VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Z-WET

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.			
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. Symplocarpus foetidus	65	yes	OBL
2. Osmundastrum cinnamomeum	8	no	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	73 = Total Cover		

50% of total cover: 36.5 20% of total cover: 14.6

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: 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.)

In forested area but no trees within wetland plot.

SOIL Sampling Point: Z-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	7.5YR 4/1	90	7.5YR 3/4	10	C	PL	Loam	
5-11	10YR 5/2	90	7.5YR 4/6	10	C	PL	Silt loam	
11-13	10YR 5/1	100					Silt loam	Some small gravel

[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): 13

Hydric Soil Present? Yes ◉ No ○

Remarks: Sulfidic odor

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-95 5th Lane Widening City/County: Harford County Sampling Date: 5/4/2017

Applicant/Owner: MDTA State: MD Sampling Point: Z-AA-UPL

Investigator(s): ET/MRS Section, Township, Range:

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

Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.45699 Long: -76.31130 Datum: WGS84

Soil Map Unit Name: 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:

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:

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

Tree Stratum (Plot size: 20'r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Fagus grandifolia	70	yes	FACU
2. Acer rubrum	50	yes	FAC
3. Nyssa sylvatica	15	no	FAC
4.			
5.			
6.			
	135	= Total Cover	

50% of total cover: 67.5 20% of total cover: 27.0

Sapling Stratum (Plot size: 20'r)			
1. Fagus grandifolia	10	yes	FACU
2.			
3.			
4.			
5.			
6.			
	10	= Total Cover	

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

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. Smilax rotundifolia	3	yes	FAC
2. Rosa multiflora	2	yes	FACU
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: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 40.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	68	x 3 =	204
FACU species	82	x 4 =	328
UPL species		x 5 =	0
Column Totals:	150 (A)		532 (B)

Prevalence Index = B/A = 3.55

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: Z-AA-UPL

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5YR 3/2	100					Organic rich loam	
2-6	10YR 5/3	100					Silt loam	
6-10	2.5Y 5/4	100					Silt loam	
10-12	10YR 5/6	100					Loam	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:

- ☐ 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: I-95 5th Lane Widening City/County: Harford County Sampling Date: 5/4/2017

Applicant/Owner: MDTA State: MD Sampling Point: AA-WET

Investigator(s): ET/MRS 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: 39.45750 Long: -76.31119 Datum: WGS84

Soil Map Unit Name: DcA 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:

Seep wetland area. Drains to Waters Y. Photos 337-338. There are no trees within the plot, but the wetland is considered PFO because it is located within a forest, and trees along the wetland fringe share similar soil and hydrologic conditions.

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

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: AA-WET

Tree Stratum (Plot size: 10x20')	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: 10x20')			
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: 10x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

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

Herb Stratum (Plot size: 10x20')			
1. Microstegium vimineum	25	yes	FAC
2. Osmunda cinnamomea	5	no	FACW
3. Carex tenera	10	yes	FAC
4. Lonicera japonica	5	no	FACU
5. Onoclea sensibilis	5	no	FACW
6. Rosa multiflora	10	yes	FACU
7.			
8.			
9.			
10.			
11.			
	60 = Total Cover		

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

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.)

No trees in wetland, but within a forest.

SOIL Sampling Point: AA-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5YR 3/2	70	5YR 4/7	30	C	PL	Loam	
3-7	7.5YR 4/1	70	7.5YR 4/6	10	C	PL	Silt loam	
			10YR 5/1	20	D	M		
7-12	10YR 5/4	60	10YR 4/1	30	D	M	Sandy loam	
			7.5YR 4/4	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:

- ☐ 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: I-95 5th Lane Widening City/County: Harford County Sampling Date: 5/10/2017
Applicant/Owner: MDTA State: MD Sampling Point: BB-WET
Investigator(s): ET/MRS Section, Township, Range:
Landform (hillslope, terrace, etc.): Forested depression Local relief (concave, convex, none): Concave Slope (%): 0
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.45594 Long: -76.31309 Datum: WGS84
Soil Map Unit Name: KpA 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:
Depressional wetland adjacent to Waters Y. Drains to ephemeral Waters CC. Within forested canopy. Sparse vegetation in depressed area. Photos 360-361

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:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: BB-WET

Tree Stratum (Plot size: 20'x30')	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:)			
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:)			
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'x30')			
1. Smilax rotundifolia	15	yes	FAC
2. Microstegium vimineum	5	no	FAC
3. Carex scoparia	3	no	FACW
4. Toxicodendron radicans	3	no	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	26 = Total Cover		
50% of total cover: 13.0	20% of total cover: 5.2		
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: 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: BB-WET

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 4/1	100					Loam	
4-10	10YR 4/1	80	7.5YR 5/6	20	C	M	Sandy loam	Some gravel
10-14	10YR 4/2	60	7.5YR 5/4	40	C	M	Sandy loam	Some gravel

[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: I-95 5th Lane Widening City/County: Harford County Sampling Date: 5/10/2017

Applicant/Owner: MDTA State: MD Sampling Point: BB-UPL

Investigator(s): ET/MRS 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: 39.45605 Long: -76.31285 Datum: WGS84

Soil Map Unit Name: SIC2 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:

Plot taken approximately one foot higher in elevation than 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)
- ☐ 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:

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

Tree Stratum (Plot size: 20'r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	65	yes	FAC
2. Liriodendron tulipifera	15	no	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'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: 20'r)			
1. Fagus grandifolia	40	yes	FACU
2. Liquidambar Styraciflua	5	no	FAC
3.			
4.			
5.			
6.			
	45	= Total Cover	

50% of total cover: 22.5 20% of total cover: 9.0

Herb Stratum (Plot size: 20'r)			
1. Smilax rotundifolia	10	yes	FAC
2. Liquidambar Styraciflua	5	yes	FAC
3. Fagus grandifolia	5	yes	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20	= Total Cover	

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

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: 6 (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: BB-UPL

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5YR 4/2	100					Loam	
3-12	7.5YR 4/3	70	7.5YR 5/2	30	D	M	Loam	Some gravel

[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:

Waters of the U.S. Data Sheet

Project: I-95 5th Lane Widening		**Feature ID:** CC	**Stream Order:** 1
Date: 5/10/2017	**State:** MD	**Photos:** 357-359	
Crew: ET/MRS	**County:** Harford	**Last Flag Number:** CC-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 BB at headcut
Describe rational for hydrologic class: No flow observed			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: Wetland BB	Downstream: Waters Y	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 1-2'	☐ Silts	☑ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 6"	☐ 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: Erosional feature drains Wetland BB. Flows to Perennial Waters Y					

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:** DD	**Stream Order:**
Date: 5/10/2017	**State:** MD	**Photos:** 362	
Crew: ET/MRS	**County:** Harford	**Last Flag Number:** DD-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: Intercepts groundwater toward the toe of the roadway embankment			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: None	Downstream: Waters Y	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate						Vegetation Cover Type (MBSS)
☐	Natural Channel Shape	Width: 1-2'	☑	Silts	☑	Sands	☐	Muck	RB: Forest
☐	Artificial (man-made)	Depth: 6"	☐	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: Begins as headcut receiving surface flow before intercepting groundwater. Flagged at groundwater interception									

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:** EE	**Stream Order:**
Date: 5/10/2017	**State:** MD	**Photos:** 365	
Crew: ET/MRS	**County:** Harford	**Last Flag Number:** EE-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: Heavy flow observed			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: Outside of study area	Downstream: Waters Y	Adjacent/Abutting: None

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: 1'		☑ 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												
◉ 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		

Month: April **Year:** 2017

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:** FF	**Stream Order:** 1
Date: 5/18/2017	**State:** MD	**Photos:** 452	
Crew: ET/MRS	**County:** Harford	**Last Flag Number:** FF-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: Fed groundwater by wetland outside of study area			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: Outside of study area	Downstream: Waters U	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: 2-10"	☐	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: Flows through culvert under Fashion Way to Winters Run. Flow goes under concrete apron at outfall before reaching Winters Run.									

