottom of the profile, likely surface runoff and snowmelt water ponding.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET G-2

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
50% of total cover:		20% of total cover:	

Sapling/Shrub Stratum (Plot size: 30')			
1. *Acer rubrum*	60	Y	FAC
2. *Smilax rotundifolia*	30	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	90 = Total Cover		
50% of total cover:	45	20% of total cover:	18

Herb Stratum (Plot size: 30')			
1. *Carex pedunculata*	15	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	15 = Total Cover		
50% of total cover:	7.5	20% of total cover:	3

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:		20% of total cover:	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET G-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/2	100					Silt loam	< 20 % muck
4-8	10 YR 5/1	100					Loam	< 10 % muck
8-20	10 YR 4/1	85	10 YR 6/8	15	C	M	Clay loam	Soft masses

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: none

Depth (inches):

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford Sampling Date: 2/22/2019

Applicant/Owner: MDTA State: MD Sampling Point: UPL G-2

Investigator(s): Amy Gelb, Ben Spencer Section, Township, Range:

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 1-2%

Subregion (LRR or MLRA): MLRA L47 Lat: 39.46747594 Long: -76.28264045 Datum: NAD83

Soil Map Unit Name: Elkton silt loam NWI classification: UPL

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☐	No	☑	
Hydric Soil Present?	Yes	☐	No	☑	**Is the Sampled Area Within a Wetland?** Yes ☐ No ☑
Wetland Hydrology Present?	Yes	☐	No	☑	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes	☐	No	☑	Depth (inches): _____
Water Table Present?	Yes	☐	No	☑	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☑	Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL G-2

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	75	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	75 = Total Cover		
50% of total cover: 37.5		20% of total cover: 15	

Sapling/Shrub Stratum (Plot size: 30')			
1. *Smilax rotundifolia*	90	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	90 = Total Cover		
50% of total cover: 45		20% of total cover: 18	

Herb Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	= Total Cover		
50% of total cover:		20% of total cover:	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:		20% of total cover:	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ____ 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☐ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UPL G-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-14	10 YR 4/4	100					Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: Clay pan

Depth (inches): 11”

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford Sampling Date: 2/22/2019

Applicant/Owner: MDTA State: MD Sampling Point: WET G-3

Investigator(s): Amy Gelb, Ben Spencer Section, Township, Range:

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 2-3%

Subregion (LRR or MLRA): MLRA L47 Lat: 39.46807667 Long: -76.28060622 Datum: NAD83

Soil Map Unit Name: Russett fine sandy loam NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes [x] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [x] 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 [x]	No [ ]	**Is the Sampled Area Within a Wetland?**	Yes [x]	No [ ]
Hydric Soil Present?	Yes [x]	No [ ]			
Wetland Hydrology Present?	Yes [x]	No [ ]			

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [x] Surface Water (A1)
- [ ] High Water Table (A2)
- [x] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Mari Deposits (B15) **(LLR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [x] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [x] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes [x]	No [ ]	Depth (inches):	1"	
Water Table Present?	Yes [ ]	No [x]	Depth (inches):		
Saturation Present? (includes capillary fringe)	Yes [x]	No [ ]	Depth (inches):	0"	**Wetland Hydrology Present?** Yes [x] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Clay pan at 15", perched water

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET G-3

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	50	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	50 = Total Cover		
50% of total cover: 25		20% of total cover: 10	

Sapling/Shrub Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
50% of total cover:		20% of total cover:	

Herb Stratum (Plot size: 30')			
1. *Carex pedunculata*	10	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	10 = Total Cover		
50% of total cover: 5		20% of total cover: 2	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:		20% of total cover:	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET G-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 3/3	100					Clay loam	Soft masses
2-14	10 YR 5/1	97	10 YR 5/8	3	C	M	Clay loam	Soft masses

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: Clay pan

Depth (inches): 15”

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Clay pan is pink in color.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford Sampling Date: 2/22/2019

Applicant/Owner: MDTA State: MD Sampling Point: UPL G-3

Investigator(s): Amy Gelb, Ben Spencer Section, Township, Range: _____

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): _____

Subregion (LRR or MLRA): MLRA L47 Lat: 39.46811796 Long: -76.28062756 Datum: NAD83

Soil Map Unit Name: Russett fine sandy loam NWI classification: UPL

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area Within a Wetland?**	Yes ☐	No ☑
Hydric Soil Present?	Yes ☐	No ☑			
Wetland Hydrology Present?	Yes ☐	No ☑			

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches): _____		
Water Table Present?	Yes ☐	No ☑	Depth (inches): _____		
Saturation Present? (includes capillary fringe)	Yes ☐	No ☑	Depth (inches): _____	**Wetland Hydrology Present?**	Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL G-3

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	50	Y	FAC
2. *Liquidambar styraciflua*	15	Y	FAC
3. *Pinus virginiana*	5	N	NI
4.			
5.			
6.			
7.			
8.			
	70	= Total Cover	
50% of total cover: 35		20% of total cover: 14	

Sapling/Shrub Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Herb Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UPL G-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-15	10 YR 4/5	99	10 YR 4/8	1	C	M	Clay loam	Soft masses

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: none

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford Sampling Date: 2/25/2019

Applicant/Owner: MDTA State: MD Sampling Point: WET G-4

Investigator(s): Amy Gelb, Marla Duley Section, Township, Range:

Landform (hillslope, terrace, etc.): Terrace floodplain Local relief (concave, convex, none): concave Slope (%): 1%

Subregion (LRR or MLRA): MLRA L47 Lat: 39.468748 Long: -76.279924 Datum: NAD83

Soil Map Unit Name: Russett fine sandy loam, 5-15% slopes NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes [x] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [x] 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 [x]	No [ ]	**Is the Sampled Area Within a Wetland?**	Yes [x]	No [ ]
Hydric Soil Present?	Yes [x]	No [ ]			
Wetland Hydrology Present?	Yes [x]	No [ ]			

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [x] Surface Water (A1)
- [x] High Water Table (A2)
- [x] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Mari Deposits (B15) **(LLR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [x] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [x] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes [x]	No [ ]	Depth (inches):	½"	
Water Table Present?	Yes [x]	No [ ]	Depth (inches):	3"	
Saturation Present? (includes capillary fringe)	Yes [x]	No [ ]	Depth (inches):	0"	**Wetland Hydrology Present?** Yes [x] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

This point meets the wetland hydrology criteria.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET G-4

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	80	Y	FAC
2. *Pinus virginiana*	10	N	NI
3. *Nyssa sylvatica*	2	N	FAC
4.			
5.			
6.			
7.			
8.			
	92 = Total Cover		
50% of total cover: 46	20% of total cover: 18.4		

Sapling/Shrub Stratum (Plot size: 30')			
1. *Cornus amomum*	50	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		

Herb Stratum (Plot size: 30')			
1. *Carex pedunculata*	80	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		

Woody Vine Stratum (Plot size: 30')			
1. *Smilax rotundifolia*	20	Y	FAC
2.			
3.			
4.			
5.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ___ 3 - Prevalence Index is $\leq$ 3.0[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET G-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 3/2	100					Silty sand	
2-6	10 YR 5/2	60	5 YR 4/6	40	D	M	Sandy clay	
6-18+	10 YR 4/2	80	7.5 YR 5/6	20	D	M	Sandy clay	Gravel within layer

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford Sampling Date: 2/25/2019

Applicant/Owner: MDTA State: MD Sampling Point: UPL G-4

Investigator(s): Amy Gelb, Marla Duley Section, Township, Range:

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 2-3%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.468663 Long: -76.279802 Datum: NAD83

Soil Map Unit Name: Russett fine sandy loam, 5-15% slopes NWI classification: UPL

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☑	No	☐	
Hydric Soil Present?	Yes	☐	No	☑	**Is the Sampled Area Within a Wetland?** Yes ☐ No ☑
Wetland Hydrology Present?	Yes	☐	No	☑	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes	☐	No	☑	Depth (inches): _____
Water Table Present?	Yes	☐	No	☑	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☑	Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL G-4

Tree Stratum (Plot size: 30')

		Absolute % Cover	Dominant Species?	Indicator Status
1.	*Nyssa sylvatica*	50	Y	FAC
2.	*Liquidambar styraciflua*	30	Y	FAC
3.	*Pinus virginiana*	10	N	NI
4.	*Liriodendron tulipifera*	10	N	FACU
5.	*Fagus grandifolia*	2	N	FACU
6.	*Acer rubrum*	2	N	FAC
7.				
8.				
		104	= Total Cover	

50% of total cover: 52 20% of total cover: 20.8

Sapling/Shrub Stratum (Plot size: 30')

1.	*Nyssa sylvatica*	50	Y	FAC
2.	*Salix sericea*	25	Y	OBL
3.	*Ilex opaca*	2	N	FAC
4.	*Lonicera japonica*	2	N	FACU
5.				
6.				
7.				
8.				
		79	= Total Cover	

50% of total cover: 39.5 20% of total cover: 15.8

Herb Stratum (Plot size: 30')

1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
			= Total Cover	

50% of total cover: 20% of total cover:

Woody Vine Stratum (Plot size: 30')

1.				
2.				
3.				
4.				
5.				
			= Total Cover	

50% of total cover: 20% of total cover:

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UPL G-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-14	2.5 YR 4/6	65	7.5 YR 5/1	30	C	M	Silty clay	
			7.5 YR 5/8	5	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford Sampling Date: 2/25/2019

Applicant/Owner: MDTA State: MD Sampling Point: WET G-5

Investigator(s): Amy Gelb, Marla Duley Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 2%

Subregion (LRR or MLRA): MLRA L47 Lat: 39.468381 Long: -76.279808 Datum: NAD83

Soil Map Unit Name: Russett fine sandy loam, 5-15% slopes NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes [x] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [x] 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	[x]	No	[ ]	**Is the Sampled Area Within a Wetland?**	Yes [x]	No [ ]
Hydric Soil Present?	Yes	[x]	No	[ ]			
Wetland Hydrology Present?	Yes	[x]	No	[ ]			

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [x] Surface Water (A1)
- [x] High Water Table (A2)
- [x] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Mari Deposits (B15) **(LLR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [x] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes	[x]	No	[ ]	Depth (inches):	0"
Water Table Present?	Yes	[x]	No	[ ]	Depth (inches):	4"
Saturation Present? (includes capillary fringe)	Yes	[x]	No	[ ]	Depth (inches):	0"

Wetland Hydrology Present? Yes [x] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Meets hydrologic criteria.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET G-5

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	90	Y	FAC
2. *Nyssa sylvatica*	10	N	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
50% of total cover: 50		20% of total cover: 20	

Sapling/Shrub Stratum (Plot size: 30')			
1. *Salix sericea*	5	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5 = Total Cover		
50% of total cover: 2.5		20% of total cover: 1	

Herb Stratum (Plot size: 30')			
1. *Carex pedunculata*	30	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	30 = Total Cover		
50% of total cover: 15		20% of total cover: 6	

Woody Vine Stratum (Plot size: 30')			
1. *Hedera helix*	5	Y	FACU
2. *Lonicera japonica*	5	Y	FACU
3.			
4.			
5.			
	10 = Total Cover		
50% of total cover: 5		20% of total cover: 2	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	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		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET G-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 3/2	98	7.5 YR 4/6	2	C	PL	Loamy clay	
3-10	10 YR 5/2	85	7.5 YR 4/6	15	C	M	Silty clay	
10-13	7.5 YR 6/1	70	7.5 YR 4/6	30	D	M	Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford Sampling Date: 2/25/2019

Applicant/Owner: MDTA State: MD Sampling Point: UPL G-5

Investigator(s): Amy Gelb, Marla Duley Section, Township, Range:

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 3%

Subregion (LRR or MLRA): MLRA L47 Lat: 39.468460 Long: -76.279811 Datum: NAD83

Soil Map Unit Name: Russett fine sandy loam, 5-15% slopes NWI classification: UPL

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area Within a Wetland?**	Yes ☐	No ☑
Hydric Soil Present?	Yes ☐	No ☑			
Wetland Hydrology Present?	Yes ☐	No ☑			

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches):		
Water Table Present?	Yes ☐	No ☑	Depth (inches):		
Saturation Present? (includes capillary fringe)	Yes ☐	No ☑	Depth (inches):	**Wetland Hydrology Present?**	Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL G-5

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Nyssa sylvatica*	40	Y	FAC
2. *Liquidambar styraciflua*	30	Y	FAC
3. *Acer rubrum*	20	Y	FAC
4.			
5.			
6.			
7.			
8.			
	90	= Total Cover	
50% of total cover: 45		20% of total cover: 18	

Sapling/Shrub Stratum (Plot size: 30')			
1. *Nyssa sylvatica*	30	Y	FAC
2. *Ilexa opaca*	15	Y	FAC
3. *Fraxinus pennsylvanica*	15	Y	FACW
4.			
5.			
6.			
7.			
8.			
	60	= Total Cover	
50% of total cover: 30		20% of total cover: 12	

Herb Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	6	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UPL G-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/1	100					Sandy clay	
4-13	10 YR 5/4	80	7.5 YR 4/6	20	C	PL	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford Sampling Date: 2/26/2019

Applicant/Owner: MDTA State: MD Sampling Point: WET G-6A

Investigator(s): Amy Gelb, Kyndal Gehlbach, Sarah Smith Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Road median Local relief (concave, convex, none): concave Slope (%): 5%

Subregion (LRR or MLRA): MLRA L47 Lat: 39.46891967 Long: -76.28075368 Datum: NAD83

Soil Map Unit Name: Delanco silt loam, 3-8% slopes NWI classification: PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes [x] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [x] or Hydrology [x] significantly disturbed? Are "Normal Circumstances" present? Yes [ ] No [x]

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 [x]	No [ ]	**Is the Sampled Area Within a Wetland?**	Yes [x]	No [ ]
Hydric Soil Present?	Yes [x]	No [ ]			
Wetland Hydrology Present?	Yes [x]	No [ ]			

Remarks:

Soil is in the median of I-95 and is significantly disturbed. The site is intensely developed and likely contains fill material.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [x] Surface Water (A1)
- [x] High Water Table (A2)
- [x] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Mari Deposits (B15) **(LLR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [x] Sparsely Vegetated Concave Surface (B8)
- [x] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [x] Saturation Visible on Aerial Imagery (C9)
- [x] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes [x]	No [ ]	Depth (inches):	0"	
Water Table Present?	Yes [x]	No [ ]	Depth (inches):	6"	
Saturation Present? (includes capillary fringe)	Yes [x]	No [ ]	Depth (inches):	0"	**Wetland Hydrology Present?** Yes [x] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Receives hydrology from overland flow. Wetland drains North into storm drain.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET G-6A

Tree Stratum (Plot size: 30')

		Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
			= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Sapling/Shrub Stratum (Plot size: 30')

		Absolute % Cover	Dominant Species?	Indicator Status
1.	*Phragmites australis*	15	N	FACW
2.	*Juncus effusus*	15	N	OBL
3.	*Solanum carolinense*	5	N	FACU
4.	*Festuca spp.*	70	Y	N/A
5.				
6.				
7.				
8.				
		105	= Total Cover	

50% of total cover: 52.5 20% of total cover: 21

Herb Stratum (Plot size: 30')

		Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
			= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Woody Vine Stratum (Plot size: 30')

		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:	0	(A)
Total Number of Dominant Species Across All Strata:	0	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index Worksheet:

Total % Cover of:			Multiply by:
OBL species	15	x1=	15
FACW species	15	x2=	30
FAC species	0	x3=	0
FACU species	5	x4=	20
UPL species		x5=	
Column Totals:	35 (A)		65 (B)

Prevalence Index = B/A = 1.86

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is > 50%

X 3 - Prevalence Index is ≤ 3.0[1]

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

Most of median covered in planted grass species.

SOIL

Sampling Point: WET G-6A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5 YR 2.5/2	100					Silty loam	
3-7	7.5 YR 3/2	85	7.5 YR 5/8	15	C	M	Clay loam	
7-12	10 YR 3/2	65	10 YR 5/8	25	C	M	Clay	
			10 YR 5/4	10	D	M		
			5 YR 3/4	10	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: Clay pan

Depth (inches): 12”

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford Sampling Date: 2/26/2019

Applicant/Owner: MDTA State: MD Sampling Point: WET G-6B

Investigator(s): Amy Gelb, Kyndal Gehlbach, Sarah Smith Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Road median Local relief (concave, convex, none): concave Slope (%): 5%

Subregion (LRR or MLRA): MLRA L47 Lat: 39.46887892 Long: -76.28099585 Datum: NAD83

Soil Map Unit Name: Russett fine sandy loam, 5-15% slopes NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes [x] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [x] or Hydrology [x] significantly disturbed? Are "Normal Circumstances" present? Yes [ ] No [x]

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 [x]	No [ ]	**Is the Sampled Area Within a Wetland?**	Yes [x]	No [ ]
Hydric Soil Present?	Yes [x]	No [ ]			
Wetland Hydrology Present?	Yes [x]	No [ ]			

Remarks:

Soil is in the median of I-95 and is significantly disturbed. The site is intensely developed and likely contains fill material.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [x] Surface Water (A1)
- [x] High Water Table (A2)
- [x] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Mari Deposits (B15) **(LLR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [x] Sparsely Vegetated Concave Surface (B8)
- [x] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [x] Saturation Visible on Aerial Imagery (C9)
- [x] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes [x]	No [ ]	Depth (inches):	0"	
Water Table Present?	Yes [x]	No [ ]	Depth (inches):	5"	
Saturation Present? (includes capillary fringe)	Yes [x]	No [ ]	Depth (inches):	0"	**Wetland Hydrology Present?** Yes [x] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET G-6B

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Baccharis halimifolia*	25	Y	FAC
2. *Liquidambar styraciflua*	10	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	35 = Total Cover		
50% of total cover: 17.5	20% of total cover: 7		

Sapling/Shrub Stratum (Plot size: 30')			
1. *Baccharis halimifolia*	50	Y	FAC
2. *Cornus alba*	15	Y	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	65 = Total Cover		
50% of total cover: 32.5	20% of total cover: 13		

Herb Stratum (Plot size: 30')			
1. *Centella erecta*	10	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		

Woody Vine Stratum (Plot size: 30')			
1. *Lonicera japonica*	15	Y	FACU
2.			
3.			
4.			
5.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	83	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET G-6B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 2/1	100					Loam	
3-5	10 YR 4/2	100					Clay loam	
5-8	10 YR 4/2	90	10 YR 5/3	10	D	M	Clay	
8-12	10 YR 4/3	85	7.5 YR 4/6	15	D	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☑ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: Clay Pan

Depth (inches): 8

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Soil does not quite meet F3 indicator as the depleted matrix is not thick enough. However, the site is clearly a wetland and meets hydrology and vegetation indicators. The site qualifies as having problematic soils due to the presence of a thick clay layer at a depth of 5+ inches that could be restriction full hydric soil development in the profile. The profile has a layer to 8 inches that meets the F3 criteria, excluding thickness. Given the presence of hydrophytic vegetation and wetland hydrology at the site, this area is still considered wetland given the thick clay layer in the lower portion of the soil that is potentially restricting water movement downward and, in turn, hydric soil development.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford Sampling Date: 2/26/2019

Applicant/Owner: MDTA State: MD Sampling Point: UPL G-6

Investigator(s): Amy Gelb, Kyndal Gehlbach, Sarah Smith Section, Township, Range: _____

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 5%

Subregion (LRR or MLRA): MLRA L47 Lat: 39.469037 Long: -76.280852 Datum: NAD83

Soil Map Unit Name: Delanco silt loam, 3-8% slopes NWI classification: UPL

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☑ or Hydrology ☑ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☑

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑	**Is the Sampled Area Within a Wetland?**	Yes ☐	No ☑
Hydric Soil Present?	Yes ☐	No ☑			
Wetland Hydrology Present?	Yes ☐	No ☑			

Remarks:

Soil is significantly disturbed because it is in the median of I-95, highly developed and likely contains fill material

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches): _____		
Water Table Present?	Yes ☐	No ☑	Depth (inches): _____		
Saturation Present? (includes capillary fringe)	Yes ☐	No ☑	Depth (inches): _____	**Wetland Hydrology Present?**	Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL G-6

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
50% of total cover:		20% of total cover:	

Sapling/Shrub Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
50% of total cover:		20% of total cover:	

Herb Stratum (Plot size: 30')			
1. *Festuca spp.*	90	Y	N/A
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 = Total Cover		
50% of total cover: 45		20% of total cover: 18	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:		20% of total cover:	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	0	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ____ 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (If observed, list morphological adaptations below).

Unknown grass species/grass mix planted all over median.

SOIL

Sampling Point: UPL G-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5	7.5 YR 2.5/3	100					Loam	
5-20	7.5 YR 4/4	70	7.5 YR 5/8	20	C	M	Silty loam	
			2.5 YR 5/8	10	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford Sampling Date: 2/26/2019

Applicant/Owner: MDTA State: MD Sampling Point: WET G-7

Investigator(s): Amy Gelb, Kyndal Gehlbach, Sarah Smith Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Road median/ditch Local relief (concave, convex, none): concave Slope (%): 10%

Subregion (LRR or MLRA): MLRA L47 Lat: 39.47307489 Long: -76.27465228 Datum: NAD83

Soil Map Unit Name: Russett fine sandy loam, 5-15% slopes NWI classification: PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes [x] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [x] or Hydrology [x] significantly disturbed? Are "Normal Circumstances" present? Yes [ ] No [x]

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 [x]	No [ ]	**Is the Sampled Area Within a Wetland?**	Yes [x]	No [ ]
Hydric Soil Present?	Yes [x]	No [ ]			
Wetland Hydrology Present?	Yes [x]	No [ ]			

Remarks:

Soil is in the median of I-95 and is significantly disturbed. The site is intensely developed and likely contains fill material.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [x] Surface Water (A1)
- [x] High Water Table (A2)
- [x] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Mari Deposits (B15) **(LLR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [x] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes [x]	No [ ]	Depth (inches):	0"	
Water Table Present?	Yes [x]	No [ ]	Depth (inches):	6"	
Saturation Present? (includes capillary fringe)	Yes [x]	No [ ]	Depth (inches):	0"	**Wetland Hydrology Present?** Yes [x] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Linear wetland draining into WUS/drainage ditch that drains to storm drain

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET G-7

Tree Stratum (Plot size: 30')

		Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
			= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Sapling/Shrub Stratum (Plot size: 30')

1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
			= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 30')

1.	*Juncus effusus*	40	Y	OBL
2.	*Festuca spp.*	80	Y	N/A
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		120	= Total Cover	

50% of total cover: 60 20% of total cover: 24

Woody Vine Stratum (Plot size: 30')

1.				
2.				
3.				
4.				
5.				
			= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET G-7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 2/2	95	5 YR 3 /4	5	C	M	Loam	
4-6	10 YR 4/2	70	7.5 YR 5/8	30	C	M	Loamy clay	
6-14	10 YR 5/4	60	7.5 YR 5/6	40	C	M	Clay (slightly loamy)	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford Sampling Date: 2/26/2019

Applicant/Owner: MDTA State: MD Sampling Point: UPL G-7

Investigator(s): Amy Gelb, Kyndal Gehlbach, Sarah Smith Section, Township, Range: _____

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 10%

Subregion (LRR or MLRA): MLRA L47 Lat: 39.473007 Long: -76.274603 Datum: NAD83

Soil Map Unit Name: Russett fine sandy loam, 5-15% slopes NWI classification: UPL

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☑ or Hydrology ☑ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☑

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☑	No	☐	
Hydric Soil Present?	Yes	☐	No	☑	**Is the Sampled Area Within a Wetland?** Yes ☐ No ☑
Wetland Hydrology Present?	Yes	☐	No	☑	

Remarks:

Soil is in the median of I-95 and is significantly disturbed. The area is intensely developed and likely contains fill material.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes	☐	No	☑	Depth (inches): _____
Water Table Present?	Yes	☐	No	☑	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☑	Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL G-7

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	15	Y	FAC
2. *Liquidambar styraciflua*	15	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		

Sapling/Shrub Stratum (Plot size: 30')			
1. *Lindera benzoin*	30	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		

Herb Stratum (Plot size: 30')			
1. *Rosa multiflora*	35	Y	FACU
2. *Asclepias spp.*	15	Y	N/A
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 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		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UPL G-7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3 /4	100					Silty loam	
4-10	10 YR 3 /4	60	10 YR 5/8	40	C	M	Clay loam	
10-12	5 YR 6/4	80	10 YR 4/6	20	C	M	clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford Sampling Date: 2/26/2019

Applicant/Owner: MDTA State: MD Sampling Point: WET G-8

Investigator(s): Amy Gelb, Kyndal Gehlbach, Sarah Smith Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Road median/ditch Local relief (concave, convex, none): concave Slope (%): 1%

Subregion (LRR or MLRA): MLRA L47 Lat: 39.47093922 Long: -76.27739351 Datum: NAD83

Soil Map Unit Name: Sassafras and Joppa soils, 10-15% slopes NWI classification: PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes [x] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [x] or Hydrology [x] significantly disturbed? Are "Normal Circumstances" present? Yes [ ] No [x]

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 [x]	No [ ]	**Is the Sampled Area Within a Wetland?**	Yes [x]	No [ ]
Hydric Soil Present?	Yes [x]	No [ ]			
Wetland Hydrology Present?	Yes [x]	No [ ]			

Remarks:

Soil is in the median of I-95 and is significantly disturbed. The site is intensely developed and likely contains fill material.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [x] Surface Water (A1)
- [x] High Water Table (A2)
- [x] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Mari Deposits (B15) **(LLR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [x] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes [x]	No [ ]	Depth (inches):	0"	
Water Table Present?	Yes [x]	No [ ]	Depth (inches):	8"	
Saturation Present? (includes capillary fringe)	Yes [x]	No [ ]	Depth (inches):	2"	**Wetland Hydrology Present?** Yes [x] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Linear wetland drains into storm drain. Tire tracks in the wetland.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET G-8

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Sapling/Shrub Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Herb Stratum (Plot size: 30')			
1. *Juncus effusus*	10	N	OBL
2. *Andropogon virginicus*	10	N	FAC
3. *Festuca spp.*	70	Y	N/A
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90	= Total Cover	
50% of total cover:	45	20% of total cover:	18

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	0	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index Worksheet:

Total % Cover of:			Multiply by:	
OBL species	10	x1=	10	
FACW species	0	x2=	0	
FAC species	10	x3=	30	
FACU species	0	x4=	0	
UPL species	0	x5=	0	
Column Totals:	20	(A)	40	(B)

Prevalence Index = B/A = 2

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ____ 2 - Dominance Test is > 50%
- X 3 - Prevalence Index is ≤ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

Covered in unknown grass species/mix planted all over median

SOIL

Sampling Point: WET G-8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 4/3	80	5 YR 5/6	15	C	M	Loam	
			2.5 YR 5/6	5	C	M		
3-8	10 YR 4/1	70	5 YR 5/6	25	C	M	Loamy clay	
			10 YR 6/8	5	C	M		
8-15	10 YR 6/8	60	2.5 YR 8/6	37	C	M	Loamy clay	
			5 YR 5/8	3	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Bright yellow/orange soil layer at 8 inches

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Harford Sampling Date: 2/26/2019

Applicant/Owner: MDTA State: MD Sampling Point: UPL G-8

Investigator(s): Amy Gelb, Kyndal Gehlbach, Sarah Smith Section, Township, Range: _____

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 10%

Subregion (LRR or MLRA): MLRA L47 Lat: 39.470919 Long: -76.277369 Datum: NAD83

Soil Map Unit Name: Sassafras and Joppa soils, 10-15% slopes NWI classification: UPL

Are climatic/hydrologic conditions on the site typical for this time of year? Yes [x] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [x] or Hydrology [x] significantly disturbed? Are "Normal Circumstances" present? Yes [x] 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 [x]	No [ ]	**Is the Sampled Area Within a Wetland?**	Yes [ ]	No [x]
Hydric Soil Present?	Yes [ ]	No [x]			
Wetland Hydrology Present?	Yes [ ]	No [x]			

Remarks:

Soil is in the median of I-95 and is significantly disturbed. The site is intensely developed and likely contains fill material.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Mari Deposits (B15) **(LLR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes [ ]	No [x]	Depth (inches): _____	**Wetland Hydrology Present?**	Yes [ ] No [x]
Water Table Present?	Yes [ ]	No [x]	Depth (inches): _____		
Saturation Present? (includes capillary fringe)	Yes [ ]	No [x]	Depth (inches): _____		

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL G-8

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	30	Y	FAC
2. *Liquidambar styraciflua*	15	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	45 = Total Cover		
50% of total cover: 22.5		20% of total cover: 9	

Sapling/Shrub Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
50% of total cover:		20% of total cover:	

Herb Stratum (Plot size: 30')			
1. *Rosa multiflora*	40	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	40 = Total Cover		
50% of total cover: 20		20% of total cover: 8	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:		20% of total cover:	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	66	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UPL G-8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 3/3	100					Loam	
2-14	10 YR 2/4	100					Silty loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 2,017 S.F. Human made? N Is wetland part of a wildlife corridor? N or a "habitat island"?

Adjacent land use Roadside/residential Distance to nearest roadway or other development ~50'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? Y If not, where does the wetland lie in the drainage basin? NA

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET G-1

Latitude 39.466554 Longitude -76.285189

Prepared by: BS, AG Date 2/22/19

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5, 6, 9		Catches runoff and pools it
Floodflow Alteration	Y	3, 5, 6, 7, 9, 10, 13	X	Catches upland runoff / ephemeral channel flow
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1, 2, 3, 4, 14, 15, 16	X	Ponded water
Nutrient Removal	Y	3, 4, 7, 9, 12		Ponded water
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 170 SF Human made? N Is wetland part of a wildlife corridor? N or a "habitat island"? Y

Adjacent land use Residential/roadway Distance to nearest roadway or other development ~50'

Dominant wetland systems present PSS Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? Y If not, where does the wetland lie in the drainage basin? NA

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET G-2

Latitude 39.467546 Longitude -76.282652

Prepared by: BS, AG Date 2/22/19

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5, 6	X	Catches runoff from upslope
Floodflow Alteration	N			Minor water holding capacity
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1, 2, 4, 9	X	Catches runoff from upslope
Nutrient Removal	Y	3, 4	X	Catches runoff from upslope
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 447 SF Human made? N Is wetland part of a wildlife corridor? N or a "habitat island"? Y

Adjacent land use Roadside/residential Distance to nearest roadway or other development ~50'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? Y If not, where does the wetland lie in the drainage basin? NA

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET G-3

Latitude 39.468066 Longitude -76.280604

Prepared by: BS, AG Date 2/22/19

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5, 7, 9	X	Collects runoff from adjacent residential land
Floodflow Alteration	Y	4, 5, 9, 13	X	Collects runoff from adjacent residential land
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1, 2, 9, 14	X	Ponding water observed
Nutrient Removal	Y	3, 4, 5, 9, 10, 12	X	Ponding water observed
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 1,822 S.F. Human made? N Is wetland part of a wildlife corridor? N or a "habitat island"? _____

Adjacent land use Roadway/residential Distance to nearest roadway or other development ~30'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? floodplain

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET G-4

Latitude 39.468746 Longitude -76.279924

Prepared by: MD, AG Date 2/25/19

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office _____ Field X

Corps manual wetland delineation completed? Y X N _____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5, 6, 7, 9	X	Groundwater height 3"
Floodflow Alteration	Y	3, 4, 5, 6, 7, 9, 10, 11, 13,	X	Waterway intersects wetland
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1, 2, 3, 9, 10, 11, 13, 14	X	Ponded water observed
Nutrient Removal	Y	3, 4, 9, 10, 11, 12	X	Ponded water observed
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 1,326 S.F. Human made? N Is wetland part of a wildlife corridor? N or a "habitat island"? Y

Adjacent land use Residential Distance to nearest roadway or other development Adjacent

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin?

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET G-5

Latitude 39.468381 Longitude -76.279808

Prepared by: MD, AG Date 2/25/19

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5, 6, 10	X	Receives runoff from adjacent residential property
Floodflow Alteration	N			Local relief convex
Fish and Shellfish Habitat	N		X	
Sediment/Toxicant Retention	Y	1, 2, 4, 9	X	Receives runoff from adjacent residential property
Nutrient Removal	Y	4, 7		Receives runoff from adjacent residential property
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 3,493 S.F. Human made? Y Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use Roadway on either side (median) Distance to nearest roadway or other development ~20'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? Y If not, where does the wetland lie in the drainage basin? N

How many tributaries contribute to the wetland? 2 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET G-6A

Latitude 39.468946 Longitude -76.2807536

Prepared by: KG, AG Date 2/26/19

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5, 7	X	Wetland is situated at low point of elevation, collects runoff
Floodflow Alteration	Y	4, 5, 6, 7, 8, 9, 10, 13		Wetland is situated within a low point of elevation within road median and drains into a storm drain
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1, 2, 4, 5, 7, 10, 11, 14	X	
Nutrient Removal	Y	3, 4, 7, 12	X	
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 1,130 S.F. Human made? Y Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use Roadway Distance to nearest roadway or other development ~30'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin?

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET G-6B

Latitude 39.468876 Longitude -76.2809959

Prepared by: KG, AG Date 2/26/19

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5, 7	X	
Floodflow Alteration	Y	4, 5, 6, 7, 8, 9, 10, 13	X	
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1, 2, 4, 5, 7, 10, 11, 14	X	
Nutrient Removal	Y	3, 4, 7, 12	X	
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 11,401 Human made? Y Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use Roadway Distance to nearest roadway or other development 5'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin?

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET G-7

Latitude 39.4730 Longitude -76.2746

Prepared by: KG, AG Date 2/26/19

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5, 7		
Floodflow Alteration	Y	4, 5, 7, 8, 9, 13		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1, 2, 4, 5, 7, 10		
Nutrient Removal	Y	4, 7		
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 2,370 S Human made? Y Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use Roadway Distance to nearest roadway or other development 10'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin?