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:		

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-95 5th Lane Widening City/County: Harford County Sampling Date: 5/18/2017
Applicant/Owner: MDTA State: MD Sampling Point: GG-WET
Investigator(s): ET/MRS Section, Township, Range:
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.44617 Long: -76.33352 Datum: WGS84
Soil Map Unit Name: KpB 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:
Depressional wetland in forest. Sparse vegetation. 456-457. Continues as linear feature to Waters HH.

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:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: GG-WET

Tree Stratum (Plot size: 5x15')	Absolute % Cover	Dominant Species?	Indicator Status
1. Nyssa sylvatica	65	yes	FAC
2. Liquidambar styraciflua	15	no	FAC
3.			
4.			
5.			
6.			
	80	= Total Cover	

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

Sapling Stratum (Plot size: 5x15')			
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: 5x15')			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	

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

Herb Stratum (Plot size: 5x15')			
1. Toxicodendron radicans	5	yes	FAC
2. Carex scoparia	5	yes	FACW
3. Smilax rotundifolia	5	yes	FAC
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: 5x15')			
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: GG-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	7.5YR 4/1	90	7.5YR 3/4	10	C	PL	Silt loam	
5-12	7.5YR 5/1	75	7.5YR 3/4	25	C	PL	Silt loam	Concentration in matrix as well

[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: I-95 5th Lane Widening City/County: Harford County Sampling Date: 5/18/2017
Applicant/Owner: MDTA State: MD Sampling Point: GG-UPL
Investigator(s): ET/MRS Section, Township, Range:
Landform (hillslope, terrace, etc.): Forest Local relief (concave, convex, none): None Slope (%): 0
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.44621 Long: -76.33348 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):
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 (Five Strata) – Use scientific names of plants. Sampling Point: GG-UPL

Tree Stratum (Plot size: 20'r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	65	yes	FAC
2. Liquidambar styraciflua	10	no	FAC
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. Ulmus americana	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. Rosa multiflora	5	yes	FACU
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. Toxicodendron radicans	5	no	FAC
2. Parthenocissus quinquefolia	10	yes	FACU
3. Lonicera japonica	3	no	FACU
4. Geranium sp.	2	no	
5. Microstegium vimineum	10	yes	FAC
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	5	yes	FACU
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: 3 (A)

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

No evidence of hydrology, so Prevalence Index was not calculated.

SOIL

Sampling Point: GG-UPL

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	100					Silt loam	
4-8	10YR 4/1	95	10YR 4/6	5	C	M	Silt loam	
8-12	10YR 5/2	60	10YR 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:

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			LB: Forest
☐ Other:	Upper stable, lower incised	Side slope: ☑ ≥1:1 ☑ 2:1 ☑ 3:1 ☐ ≤4:1				
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:		

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-95 5th Lane Widening City/County: Harford County Sampling Date: 5/23/2017
Applicant/Owner: MDTA State: MD Sampling Point: KK-WET
Investigator(s): ET/MRS Section, Township, Range:
Landform (hillslope, terrace, etc.): Slight depression Local relief (concave, convex, none): Concave Slope (%): 0
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.44506 Long: -76.33618 Datum: WGS84
Soil Map Unit Name: KpB NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
Small depressional wetland between ROW Fence and roadway embankment. Consists of two cells linked by sheet flow over uplands. South cell conveys sheet flow to Ephemeral Waters JJ beyond ROW Fence. Photos 472-473.

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:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: KK-WET

Tree Stratum (Plot size: 10'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	20	yes	FACW
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'x20')			
1. Acer rubrum	10	yes	FAC
2. Liquidambar styraciflua	10	yes	FAC
3. Quercus palustris	10	yes	FACW
4.			
5.			
6.			
	30 = Total Cover		

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

Shrub Stratum (Plot size: 10'x20')			
1. Fraxinus pennsylvanica	10	yes	FACW
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

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

Herb Stratum (Plot size: 10'x20')			
1. Carex vulpinoidea	10	yes	OBL
2. Juncus tenuis	5	yes	FAC
3. Lonicera japonica	5	yes	FACU
4. Toxicodendron radicans	3	no	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	23 = Total Cover		

50% of total cover: 11.5 20% of total cover: 4.6

Woody Vine Stratum (Plot size: 10'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: 7 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 87.5 (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: KK-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/2	100					Loam	
3-13	2.5Y 5/2	60	10YR 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: I-95 5th Lane Widening City/County: Harford County Sampling Date: 5/23/2017

Applicant/Owner: MDTA State: MD Sampling Point: KK-UPL

Investigator(s): ET/MRS Section, Township, Range:

Landform (hillslope, terrace, etc.): Top of embankment Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.44495 Long: -76.33635 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):
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 (Five Strata) – Use scientific names of plants. Sampling Point: KK-UPL

Tree Stratum (Plot size: 20'r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	15	yes	FAC
2. Liquidambar styraciflua	25	yes	FAC
3.			
4.			
5.			
6.			
	40	= Total Cover	

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

Sapling Stratum (Plot size: 20'r)			
1. Fraxinus pennsylvanica	25	yes	FACW
2. Acer rubrum	10	yes	FAC
3. Liquidambar styraciflua	15	yes	FAC
4.			
5.			
6.			
	50	= Total Cover	

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

Shrub Stratum (Plot size: 20'r)			
1. Rosa multiflora	40	yes	FACU
2. Fraxinus pennsylvanica	5	no	FACW
3.			
4.			
5.			
6.			
	45	= Total Cover	

50% of total cover: 22.5 20% of total cover: 9.0

Herb Stratum (Plot size: 20'r)			
1. Lonicera japonica	15	yes	FACU
2. Rosa multiflora	15	yes	FACU
3. Carex vulpinoidea	5	no	OBL
4. Parthenocissus quinquefolia	10	yes	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	45	= Total Cover	

50% of total cover: 22.5 20% of total cover: 9.0

Woody Vine Stratum (Plot size: 20'r)			
1. Lonicera japonica	10	yes	FACU
2.			
3.			
4.			
5.			
	10	= Total Cover	

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

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: 50.0 (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.)

No evidence of hydrology or hydric soils, so PI was not calculated.

SOIL

Sampling Point: KK-UPL

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/2	100					Loam	
3-12	10YR 5/3	80	10YR 4/6	20	C	M	Silt	

[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: I-95 5th Lane Widening City/County: Harford County Sampling Date: 5/23/2017

Applicant/Owner: MDTA State: MD Sampling Point: LL-WET

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: 39.44448 Long: -76.3373 Datum: WGS84

Soil Map Unit Name: KpB NWI classification: PEM

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

Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [✓] No [ ]

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

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

Hydrophytic Vegetation Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes (●)	No ( )	
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

Linear wetland at toe of roadway embankment. Drains to Waters J. Photos 474-476.

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): 11

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 (Five Strata) – Use scientific names of plants. Sampling Point: LL-WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10'x20')			
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'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: 10'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: 10'x20')			
1. Typha latifolia	65	yes	OBL
2. Carex vulpinoidea	20	yes	OBL
3. Juncus effusus	10	no	FACW
4. Persicaria saggitata	5	no	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50.0	20% of total cover: 20.0		
Woody Vine Stratum (Plot size: 10'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:

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

[1]Indicators of hydric 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: LL-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	7.5YR 3/1	100					Organic	
1-6	10YR 5/1	90	10YR 4/6	10	C	PL	Clay loam	Some inclusions of fill material
6-10	2.5Y 4/1	85	5YR 3/4	15	C	PL	Clay loam	
10-14	10YR 6/3	90	10YR 4/6	10	C	PL	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: I-95 5th Lane Widening City/County: Harford County Sampling Date: 5/23/2017

Applicant/Owner: MDTA State: MD Sampling Point: LL-MM-UPL

Investigator(s): ET/MRS Section, Township, Range:

Landform (hillslope, terrace, etc.): Roadway embankment Local relief (concave, convex, none): Convex Slope (%): 4

Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.44448 Long: -76.33721 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:

Hydrophytic vegetation could not be determined, but appeared to be upland turfgrass.

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:

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

	Absolute % Cover	Dominant Species?	Indicator Status
Tree 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		
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'r)			
1. Fescue sp.	75	yes	
2. Agrostis stolonifera	20	no	FACW
3. Taraxacum officinale	40	yes	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	135 = Total Cover		
50% of total cover: 67.5	20% of total cover: 27.0		
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: _____ (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.)

The fescue species could not be identified since it was mowed, but it was consistent with the upland roadside fescue

SOIL Sampling Point: LL-MM-UPL

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 5/3	70					Silty clay loam	Roadside fill
	2.5YR 4/6	10						
	7.5YR 4/2	20						
6-13	7.5YR 5/3	40					Silty clay loam	Roadside fill
	10YR 6/1	30						
	10YR 5/8	30						

[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: I-95 5th Lane Widening City/County: Harford County Sampling Date: 5/23/2017

Applicant/Owner: MDTA State: MD Sampling Point: MM-WET

Investigator(s): ET/MRS Section, Township, Range:

Landform (hillslope, terrace, etc.): Toe of slope Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.44434 Long: -76.3378 Datum: WGS84

Soil Map Unit Name: KpB NWI classification: PFO

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

Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [✓] No [ ]

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

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

Hydrophytic Vegetation Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes (●)	No ( )	
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

Small forested wetland at toe of roadway embankment. May have hydrologic linkage to perennial Waters G. Photos 482-483.

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:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: MM-WET

Tree Stratum (Plot size: 20'r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	50	yes	FAC
2. Quercus palustris	20	yes	FACW
3. Liquidambar styraciflua	30	yes	FAC
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.			
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. Quercus palustris	5	yes	FACW
2. Ilex verticillata	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: 20'r)			
1. Smilax rotundifolia	10	yes	FAC
2. Arisaema triphyllum	3	no	FACW
3. Toxicodendron radicans	2	no	FAC
4. Carex scoparia	2	no	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	17 = Total Cover		

50% of total cover: 8.5 20% of total cover: 3.4

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: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (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: MM-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 5/1	80	10YR 3/6	20	C	M	Silt loam	
5-11	10YR 5/2	80	10YR 4/6	20	C	M	Silt loam	
11-14	10YR 5/6	75	10YR 6/1	25	RM	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:

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				LB: Forest
☐	Other:	Stable	Side slope: ☐ ≥1:1 ☑ 2:1 ☐ 3:1 ☐ ≤4:1						
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:** OO	**Stream Order:** 1
Date: 5/23/2017	**State:** MD	**Photos:** 488-489	
Crew: ET/MRS	**County:** Harford	**Last Flag Number:** OO-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: Outfall channel from swm pond to the north. Baseflow observed.			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: SWM pond	Downstream: Waters Y	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 2-6'	☑ Silts	☐ Sands	☐ Muck	RB: Forest
☑ Artificial (man-made)	Depth: 2-8"	☑ Cobbles	☐ Gravel	☑ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☑ Concrete	Rip rap	LB: Forest
☐ Other:	Stable	Side slope: ☐ ≥1:1 ☐ 2:1 ☑ 3:1 ☐ ≤4:1			
Notes: Man made outfall channel. Heavy base flow observed. Concrete channel eroded at confluence with Waters Y.					

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:		

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-95 5th Lane Widening City/County: Harford County Sampling Date: 5/24/2017
Applicant/Owner: MDTA State: MD Sampling Point: PP-WET
Investigator(s): ET/MH 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: 39.44309 Long: -76.34099 Datum: WGS84
Soil Map Unit Name: KpB NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [✓] No [ ]
Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes (●)	No ( )	
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:
Small emergent wetland at toe of I-95 SB Embankment. Drains to inlet that flows to perennial Waters E. Photos 492-493.

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:
Fed partially by seep on embankment.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: PP-WET

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

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

Herb Stratum (Plot size: 5x20')			
1. Typha latifolia	30	yes	OBL
2. Typha angustifolia	50	yes	OBL
3. Festuca sp.	10	no	
4. Polygonum sp.	3	no	
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	93 = Total Cover		

50% of total cover: 46.5 20% of total cover: 18.6

Woody Vine Stratum (Plot size: 5x20')			
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: PP-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 2/2	100					Fine sandy clay	With organics
1-8	10YR 5/3	60	10YR 5/8	40	C	M	Clay loam	
8-17	5Y 7/1	75	10YR 5/8	25	C	M	Clay loam	

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

Hydric Soil Indicators:

- ☐ 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: I-95 5th Lane Widening City/County: Harford County Sampling Date: 5/24/2017

Applicant/Owner: MDTA State: MD Sampling Point: PP-UPL

Investigator(s): ET/MH Section, Township, Range:

Landform (hillslope, terrace, etc.): Roadway embankment Local relief (concave, convex, none): Convex Slope (%): 4

Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.44303 Long: -76.34116 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): _____

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

	Absolute % Cover	Dominant Species?	Indicator Status
Tree 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		
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'r)			
1. Festuca rubra	65	yes	FACU
2. Taraxacum officinale	10	no	FACU
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: 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: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 (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: PP-UPL

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	7.5YR 4/2	100					Sandy loam	Fill material
1-8	7.5YR 5/4	60						Fill material
	10YR 4/4	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: Gravel

Depth (inches): 8

Hydric Soil Present? Yes ○ No ◉

Remarks:

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	LB: Forest
☐ Other:	Stable	Side slope: ☐ ≥1:1 ☐ 2:1 ☑ 3:1 ☐ ≤4:1			
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:		

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-95 5th Lane Widening City/County: Harford County Sampling Date: 7/7/2017

Applicant/Owner: MDTA State: MD Sampling Point: SS-WET

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

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

Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.44248 Long: -76.3448 Datum: WGS84

Soil Map Unit Name: KpB 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:

Oxbow wetland adjacent to Waters G. Sparsely vegetated, but surrounded by forest. Photos 713 & 714. There are no trees within the plot, but the wetland is considered PFO because it is located within a forest, and trees along the wetland fringe share similar soil and hydrologic conditions.

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): 4

Saturation Present? (includes capillary fringe) Yes [✓] No [ ] Depth (inches): 4

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: SS-WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 5')			
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')			
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')			
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')			
1. Red maple	5	yes	FAC
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: 5')			
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.)

Sparse vegetation. One red maple seedling identified. Within a forest.

SOIL

Sampling Point: SS-WET

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 2/2	100					CL	Mixed in organic mateial
3-8	2.5Y 6/2	95	10YR 6/8	5	C	M	SCL	
8-14	5Y 5/2	100					SL	

[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 tested positive in upper 4 inches

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-95 5th Lane Widening City/County: Harford County Sampling Date: 7/7/2017

Applicant/Owner: MDTA State: MD Sampling Point: SS-UU-VV-UPL

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

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

Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.44264 Long: -76.34402 Datum: WGS84

Soil Map Unit Name: Av 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:

No hydrology indicators

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: SS-UU-VV-UPL

Tree Stratum (Plot size: 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipifera	35	yes	FACU
2. Fagus grandifolia	40	yes	FACU
3. Nyssa sylvatica	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: 20')			
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')			
1. Ilex opaca	10	yes	FACU
2. Viburnum dentatum	5	no	FAC
3.			
4.			
5.			
6.			
	15	= Total Cover	

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

Herb Stratum (Plot size: 20')			
1. Osmunda cinnamomea	30	yes	FACW
2. Fagus grandifolia	5	no	FACU
3. Parathelypteris noveboracensis	25	yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	60	= Total Cover	

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

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: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 40.0 (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.)

No evidence of hydrology, so PI was not calculated.