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET G-8

Latitude 39.470926 Longitude -76.2773935

Prepared by: KG, AG Date 2/26/19

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	5		
Floodflow Alteration	Y	4, 5, 16		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1, 2, 4		
Nutrient Removal	Y	4, 7, 10		
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 2/22/19 **Stream ID:** WUS G-1

Staff: AG, BS **Flow Type:** Perennial ☐ Intermittent ☐ Ephemeral ☒

Flow Direction: South **Drains Into:** PFO wetland (WET G-1)

Fed By: Runoff

Bank Height: 1' **Water Depth:** 0" **Width:** 3'

Channel Gradient (%): 1-2% **Bank Stability:** High (vegetated)

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☒ 4:1 or greater ☐

Mesohabitat: % Run: 100 % Riffle: 0 % Pool: 0

Substrate:

Cobble ☐	Gravel ☐	Sand ☐	Silt ☒
Veg ☒	Riprap ☐	Concrete ☐	Muck ☒

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☒
Changes in character of soil	☒	Destruction of terrestrial veg.	☒
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☐
Leaf litter disturbed or washed away	☐	Scour	☐
Sediment deposition	☒	Multiple observed/predicted flow events	☐
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: None

Other Comments:

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 2/22/19 **Stream ID:** WUS G-2

Staff: AG, BS **Flow Type:** Perennial ☐ Intermittent ☐ Ephemeral ☒

Flow Direction: North **Drains Into:** Nothing, flattens

Fed By: Runoff from adjacent residential land

Bank Height: < 1' **Water Depth:** 0-1" **Width:** 2'

Channel Gradient (%): 2% **Bank Stability:** Fair (some vegetation)

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☐ 4:1 or greater ☒

Mesohabitat: % Run: 100 % Riffle: 0 % Pool: 0

Substrate:

Cobble ☐	Gravel ☐	Sand ☐	Silt ☒
Veg ☒	Riprap ☐	Concrete ☐	Muck ☒

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☒
Changes in character of soil	☒	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☐
Sediment deposition	☒	Multiple observed/predicted flow events	☐
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: None

Other Comments: Barely defined, delineated due to presence of standing water, erosional feature along toe of slope

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 2/22/19 **Stream ID:** WUS G-3

Staff: AG, BS **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: North **Drains Into:** WUS 1D

Fed By: Sheetflow runoff from adjacent residential property

Bank Height: 1-6' **Water Depth:** 0-6" **Width:** 2-5'

Channel Gradient (%): 3-5% **Bank Stability:** Poor, incision upstream

Avg. Bank Slope: Vertical ☐ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 80 % Riffle: 15 % Pool: 5

Substrate:

Cobble	☒	Gravel	☒	Sand	☒	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☒

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☒
Changes in character of soil	☒	Destruction of terrestrial veg.	☒
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☐
Sediment deposition	☒	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☒

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Drains into WUS 1D, which drains to a culvert Under I-95, which likely drains to Bynum Run and then the Bush River.

Other Comments: Fed from "homemade" channel outlet in backyard

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 2/22/19 **Stream ID:** WUS G-5

Staff: AG, BS **Flow Type:** Perennial ☒ Intermittent ☐ Ephemeral ☐

Flow Direction: North **Drains Into:** Culvert under I-95

Fed By: Unknown – substantial flow/erosion (perennial)

Bank Height: 6' **Water Depth:** 3-6" **Width:** 3-8'

Channel Gradient (%): 3% **Bank Stability:** Poor, substantial erosion

Avg. Bank Slope: Vertical ☐ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 50 % Riffle: 20 % Pool: 30

Substrate:

Cobble ☒	Gravel ☒	Sand ☒	Silt ☒
Veg ☐	Riprap ☐	Concrete ☐	Muck ☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☒
Changes in character of soil	☒	Destruction of terrestrial veg.	☒
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☒
Leaf litter disturbed or washed away	☒	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Flows into culvert under I-95, may connect to Bynum Run and then to the Bush River

Other Comments: Mainstem with WUS 1D, G-6, G-7, and G-8 all flowing into it

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 2/22/19 **Stream ID:** WUS G-6

Staff: AG, BS **Flow Type:** Perennial ☐ Intermittent ☐ Ephemeral ☒

Flow Direction: North **Drains Into:** WUS G-5

Fed By: Runoff from adjacent residential property

Bank Height: 1-2' **Water Depth:** 0-1" **Width:** 2'

Channel Gradient (%): 1-2% **Bank Stability:** Poor, incision present

Avg. Bank Slope: Vertical ☒ 2:1 ☐ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 100 % Riffle: _____ % Pool: _____

Substrate:

Cobble	☐	Gravel	☐	Sand	☐	Silt	☒
Veg	☒	Riprap	☐	Concrete	☐	Muck	☒

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☒
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☐
Sediment deposition	☒	Multiple observed/predicted flow events	☐
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Flows into WUS G-5, which flows into a culvert Under I-95, which may connect to Bynum Run and then the Bush River.

Other Comments: Erosional feature feeding into WUS G-5

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 2/22/19 **Stream ID:** WUS G-7

Staff: AG, BS **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: North **Drains Into:** WUS G-5

Fed By: Runoff from adjacent residential property and WET G-3

Bank Height: 1' **Water Depth:** 2" **Width:** 1-2'

Channel Gradient (%): 2% **Bank Stability:** Poor, incised

Avg. Bank Slope: Vertical ☐ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 90 % Riffle: 5 % Pool: 5

Substrate:

Cobble ☐	Gravel ☐	Sand ☐	Silt ☒
Veg ☒	Riprap ☐	Concrete ☐	Muck ☒

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☒
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☐
Sediment deposition	☒	Multiple observed/predicted flow events	☐
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Flows into WUS G-5, which flows into a culvert Under I-95, which may connect to Bynum Run and then the Bush River.

Other Comments: Enters and leaves MDTA ROW, joins WUS G-5 outside of the study area

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 2/22/19 **Stream ID:** WUS G-8

Staff: AG, BS **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: South **Drains Into:** WUS G-5

Fed By: WET G-4

Bank Height: 1-2' **Water Depth:** 2" **Width:** 1-2'

Channel Gradient (%): 2-5% **Bank Stability:** Poor, incised

Avg. Bank Slope: Vertical ☐ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 70 % Riffle: 10 % Pool: 20

Substrate:

Cobble ☐	Gravel ☒	Sand ☒	Silt ☒
Veg ☒	Riprap ☐	Concrete ☐	Muck ☒

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☒
Changes in character of soil	☒	Destruction of terrestrial veg.	☒
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☒
Leaf litter disturbed or washed away	☒	Scour	☐
Sediment deposition	☒	Multiple observed/predicted flow events	☐
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Drains to WUS G-5, which flows into a culvert Under I-95, which then may connect to Bynum Run and eventually the Bush River.

Other Comments: Drains WET G-4

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 2/25/19 **Stream ID:** WUS G-9

Staff: AG, MD **Flow Type:** Perennial ☐ Intermittent ☐ Ephemeral ☒

Flow Direction: North **Drains Into:** Nothing, flattens out

Fed By: Uphill stormwater

Bank Height: 2' **Water Depth:** 0-1" **Width:** 2'

Channel Gradient (%): 3% **Bank Stability:** Fair, some vegetation

Avg. Bank Slope: Vertical ☐ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 80 % Riffle: 10 % Pool: 10

Substrate:

Cobble ☐	Gravel ☐	Sand ☐	Silt ☒
Veg ☐	Riprap ☐	Concrete ☐	Muck ☒

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: none

Other Comments:

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 2/25/19 **Stream ID:** WUS G-10

Staff: AG, MD **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: East **Drains Into:** WUS 2D (mainstem)

Fed By: Groundwater / stormwater

Bank Height: 2' **Water Depth:** 2-3" **Width:** 18"

Channel Gradient (%): 1% **Bank Stability:** Fair, vegetated with some erosion

Avg. Bank Slope: Vertical ☐ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 70 % Riffle: 5 % Pool: 25

Substrate:

Cobble ☐	Gravel ☐	Sand ☒	Silt ☒
Veg ☐	Riprap ☐	Concrete ☒	Muck ☒

Channel Characteristics: Natural ☒ Artificial ☒ Man-altered ☒

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☒
Changes in character of soil	☒	Destruction of terrestrial veg.	☐
Shelving	☒	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Flows to WUS 2D, which flows into a culvert under I-95, may flow to Bynum Run and then to the Bush River

Other Comments: Concrete channel near culvert, drainage/roadside ditch that flows into WUS 2D

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 2/25/19 **Stream ID:** WUS G-11

Staff: AG, MD **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: Northeast **Drains Into:** WUS 2D

Fed By: Groundwater / stormwater

Bank Height: 6" **Water Depth:** 1-2" **Width:** 12-18"

Channel Gradient (%): 0.5% **Bank Stability:** Fair

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☒ 4:1 or greater ☐

Mesohabitat: % Run: - % Riffle: - % Pool: -

Substrate:

Cobble ☐	Gravel ☐	Sand ☐	Silt ☒
Veg ☐	Riprap ☐	Concrete ☐	Muck ☒

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☐	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Drains to WUS 2D, which flows into a culvert under I-95, may connect to Bynum Run which flows to the Bush River

Other Comments:

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 2/25/19 **Stream ID:** WUS G-13

Staff: AG, MD **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: north **Drains Into:** WUS 2D

Fed By: Groundwater

Bank Height: 18" **Water Depth:** 2-3" **Width:** 18"

Channel Gradient (%): 1 **Bank Stability:** Fair

Avg. Bank Slope: Vertical ☐ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 30 % Riffle: 30 % Pool: 40

Substrate:

Cobble ☐	Gravel ☐	Sand ☒	Silt ☒
Veg ☐	Riprap ☐	Concrete ☒	Muck ☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☒

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☒
Leaf litter disturbed or washed away	☐	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Drains to WUS 2D which flows into a culvert under I-95, may connect to Bynum Run which flows to the Bush River

Other Comments: Natural waterway flows to concrete channel

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 2/25/19 **Stream ID:** WUS G-14

Staff: AG, MD **Flow Type:** Perennial ☐ Intermittent ☐ Ephemeral ☒

Flow Direction: west **Drains Into:** WUS 2D

Fed By: Groundwater / stormwater

Bank Height: 6" **Water Depth:** 1" **Width:** 2'

Channel Gradient (%): 1% **Bank Stability:** Fair

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☐ 4:1 or greater ☒

Mesohabitat: % Run: 25 % Riffle: 25 % Pool: 50

Substrate:

Cobble ☐	Gravel ☐	Sand ☐	Silt ☒
Veg ☐	Riprap ☐	Concrete ☐	Muck ☒

Channel Characteristics: Natural ☐ Artificial ☒ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☐	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Drains to WUS 2D which flows into a culvert under I-95, may connect to Bynum Run which flows to the Bush River

Other Comments: Made for I-95 drainage

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 2/25/19 **Stream ID:** WUS G-15

Staff: BG, SS **Flow Type:** Perennial ☐ Intermittent ☐ Ephemeral ☒

Flow Direction: North **Drains Into:** unknown

Fed By: unknown

Bank Height: 1-2' **Water Depth:** 0" **Width:** 2-3'

Channel Gradient (%): 1-2% **Bank Stability:** Vegetation, moss

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☒ 4:1 or greater ☐

Mesohabitat: % Run: 0 % Riffle: 0 % Pool: 0

Substrate:

Cobble	☐	Gravel	☐	Sand	☐	Silt	☒
Veg	☒	Riprap	☐	Concrete	☐	Leaves	☒

Channel Characteristics: Natural ☐ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☐
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☐
Leaf litter disturbed or washed away	☐	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: None

Other Comments: WUS G-15 has characteristics of a waterway (stained leaves, exposed soil, channel-like shape). No water currently present.

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 2/25/19 **Stream ID:** WUS G-16

Staff: BG, SS **Flow Type:** Perennial ☐ Intermittent ☐ Ephemeral ☒

Flow Direction: North **Drains Into:** _____

Fed By: Roadway runoff

Bank Height: 3" **Water Depth:** <1" **Width:** 2-3'

Channel Gradient (%): <1% **Bank Stability:** vegetated

Avg. Bank Slope: Vertical ☐ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 0 % Riffle: 0 % Pool: 0

Substrate: Cobble ☒ Gravel ☒ Sand ☐ Silt ☐
Veg ☐ Riprap ☐ Concrete ☐ Muck ☐

Channel Characteristics: Natural ☐ Artificial ☐ Man-altered ☒

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☐
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☐
Leaf litter disturbed or washed away	☐	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒ 8018, 8019

Connection to Traditional Navigable Waterway: No connection.

Other Comments: _____

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 2/25/19 **Stream ID:** WUS G-17

Staff: BG, SS **Flow Type:** Perennial ☐ Intermittent ☐ Ephemeral ☒

Flow Direction: North **Drains Into:** unknown

Fed By: Overland flow from neighboring yards/properties

Bank Height: <1" **Water Depth:** N/A/wet leaves **Width:** 12"

Channel Gradient (%): 1-2% **Bank Stability:** N/A, no banks

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☐ 4:1 or greater ☒

Mesohabitat: % Run: 0 % Riffle: 0 % Pool: 0

Substrate:

Cobble ☐	Gravel ☐	Sand ☐	Silt ☐
Veg ☐	Riprap ☐	Concrete ☐	Leaves ☒

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☐
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☐	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒ 8024, 8025, 8026

Connection to Traditional Navigable Waterway: unknown

Other Comments: Drainage resulting from overland flow from hillside and neighboring properties with saturated leaves, wet spots, and soils exposed. Extends north downhill along a slight slope.

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 2/25/19 **Stream ID:** WUS G-18A (flows south) WUS G-18B (flows north)

Staff: BG, SS **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: 18A: South to culvert 18B: North to culvert **Drains Into:** Culvert at I-95 MP 78.9

Fed By: Runoff and groundwater

Bank Height: 6-12" **Water Depth:** 1-2" **Width:** 2-3'

Channel Gradient (%): 1-2%, varies **Bank Stability:** Vegetated, stable

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☒ 4:1 or greater ☐

Mesohabitat: % Run: 0 % Riffle: 0 % Pool: 0

Substrate:

Cobble	☐	Gravel	☐	Sand	☐	Silt	☒
Veg, Leaves	☒	Riprap	☒	Concrete	☐	Muck	☐

Channel Characteristics: Natural ☐ Artificial ☐ Man-altered ☒

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☐
Leaf litter disturbed or washed away	☐	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒
18A: 8003, 8004; 18B: 8016, 8017

Connection to Traditional Navigable Waterway: Flows to culvert under I-95; may connect to Bynum Run which flows to the Bush River

Other Comments: Roadside ditches lead to culvert. Also picked up WUS G-18B, which has the same characteristics as WUS G-18A and flows north to culvert.

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 2/25/19 **Stream ID:** WUS G-19

Staff: BG, SS **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: North **Drains Into:** Bynum Run

Fed By: Roadway runoff, groundwater

Bank Height: 6-12" **Water Depth:** 1-2" **Width:** 12-24"

Channel Gradient (%): 1-2% **Bank Stability:** vegetated

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☒ 4:1 or greater ☐

Mesohabitat: % Run: 0 % Riffle: 0 % Pool: 0

Substrate:

Cobble	☒	Gravel	☒	Sand	☐	Silt	☐
Veg	☒	Riprap	☐	Concrete	☒	Muck	☐

Channel Characteristics: Natural ☐ Artificial ☒ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☐
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☐
Leaf litter disturbed or washed away	☐	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒
8005, 8006, 8007

Connection to Traditional Navigable Waterway: Waterway ends suddenly prior to reaching Bynum Run – potentially flows underground to connect to waterway.