SOIL Sampling Point: SS-UU-VV-UPL

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/2	100					L	Mixed in organic
2-6	10YR 3/2	100					L	Mixed in organic
6-12	10YR 4/1	90	5YR 4/6	10	C	M	SL	

[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:

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:	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete	Leaves	
☐ 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: 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 DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-95 5th Lane Widening City/County: Harford County Sampling Date: 7/7/2017

Applicant/Owner: MDTA State: MD Sampling Point: UU-WET

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

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

Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.44268 Long: -76.34389 Datum: WGS84

Soil Map Unit Name: Av 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:

Photos 719-721. Depression floodplain wetland adjacent 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): 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:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: UU-WET

Tree Stratum (Plot size: 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	60	yes	FAC
2. Liquidambar styraciflua	10	no	FAC
3. Fagus grandifolia	15	no	FACU
4. Nyssa sylvatica	15	no	FAC
5.			
6.			
	100	= Total Cover	

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

Sapling Stratum (Plot size: 20')			
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')			
1. Viburnum dentatum	15	yes	FAC
2. Vaccinium corymbosum	15	yes	FACW
3. Fagus grandifolia	30	yes	FACU
4.			
5.			
6.			
	60	= Total Cover	

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

Herb Stratum (Plot size: 20')			
1. Symplocarpus foetidus	80	yes	OBL
2. Osmunda Cinnamomea	10	no	FACW
3. Smilax rotundifolia	5	no	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	95	= Total Cover	

50% of total cover: 47.5 20% of total cover: 19.0

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: 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: UU-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	98	10YR 4/6	2	C	M	CL	organic material mixed in
4-14	10YR 4/1	95	7.5 YR 4/6	5	C	M	CL	
14-22	10YR 5/1	80	10 YR 5/8	10	C	M	SCL	
			2.5 YR 3/6	10	C	M	SCL	

[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: I-95 5th Lane Widening City/County: Harford County Sampling Date: 7/7/2017
Applicant/Owner: MDTA State: MD Sampling Point: VV-WET
Investigator(s): ET/KJH Section, Township, Range:
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 2
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.44308 Long: -76.34167 Datum: WGS84
Soil Map Unit Name: KpB 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:
Photos 722-723. Disturbed wetland at toe of slope adjacent to Waters G. Fill material throughout soil profile.

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): 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:
Perched water on top of compacted fill soils.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: VV-WET

Tree Stratum (Plot size: 20')	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: 20')			
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')			
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')			
1. Liquidambar styraciflua	15	yes	FAC
2. Dichanthelium clandestinum	3	no	FAC
3. Microstegium vimineum	5	no	FAC
4. Smilax rotundifolia	3	no	FAC
5. Juncus effusus	3	no	FACW
6.			
7.			
8.			
9.			
10.			
11.			
	29 = Total Cover		

50% of total cover: 14.5 20% of total cover: 5.8

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: 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: VV-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/2	100					SL	Gravel mixed in
2-7	10YR 5/6	75	7.5 YR 4/6	10	C	PL	SCL	
			2.5 Y 7/1	15	D	M		
7-14	10YR 6/4	50	7.5 YR 4/6	40	C	M	SCL	
			2.5 Y 7/1	10	D	M		

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

Hydric Soil Indicators:

- ☐ 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:

Alpha-alpha-Dipyridyl strips tested positive for reducing conditions in upper 4 inches of soil profile. Soils disturbed. Fill material from 2-14 inches contained abundant redoximorphic features. Fill soils do not meet the chroma requirement of hydric soil indicators.

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:		

Appendix D – Forest Stand Datasheets

WALK-THROUGH FOREST STAND ANALYSIS

Forest Stand ID: FS1		**Project:** I-95 5th Lane Widening	
Owner/Applicant: MDTA		**State:** MD	**County:** Harford
Date: 4/5/2017	**Prepared by:** ET/MH	**Photos:** 59-60	

Type of Community: Chestnut Oak Association	**Forest Stand Area:** 5.92
Stand Successional Stage: ☐ Early ☑ Mid ☐ Mature	**Percent Canopy Closure:** 80

Existing Vegetation

Dominant Species in Canopy:	**Size Class:**	**Notes:**
Tulip poplar Red maple White oak Chestnut oak	☐ 2-6” ☑ 6-11” ☑ 12-20” ☐ 20-30” ☐ >30”	Inclusions of white pine, Virginia pine,
Dominant Species in Understory:		**Notes:**
American beech American holly Mountain laurel		
Dominant Species in Herbaceous Layer:		**Notes:**
Greenbrier Multiflora rose Wild onion		Minimal herbaceous cover

Downed Woody Debris:	**Invasive Species Cover:**	**Invasive Species Present:**
☐ High ☑ Medium ☐ Low	☐ High ☐ Medium ☑ Low	Bradford pear, more invasives near corner of MD 152

General Stand Conditions:

Good condition overall and high retention value due to minimal invasive species, and perennial streams and wetlands within the stand. Specimen trees throughout the stand and some dead standing trees.

WALK-THROUGH FOREST STAND ANALYSIS

Forest Stand ID: FS2		**Project:** I-95 5th Lane Widening	
Owner/Applicant: MDTA		**State:** MD	**County:** Harford
Date: 4/19/2017	**Prepared by:** ET/MH	**Photos:** 266-268	

Type of Community: Red Maple Association	**Forest Stand Area:** 6.99
Stand Successional Stage: ☑ Early ☑ Mid ☐ Mature	**Percent Canopy Closure:** 90

Existing Vegetation

Dominant Species in Canopy:	**Size Class:**	**Notes:**
Red maple Sweet gum Tulip poplar	☑ 2-6” ☑ 6-11” ☐ 12-20” ☐ 20-30” ☐ >30”	Inclusions of loblolly pine and American sycamore

Dominant Species in Understory:	**Notes:**
Sweet gum Red cedar Red maple	

Dominant Species in Herbaceous Layer:	**Notes:**
Multiflora rose Greenbrier Japanese honeysuckle Wild onion	

Downed Woody Debris:	**Invasive Species Cover:**	**Invasive Species Present:**
☐ High ☑ Medium ☐ Low	☑ High ☐ Medium ☐ Low	High invasives see dominant species

General Stand Conditions:

Fair condition overall and high retention value due to high invasive species cover, presence of wetlands and waterways, and relatively large contiguous nature of the stand.

WALK-THROUGH FOREST STAND ANALYSIS

Forest Stand ID: FS3		**Project:** I-95 5th Lane Widening	
Owner/Applicant: MDTA		**State:** MD	**County:** Harford
Date: 4/26/2017	**Prepared by:** ET/MH	**Photos:** 298-299	

Type of Community: White Oak-Black Oak-Northern Red Oak Association	**Forest Stand Area:** 8.52
Stand Successional Stage: ☐ Early ☑ Mid ☐ Mature	**Percent Canopy Closure:** 80

Existing Vegetation

Dominant Species in Canopy:	**Size Class:**	**Notes:**
Northern red oak White oak American beech	☐ 2-6” ☐ 6-11” ☑ 12-20” ☑ 20-30” ☐ >30”	

Dominant Species in Understory:	**Notes:**
American beech American holly Mountain laurel Sweet gum Red cedar	

Dominant Species in Herbaceous Layer:	**Notes:**
Japanese honeysuckle Poison ivy Greenbrier Virginia creeper	

Downed Woody Debris:	**Invasive Species Cover:**	**Invasive Species Present:**
☐ High ☑ Medium ☐ Low	☐ High ☑ Medium ☐ Low	Bush honeysuckle Japanese honeysuckle

General Stand Conditions:

Fair condition overall and high retention value due to moderate invasive species cover, strong canopy closure, larger dominant size class, and presence of specimen trees and wetlands. Some disturbance observed (old spoil area).