Other Comments:

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 2/26/19 **Stream ID:** WUS G-20

Staff: AG, KG, SS **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: North **Drains Into:** WET G-6 and into storm drain

Fed By: Median stormwater / road runoff

Bank Height: 1' **Water Depth:** 1-3" **Width:** 2'

Channel Gradient (%): 1-2% **Bank Stability:** Fair, minimal erosion

Avg. Bank Slope: Vertical ☐ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: - % Riffle: - % Pool: -

Substrate:

Cobble	☐	Gravel	☒	Sand	☐	Silt	☒
Veg	☒	Riprap	☐	Concrete	☐	Muck	☒

Channel Characteristics: Natural ☐ Artificial ☐ Man-altered ☒

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☐	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Flows into storm drain which may connect to Bynum Run and the Bush River

Other Comments:

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 2/26/19 **Stream ID:** WUS G-21

Staff: AG, KG, SS **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: East **Drains Into:** WET G-6

Fed By: Overland road runoff

Bank Height: Not defined **Water Depth:** ~ 1" **Width:** 1.5'

Channel Gradient (%): 1-2% **Bank Stability:** Good

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☐ 4:1 or greater ☒

Mesohabitat: % Run: - % Riffle: - % Pool: -

Substrate:

Cobble ☐	Gravel ☐	Sand ☐	Silt ☒
Veg ☒	Riprap ☐	Concrete ☐	Muck ☒

Channel Characteristics: Natural ☐ Artificial ☐ Man-altered ☒

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☐
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☐	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Drains to WET G-6 which drains to a storm drain; May connect to Bynum Run and the Bush River

Other Comments:

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 2/26/19 **Stream ID:** WUS G-22

Staff: AG, KG, SS **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: North **Drains Into:** Storm drain/inlet

Fed By: Overland road runoff

Bank Height: Not defined **Water Depth:** 1" **Width:** 2'

Channel Gradient (%): 5% **Bank Stability:** Stable

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☐ 4:1 or greater ☒

Mesohabitat: % Run: - % Riffle: - % Pool: -

Substrate:

Cobble ☐	Gravel ☐	Sand ☐	Silt ☐
Veg ☒	Riprap ☐	Concrete ☐	Muck ☐

Channel Characteristics: Natural ☐ Artificial ☒ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☐	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☐ Downstream ☐

Connection to Traditional Navigable Waterway: Inlet, likely connect to Bynum Run which flows to The Bush River

Other Comments: Grass swale ditch, widens at southern end

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 2/22/19 **Stream ID:** WUS 1D

Staff: AG, BS **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: north **Drains Into:** WUS G-5

Fed By: Road runoff

Bank Height: 1-2' **Water Depth:** 0-1" **Width:** 2'

Channel Gradient (%): 2-3% **Bank Stability:** Concrete trapezoidal channel and natural stream

Avg. Bank Slope: Vertical ☐ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 100 % Riffle: _____ % Pool: _____

Substrate:

Cobble	☒	Gravel	☒	Sand	☒	Silt	☒
Veg	☐	Riprap	☐	Concrete	☒	Muck	☒

Channel Characteristics: Natural ☐ Artificial ☒ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☐
Sediment deposition	☒	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☒

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Drains into WUS G-5, which drains into a culvert under I-95, which then likely drains to Bynum Run and then the Bush River

Other Comments: Natural channel turns into a concrete trapezoidal roadside ditch

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 2/25/19 **Stream ID:** WUS 2D

Staff: AG, MD **Flow Type:** Perennial ☒ Intermittent ☐ Ephemeral ☐

Flow Direction: north **Drains Into:** Culvert under I-95

Fed By: Groundwater

Bank Height: 2' **Water Depth:** 6-8" **Width:** 2-3'

Channel Gradient (%): 1% **Bank Stability:** Poor, eroded and unstable

Avg. Bank Slope: Vertical ☐ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 30 % Riffle: 10 % Pool: 60

Substrate:

Cobble	☐	Gravel	☒	Sand	☒	Silt	☐
Veg	☐	Riprap	☐	Concrete	☒	Muck	☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☒

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☒
Leaf litter disturbed or washed away	☐	Scour	☐
Sediment deposition	☒	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Flows into culvert under I-95, which may connect to Bynum Run which flows to the Bush River

Other Comments: Mainstem that flows into culvert under I-95

WETLAND, UPLAND, AND STREAM DATASHEETS

H. KH-3031: Noise Wall on SB I-95 South of Calvary Road

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Abingdon/Harford Sampling Date: 2/27/19

Applicant/Owner: MDTA State: MD Sampling Point: WET 1D

Investigator(s): NJV, BES Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Floodplain depression Local relief (concave, convex, none): concave Slope (%): 0%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.474335 Long: -76.27432 Datum: NAD83

Soil Map Unit Name: Comus silt loam NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☑	No	☐	**Is the Sampled Area Within a Wetland?**	Yes ☑	No ☐
Hydric Soil Present?	Yes	☑	No	☐			
Wetland Hydrology Present?	Yes	☑	No	☐			

Remarks: Groundwater discharge area in the floodplain of a perennial stream (WUS 4D). Entire wetland was considered PFO based on canopy cover provided by trees outside of the wetland area. Was delineated in previous wetland report.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☑ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes	☑	No	☐	Depth (inches):	Up to 4"
Water Table Present?	Yes	☑	No	☐	Depth (inches):	0"
Saturation Present? (includes capillary fringe)	Yes	☑	No	☐	Depth (inches):	0"

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET 1D

Tree Stratum (Plot size: 30')

		Absolute % Cover	Dominant Species?	Indicator Status
1.	*Ulmus rubra*	30	Y	FAC
2.	*Liquidambar styraciflua*	20	Y	FAC
3.	*Acer rubrum*	10	N	FAC
4.	*Carpinus caroliniana*	5	N	FAC
5.				
6.				
7.				
8.				
		65	= Total Cover	

50% of total cover: 32.5 20% of total cover: 13

Sapling/Shrub Stratum (Plot size: 30')

1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
			= Total Cover	

50% of total cover: 20% of total cover:

Herb Stratum (Plot size: 30')

1.	*Lonicera japonica*	5	Y	FACU
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		5	= Total Cover	

50% of total cover: 2.5 20% of total cover: 1

Woody Vine Stratum (Plot size: 30')

1.				
2.				
3.				
4.				
5.				
			= Total Cover	

50% of total cover: 20% of total cover:

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	66%	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET 1D

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/1	95	10YR 4/6	5	C	M	Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Abingdon/Harford Sampling Date: 2/27/19

Applicant/Owner: MDTA State: MD Sampling Point: UPL 1D

Investigator(s): NJV, BES Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.474379 Long: -76.274283 Datum: NAD83

Soil Map Unit Name: Comus silt loam NWI classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑	**Is the Sampled Area Within a Wetland?**	Yes ☐	No ☑
Hydric Soil Present?	Yes ☐	No ☑			
Wetland Hydrology Present?	Yes ☐	No ☑			

Remarks: Floodplain forest outside of groundwater discharge area.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches): _____	
Water Table Present?	Yes ☐	No ☑	Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes ☐	No ☑	Depth (inches): _____	**Wetland Hydrology Present?** Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL 1D

Tree Stratum (Plot size: 30')

		Absolute % Cover	Dominant Species?	Indicator Status
1.	*Ulmus rubra*	40	Y	FAC
2.	*Acer rubrum*	10	N	FAC
3.	*Robinia psuedoacaia*	10	N	UPL
4.				
5.				
6.				
7.				
8.				

60 = Total Cover

50% of total cover: 30 20% of total cover: 12

Sapling/Shrub Stratum (Plot size: 30')

1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				

= Total Cover

50% of total cover: 20% of total cover:

Herb Stratum (Plot size: 30')

1.	*Lonicera japonica*	5	Y	FACU
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				

5 = Total Cover

50% of total cover: 2.5 20% of total cover: 1

Woody Vine Stratum (Plot size: 30')

1.				
2.				
3.				
4.				
5.				

= Total Cover

50% of total cover: 20% of total cover:

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50%	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ____ 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UPL 1D

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/3	100					Silty clay	
3-12	10YR 4/4	100					Sandy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Abingdon/Harford Sampling Date: 3/5/19

Applicant/Owner: MDTA State: MD Sampling Point: WET 2D

Investigator(s): NJV, BES Section, Township, Range:

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 1%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.470028 Long: -76.280567 Datum: NAD83

Soil Map Unit Name: Delanco silt loam, 3-8% slopes NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes [x] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [x] 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	[x]	No	[ ]	**Is the Sampled Area Within a Wetland?**	Yes [x]	No [ ]
Hydric Soil Present?	Yes	[x]	No	[ ]			
Wetland Hydrology Present?	Yes	[x]	No	[ ]			

Remarks: Multiple hydrology sources including three stream channels (two outside of study area). Groundwater discharge also appears likely.

Throughflow was observed near the sample plot. Was delineated in previous wetland report.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [x] High Water Table (A2)
- [x] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Mari Deposits (B15) **(LLR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [x] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [x] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes	[ ]	No	[x]	Depth (inches):	
Water Table Present?	Yes	[x]	No	[ ]	Depth (inches):	1"
Saturation Present? (includes capillary fringe)	Yes	[x]	No	[ ]	Depth (inches):	0"

Wetland Hydrology Present? Yes [x] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET 2D

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	70	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		

Sapling/Shrub Stratum (Plot size: 30')			
1. *Nyssa sylvatica*	10	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		

Herb Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100%	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET 2D

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	5YR 4/2	70	5YR 4/6	30	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Abingdon/Harford Sampling Date: 3/5/19

Applicant/Owner: MDTA State: MD Sampling Point: UPL 2D

Investigator(s): NJV, BES Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): convex Slope (%): 1%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.469963 Long: -76.280450 Datum: NAD83

Soil Map Unit Name: Delanco silt loam, 3-8% slopes NWI classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☐	No	☑	
Hydric Soil Present?	Yes	☐	No	☑	**Is the Sampled Area Within a Wetland?** Yes ☐ No ☑
Wetland Hydrology Present?	Yes	☐	No	☑	

Remarks: Slope lacking water-stained leaves and hydric soils commonly observed in adjacent wetlands.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes	☐	No	☑	Depth (inches): _____
Water Table Present?	Yes	☐	No	☑	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☑	Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL 2D

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	20	Y	FAC
2. *Ulmus americana*	15	Y	FAC
3. *Fagus grandifolia*	15	Y	FACU
4. *Nyssa sylvatica*	5	N	FAC
5.			
6.			
7.			
8.			
	55	= Total Cover	
50% of total cover: 27.5		20% of total cover: 11	

Sapling/Shrub Stratum (Plot size: 30')			
1. *Fagus grandifolia*	10	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	10	= Total Cover	
50% of total cover: 5		20% of total cover: 2	

Herb Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50%	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ____ 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UPL 2D

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	5YR 4/3	95	5YR 4/6	5	C	M	Clay	
6-12	10YR 4/3	70	10YR 4/6	30	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Abingdon/Harford Sampling Date: 3/5/19

Applicant/Owner: MDTA State: MD Sampling Point: WET 4D

Investigator(s): NJV, BES Section, Township, Range: _____

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 1-2%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.470237 Long: -76.279428 Datum: NAD83

Soil Map Unit Name: Alluvial land NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes [x] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [x] 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	[x]	No	[ ]	**Is the Sampled Area Within a Wetland?**	Yes [x]	No [ ]
Hydric Soil Present?	Yes	[x]	No	[ ]			
Wetland Hydrology Present?	Yes	[x]	No	[ ]			

Remarks: Wetland is located at the toe of a steep highway embankment. Groundwater contributes to wetland hydrology. Was delineated in previous wetland report.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [x] High Water Table (A2)
- [x] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Mari Deposits (B15) **(LLR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [x] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes	[ ]	No	[x]	Depth (inches):	_____
Water Table Present?	Yes	[x]	No	[ ]	Depth (inches):	1"
Saturation Present? (includes capillary fringe)	Yes	[x]	No	[ ]	Depth (inches):	0"

Wetland Hydrology Present? Yes [x] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET 4D

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Liquidambar styraciflua*	40	Y	FAC
2. *Acer rubrum*	20	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		

Sapling/Shrub Stratum (Plot size: 30')			
1. *Acer rubrum*	10	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		

Herb Stratum (Plot size: 30')			
1. *Microstegium vimineum*	20	Y	FAC
2. *Carex lurida*	5	Y	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	25 = Total Cover		
50% of total cover: 12.5	20% of total cover: 5		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100%	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET 4D

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	100					Silty clay	
2-12	10Y 5/1	100					Sandy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☑ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Abingdon/Harford Sampling Date: 3/5/19

Applicant/Owner: MDTA State: MD Sampling Point: UPL 4D

Investigator(s): NJV, BES Section, Township, Range: _____

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 1-2%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.470324 Long: -76.279336 Datum: NAD83

Soil Map Unit Name: Alluvial land NWI classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area Within a Wetland?**	Yes ☐	No ☑
Hydric Soil Present?	Yes ☐	No ☑			
Wetland Hydrology Present?	Yes ☐	No ☑			

Remarks: Hillslope lacking water-stained leaves and hydric soils commonly observed in adjacent wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches): _____	**Wetland Hydrology Present?**	Yes ☐ No ☑
Water Table Present?	Yes ☐	No ☑	Depth (inches): _____		
Saturation Present? (includes capillary fringe)	Yes ☐	No ☑	Depth (inches): _____		

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL 4D

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Liquidambar styraciflua*	30	Y	FAC
2. *Acer rubrum*	10	N	FAC
3. *Liriodendron tulipifera*	10	N	FACU
4. *Fagus grandifolia*	5	N	FACU
5.			
6.			
7.			
8.			
	55	= Total Cover	
50% of total cover: 27.5		20% of total cover: 11	

Sapling/Shrub Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Herb Stratum (Plot size: 30')			
1. *Microstegium vimineum*	20	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	20	= Total Cover	
50% of total cover: 10		20% of total cover: 4	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100%	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq 3.0^1$
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UPL 4D

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/4	100					Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Abingdon/Harford Sampling Date: 2/27/19

Applicant/Owner: MDTA State: MD Sampling Point: WET H-1

Investigator(s): NJV, BES Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Drainageway Local relief (concave, convex, none): concave Slope (%): 1%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.474142 Long: -76.274620 Datum: NAD83

Soil Map Unit Name: Comus silt loam NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☑	No	☐	**Is the Sampled Area Within a Wetland?**	Yes ☑	No ☐
Hydric Soil Present?	Yes	☑	No	☐			
Wetland Hydrology Present?	Yes	☑	No	☐			

Remarks: Groundwater discharge area in the floodplain of a perennial stream (WUS 4D). Wetland was considered PFO based on canopy cover provided by trees outside of the wetland area. Was not delineated in previous wetland report.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☑ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes	☑	No	☐	Depth (inches):	1/4"
Water Table Present?	Yes	☑	No	☐	Depth (inches):	0"
Saturation Present? (includes capillary fringe)	Yes	☑	No	☐	Depth (inches):	0"

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET H-1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	30	Y	FAC
2. *Ulmus rubra*	20	Y	FAC
3. *Carpinus caroliniana*	10	N	FAC
4.			
5.			
6.			
7.			
8.			
	60	= Total Cover	

50% of total cover: 30 20% of total cover: 12

Sapling/Shrub Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
		= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100%	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET H-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/1	80	5YR 4/6	20	C	M	Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: Gravel, stone

Depth (inches): 8”

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Abingdon/Harford Sampling Date: 2/27/19

Applicant/Owner: MDTA State: MD Sampling Point: UPL H-1

Investigator(s): NJV, BES Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): 0%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.474077 Long: -76.274676 Datum: NAD83

Soil Map Unit Name: Comus silt loam NWI classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area Within a Wetland?**	Yes ☐	No ☑
Hydric Soil Present?	Yes ☐	No ☑			
Wetland Hydrology Present?	Yes ☐	No ☑			

Remarks: Floodplain outside of groundwater discharge area.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches): _____		
Water Table Present?	Yes ☐	No ☑	Depth (inches): _____		
Saturation Present? (includes capillary fringe)	Yes ☐	No ☑	Depth (inches): _____	**Wetland Hydrology Present?**	Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL H-1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Liquidambar styraciflua*	30	Y	FAC
2. *Acer rubrum*	20	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	50	= Total Cover	

50% of total cover: 25 20% of total cover: 10

Sapling/Shrub Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 30')			
1. *Microstegium vimineum*	30	Y	FAC
2. *Lonicera japonica*	10	Y	FACU
3. *Smilax rotundifolia*	10	Y	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	50	= Total Cover	

50% of total cover: 25 20% of total cover: 10

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	80%	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UPL H-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/4	100					Loamy clay	
10+	10YR 4/4	100					Sandy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Abingdon/Harford Sampling Date: 2/27/19

Applicant/Owner: MDTA State: MD Sampling Point: WET H-2

Investigator(s): NJV, BES Section, Township, Range:

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): convex Slope (%): 1%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.473375 Long: -76.275364 Datum: NAD83

Soil Map Unit Name: Alluvial land NWI classification: PFO/PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes [x] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [x] 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 [x]	No [ ]	**Is the Sampled Area Within a Wetland?**	Yes [x]	No [ ]
Hydric Soil Present?	Yes [x]	No [ ]			
Wetland Hydrology Present?	Yes [x]	No [ ]			

Remarks: Small depression in the floodplain of a perennial stream (WUS 4D). Wetland was considered PFO based on canopy cover provided by trees outside of the wetland area that are FAC (red maple). Was not delineated in previous wetland report.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [x] Surface Water (A1)
- [x] High Water Table (A2)
- [x] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Mari Deposits (B15) **(LLR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [x] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [x] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [x] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes [x]	No [ ]	Depth (inches):	Up to 6"	
Water Table Present?	Yes [x]	No [ ]	Depth (inches):	4"	
Saturation Present? (includes capillary fringe)	Yes [x]	No [ ]	Depth (inches):	4"	**Wetland Hydrology Present?** Yes [x] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Algae observed in standing water.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET H-2

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
50% of total cover:		20% of total cover:	

Sapling/Shrub Stratum (Plot size: 30')			
1. *Lindera benzoin*	10	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	10 = Total Cover		
50% of total cover: 5		20% of total cover: 2	

Herb Stratum (Plot size: 30')			
1. *Microstegium vimineum*	40	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	40 = Total Cover		
50% of total cover: 20		20% of total cover: 8	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:		20% of total cover:	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100%	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET H-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-10+	10YR 4/1	85	5YR 5/8	15	C	M	Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks: Soil profile had low strength due to saturated conditions.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Abingdon/Harford Sampling Date: 2/27/19

Applicant/Owner: MDTA State: MD Sampling Point: UPL H-2

Investigator(s): NJV, BES Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.473455 Long: -76.275435 Datum: NAD83

Soil Map Unit Name: Alluvial land NWI classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area Within a Wetland?**	Yes ☐	No ☑
Hydric Soil Present?	Yes ☐	No ☑			
Wetland Hydrology Present?	Yes ☐	No ☑			

Remarks: Floodplain outside of small wetland depression.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches): _____		
Water Table Present?	Yes ☐	No ☑	Depth (inches): _____		
Saturation Present? (includes capillary fringe)	Yes ☐	No ☑	Depth (inches): _____	**Wetland Hydrology Present?**	Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL H-2

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	50	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	50 = Total Cover		
50% of total cover: 25		20% of total cover: 10	

Sapling/Shrub Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
50% of total cover:		20% of total cover:	

Herb Stratum (Plot size: 30')			
1. *Microstegium vimineum*	30	Y	FAC
2. *Smilax rotundifolia*	10	Y	FAC
3. *Lonicera japonica*	5	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	45 = Total Cover		
50% of total cover: 22.5		20% of total cover: 9	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:		20% of total cover:	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100%	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UPL H-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/4	100					Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Abingdon/Harford Sampling Date: 3/5/19

Applicant/Owner: MDTA State: MD Sampling Point: WET H-3

Investigator(s): NJV, BES Section, Township, Range: _____

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 0%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.470543 Long: -76.279357 Datum: NAD83

Soil Map Unit Name: Alluvial land NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes [x] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [x] 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	[x]	No	[ ]			
Hydric Soil Present?	Yes	[x]	No	[ ]	**Is the Sampled Area Within a Wetland?**	Yes [x]	No [ ]
Wetland Hydrology Present?	Yes	[x]	No	[ ]			

Remarks: Slight depression located at the toe of a hillslope. Was not delineated in previous wetland report.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [x] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Mari Deposits (B15) **(LLR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [x] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [x] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [x] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes	[x]	No	[ ]	Depth (inches):	Up to 2"
Water Table Present?	Yes	[ ]	No	[x]	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	[ ]	No	[x]	Depth (inches):	

Wetland Hydrology Present? Yes [x] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET H-3

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	20	Y	FAC
2. *Liquidambar styraciflua*	20	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		

Sapling/Shrub Stratum (Plot size: 30')			
1. *Nyssa sylvatica*	10	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		

Herb Stratum (Plot size: 30')			
1. *Carex lurida*	5	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100%	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET H-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10+	10YR 4/2	90	10YR 5/8	10	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Abingdon/Harford Sampling Date: 3/5/19

Applicant/Owner: MDTA State: MD Sampling Point: UPL H-3/H-4

Investigator(s): NJV, BES Section, Township, Range: _____

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.470405 Long: -76.279576 Datum: NAD83

Soil Map Unit Name: Alluvial land NWI classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes [x] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [x] 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 [x]	No [ ]	**Is the Sampled Area Within a Wetland?**	Yes [ ]	No [x]
Hydric Soil Present?	Yes [ ]	No [x]			
Wetland Hydrology Present?	Yes [ ]	No [x]			

Remarks: Terrace lacking water-stained leaves and hydric soils commonly observed in adjacent wetlands.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Mari Deposits (B15) **(LLR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes [ ]	No [x]	Depth (inches): _____		
Water Table Present?	Yes [ ]	No [x]	Depth (inches): _____		
Saturation Present? (includes capillary fringe)	Yes [ ]	No [x]	Depth (inches): _____	**Wetland Hydrology Present?**	Yes [ ] No [x]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL H-3/H-4

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	40	Y	FAC
2. *Liquidambar styraciflua*	20	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	60	= Total Cover	

50% of total cover: 30 20% of total cover: 12

Sapling/Shrub Stratum (Plot size: 30')			
1. *Liquidambar styraciflua*	30	Y	FAC
2. *Ilex opaca*	5	N	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	35	= Total Cover	

50% of total cover: 17.5 20% of total cover: 7

Herb Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
		= Total Cover	

50% of total cover: 20% of total cover:

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

50% of total cover: 20% of total cover:

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100%	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UPL H-3/H-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/4	100					Clay	
6-12	10YR 4/4	80	5YR 4/6	20	C	M	Sandy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Abingdon/Harford Sampling Date: 3/5/19

Applicant/Owner: MDTA State: MD Sampling Point: WET H-4

Investigator(s): NJV, BES Section, Township, Range: _____

Landform (hillslope, terrace, etc.): drainageway Local relief (concave, convex, none): convex Slope (%): 0%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.470462 Long: -76.279527 Datum: NAD83

Soil Map Unit Name: Alluvial land NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes [x] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [x] 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	[x]	No	[ ]	
Hydric Soil Present?	Yes	[x]	No	[ ]	**Is the Sampled Area Within a Wetland?** Yes [x] No [ ]
Wetland Hydrology Present?	Yes	[x]	No	[ ]	

Remarks: Former outlet from large PFO wetland to the west (WET-2D). Seepage was observed from side slopes along the channel. Vegetation was also located along side slopes. Appears to be mapped as a stream in previous wetland report.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [x] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Mari Deposits (B15) **(LLR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [x] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [x] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes	[x]	No	[ ]	Depth (inches):	Up to 3"
Water Table Present?	Yes	[ ]	No	[x]	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	[ ]	No	[x]	Depth (inches):	

Wetland Hydrology Present? Yes [x] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET H-4

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	40	Y	FAC
2. *Liquidambar styraciflua*	20	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	60	= Total Cover	

50% of total cover: 30 20% of total cover: 12

Sapling/Shrub Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
		= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100%	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET H-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-10+	10YR 4/2	90	10YR 5/8	10	C	M	Sandy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Abingdon/Harford Sampling Date: 3/5/19

Applicant/Owner: MDTA State: MD Sampling Point: WET H-5

Investigator(s): NJV, BES Section, Township, Range:

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 1-2%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.469673 Long: -76.280970 Datum: NAD83

Soil Map Unit Name: Delanco silt loam, 3-8% slopes NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes [x] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [x] 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 [x]	No [ ]	**Is the Sampled Area Within a Wetland?**	Yes [x]	No [ ]
Hydric Soil Present?	Yes [x]	No [ ]			
Wetland Hydrology Present?	Yes [x]	No [ ]			

Remarks: Drainageway along hillslope with considerable standing water and water-stained leaves, wetland vegetation and soil indicators were also observed. Was not delineated in previous wetland report.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [x] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Mari Deposits (B15) **(LLR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [x] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes [x]	No [ ]	Depth (inches):	1/2"	
Water Table Present?	Yes [ ]	No [x]	Depth (inches):		
Saturation Present? (includes capillary fringe)	Yes [ ]	No [x]	Depth (inches):		**Wetland Hydrology Present?** Yes [x] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET H-5

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	60	Y	FAC
2. *Nyssa sylvatica*	15	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	75	= Total Cover	

50% of total cover: 37.5 20% of total cover: 15

Sapling/Shrub Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
		= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100%	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET H-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/2	60	10YR 4/6	40	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Abingdon/Harford Sampling Date: 3/5/19

Applicant/Owner: MDTA State: MD Sampling Point: UPL H-5

Investigator(s): NJV, BES Section, Township, Range: _____

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 2%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.469720 Long: -76.281011 Datum: NAD83

Soil Map Unit Name: Delanco silt loam, 3-8% slopes NWI classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑	**Is the Sampled Area Within a Wetland?**	Yes ☐	No ☑
Hydric Soil Present?	Yes ☐	No ☑			
Wetland Hydrology Present?	Yes ☐	No ☑			

Remarks: Hillslope lacking water-stained leaves and hydric soils commonly observed in adjacent wetlands.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches): _____	
Water Table Present?	Yes ☐	No ☑	Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes ☐	No ☑	Depth (inches): _____	**Wetland Hydrology Present?** Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL H-5

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Liriodendron tulipifera*	20	Y	FACU
2. *Liquidambar styraciflua*	20	Y	FAC
3. *Acer rubrum*	20	Y	FAC
4.			
5.			
6.			
7.			
8.			
	60	= Total Cover	
50% of total cover: 30		20% of total cover: 12	

Sapling/Shrub Stratum (Plot size: 30')			
1. *Cornus florida*	5	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5	= Total Cover	
50% of total cover: 2.5		20% of total cover: 1	

Herb Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50%	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ____ 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UPL H-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	5YR 4/3	100					Loamy clay	
4-12	10YR 4/3	70	10YR 5/8	30	C	M	Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Abingdon/Harford Sampling Date: 3/5/19

Applicant/Owner: MDTA State: MD Sampling Point: WET H-6

Investigator(s): NJV, BES Section, Township, Range:

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 0%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.470678 Long: -76.278937 Datum: NAD83

Soil Map Unit Name: Alluvial land NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes [x] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [x] 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 [x]	No [ ]	**Is the Sampled Area Within a Wetland?**	Yes [x]	No [ ]
Hydric Soil Present?	Yes [x]	No [ ]			
Wetland Hydrology Present?	Yes [x]	No [ ]			

Remarks: Small depression along a streamside terrace. Trees/saplings were located along the wetland perimeter.

Was not delineated in previous wetland report.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [x] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Mari Deposits (B15) **(LLR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [x] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [x] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes [x]	No [ ]	Depth (inches):	1/2"	
Water Table Present?	Yes [ ]	No [x]	Depth (inches):		
Saturation Present? (includes capillary fringe)	Yes [ ]	No [x]	Depth (inches):		**Wetland Hydrology Present?** Yes [x] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET H-6

Tree Stratum (Plot size: 30')

		Absolute % Cover	Dominant Species?	Indicator Status
1.	*Acer rubrum*	30	Y	FAC
2.	*Liquidambar styraciflua*	30	Y	FAC
3.				
4.				
5.				
6.				
7.				
8.				
		60	= Total Cover	

50% of total cover: 30 20% of total cover: 12

Sapling/Shrub Stratum (Plot size: 30')

1.	*Liquidambar styraciflua*	10	Y	FAC
2.				
3.				
4.				
5.				
6.				
7.				
8.				
		10	= Total Cover	

50% of total cover: 5 20% of total cover: 2

Herb Stratum (Plot size: 30')

1.	*Carex lurida*	5	Y	OBL
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		5	= Total Cover	

50% of total cover: 2.5 20% of total cover: 1

Woody Vine Stratum (Plot size: 30')

1.				
2.				
3.				
4.				
5.				
			= Total Cover	

50% of total cover: 20% of total cover:

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET H-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/3	100					Clay	
4-12	10YR 4/2	80	10YR 5/8	20	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Abingdon/Harford Sampling Date: 3/20/19

Applicant/Owner: MDTA State: MD Sampling Point: UPL H-6

Investigator(s): BES Section, Township, Range: _____

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 2%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.470713 Long: -76.278878 Datum: NAD83

Soil Map Unit Name: Alluvial land NWI classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑	**Is the Sampled Area Within a Wetland?**	Yes ☐	No ☑
Hydric Soil Present?	Yes ☐	No ☑			
Wetland Hydrology Present?	Yes ☐	No ☑			

Remarks: Upland terrace lacking wetland hydrology and hydric soil characteristics of WET H-6.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches): _____	
Water Table Present?	Yes ☐	No ☑	Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes ☐	No ☑	Depth (inches): _____	**Wetland Hydrology Present?** Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL H-6

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Liriodendron tulipifera*	50	Y	FACU
2. *Fagus grandifolia*	30	Y	FACU
3. *Acer rubrum*	10	N	FAC
4.			
5.			
6.			
7.			
8.			
	90	= Total Cover	
50% of total cover: 45		20% of total cover: 18	

Sapling/Shrub Stratum (Plot size: 30')			
1. *Liquidambar styraciflua*	20	Y	FAC
2. *Nyssa sylvatica*	20	Y	FAC
3. *Fagus grandifolia*	10	Y	FACU
4.			
5.			
6.			
7.			
8.			
	50	= Total Cover	
50% of total cover: 25		20% of total cover: 10	

Herb Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	40%	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ____ 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UPL H-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/3	100					Clay loam	
5-12	10YR5/4	100					Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Abingdon/Harford Sampling Date: 3/5/19

Applicant/Owner: MDTA State: MD Sampling Point: WET H-7

Investigator(s): NJV, BES Section, Township, Range:

Landform (hillslope, terrace, etc.): drainageway Local relief (concave, convex, none): convex Slope (%): 1%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.470946 Long: -76.278494 Datum: NAD83

Soil Map Unit Name: Alluvial land NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes [x] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [x] 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	[x]	No	[ ]			
Hydric Soil Present?	Yes	[x]	No	[ ]	**Is the Sampled Area Within a Wetland?**	Yes	[x] No [ ]
Wetland Hydrology Present?	Yes	[x]	No	[ ]			

Remarks: Groundwater seepage creating wetland conditions within a small drainageway. Was not delineated in previous wetland report.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [x] Surface Water (A1)
- [x] High Water Table (A2)
- [x] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Mari Deposits (B15) **(LLR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [x] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [x] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [x] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes	[x]	No	[ ]	Depth (inches):	Up to 2"
Water Table Present?	Yes	[x]	No	[ ]	Depth (inches):	0"
Saturation Present? (includes capillary fringe)	Yes	[x]	No	[ ]	Depth (inches):	0"

Wetland Hydrology Present? Yes [x] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET H-7

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	30	Y	FAC
2. *Ulmus rubra*	20	Y	FAC
3. *Nyssa sylvatica*	10	N	FAC
4.			
5.			
6.			
7.			
8.			
	60	= Total Cover	

50% of total cover: 30 20% of total cover: 12

Sapling/Shrub Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 30')			
1. *Carex lurida*	5	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	5	= Total Cover	

50% of total cover: 2.5 20% of total cover: 1

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is > 50%

____ 3 - Prevalence Index is $\leq$ 3.0[1]

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET H-7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/1	85	2.5YR 4/8	15	C	M	Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Abingdon/Harford Sampling Date: 3/20/19

Applicant/Owner: MDTA State: MD Sampling Point: UPL H-7

Investigator(s): BES Section, Township, Range: _____

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 2%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.470897 Long: -76.278647 Datum: NAD83

Soil Map Unit Name: Alluvial land NWI classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑	**Is the Sampled Area Within a Wetland?**	Yes ☐	No ☑
Hydric Soil Present?	Yes ☐	No ☑			
Wetland Hydrology Present?	Yes ☐	No ☑			

Remarks: Upland terrace lacking wetland hydrology and hydric soil characteristics of WET H-7.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Mari Deposits (B15) **(LLR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8)(**LRR T, U**)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches): _____		
Water Table Present?	Yes ☐	No ☑	Depth (inches): _____		
Saturation Present? (includes capillary fringe)	Yes ☐	No ☑	Depth (inches): _____	**Wetland Hydrology Present?**	Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UPL H-7

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Liriodendron tulipifera*	20	Y	FACU
2. *Fagus grandifolia*	20	Y	FACU
3. *Quercus rubra*	20	Y	FACU
4. *Acer rubrum*	10	N	FAC
5. *Nyssa sylvatica*	10	N	FAC
6. *Quercus alba*	5	N	FACU
7.			
8.			
	85	= Total Cover	
50% of total cover: 42.5		20% of total cover:	17

Sapling/Shrub Stratum (Plot size: 30')			
1. *Fagus grandifolia*	10	Y	FACU
2. *Carpinus caroliniana*	5	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	15	= Total Cover	
50% of total cover: 7.5		20% of total cover:	3

Herb Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	20%	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL species		x5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ____ 2 - Dominance Test is > 50%
- ____ 3 - Prevalence Index is $\leq$ 3.0[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UPL H-7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/2	100					Silt loam	
4-12	10YR 5/6	100					Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LLR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LLR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T,U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S,T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) **(LRR T,U)**
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 834 SF Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use I95 corridor Distance to nearest roadway or other development 126 feet

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Floodplain

How many tributaries contribute to the wetland? None Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET H-1

Latitude 39.474068 Longitude -76.274624

Prepared by: NJV Date 2/27/19

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office_____ Field_____

Corps manual wetland delineation completed? Y_____ N_____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	10, 13	X	Field investigation indicates hydrology sources to the wetland include groundwater discharge.
Floodflow Alteration	Y	3, 4, 9		Due to small size, flood storage is limited.
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1		Highway embankment is proximal to wetland, minor potential for trapping of excess sediment.
Nutrient Removal	N			
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	6, 8		Wetland is adjacent to perennial stream channel and within tree canopy.
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other	N			

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 526 SF Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use I95 corridor Distance to nearest roadway or other development 139 feet

Dominant wetland systems present PFO/PEM Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? floodplain

How many tributaries contribute to the wetland? None Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET H-2

Latitude 39.473443 Longitude -76.275371

Prepared by: NJV Date 2/27/19

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office_____ Field_____

Corps manual wetland delineation completed? Y_____ N_____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	10, 13		Field investigation indicates hydrology sources to the wetland include groundwater discharge.
Floodflow Alteration	Y	3, 4, 6, 9	X	Wetland is located in former meander of perennial stream, now cut off from stream base flow.
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1		Wetland has potential to store sediment from overbank flows.
Nutrient Removal	Y	3, 5		Minor potential for sediment trapping. Ponded water was observed.
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	6, 8		Wetland is adjacent to perennial stream channel and within tree canopy.
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 1166 SF Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use I95 corridor Distance to nearest roadway or other development 125 feet