WALK-THROUGH FOREST STAND ANALYSIS

Forest Stand ID: FS4		**Project:** I-95 5th Lane Widening	
Owner/Applicant: MDTA		**State:** MD	**County:** Harford
Date: 5/4/2017	**Prepared by:** ET/MRS	**Photos:** 326-327	

Type of Community: Red Maple Association	**Forest Stand Area:** 5.71
Stand Successional Stage: ☐ Early ☑ Mid ☐ Mature	**Percent Canopy Closure:** 80

Existing Vegetation

Dominant Species in Canopy:	**Size Class:**	**Notes:**
Red maple Green ash Pin oak	☐ 2-6” ☑ 6-11” ☑ 12-20” ☐ 20-30” ☐ >30”	Trees mostly 6-18" dbh. Pin oaks tend to be larger.

Dominant Species in Understory:	**Notes:**
Green ash Red maple Multiflora rose Greenbrier	

Dominant Species in Herbaceous Layer:	**Notes:**
Poison ivy Japanese honeysuckle Greenbrier Multiflora rose	Dense understory and herbaceous layers. Heavy invasive species cover.

Downed Woody Debris:	**Invasive Species Cover:**	**Invasive Species Present:**
☐ High ☑ Medium ☐ Low	☐ High ☑ Medium ☐ Low	Japanese honeysuckle Multiflora rose

General Stand Conditions:

Fair to poor condition with moderate retention value due to invasive species cover, competition to regeneration, pockets of dead trees and presence of wetlands and waterways. Small break in forest at rip rap swale.

WALK-THROUGH FOREST STAND ANALYSIS

Forest Stand ID: FS5		**Project:** I-95 5th Lane Widening	
Owner/Applicant: MDTA		**State:** MD	**County:** Harford
Date: 5/4/2017	**Prepared by:** ET/MRS	**Photos:** 339-340	

Type of Community: White Oak-Black Oak-Northern Red Oak Association	**Forest Stand Area:** 5.72
Stand Successional Stage: ☐ Early ☑ Mid ☐ Mature	**Percent Canopy Closure:** 90

Existing Vegetation

Dominant Species in Canopy:	**Size Class:**	**Notes:**
American beech Tulip poplar Red maple Northern red oak Black oak	☐ 2-6” ☐ 6-11” ☑ 12-20” ☑ 20-30” ☐ >30”	
Dominant Species in Understory: American beech		**Notes:** Inclusions of black gum
Dominant Species in Herbaceous Layer: Sensitive fern Cinnamon fern		**Notes:** Minimal herbaceous layer

Downed Woody Debris:	**Invasive Species Cover:**	**Invasive Species Present:**
☐ High ☑ Medium ☐ Low	☐ High ☐ Medium ☑ Low	Japanese stiltgrass Japanese honeysuckle Multiflora rose Phragmites

General Stand Conditions:

Forest is in good shape overall with multiple specimen trees identified and minimal invasives. Some Phragmites on outer edge. Retention value is high due to presence of wetlands and waterways.

WALK-THROUGH FOREST STAND ANALYSIS

Forest Stand ID: FS6		**Project:** I-95 5th Lane Widening	
Owner/Applicant: MDTA		**State:** MD	**County:** Harford
Date: 5/10/2017	**Prepared by:** ET/MRS	**Photos:** 355-356	

Type of Community: Tulip Poplar Association	**Forest Stand Area:** 2.71
Stand Successional Stage: ☐ Early ☑ Mid ☐ Mature	**Percent Canopy Closure:** 90

Existing Vegetation

Dominant Species in Canopy:	**Size Class:**	**Notes:**
American beech Tulip poplar White oak Red maple	☐ 2-6” ☐ 6-11” ☑ 12-20” ☐ 20-30” ☐ >30”	

Dominant Species in Understory:	**Notes:**
American beech Sweet gum Red maple	

Dominant Species in Herbaceous Layer:	**Notes:**
Greenbrier American beech and red maple seedlings	Minimal herbaceous cover

Downed Woody Debris:	**Invasive Species Cover:**	**Invasive Species Present:**
☐ High ☑ Medium ☐ Low	☐ High ☐ Medium ☑ Low	Some Japanese honeysuckle on I-95 embankment on edge of forest

General Stand Conditions:

Good quality forest with specimen trees and some invasives on edges. High retention value due to forested wetlands and waterways within.

WALK-THROUGH FOREST STAND ANALYSIS

Forest Stand ID: FS7		**Project:** I-95 5th Lane Widening	
Owner/Applicant: MDTA		**State:** MD	**County:** Harford
Date: 5/10/2017	**Prepared by:** ET/MRS	**Photos:** 363-364	

Type of Community: Tulip Poplar Association	**Forest Stand Area:** 1.74
Stand Successional Stage: ☐ Early ☑ Mid ☐ Mature	**Percent Canopy Closure:** 80

Existing Vegetation

Dominant Species in Canopy:	**Size Class:**	**Notes:**
Red maple American beech Tulip poplar White oak	☐ 2-6” ☑ 6-11” ☑ 12-20” ☐ 20-30” ☐ >30”	

Dominant Species in Understory:	**Notes:**
American beech Black gum	

Dominant Species in Herbaceous Layer:	**Notes:**
American beech seedlings	Very sparse herbaceous layer

Downed Woody Debris:	**Invasive Species Cover:**	**Invasive Species Present:**
☐ High ☑ Medium ☐ Low	☐ High ☐ Medium ☑ Low	None

General Stand Conditions:

Good condition overall with minimal invasives along roadside. Moderate retention value due to good canopy closure and minimal invasive cover.

WALK-THROUGH FOREST STAND ANALYSIS

Forest Stand ID: FS8		**Project:** I-95 5th Lane Widening	
Owner/Applicant: MDTA		**State:** MD	**County:** Harford
Date: 5/10/2017	**Prepared by:** ET/MRS	**Photos:** 370-371	

Type of Community: Tulip Poplar Association	**Forest Stand Area:** 3.99
Stand Successional Stage: ☑ Early ☑ Mid ☐ Mature	**Percent Canopy Closure:** 75

Existing Vegetation

Dominant Species in Canopy:	**Size Class:**	**Notes:**
Red maple Sweet gum Tulip poplar American beech	☐ 2-6” ☑ 6-11” ☑ 12-20” ☐ 20-30” ☐ >30”	

Dominant Species in Understory:	**Notes:**
Sweet gum American beech Red maple	

Dominant Species in Herbaceous Layer:	**Notes:**
Multiflora rose Greenbrier Poison ivy Japanese honeysuckle	High invasive cover

Downed Woody Debris:	**Invasive Species Cover:**	**Invasive Species Present:**
☐ High ☐ Medium ☑ Low	☑ High ☐ Medium ☐ Low	Multiflora rose Japanese honeysuckle

General Stand Conditions:

Stand in fair condition due to heavy invasives and dense vines in the canopy. Better condition beyond roadside and study area. High retention value due to waterways within the forest.

WALK-THROUGH FOREST STAND ANALYSIS

Forest Stand ID: FS9		**Project:** I-95 5th Lane Widening	
Owner/Applicant: MDTA		**State:** MD	**County:** Harford
Date: 5/18/2017	**Prepared by:** ET/MRS	**Photos:** 461-462	

Type of Community: Tulip Poplar Association	**Forest Stand Area:** 7.53
Stand Successional Stage: ☑ Early ☐ Mid ☐ Mature	**Percent Canopy Closure:** 70

Existing Vegetation

Dominant Species in Canopy:	**Size Class:**	**Notes:**
Red maple Green ash Black gum Sweet gum Tulip poplar	☐ 2-6” ☑ 6-11” ☐ 12-20” ☐ 20-30” ☐ >30”	Some 12-20" trees, but mostly young
Dominant Species in Understory:		**Notes:**
American beech Blackhaw Arrowwood Northern red oak		
Dominant Species in Herbaceous Layer:		**Notes:**
Poison ivy Multiflora rose Japanese honeysuckle Greenbrier Blackberry		High density

Downed Woody Debris:	**Invasive Species Cover:**	**Invasive Species Present:**
☐ High ☑ Medium ☐ Low	☑ High ☐ Medium ☐ Low	See herbaceous

General Stand Conditions:

Primarily edge habitat, stand is in poor to fair condition due to dense invasive undergrowth, vines in canopy and spotty canopy cover. Stand has a moderate retention value due to it's privacy screening and wetlands and waterways within.