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Floodplain

How many tributaries contribute to the wetland? none Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET H-3

Latitude 39.470543 Longitude -76.279356

Prepared by: NJV Date 3/5/19

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office_____ Field_____

Corps manual wetland delineation completed? Y_____ N_____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	10		Throughflow is unlikely to occur often, but recharge potential is limited due to the small size of the wetland.
Floodflow Alteration	Y	6, 9	X	Nearby channel is incised. Wetland has potential to store sheet flow from adjacent land.
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1		Wetland has potential to store sediment from surrounding slopes.
Nutrient Removal	Y	3		Minor potential for sediment trapping.
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	6, 8		Wetland is adjacent to perennial stream channel and within tree canopy.
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 976 SF Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use I95 corridor Distance to nearest roadway or other development 115 feet

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Floodplain

How many tributaries contribute to the wetland? None Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET H-4

Latitude 39.470462 Longitude -76.279527

Prepared by: NJV Date 3/5/19

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office_____ Field_____

Corps manual wetland delineation completed? Y_____ N_____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	10, 13		Field investigation indicates hydrology sources to the wetland include groundwater discharge.
Floodflow Alteration	Y	9, 10, 13	X	Flood flows are likely to enter the wetland as backwater from an adjacent stream, and sheet flow from surrounding slopes.
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	N			
Nutrient Removal	N			
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	6, 8		Wetland is adjacent to perennial stream channel and within tree canopy.
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 381 SF Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use I95 corridor Distance to nearest roadway or other development 108 feet

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Headwaters

How many tributaries contribute to the wetland? None Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET H-5

Latitude 39.469672 Longitude -76.280972

Prepared by: NJV Date 3/5/19

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office_____ Field_____

Corps manual wetland delineation completed? Y_____ N_____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	10	X	Based on field investigation, groundwater recharge is likely. Wetland outlet is not well defined.
Floodflow Alteration	Y	9		Wetland has minor potential to store sheet flow from adjacent land.
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1		Wetland has minor potential to store sediment from surrounding slopes.
Nutrient Removal	Y	3		Minor potential for sediment trapping.
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	6, 8		Wetland is proximal to perennial stream channels and within tree canopy.
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 187 SF Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use I95 corridor Distance to nearest roadway or other development 114 feet

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Floodplain

How many tributaries contribute to the wetland? None Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET H-6

Latitude 39.470678 Longitude -76.278937

Prepared by: NJV Date 3/5/19

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office_____ Field_____

Corps manual wetland delineation completed? Y_____ N_____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	10		Throughflow is unlikely to occur often, but recharge potential is limited due to the small size of the wetland.
Floodflow Alteration	Y	6, 9	X	Nearby channel is incised. Wetland has potential to store sheet flow from adjacent land.
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1		Wetland has potential to store sediment from surrounding slopes.
Nutrient Removal	Y	3, 5		Minor potential for sediment trapping. Ponded water was observed.
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	6, 8		Wetland is adjacent to perennial stream channel and within tree canopy.
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 703 SF Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use I95 corridor Distance to nearest roadway or other development 102 feet

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Floodplain

How many tributaries contribute to the wetland? None Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET H-7

Latitude 39.470946 Longitude -76.278493

Prepared by: NJV Date 3/5/19

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office_____ Field_____

Corps manual wetland delineation completed? Y_____ N_____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	10, 13		Field investigation indicates hydrology sources to the wetland include groundwater discharge.
Floodflow Alteration	Y	9, 10, 13	X	Overbank flow and sheet flow from surrounding slopes is likely to enter the wetland during storms.
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1		Wetland has minor potential to store sediment from surrounding slopes.
Nutrient Removal	Y	3		Minor potential for sediment trapping.
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	6, 8		Wetland is adjacent to perennial stream channel and within tree canopy.
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 4492 SF Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use I95 corridor Distance to nearest roadway or other development 55 feet

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Floodplain

How many tributaries contribute to the wetland? None Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET 1D

Latitude 39.474304 Longitude -76.274385

Prepared by: NJV Date 2/27/19

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office_____ Field_____

Corps manual wetland delineation completed? Y_____ N_____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	7, 10, 13		Field investigation indicates hydrology sources to the wetland include groundwater discharge.
Floodflow Alteration	Y	4, 6, 7, 9, 10	X	The wetland is likely to receive flood flow from an adjacent perennial stream and surrounding slopes.
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1		Wetland has potential to store sediment from surrounding slopes.
Nutrient Removal	Y	3		Minor potential for sediment trapping.
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	6, 8		Wetland is proximal to a perennial stream channel and is within tree canopy.
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.58 AC Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use I95 corridor Distance to nearest roadway or other development 113 feet

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Floodplain

How many tributaries contribute to the wetland? 2 or more Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET 2D

Latitude 39.470031 Longitude -76.280569

Prepared by: NJV Date 3/5/19

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office_____ Field_____

Corps manual wetland delineation completed? Y_____ N_____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	7, 15		An intermittent channel contributes to wetland hydrology, and high water table conditions were observed in the field.
Floodflow Alteration	Y	7, 9, 13	X	Throughflow was observed during the wetland investigation, and wetland is likely to receive overbank flows during storm events.
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1, 10		Potential for sediment retention is limited due to slope.
Nutrient Removal	Y	3, 5, 12		Throughflow is spread across the wetland area.
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	6, 8		Large forested wetland adjacent to two perennial stream channels.
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 1624 SF Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use I95 corridor Distance to nearest roadway or other development 53 feet

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Headwaters

How many tributaries contribute to the wetland? None Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET 4D

Latitude 39.470240 Longitude -76.279429

Prepared by: NJV Date 3/5/19

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office_____ Field_____

Corps manual wetland delineation completed? Y_____ N_____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	13	X	Primary source of wetland hydrology appears to be groundwater discharge.
Floodflow Alteration	Y	3, 7, 9		No flood storage available upslope of the wetland area.
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1		Minor potential for sediment retention based on landscape position at toe of highway embankment.
Nutrient Removal	Y	3		Minor potential for sediment trapping.
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	8		Forested wetland. Habitat is limited due to ROW fencing that separates the wetland from a nearby perennial channel.
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 3/5/19 **Stream ID:** WUS H-1

Staff: NJV, BES **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: east **Drains Into:** WUS 4D

Fed By: Unknown (outside of study area)

Bank Height: 2' **Water Depth:** 1/2" **Width:** 5'

Channel Gradient (%): 3% **Bank Stability:** Minor degradation of concrete channel observed

Avg. Bank Slope: Vertical ☐ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: na % Riffle: na % Pool: na

Substrate:

Cobble ☐	Gravel ☐	Sand ☐	Silt ☐
Veg ☐	Riprap ☐	Concrete ☒	Muck ☐

Channel Characteristics: Natural ☐ Artificial ☐ Man-altered ☒

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☐
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☐ Downstream ☒

Connection to Traditional Navigable Waterway: WUS H-1 drains to WUS 4D, a tributary of Bynum Run. Bynum Run discharges to Bush Creek, a traditional navigable waterway based on tidal influence south of I-95.

Other Comments: Stream was determined to be intermittent based on seepage observed between concrete sections during dry weather.

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 3/5/19 **Stream ID:** WUS H-2

Staff: NJV, BES **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: south **Drains Into:** WUS 4D

Fed By: Forested wetland (WET-2D)

Bank Height: 3-4' **Water Depth:** 1-2" **Width:** 4'

Channel Gradient (%): 2% **Bank Stability:** Poor; banks are actively eroding

Avg. Bank Slope: Vertical ☒ 2:1 ☐ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 0 % Riffle: 100 % Pool: 0

Substrate:

Cobble ☐	Gravel ☒	Sand ☒	Silt ☐
Veg ☐	Riprap ☐	Concrete ☐	Muck ☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☐
Changes in character of soil	☐	Destruction of terrestrial veg.	☒
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☐
Leaf litter disturbed or washed away	☐	Scour	☒
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☐

Connection to Traditional Navigable Waterway: WUS H-2 drains to WUS 4D, a tributary of Bynum Run. Bynum Run discharges to Bush Creek, a traditional navigable waterway based on tidal influence south of I-95.

Other Comments: Newly formed channel, likely to change in short-term due to storm events. Headcutting was observed at the upstream end of the channel.

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 2/28/19 **Stream ID:** WUS 2D

Staff: NJV, DGV **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: North **Drains Into:** WUS 4D

Fed By: Unknown (outside of study area)

Bank Height: 4' **Water Depth:** 1-2" **Width:** 5'

Channel Gradient (%): 3% **Bank Stability:** Undercut banks were observed, but riprap provides some protection.

Avg. Bank Slope: Vertical ☐ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: na % Riffle: na % Pool: na

Substrate:

Cobble ☐	Gravel ☐	Sand ☐	Silt ☐
Veg ☐	Riprap ☒	Concrete ☐	Muck ☐

Channel Characteristics: Natural ☐ Artificial ☐ Man-altered ☒

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☐
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☐

Connection to Traditional Navigable Waterway: WUS 2D discharges to WUS 4D, a tributary of Bynum Run. Bynum Run discharges to Bush Creek, a traditional navigable waterway based on tidal influence south of I-95.

Other Comments: Stream delineation starts at the downstream end of a pipe beneath I95.

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 2/27/19 **Stream ID:** WUS 3D (Bynum Run)

Staff: NJV, BES **Flow Type:** Perennial ☒ Intermittent ☐ Ephemeral ☐

Flow Direction: Northeast **Drains Into:** Bush Creek

Fed By: Numerous tributaries

Bank Height: 8-12' **Water Depth:** 6" to 3' **Width:** 40'

Channel Gradient (%): 1% **Bank Stability:** Varies; steep, eroded banks were observed but riprap also provides protection in some areas.

Avg. Bank Slope: Vertical ☒ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 40 % Riffle: 40 % Pool: 20

Substrate:

Cobble	☒	Gravel	☒	Sand	☒	Silt	☐
Veg	☐	Riprap	☐	Concrete	☐	Muck	☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☒	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☒
Sediment deposition	☒	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☐ Downstream ☒

Connection to Traditional Navigable Waterway: Bynum Run discharges to Bush Creek, a traditional navigable waterway based on tidal influence south of I-95.

Other Comments:

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 3/5/19 **Stream ID:** WUS 4D

Staff: NJV, BES **Flow Type:** Perennial ☒ Intermittent ☐ Ephemeral ☐

Flow Direction: East **Drains Into:** Bynum Run

Fed By: Numerous tributaries

Bank Height: 3-6' **Water Depth:** 2-12" **Width:** 8-16'

Channel Gradient (%): 1% **Bank Stability:** Varies. Portions of the stream are highly unstable.

Avg. Bank Slope: Vertical ☒ 2:1 ☒ 3:1 ☒ 4:1 or greater ☐

Mesohabitat: % Run: 40 % Riffle: 30 % Pool: 30

Substrate:

Cobble	☐	Gravel	☒	Sand	☒	Silt	☐
Veg	☐	Riprap	☐	Concrete	☒	Muck	☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☒

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☐
Changes in character of soil	☒	Destruction of terrestrial veg.	☐
Shelving	☒	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☒
Sediment deposition	☒	Multiple observed/predicted flow events	☐
Water staining	☒	Abrupt change in plant community	☒

Photos? Upstream ☐ Downstream ☐

Connection to Traditional Navigable Waterway: WUS 4D is a tributary of Bynum Run. Bynum Run discharges to Bush Creek, a traditional navigable waterway based on tidal influence south of I-95.

Other Comments: Upstream portions of WUS-4D in the study area were lined with concrete.

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 2/27/19 **Stream ID:** WUS 5D

Staff: NJV, BES **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: Northwest **Drains Into:** Bynum Run

Fed By: Unknown (outside of study area)

Bank Height: 2-3' **Water Depth:** 1" **Width:** 5'

Channel Gradient (%): 1-5% **Bank Stability:** Scour observed beyond culvert apron

Avg. Bank Slope: Vertical ☒ 2:1 ☐ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: na % Riffle: na % Pool: na

Substrate:

Cobble	☐	Gravel	☒	Sand	☐	Silt	☐
Veg	☐	Riprap	☐	Concrete	☒	Muck	☐

Channel Characteristics: Natural ☐ Artificial ☐ Man-altered ☒

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☐
Changes in character of soil	☒	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☒
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☒	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☐

Connection to Traditional Navigable Waterway: WUS 5D is a tributary of Bynum Run. Bynum Run discharges to Bush Creek, a traditional navigable waterway based on tidal influence south of I-95.

Other Comments: Stream delineation starts at the downstream end of a pipe beneath I-95.

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 2/28/19 **Stream ID:** WUS 6D

Staff: NJV, DGV **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: northeast **Drains Into:** WUS 4D

Fed By: Unknown (originates from pipe under I-95)

Bank Height: 4-6' **Water Depth:** 1-4" **Width:** 6-8'

Channel Gradient (%): 2-5% **Bank Stability:** Steep banks, minor erosion and undercutting.

Avg. Bank Slope: Vertical ☒ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 0 % Riffle: 60 % Pool: 40

Substrate:

Cobble	☐	Gravel	☒	Sand	☒	Silt	☐
Veg	☐	Riprap	☒	Concrete	☐	Muck	☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☒

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☒
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☒
Sediment deposition	☒	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☐

Connection to Traditional Navigable Waterway: WUS 6D drains to WUS 4D, a tributary of Bynum Run. Bynum Run discharges to Bush Creek, a traditional navigable waterway based on tidal influence south of I-95.

Other Comments: Stream delineation starts at the downstream end of a pipe beneath I95.

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 3/5/19 **Stream ID:** WUS 11D

Staff: NJV, BES **Flow Type:** Perennial ☒ Intermittent ☐ Ephemeral ☐

Flow Direction: southeast **Drains Into:** WUS 4D

Fed By: Unknown (outside of study area)

Bank Height: 3' **Water Depth:** Up to 3" **Width:** 3'

Channel Gradient (%): 2-3% **Bank Stability:** Moderately eroded and undercut banks

Avg. Bank Slope: Vertical ☒ 2:1 ☒ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 20 % Riffle: 40 % Pool: 40

Substrate:

Cobble ☐	Gravel ☒	Sand ☒	Silt ☐
Veg ☐	Riprap ☐	Concrete ☐	Muck ☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☐
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☒
Sediment deposition	☒	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☐

Connection to Traditional Navigable Waterway: WUS 11D drains to WUS 4D, a tributary of Bynum Run. Bynum Run discharges to Bush Creek, a traditional navigable waterway based on tidal influence south of I-95.

Other Comments:

WETLAND, UPLAND, AND STREAM DATASHEET

I. KH-3030: Noise Wall on SB I-95 at MD 24/Woodsdale

WETLAND DETERMINATION DATA FORM- Atlantic and Gulf Coastal Plain Region

Project/Site: MDTA Noise Wall SB I-95 and MD 24 Woodside City/County: Abingdon/Harford Sampling Date: 2/5/19

Applicant/Owner: Maryland Department of Transportation Administration (MDTA) State: MD Sampling Point: WET I-1

Investigator(s): HK/BK Section,Township, Range: N/A

Landform (hillslope, terrace, etc.) Floodplain Terrace Local relief (concave, convex, none): Concave Slope (%): < 2%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.462407 Long: -76.299362 Datum: NAD 83

Soil Map Unit Name: Hatboro-Codorus complex, 0 to 3 percent, frequently flooded (HcA) NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation Y , Soil N , or Hydrology N Significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation N , Soil N , or Hydrology N Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Hydric Soil Present? Yes ☑ No ☐ Is the Sampled Area

Wetland Hydrology Present? Yes ☑ No ☐ within a Wetland? Yes ☑ No ☐

Remarks:

Sampling point taken on sewer line access road. Maintenace of the access road and observed ATV tracks appear to have kept the road artifically clear of vegetation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)

- ☑ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☑ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present? Yes ☑ No ☐ Depth (inches): 1"

Water Table Present? Yes ☐ No ☑ Depth (inches): -

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): -

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

WET I-1 satisfies the criterion for wetland hydrology.

VEGETATION - Use scientific names of plants.

Sampling Point: WET I-1

Tree Stratum (Plot size: 30 ft radius).	Absolute % Cover	Dominant Species?	Indicator Status
1. *Liriodendron tulipifera*	30	Y	FACU
2. *Quercus rubra*	10	Y	FACU
3. *Acer rubrum*	10	Y	FAC
4.			
5.			
6.			
7.			

50% total cover: 25.0% 20% total cover: 10.0% 50% = Total Cover

Sapling Stratum (Plot size 30 ft radius).	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			

50% total cover: 0.0% 20% total cover: 0.0% 0% = Total Cover

Shrub Stratum (Plot size: 30 ft radius).	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			

50% total cover: 0.0% 20% total cover: 0.0% 0% = Total Cover

Herb Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Carex blanda*	5	Yes	FAC
2. *Microstegium vimineum*	5	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			

50% total cover: 5.0% 20% total cover: 2.0% 10% = Total Cover

Woody Vine Stratum (Plot size: 30 ft radius).	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
7.			