WALK-THROUGH FOREST STAND ANALYSIS

Forest Stand ID: FS10		**Project:** I-95 5th Lane Widening	
Owner/Applicant: MDTA		**State:** MD	**County:** Harford
Date: 5/18/2017	**Prepared by:** ET/MRS	**Photos:** 467-468	

Type of Community: Red Maple Association	**Forest Stand Area:** 6.85
Stand Successional Stage: ☐ Early ☑ Mid ☐ Mature	**Percent Canopy Closure:** 75

Existing Vegetation

Dominant Species in Canopy: Red maple Sweet gum	**Size Class:** ☐ 2-6” ☑ 6-11” ☑ 12-20” ☐ 20-30” ☐ >30”	**Notes:** Canopy in good shape. Some vines
Dominant Species in Understory: Red maple Sweet gum American beech		**Notes:**
Dominant Species in Herbaceous Layer: Multiflora rose Greenbrier Red maple Sweetgum		**Notes:** Sparse herbaceous cover.

Downed Woody Debris:	**Invasive Species Cover:**	**Invasive Species Present:**
☐ High ☑ Medium ☐ Low	☐ High ☐ Medium ☑ Low	Multiflora rose. Relatively low invasives presence.

General Stand Conditions:

Stand is in good condition overall with healthy trees and minimal invasive cover. High retention value due to good condition and presence of wetlands and waterways within.

WALK-THROUGH FOREST STAND ANALYSIS

Forest Stand ID: H1		**Project:** I-95 5th Lane Widening	
Owner/Applicant: MDTA		**State:** MD	**County:** Harford
Date: 4/5/2017	**Prepared by:** ET/MH	**Photos:** 62-63	

Type of Community: Eastern Red Cedar Association	**Forest Stand Area:** 0.18
Stand Successional Stage: ☑ Early ☐ Mid ☐ Mature	**Percent Canopy Closure:** 70

Existing Vegetation

Dominant Species in Canopy:	**Size Class:**	**Notes:**
Red cedar Callery pear	☑ 2-6” ☐ 6-11” ☐ 12-20” ☐ 20-30” ☐ >30”	
Dominant Species in Understory:		**Notes:**
Eastern baccharis Sweet gum		
Dominant Species in Herbaceous Layer:		**Notes:**
Japanese honeysuckle		

Downed Woody Debris:	**Invasive Species Cover:**	**Invasive Species Present:**
☐ High ☑ Medium ☐ Low	☑ High ☐ Medium ☐ Low	Bradford pear Multiflora rose Japanese honeysuckle

General Stand Conditions:

Stand is in fair and retention value is low due to a high prevalence of invasive species and its early successional stage.

WALK-THROUGH FOREST STAND ANALYSIS

Forest Stand ID: H2		**Project:** I-95 5th Lane Widening	
Owner/Applicant: MDTA		**State:** MD	**County:** Harford
Date: 4/19/2017	**Prepared by:** ET/MH	**Photos:** 256-257	

Type of Community: Eastern Red Cedar Association	**Forest Stand Area:** 0.82
Stand Successional Stage: ☑ Early ☐ Mid ☐ Mature	**Percent Canopy Closure:** 30

Existing Vegetation

Dominant Species in Canopy:	**Size Class:**	**Notes:**
Callery pear Red cedar Tree of heaven Black locust	☑ 2-6” ☑ 6-11” ☐ 12-20” ☐ 20-30” ☐ >30”	
Dominant Species in Understory:		**Notes:**
Eastern baccharis Tree of heaven Bush honeysuckle		
Dominant Species in Herbaceous Layer:		**Notes:**
Japanese honeysuckle Japanese knotweed Poison ivy		

Downed Woody Debris:	**Invasive Species Cover:**	**Invasive Species Present:**
☐ High ☑ Medium ☐ Low	☑ High ☐ Medium ☐ Low	Bradford pear, tree of heaven, Japapnese honeysuckle, Japanese knotweed. High invasive cover.

General Stand Conditions:

Stand is in poor condition and has a low retention value due to high invasive species presence and minimal canopy cover.

WALK-THROUGH FOREST STAND ANALYSIS

Forest Stand ID: H3		**Project:** I-95 5th Lane Widening	
Owner/Applicant: MDTA		**State:** MD	**County:** Harford
Date: 5/4/2017	**Prepared by:** ET/MRS	**Photos:** 329-330	

Type of Community: Red Maple Association	**Forest Stand Area:** 0.19
Stand Successional Stage: ☑ Early ☐ Mid ☐ Mature	**Percent Canopy Closure:** 60

Existing Vegetation

Dominant Species in Canopy:	**Size Class:**	**Notes:**
Red maple Sweet gum	☑ 2-6” ☑ 6-11” ☐ 12-20” ☐ 20-30” ☐ >30”	Inclusions of black locust

Dominant Species in Understory:	**Notes:**
Red cedar Red maple Greenbrier	

Dominant Species in Herbaceous Layer:	**Notes:**
Poison ivy Bush honeysuckle Multiflora rose	

Downed Woody Debris:	**Invasive Species Cover:**	**Invasive Species Present:**
☐ High ☐ Medium ☑ Low	☑ High ☐ Medium ☐ Low	Bush honeysuckle, multiflora rose

General Stand Conditions:

Stand is in fair condition and retention value is moderate due to high invasive species presence and its early successional stage.

WALK-THROUGH FOREST STAND ANALYSIS

Forest Stand ID: H4		**Project:** I-95 5th Lane Widening	
Owner/Applicant: MDTA		**State:** MD	**County:** Harford
Date: 5/24/2017	**Prepared by:** ET/MH	**Photos:** 504-505	

Type of Community: White Oak Association	**Forest Stand Area:** 0.91
Stand Successional Stage: ☐ Early ☑ Mid ☐ Mature	**Percent Canopy Closure:** 65

Existing Vegetation

Dominant Species in Canopy:	**Size Class:**	**Notes:**
White oak Sweet gum Virginia pine	☐ 2-6” ☑ 6-11” ☑ 12-20” ☐ 20-30” ☐ >30”	
Dominant Species in Understory:		**Notes:**
Sweet gum Bush honeysuckle Virginia pine Willow oak American holly		
Dominant Species in Herbaceous Layer:		**Notes:**
Japanese honeysuckle Poison ivy Multiflora rose White oak Greenbrier		

Downed Woody Debris:	**Invasive Species Cover:**	**Invasive Species Present:**
☐ High ☐ Medium ☑ Low	☑ High ☐ Medium ☐ Low	Bush honeysuckle, Japanese honeysuckle, multiflora rose. High invasive species cover.

General Stand Conditions:

Stand is in fair condition overall and has been highly manipulated, with dense invasive species cover. The stand has moderate retention value due to a stream that runs through the hedgerow.

WALK-THROUGH FOREST STAND ANALYSIS

Forest Stand ID: H5		**Project:** I-95 5th Lane Widening	
Owner/Applicant: MDTA		**State:** MD	**County:** Harford
Date: 7/7/2017	**Prepared by:** ET/KJH	**Photos:** 730	

Type of Community: Pin Oak-Sweet Gum Association	**Forest Stand Area:** 0.08
Stand Successional Stage: ☑ Early ☐ Mid ☐ Mature	**Percent Canopy Closure:** 45

Existing Vegetation

Dominant Species in Canopy:	**Size Class:**	**Notes:**
Callery pear Sweet gum Pin oak	☐ 2-6” ☑ 6-11” ☐ 12-20” ☐ 20-30” ☐ >30”	

Dominant Species in Understory:	**Notes:**
Sweet gum Eastern baccharis Japanese knotweed	

Dominant Species in Herbaceous Layer:	**Notes:**
Japanese honeysuckle Poison ivy Japanese knotweed	

Downed Woody Debris:	**Invasive Species Cover:**	**Invasive Species Present:**
☐ High ☐ Medium ☑ Low	☑ High ☐ Medium ☐ Low	Japanese honeysuckle, Japanese knotweed. High invasive species cover

General Stand Conditions:

Stand is in poor condition and has a low retention value due to weak canopy closure and high invasive species cover.