50% total cover: 0.0% 20% total cover: 0.0% 0% = Total Cover

Domiance 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 Speices that are OBL, FACW, or FAC: 60.0% (A/B)

Prevalence Index worksheet

Total % Cover of:			Multiply by:	
OBL species	0	X 1	=	0
FACW species	0	X 2	=	0
FAC species	10	X 3	=	30
FACU species	40	X 4	=	160
UPL species	0	X 5	=	0
Column Totals	50	(A)		190 (B)

Prevalence Index = B/A = 3.80%

Hydrophytic Vegetation Indicators:

- ☐ 1. Rapid Test of Hydrophytic Vegetation
- ☑ 2. Dominance Test is >50%
- ☐ 3. Prevalence Index is ≤3.0[1]
- ☐ 4. Morphological Adaptations[1] (Provide supporting data in Remarks or on a separte sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diamter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less then 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 includes 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: (If observed, list morphological adaptations below).

WET I-1 satisfies the criterion for hydrophytic vegetation. The dominant tree species are largely upland species; however, the wetland is located along a sanitary sewer access road that has evidence of ATV usage. The surrounding area is forested. It is estimated that if the access road were not artifically kept clear of trees, hydrophytic tree species would populate this wetland.

Soils

Sampling Point: WET I-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 6	7.5YR 4/1	95	7/5YR 5/4	5	C	M	Sandy Clay	
6 - 14	7.5YR 5/1	100					Clay Sand	
14 - 18	7.5YR 4/1	100					Sandy Clay	
18 +	10YR 5/2	90	7/5YR 5/8	10	C	PL	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Mucky Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)
- ☐ Polyvalue Below Surace (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators of Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P,S,T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks):

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WET I-1 satisfies the criterion for hydric soil.

WETLAND DETERMINATION DATA FORM- Atlantic and Gulf Coastal Plain Region

Project/Site: MDTA Noise Wall SB I-95 and MD 24 Woodside City/County: Abingdon/Harford Sampling Date: 2/5/19

Applicant/Owner: Maryland Transportation Authority (MDTA) State: MD Sampling Point: UPL I-1

Investigator(s): HK/BK Section,Township, Range: N/A

Landform (hillslope, terrace, etc.) Floodplain Terrace Local relief (concave, convex, none): Concave Slope (%): < 2%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.462528 Long: -76.299354 Datum: NAD 83

Soil Map Unit Name: Hatboro-Codorus complex, 0 to 3 percent, frequently flooded (HcA) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation N , Soil N , or Hydrology N Significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation N , Soil N , or Hydrology N Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑				
Hydric Soil Present?	Yes ☐	No ☑	Is the Sampled Area			
Wetland Hydrology Present?	Yes ☑	No ☐	within a Wetland?	Yes ☐	No ☑	

Remarks:

Sampling point taken on sewer easement. Tire marks present. Evidence of repeeated use by 4-wheelers.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)

- ☑ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches):	2"
Water Table Present?	Yes ☐	No ☑	Depth (inches):	-
Saturation Present? (includes capillary fringe)	Yes ☐	No ☑	Depth (inches):	-

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

UPL I-1 satisfies the criterion for wetland hydrology.

VEGETATION - Use scientific names of plants.

Sampling Point: UPL I-1

Tree Stratum (Plot size: 30 ft radius).	Absolute % Cover	Dominant Species?	Indicator Status
1. *Illex opaca*	5	Yes	FAC
2. *Quercus alba*	5	Yes	FACU
3. *Liquidambar styraciflua*	2	No	FAC
4.			
5.			
6.			
7.			

50% total cover: 6.0% 20% total cover: 2.4% 12% = Total Cover

Sapling Stratum (Plot size 30 ft radius).	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fagus grandifolia*	15	Yes	FACU
2. *Liquidambar styraciflua*	5	Yes	FAC
3.			
4.			
5.			
6.			
7.			

50% total cover: 10.0% 20% total cover: 4.0% 20% = Total Cover

Shrub Stratum (Plot size: 30 ft radius).	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			

50% total cover: 0.0% 20% total cover: 0.0% 0% = Total Cover

Herb Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			

50% total cover: 0.0% 20% total cover: 0.0% 0% = Total Cover

Woody Vine Stratum (Plot size: 30 ft radius).	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
7.			

50% total cover: 0.0% 20% total cover: 0.0% 0% = Total Cover

Domiance Test worksheet

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Speices that are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet

Total % Cover of:				Multiply by:
OBL species	0	X 1	=	0
FACW species	0	X 2	=	0
FAC species	12	X 3	=	36
FACU species	20	X 4	=	80
UPL species	0	X 5	=	0
Column Totals	32 (A)			116 (B)

Prevalence Index = B/A = 3.63%

Hydrophytic Vegetation Indicators:

- ☐ 1. Rapid Test of Hydrophytic Vegetation
- ☐ 2. Dominance Test is >50%
- ☐ 3. Prevalence Index is ≤3.0[1]
- ☐ 4. Morphological Adaptations[1] (Provide supporting data in Remarks or on a separte sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diamter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less then 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 includes 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: (If observed, list morphological adaptations below).
UPL I-1 does not satisfy the criterion for hydrophytic vegetation.

Soils

Sampling Point: UPL I-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0 - 16	10YR 4/1	100					Sandy Clay	
16 +								Refusal

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Mucky Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)
- ☐ Polyvalue Below Surace (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators of Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P,S,T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks):

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

UPL I-1 does not satisfy the criterion for hydric soil. Soils heavily compacted by ATV activity.

WETLAND DETERMINATION DATA FORM- Atlantic and Gulf Coastal Plain Region

Project/Site: MDTA Noise Wall SB I-95 and MD 24 Woodside City/County: Abingdon/Harford Sampling Date: 2/6/19

Applicant/Owner: Maryland Transportation Authority (MDTA) State: MD Sampling Point: WET I-2

Investigator(s): HK/BK Section,Township, Range: N/A

Landform (hillslope, terrace, etc.) Floodplain Terrace Local relief (concave, convex, none): Concave Slope (%): < 5%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.462379 Long: -76.298942 Datum: NAD 83

Soil Map Unit Name: Hatboro-Codorus complex, 0 to 3 percent, frequently flooded (HcA) NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation N , Soil N , or Hydrology N Significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation N , Soil N , or Hydrology N Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Hydric Soil Present? Yes ☑ No ☐ Is the Sampled Area

Wetland Hydrology Present? Yes ☑ No ☐ within a Wetland? Yes ☑ No ☐

Remarks:

Sampling point taken near the SHA fence.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): -

Water Table Present? Yes ☑ No ☐ Depth (inches): 1"

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): -

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

WET I-2 satisfies the criterion for wetland hydrology.

VEGETATION - Use scientific names of plants.

Sampling Point: WET I-2

Tree Stratum (Plot size: 30 ft radius).	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	10	Yes	FAC
2. *Liquidambar styraciflua*	10	Yes	FAC
3.			
4.			
5.			
6.			
7.			

50% total cover: 10.0% 20% total cover: 4.0% 20% = Total Cover

Sapling Stratum (Plot size 30 ft radius).	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	10	Yes	FAC
2. *Liquidambar styraciflua*	10	Yes	FAC
3.			
4.			
5.			
6.			
7.			

50% total cover: 10.0% 20% total cover: 4.0% 20% = Total Cover

Shrub Stratum (Plot size: 30 ft radius).	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			

50% total cover: 0.0% 20% total cover: 0.0% 0% = Total Cover

Herb Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Microstegium vimineum*	20	Yes	FAC
2. *Carex blanda*	15	Yes	FAC
3. *Ilex opaca*	2	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			

50% total cover: 18.5% 20% total cover: 7.4% 37% = Total Cover

Woody Vine Stratum (Plot size: 30 ft radius).	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
7.			

50% total cover: 0.0% 20% total cover: 0.0% 0% = Total Cover

Domiance Test worksheet

Number of Dominant Species That are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Speices that are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet

Total % Cover of:				Multiply by:
OBL species	0	X 1	=	0
FACW species	0	X 2	=	0
FAC species	77	X 3	=	231
FACU species	0	X 4	=	0
UPL species	0	X 5	=	0
Column Totals	77	(A)		231 (B)

Prevalence Index = B/A = 3.00%

Hydrophytic Vegetation Indicators:

- ☐ 1. Rapid Test of Hydrophytic Vegetation
- ☑ 2. Dominance Test is >50%
- ☑ 3. Prevalence Index is ≤3.0[1]
- ☐ 4. Morphological Adaptations[1] (Provide supporting data in Remarks or on a separte sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diamter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less then 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 includes 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: (If observed, list morphological adaptations below).
WET I-2 satisfies the criterion for hydrophytic vegetation.

Soils

Sampling Point: WET I-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 4/1	75	10YR 5/4	20	C	M	Sandy Clay	C have diffuse boundaries
			10YR 5/8	5	C	M		
5-10	10YR 6/6	80	7.5YR 6/8	20	C	M	Sand	
10-12	10YR 6/6	80	7.5YR 6/8	20	C	M	Sandy loam	
12-15	10YR 4/1	98	5YR 4/6	2	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Mucky Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)
- ☐ Polyvalue Below Surace (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators of Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P,S,T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks):

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WET I-2 satisfies the criterion for hydric soil.

WETLAND DETERMINATION DATA FORM- Atlantic and Gulf Coastal Plain Region

Project/Site: MDTA Noise Wall SB I-95 and MD 24 Woodside City/County: Abingdon/Harford Sampling Date: 2/6/19

Applicant/Owner: Maryland Transportation Authority (MDTA) State: MD Sampling Point: UPL I-2

Investigator(s): HK/BK Section,Township, Range: N/A

Landform (hillslope, terrace, etc.) Floodplain Terrace Local relief (concave, convex, none): Concave Slope (%): < 2%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.462248 Long: -76.298593 Datum: NAD 83

Soil Map Unit Name: Hatboro-Codorus complex, 0 to 3 percent, frequently flooded (HcA) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N Significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation N, Soil N, or Hydrology N Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐				
Hydric Soil Present?	Yes ☐	No ☑	Is the Sampled Area			
Wetland Hydrology Present?	Yes ☑	No ☐	within a Wetland?	Yes ☐	No ☑	

Remarks:

Sampling point taken near the SHA fence.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches):	-
Water Table Present?	Yes ☐	No ☑	Depth (inches):	-
Saturation Present? (includes capillary fringe)	Yes ☐	No ☑	Depth (inches):	-

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

UPL I-2 satisfies the criterion for wetland hydrology.

VEGETATION - Use scientific names of plants.

Sampling Point: UPL I-2

Tree Stratum (Plot size: 30 ft radius).	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	10	Yes	FAC
2. *Liquidambar styraciflua*	5	Yes	FAC
3. *Quercus palustris*	5	Yes	FACW
4.			
5.			
6.			
7.			

50% total cover: 10.0% 20% total cover: 4.0% 20% = Total Cover

Sapling Stratum (Plot size 30 ft radius).	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			

50% total cover: 0.0% 20% total cover: 0.0% 0% = Total Cover

Shrub Stratum (Plot size: 30 ft radius).	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			

50% total cover: 0.0% 20% total cover: 0.0% 0% = Total Cover

Herb Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Carex blanda*	70	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			

50% total cover: 35.0% 20% total cover: 14.0% 70% = Total Cover

Woody Vine Stratum (Plot size: 30 ft radius).	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
7.			

50% total cover: 0.0% 20% total cover: 0.0% 0% = Total Cover

Domiance Test worksheet

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Speices that are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet

Total % Cover of:				Multiply by:
OBL species	0	X 1	=	0
FACW species	5	X 2	=	10
FAC species	85	X 3	=	255
FACU species	0	X 4	=	0
UPL species	0	X 5	=	0
Column Totals	90	(A)		265 (B)

Prevalence Index = B/A = 2.94%

Hydrophytic Vegetation Indicators:

- ☐ 1. Rapid Test of Hydrophytic Vegetation
- ☑ 2. Dominance Test is >50%
- ☑ 3. Prevalence Index is ≤3.0[1]
- ☐ 4. Morphological Adaptations[1] (Provide supporting data in Remarks or on a separte sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diamter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less then 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 includes 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: (If observed, list morphological adaptations below).
UPL I-2 satisfies the criterion for hydrophytic vegetation.

Soils

Sampling Point: UPLI-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0 - 8	10YR 5/6	100					Silty clay	
8 - 11	5YR 6/8	80	5YR 5/4	20	C	M	Silty clay	
11 - 17	5YR 5/3	80	5YR 5/8	20	C	M	Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Mucky Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)
- ☐ Polyvalue Below Surace (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators of Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P,S,T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks):

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

UPLI-2 does not satisfy the criterion for hydric soil.

WETLAND DETERMINATION DATA FORM- Atlantic and Gulf Coastal Plain Region

Project/Site: MDTA Noise Wall SB I-95 and MD 24 Woodside City/County: Abingdon/Harford Sampling Date: 3/20/19

Applicant/Owner: Maryland Department of Transportation Authority (MDTA) State: MD Sampling Point: UPL I-3

Investigator(s): HK/BK/KB Section,Township, Range: N/A

Landform (hillslope, terrace, etc.) Hillslope Local relief (concave, convex, none): Concave Slope (%): 5%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.462246 Long: -76.298595 Datum: NAD 83

Soil Map Unit Name: Sassafras and Joppa soils, 10-15 percent slopes (SsD) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N Significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation N, Soil N, or Hydrology N Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐				
Hydric Soil Present?	Yes ☐	No ☑	Is the Sampled Area			
Wetland Hydrology Present?	Yes ☐	No ☑	within a Wetland?	Yes ☐	No ☑	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches):	-
Water Table Present?	Yes ☐	No ☐	Depth (inches):	-
Saturation Present? (includes capillary fringe)	Yes ☐	No ☐	Depth (inches):	-

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

UPL I-3 does not satisfy the criterion for wetland hydrology.

VEGETATION - Use scientific names of plants.

Sampling Point: UPL I-3

Tree Stratum (Plot size: 30 ft radius).	Absolute % Cover	Dominant Species?	Indicator Status
1. *Liquidambar styraciflua*	5	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			

50% total cover: 2.5% 20% total cover: 1.0% 5% = Total Cover

Sapling Stratum (Plot size 30 ft radius).	Absolute % Cover	Dominant Species?	Indicator Status
1. *Liquidambar styraciflua*	10	Yes	FAC
2. *Acer rubrum*	10	Yes	FAC
3.			
4.			
5.			
6.			
7.			

50% total cover: 10.0% 20% total cover: 4.0% 20% = Total Cover

Shrub Stratum (Plot size: 30 ft radius).	Absolute % Cover	Dominant Species?	Indicator Status
1. *Vaccinium corymbosum*	40	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			

50% total cover: 20.0% 20% total cover: 8.0% 40% = Total Cover

Herb Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Microstegium vimineum*	50	Yes	FAC
2. *Carex blanda*	5	No	FAC
3. *Vaccinium corymbosum*	5	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			

50% total cover: 30.0% 20% total cover: 12.0% 60% = Total Cover

Woody Vine Stratum (Plot size: 30 ft radius).	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
7.			

50% total cover: 0.0% 20% total cover: 0.0% 0% = Total Cover

Domiance Test worksheet

Number of Dominant Species That are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Speices that are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet

Total % Cover of:			Multiply by:
OBL species	0	X 1 =	0
FACW species	45	X 2 =	90
FAC species	80	X 3 =	240
FACU species	0	X 4 =	0
UPL species	0	X 5 =	0
Column Totals	125 (A)		330 (B)

Prevalence Index = B/A = 2.64%

Hydrophytic Vegetation Indicators:

- ☐ 1. Rapid Test of Hydrophytic Vegetation
- ☑ 2. Dominance Test is >50%
- ☑ 3. Prevalence Index is ≤3.0[1]
- ☐ 4. Morphological Adaptations[1] (Provide supporting data in Remarks or on a separte sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diamter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less then 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 includes 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: (If observed, list morphological adaptations below).
UPL I-3 satisfies the criterion for hydrophytic vegetation.

Soils

Sampling Point: UPL I-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 4	10YR 3/2	100					Sandy loam	
5 - 16	10YR 5/6	85					Sandy clay loam	
	10YR 3/2	15					Sandy loam	
17 - 24	10YR 5/6	100					Loamy Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Mucky Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)
- ☐ Polyvalue Below Surace (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators of Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P,S,T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks):

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

UPL I-3 does not satisfy the criterion for hydric soil.