WALK-THROUGH FOREST STAND ANALYSIS

Forest Stand ID: H6		**Project:** I-95 5th Lane Widening	
Owner/Applicant: MDTA		**State:** MD	**County:** Harford
Date: 7/7/2017	**Prepared by:** ET/KJH	**Photos:** 731	

Type of Community: Red Maple Association	**Forest Stand Area:** 0.16
Stand Successional Stage: ☐ Early ☑ Mid ☐ Mature	**Percent Canopy Closure:** 60

Existing Vegetation

Dominant Species in Canopy:	**Size Class:**	**Notes:**
Red maple White oak Sweet gum White mulberry	☐ 2-6” ☑ 6-11” ☑ 12-20” ☐ 20-30” ☐ >30”	

Dominant Species in Understory:	**Notes:**
Oriental bittersweet Poison ivy Rose of Sharon Slippery elm	

Dominant Species in Herbaceous Layer:	**Notes:**
Japanese knotweed Virginia creeper	

Downed Woody Debris:	**Invasive Species Cover:**	**Invasive Species Present:**
☐ High ☐ Medium ☑ Low	☑ High ☐ Medium ☐ Low	Oriental bittersweet, Rose of Sharon, Japanese knotweed

General Stand Conditions:

Stand is in fair and has a moderate retention value due to the invasive species cover.

WALK-THROUGH FOREST STAND ANALYSIS

Forest Stand ID: REF1		**Project:** I-95 5th Lane Widening	
Owner/Applicant: MDTA		**State:** MD	**County:** Harford
Date: 5/23/2017	**Prepared by:** ET/MRS	**Photos:** 479-481	

Type of Community: Planted Community	**Forest Stand Area:** 0.79
Stand Successional Stage: ☑ Early ☐ Mid ☐ Mature	**Percent Canopy Closure:** N/A

Existing Vegetation

Dominant Species in Canopy:	**Size Class:**	**Notes:**
Black gum Willow oak Virginia pine Sweet gum Black oak Black locust	☑ 2-6” ☐ 6-11” ☐ 12-20” ☐ 20-30” ☐ >30”	All trees are small planted stock with the exception of pre-existing trees on the southwest and southeast corners of the reforestation area.
Dominant Species in Understory: None		**Notes:**
Dominant Species in Herbaceous Layer: White snakeroot Lespedeza Soft rush Pennycress Broom sedge		**Notes:**

Downed Woody Debris:	**Invasive Species Cover:**	**Invasive Species Present:**
☐ High ☐ Medium ☑ Low	☐ High ☐ Medium ☑ Low	None

General Stand Conditions:

Relatively new reforestation area. Young stock. Trees are in generally good shape and no invasive species present. Stand is in good condition overall.

WALK-THROUGH FOREST STAND ANALYSIS

Forest Stand ID: REF2		**Project:** I-95 5th Lane Widening	
Owner/Applicant: MDTA		**State:** MD	**County:** Harford
Date: 5/23/2017	**Prepared by:** ET/MRS	**Photos:** 490-491	

Type of Community: Planted Community	**Forest Stand Area:** 0.51
Stand Successional Stage: ☑ Early ☐ Mid ☐ Mature	**Percent Canopy Closure:** N/A

Existing Vegetation

Dominant Species in Canopy:	**Size Class:**	**Notes:**
Sweet gum Red maple Pin oak Swamp white oak American holly	☑ 2-6” ☐ 6-11” ☐ 12-20” ☐ 20-30” ☐ >30”	All small planted trees
Dominant Species in Understory:		**Notes:**
None		
Dominant Species in Herbaceous Layer:		**Notes:**
Lespedeza White snakeroot Mugwort		

Downed Woody Debris:	**Invasive Species Cover:**	**Invasive Species Present:**
☐ High ☐ Medium ☑ Low	☐ High ☐ Medium ☑ Low	Some Japanese honeysuckle along roadside. Fairly low.

General Stand Conditions:

Relatively new reforestation area. Trees in good condition and minimal invasive species. Overall good condition.

Appendix E – Tree Inventory Table

Tree Number	Common Name	Scientific Name	DBH	Condition	Comments
T1	White Oak	Quercus alba	38	Poor	Split above DBH, dead leader, deadwood, included bark
T2	White Oak	Quercus alba	31	Good/fair	Included bark, split above dbh, minor deadwood
T3	Red Maple	Acer rubrum	32	Fair/poor	Cavity in trunk, broken limbs, dead limbs
T4	Northern Red Oak	Quercus rubra	33	Good/fair	Broken branches
T5	American Beech	Fagus grandifolia	33	Poor	Cavities in trunk, broken leader, lean, missing bark, fungus growing in trunk, included bark, split trunk below DBH
T6	Scarlet Oak	Quercus coccinea	33	Poor	Sparse canopy, growth at trunk, lean
T7	American Beech	Fagus grandifolia	33	Fair	Trunk growths, buttress roots
T8	Scarlet Oak	Quercus coccinea	37	Fair	Dead limbs, sparse canopy, included bark
T9	White Oak	Quercus alba	39	Poor	Dead branches, lean, minor vines
T10	Sweet Gum	Liquidambar styraciflua	14	Fair/poor	Deals branches, cavity in trunk
T11	Sweet Gum	Liquidambar styraciflua	6	Fair/poor	Vines, decay, missing bark
T12	Red Maple	Acer rubrum	19	Poor	Cavity in trunk, vines, broken branches
T13	Silver Maple	Acer saccharinum	36	Poor	Dead leader, included bark, lean, heavy vines
T14	Northern Red Oak	Quercus rubra	36	Fair	Deadwood, included bark
T15	Northern Red Oak	Quercus rubra	35	Good	
T16	Tulip Poplar	Liriodendron tulipifera	31	Good	
T17	Black Oak	Quercus veluntina	36	Good	
T18	Northern Red Oak	Quercus rubra	30	Fair	Heavy lean, dead branches
T19	American Beech	Fagus grandifolia	30	Good	
T20	American Beech	Fagus grandifolia	34	Poor	Large old trunk wound
T21	Tulip Poplar	Liriodendron tulipifera	32	Good	
T22	White Oak	Quercus alba	31	Fair	Split above dbh, included bark, suckering
T23	Hawthorn	Crataegus sp.	2	Good	Landscape
T24	Sweet Gum	Liquidambar styraciflua	2	Good	Landscape
T25	Willow Oak	Quercus phellos	1	Good	Landscape
T26	Red Maple	Acer rubrum	2	Good	Landscape
T27	Northern Red Oak	Quercus rubra	1	Good	Landscape
T28	American Holly	Ilex opaca	1	Good	Landscape
T29	American Beech	Fagus grandifolia	30	Fair	Included bark, dead branches
T30	White Oak	Quercus alba	35	Good/fair	Dead branches
T31	White Oak	Quercus alba	30	Fair/poor	Heavy lean, dead branches
T32	American Beech	Fagus grandifolia	35	Good/fair	Minor basal cavity
T33	American Beech	Fagus grandifolia	33	Fair	Hollow trunk mostly closed up, dead branches
T34	American Holly	Ilex opaca	2	Fair	Landscape
T35	American Holly	Ilex opaca	2	Fair	Landscape
T36	American Holly	Ilex opaca	2	Good/fair	Landscape
T37	American Sycamore	Platanus occidentalis	2	Good	Landscape
T38	American Sycamore	Platanus occidentalis	2	Good	Landscape