WETLAND DETERMINATION DATA FORM- Atlantic and Gulf Coastal Plain Region

Project/Site: MDTA Noise Wall SB I-95 and MD 24 Woodside City/County: Abingdon/Harford Sampling Date: 2/6/19

Applicant/Owner: Maryland Transportation Authority (MDTA) State: MD Sampling Point: UPL I-4

Investigator(s): HK/BK Section,Township, Range: N/A

Landform (hillslope, terrace, etc.) Floodplain Terrace Local relief (concave, convex, none): None Slope (%): 0%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.462607 Long: -76.29892 Datum: NAD 83

Soil Map Unit Name: Hatboro-Codorus complex, 0 to 3 percent, frequently flooded (HcA) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N Significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation N, Soil N, or Hydrology N Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐				
Hydric Soil Present?	Yes ☐	No ☑	Is the Sampled Area			
Wetland Hydrology Present?	Yes ☐	No ☑	within a Wetland?	Yes ☐	No ☑	

Remarks:

Sampling point taken within previously delineated wetland WET 8-C

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches):	-
Water Table Present?	Yes ☐	No ☑	Depth (inches):	-
Saturation Present? (includes capillary fringe)	Yes ☐	No ☑	Depth (inches):	-

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

UPL I-4 does not satisfy the criterion for wetland hydrology. Hydrology may have been altered when WUS 17-C eroded into WUS 16-C/I-3.

VEGETATION - Use scientific names of plants.

Sampling Point: UPL I-4

Tree Stratum (Plot size: 30 ft radius).	Absolute % Cover	Dominant Species?	Indicator Status
1. *Liquidambar styraciflua*	10	Yes	FAC
2. *Acer rubrum*	5	Yes	FAC
3. *Quercus alba*	5	Yes	FACU
4.			
5.			
6.			
7.			

50% total cover: 10.0% 20% total cover: 4.0% 20% = Total Cover

Sapling Stratum (Plot size 30 ft radius).	Absolute % Cover	Dominant Species?	Indicator Status
1. *Ilex opaca*	5	Yes	FAC
2. *Liquidambar styraciflua*	5	Yes	FAC
3. *Acer rubrum*	5	Yes	FAC
4. *Fagus grandifolia*	5	Yes	FACU
5.			
6.			
7.			

50% total cover: 10.0% 20% total cover: 4.0% 20% = Total Cover

Shrub Stratum (Plot size: 30 ft radius).	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			

50% total cover: 0.0% 20% total cover: 0.0% 0% = Total Cover

Herb Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Microstegium vimineum*	10	Yes	FAC
2. *Smilax rotundifolia*	10	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			

50% total cover: 10.0% 20% total cover: 4.0% 20% = Total Cover

Woody Vine Stratum (Plot size: 30 ft radius).	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
7.			

50% total cover: 0.0% 20% total cover: 0.0% 0% = Total Cover

Domiance Test worksheet

Number of Dominant Species That are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Speices that are OBL, FACW, or FAC: 77.8% (A/B)

Prevalence Index worksheet

Total % Cover of:			Multiply by:
OBL species	0	X 1 =	0
FACW species	0	X 2 =	0
FAC species	50	X 3 =	150
FACU species	10	X 4 =	40
UPL species	0	X 5 =	0
Column Totals	60	(A)	190 (B)

Prevalence Index = B/A = 3.17%

Hydrophytic Vegetation Indicators:

- ☐ 1. Rapid Test of Hydrophytic Vegetation
- ☑ 2. Dominance Test is >50%
- ☐ 3. Prevalence Index is ≤3.0[1]
- ☐ 4. Morphological Adaptations[1] (Provide supporting data in Remarks or on a separte sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diamter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less then 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 includes 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: (If observed, list morphological adaptations below).
UPL I-4 satisfies the criterion for hydrophytic vegetation.

Soils

Sampling Point: UPL I-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 4	7.5YR 4/3	95	7.5YR 4/6	5	C	M	Silty clay	C have diffuse boundaries
4 - 11	7.5YR 4/3	70	5YR 4/6	30	C	M/PL	Silty clay	
11 - 22	7.5YR 5/3	60	7.5YR 5/8	40	C	M/PL	Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Mucky Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)
- ☐ Polyvalue Below Surace (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators of Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P,S,T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks):

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

UPL I-4 does not satisfy the criterion for hydric soil.

Wetland Function-Value Evaluation Form

Total area of wetland 0.24 AC Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Residential, Roadway Distance to nearest roadway or other development 13'

Dominant wetland systems present PFO1A Contiguous undeveloped buffer zone present Yes, forested

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Headwaters

How many tributaries contribute to the wetland?_____ Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WET7C

Latitude 39.463 Longitude -76.297

Prepared by: HK Date 2/6/2019

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	7	N	drains to intermittent stream (WUS16C)
Floodflow Alteration	Y	2,3,4,7,9,13,	Y	located in headwaters, receives runoff from uplands and roadway
Fish and Shellfish Habitat	Y	1	N	Surrounded by forest on 3 sides, connects to a trib to HaHa Branch
Sediment/Toxicant Retention	Y	2, 10,	N	Receives runoff from major roadway, drains to intermittent channel
Nutrient Removal	Y	4	N	Receives runoff from major roadway
Production Export	Y	4, 8	N	Deer tracks observed in wetland, 4 vegetative layers
Sediment/Shoreline Stabilization	N		N	
Wildlife Habitat	Y	3, 4, 5, 8, 17	Y	located in oak forest (food source), surrounded by forest, deer tracks
Recreation	N		N	located in SHA ROW along major highway
Educational/Scientific Value	N		N	located in SHA ROW along major highway
Uniqueness/Heritage	Y	7	N	most of wetland buffer is forested
Visual Quality/Aesthetics	N		N	
ES Endangered Species Habitat	N		N	
Other	N		N	

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.03 Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Forested Distance to nearest roadway or other development 151'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes, forested

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Floodplain

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WetI-1

Latitude 39.462 Longitude -76.299

Prepared by: HK Date 2/6/2019

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	7, 9, 10,	Y	Drains via subsurface drainage to perennial stream
Floodflow Alteration	Y	3, 6, 9, 13	Y	flat floodplain surrounded by steep slopes, offers storage opportunities
Fish and Shellfish Habitat	Y	1	Y	Drains to perennial tributary to Haha branch, forested stream banks
Sediment/Toxicant Retention	Y	10, 13	N	Drains to perennial stream, no erosion evident within wetland
Nutrient Removal	N		N	
Production Export	N		N	
Sediment/Shoreline Stabilization	Y	3	N	Exposed soils due to ATV activity upslope.
Wildlife Habitat	Y	5, 8	N	surrounded by forested upland on all sides, drains to perennial system
Recreation	Y	13	N	Evidence of ATV activity
Educational/Scientific Value	N		N	No safe public access
Uniqueness/Heritage	Y	7, 22	N	within 10' of perennial waterway, surrounding area is forested
Visual Quality/Aesthetics	N		N	
ES Endangered Species Habitat	N		N	
Other				Contained within sewer easement/maintained as PEM

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.04 Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Forested, Roadway Distance to nearest roadway or other development 90'

Dominant wetland systems present PFO1A Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Floodplain

How many tributaries contribute to the wetland? 2 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WetI-2

Latitude 39.462 Longitude -76.462

Prepared by: HK Date 2/6/2019

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	7	N	Drains to perennial stream
Floodflow Alteration	Y	3, 6, 9	Y	occurs in a flat area surrounded by uplands
Fish and Shellfish Habitat	Y	1	Y	Drains to perennial waterway, forested
Sediment/Toxicant Retention	Y	2, 10	N	Receives overland flow from roadway, drains to perennial stream
Nutrient Removal	Y	4	N	Receives overland flow from roadway
Production Export	Y	4,	N	Deer tracks observed
Sediment/Shoreline Stabilization	Y	1	Y	Flow paths observed within wetland
Wildlife Habitat	Y	3, 4, 17	Y	Deer tracks observed, drains to perennial waterway
Recreation	N		N	No safe public access
Educational/Scientific Value	N		N	No safe public access
Uniqueness/Heritage	Y	22	N	drains to perennial waterway
Visual Quality/Aesthetics	N		N	
ES Endangered Species Habitat	N		N	
Other				

Notes:

* Refer to backup list of numbered considerations.

Stream Datasheet

Project: I-95 ETL Northbound Extension SB I-95 and MD 24 Woodside **Date:** 2/6/2019 **Stream ID:** WUS I-1

Staff: HK/JS **Flow Type:** Perennial ☐ Intermittent ☐ Ephemeral ☒

Flow Direction: Southwest **Drains Into:** WET I-2

Fed By: Overland flow

Bank Height: 2' **Water Depth:** 1" **Width:** 1'

Channel Gradient (%): 5% **Bank Stability:** Moderate downcutting

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☐ 4:1 or greater ☒

Mesohabitat: % Run: 0 % Riffle: 0 % Pool: 0

Substrate:

Cobble	☒	Gravel	☐	Sand	☐	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☐
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☐	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Flows into WET I-2, which flows into an unnamed tributary of Haha Branch, which flows into Haha Branch, which flows into the Bush River.

Other Comments:

Stream Datasheet

Project: I-95 ETL Northbound Extension SB I-95 and MD 24 Woodside **Date:** 2/6/2019 **Stream ID:** WUS I-2

Staff: HK/JS **Flow Type:** Perennial ☐ Intermittent ☐ Ephemeral ☒

Flow Direction: West **Drains Into:** WET I-2

Fed By: Overland flow

Bank Height: 1' **Water Depth:** 1" **Width:** 1'

Channel Gradient (%): 5% **Bank Stability:** Moderate downcutting

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☒ 4:1 or greater ☐

Mesohabitat: % Run: 0 % Riffle: 0 % Pool: 0

Substrate:

Cobble	☒	Gravel	☐	Sand	☐	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☐
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☐	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Flows into WET I-2, which flows into an unnamed tributary of Haha Branch, which flows into Haha Branch, which flows into the Bush River.

Other Comments:

Stream Datasheet

Project: I-95 ETL Northbound Extension SB I-95 and MD 24 Woodside **Date:** 2/5/2019 **Stream ID:** WUS I-3

Staff: HK/JS **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: Southeast **Drains Into:** Haha Branch

Fed By: WET 7C

Bank Height: 1' **Water Depth:** 2" **Width:** 2'

Channel Gradient (%): 3% **Bank Stability:** Minor downcuts

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☒ 4:1 or greater ☐

Mesohabitat: % Run: 0 % Riffle: 50 % Pool: 50

Substrate:

Cobble ☐	Gravel ☒	Sand ☒	Silt ☐
Veg ☐	Riprap ☐	Concrete ☐	Muck ☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☐
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☒
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Flows into an unnamed tributary of Haha Branch, which flows into Haha Branch, which flows into the Bush River.

Other Comments: Connects WUS 16C to WUS 17C due to erosion of bend in WUS 17C.

Stream Datasheet

Project: I-95 ETL Northbound Extension SB I-95 and MD 24 Woodside **Date:** 2/5/2019 **Stream ID:** WUS 16C-a (Upper)

Staff: HK/BK **Flow Type:** Perennial ☐ Intermittent ☐ Ephemeral ☒

Flow Direction: South **Drains Into:** WET 7C

Fed By: Overland flow

Bank Height: 6" **Water Depth:** 1" **Width:** 1'

Channel Gradient (%): 2 **Bank Stability:** Some downcutting

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☒ 4:1 or greater ☐

Mesohabitat: % Run: 0 % Riffle: 0 % Pool: 0

Substrate:

Cobble	☐	Gravel	☒	Sand	☒	Silt	☐
Veg	☐	Riprap	☐	Concrete	☐	Muck	☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☐
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Flows into Wetland 7C, which flows to an unnamed tributary to Haha Branch, which flows into Haha Branch, which flows into the Bush River.

Other Comments: This ephemeral channel loses its channel definition at Wetland 7C.

Stream Datasheet

Project: I-95 ETL Northbound Ext SB I-95 and MD 24 Woodside **Date:** 3/21/2019 **Stream ID:** WUS 16C-b

Staff: HK/JS **Flow Type:** Perennial ☐ Intermittent ☐ Ephemeral ☒

Flow Direction: Southwest **Drains Into:** WUS 17C

Fed By: Drainage over uplands

Bank Height: 3' **Water Depth:** 1" **Width:** 2'

Channel Gradient (%): 5% **Bank Stability:** -

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☒ 4:1 or greater ☐

Mesohabitat: % Run: 25 % Riffle: 60 % Pool: 15

Substrate:

Cobble	☒	Gravel	☒	Sand	☐	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☐

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☐
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☒
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Flows into an unnamed tributary of Haha Branch, which flows into Haha Branch, which flows into the Bush River.

Other Comments: Previously delineated as WUS 16C, but the path has changed considerably due to the development of WUS I-3. WUS 16C-b conveys surface water from the surrounding uplands.

Stream Datasheet

Project: I-95 ETL Northbound Extension SB I-95 and MD 24 Woodside **Date:** 2/5/2019 **Stream ID:** WUS 17C

Staff: HK/BK **Flow Type:** Perennial ☒ Intermittent ☐ Ephemeral ☐

Flow Direction: South **Drains Into:** Haha Branch

Fed By: Overland flow, ground water, WUS 16C, WUS I-3, WET I-2

Bank Height: 4' **Water Depth:** 6" **Width:** 8'

Channel Gradient (%): 2-5% **Bank Stability:** Eroded/downcutting

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☐ 4:1 or greater ☐

Mesohabitat: % Run: 0 % Riffle: 15 % Pool: 85

Substrate:

Cobble	☒	Gravel	☒	Sand	☒	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☒

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☐
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☒	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☒
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Flows into Haha Branch, which flows to the Bush River

Other Comments: Drains to Haha Branch. Culverted under I-95

Stream Datasheet

Project: I-95 ETL Northbound Extension SB I-95 and MD 24 Woodside **Date:** 2/5/2019 **Stream ID:** WUS 18C Haha Branch

Staff: HK/BK **Flow Type:** Perennial ☒ Intermittent ☐ Ephemeral ☐

Flow Direction: East **Drains Into:** Bush River

Fed By: Unknown. Haha Branch extends beyond the study area.

Bank Height: 5' **Water Depth:** 4" **Width:** 8'

Channel Gradient (%): 2-5% **Bank Stability:** Eroded/downcut

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☐ 4:1 or greater ☒

Mesohabitat: % Run: 20 % Riffle: 40 % Pool: 40

Substrate:

Cobble	☒	Gravel	☐	Sand	☒	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☐

Channel Characteristics: Natural ☒ Artificial ☐ Man-altered ☒

OHWM:

Clear, natural line impressed on the bank	☐	Presence of litter and debris	☐
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☒	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☐	Sediment sorting	☐
Leaf litter disturbed or washed away	☒	Scour	☒
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Flows into Haha Branch, which flows to the Bush River.

Other Comments: Flows through a culvert under I-95

Stream Datasheet

Project: I-95 ETL Northbound Extension
SB I-95 and MD 24 Woodside

Date: 3/22/2019 **Stream ID:** WUS 19C

Staff: HK/BK **Flow Type:** Perennial ☐ Intermittent ☒ Ephemeral ☐

Flow Direction: South **Drains Into:** Culvert under I-95 into Haha Branch

Fed By: Roadway drainage, storm drain from homes, seasonal groundwater.

Bank Height: 6'' **Water Depth:** 1" **Width:** 1'

Channel Gradient (%): 3% **Bank Stability:** Good

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☐ 4:1 or greater ☒

Mesohabitat: % Run: 0 % Riffle: 0 % Pool: 0

Substrate:

Cobble	☐	Gravel	☐	Sand	☒	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☐

Channel Characteristics: Natural ☐ Artificial ☐ Man-altered ☒

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☐
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☒
Leaf litter disturbed or washed away	☐	Scour	☐
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Flows into Haha Branch, which flows to the Bush River.

Other Comments: Waterway was previously delineated as non-jurisdictional roadside drainage ditch. Recent field investigation indicates this waterway has intercepted seasonal groundwater.

Stream Datasheet

Project: I-95 ETL Northbound Extension SB I-95 and MD 24 Woodside **Date:** 2/5/2019 **Stream ID:** WUS 20C

Staff: HK/BK **Flow Type:** Perennial ☐ Intermittent ☐ Ephemeral ☒

Flow Direction: North **Drains Into:** Culvert under I-95 into an unnamed tributary to Haha Branch

Fed By: Roadway drainage and storm drain from homes.

Bank Height: 6" **Water Depth:** 1" **Width:** 1'

Channel Gradient (%): 7% **Bank Stability:** Good

Avg. Bank Slope: Vertical ☐ 2:1 ☐ 3:1 ☒ 4:1 or greater ☐

Mesohabitat: % Run: 0 % Riffle: 0 % Pool: 0

Substrate:

Cobble	☐	Gravel	☐	Sand	☒	Silt	☒
Veg	☐	Riprap	☐	Concrete	☐	Muck	☐

Channel Characteristics: Natural ☐ Artificial ☐ Man-altered ☒

OHWM:

Clear, natural line impressed on the bank	☒	Presence of litter and debris	☐
Changes in character of soil	☐	Destruction of terrestrial veg.	☐
Shelving	☐	Presence of wrack line	☐
Vegetation matted down, bent, or absent	☒	Sediment sorting	☐
Leaf litter disturbed or washed away	☐	Scour	☒
Sediment deposition	☐	Multiple observed/predicted flow events	☐
Water staining	☐	Abrupt change in plant community	☐

Photos? Upstream ☒ Downstream ☒

Connection to Traditional Navigable Waterway: Flows into an unnamed tributary of Haha Branch, which flows into Haha Branch, which flows into the Bush River.

Other Comments: Was previously considered a non-jurisdictional roadside drainage ditch.