Tree Inventory Table

Tree Number	Common Name	Scientific Name	DBH	Condition	Comments
T39	American Holly	Ilex opaca	2	Good/fair	Landscape
T40	American Holly	Ilex opaca	2	Fair	Landscape
T41	American Holly	Ilex opaca	3	Good/fair	Landscape
T42	American Holly	Ilex opaca	3	Good/fair	Landscape
T43	American Holly	Ilex opaca	2	Good/fair	Landscape
T44	American Holly	Ilex opaca	3	Fair	Landscape
T45	American Holly	Ilex opaca	2	Fair	Landscape
T46	American Holly	Ilex opaca	2	Fair	Landscape
T47	American Holly	Ilex opaca	2	Fair	Landscape
T48	American Holly	Ilex opaca	2	Fair	Last landscape tree to the north. All others visible in aerial photography are missing.
T49	American Sycamore	Platanus occidentalis	3	Good	
T50	Pin Oak	Quercus palustris	30	Fair	Minor dead branches
T51	Northern Red Oak	Quercus rubra	30	Good	
T52	Northern Red Oak	Quercus rubra	36	Good	
T53	Northern Red Oak	Quercus rubra	30	Fair/poor	Trunk cavity, heavy lean
T54	Hickory	Carya sp.	30	Fair	Multiple leaders at 10 above ground
T55	Northern Red Oak	Quercus rubra	33	Good/fair	Included bark
T56	Northern Red Oak	Quercus rubra	32	Good/fair	Dead branches
T57	Red Maple	Acer rubrum	31	Good/fair	Split above dbh, slight lean and cracks in bark
T58	American Beech	Fagus grandifolia	30	Fair/poor	Cavity in trunk, missing branches
T59	Tulip Poplar	Liriodendron tulipifera	31	Good	
T60	Pin Oak	Quercus palustris	33	Good/fair	Lean, few vines and dead branches
T61	White Oak	Quercus alba	46	Good/fair	Included bark, dead wood
T62	Tulip Poplar	Liriodendron tulipifera	35	Good/fair	Girdling roots, broken branches
T63	American Sycamore	Fagus grandifolia	40	Fair	Extensive vines, included bark, dead wood
T64	Southern Red Oak	Quercus falcata	36	Fair	Vines, dead wood
T65	American Sycamore	Fagus grandifolia	31	Good/fair	Extensive vines, dead wood

Appendix F – Agency Correspondence

MARYLAND
DEPARTMENT OF
NATURAL RESOURCES

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

18-MIS-021

September 13th, 2017

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

Subject: Fisheries Information for the MDTA I-95 Congestion Safety Improvements from MD 152 to MD 24, MDTA Tracking# KH-3010, Harford County

Dear Mr. Pines;

The above referenced project has been reviewed to determine fisheries species near the proposed project. The proposed activities include providing an auxiliary lane along northbound I-95 from MD 152 to MD 24, restriping the MD 24/ MD 924 ramp, reconstructing the parapets on the Winters Run Bridge and providing a median opening on I-95 south of the Clayton Road bridge overpass in Harford County.

The project will impact Winters Run which is classified as a Use I-P (provides public water supply) stream. Anadromous fish are present directly downstream of Winters Run. Generally no instream work is allowed in Use I streams with anadromous fish between February 15th and June 15th of any given year to protect spawning fish. If adequate sediment and erosion controls can be implemented during construction which will prevent runoff from reaching these streams, and no instream work is required, than a Time of Year restriction period would not need to be implemented. The applicant is encouraged to strictly adhere to the approved sediment and erosion control plan to prevent further sedimentation downstream during construction.

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

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

Sincerely;

Christopher Aadland

Christopher Aadland
Environmental Review Program

MARYLAND
DEPARTMENT OF
NATURAL RESOURCES

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

August 22, 2017

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

RE: Environmental Review for MDTA I-95 Congestion Safety Improvements from MD 152 to MD 24, MDTA Tracking #KH-3010, Harford County, Maryland.

Dear Mr. Pines:

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

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

Sincerely,

Lori A. Byrne

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

ER# 2017.1225.ha

20170446 22

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FHWA
TJT/EJC

RECEIVED
AUG 07 2017
BY:_____

MDTA
Maryland Transportation Authority

Larry Hogan
Governor

Boyd K. Rutherford
Lt. Governor

Pete K. Rahn
Chairman

Katherine Bays Armstrong
Peter J. Basso
Dontae Carroll
William H. Cox, Jr.
William C. Ensor, III
W. Lee Gaines, Jr.
John Von Paris

Kevin C. Reigrut
Executive Director

300 Authority Drive
Baltimore MD 21222-2200
410-537-7500
410-537-7803 (fax)
711 (MD Relay)
1-888-754-0098

e-mail: mdta@mdta.maryland.gov

www.mdta.maryland.gov

IA TJT/EJC 8/22/17

July 25, 2017

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

Attention: Ms. Beth Cole

RE: Maryland Transportation Authority (MDTA)
I-95 Congestion Safety Improvements from MD 152 to MD 24
MDTA Tracking # KH-3010
Harford County, MD

Request for Project Review and Comment

Dear Ms. Hughes:

The Maryland Transportation Authority (MDTA) is proposing to address congestion safety concerns along I-95 northbound at the MD 24 interchange. The proposed improvements will provide an auxiliary lane along northbound I-95 from MD 152 to MD 24, a distance of approximately 2 miles, restriping the MD 24 /MD 924 ramp, reconstruct the parapets on the Winters Run bridge, and to provide a median opening on I-95 south of the Clayton Road bridge overpass in Harford County, MD.

These improvements along I-95 northbound address congestion safety issues and the median opening will provide for emergency access in case of an incident on I-95. These improvements are consistent with the I-95 Section 200 approved FONSI.

A National Register of Historic Places (NRHP) and Maryland Inventory of Historic Properties search of MERLIN Online was also completed and revealed four previously identified historic properties within the project area: Winter's Run A (18HA9), Winters Run I (18HA38), Winter's Run D (18HA40), and Clayton Road (18HA37). Three of the sites (18HA9, 18HA38, and 18HA40) are prehistoric lithic scatters which have not been evaluated for the NRHP. The fourth site (18HA37) is a multi-component prehistoric lithic scatter and historic refuse deposit. The site was evaluated for the NRHP in 2009 and found to be not eligible. In addition, one historic resource on the Maryland Inventory of Historic Properties (MIHP) and several archeological sites are located in the vicinity including:

MHT #	NAME	NR STATUS
HA-2173	Rainbow Farm	Not Eligible (2007)
18HA10	Winters Run B	Unevaluated
18HA35	Mountain View Road	Unevaluated
18HA39	Winters Run II	Unevaluated
18HA41	Emmorton Road	Unevaluated
18HA164	Carob	Unevaluated

SITES NOT FOUND DURING 2008 STUDY

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

Date 8/22/17

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

Sincerely,

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

Enclosure: Location Map

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

United States Department of the Interior

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

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

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

To Whom It May Concern:

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

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

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

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

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

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

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

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

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

Attachment(s):

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

Official Species List

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

This species list is provided by:

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

Project Summary

Consultation Code: 05E2CB00-2018-SLI-0623

Event Code: 05E2CB00-2018-E-01401

Project Name: I-95 Northbound Extension

Project Type: TRANSPORTATION

Project Description: I-95 Northbound Extension

Project Location:

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

Counties: Baltimore, MD | Harford, MD

Endangered Species Act Species

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

Critical habitats

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

USFWS National Wildlife Refuge Lands And Fish Hatcheries

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

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

Wetlands

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

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

FRESHWATER FORESTED/SHRUB WETLAND

- PFO1F

FRESHWATER POND

- PUBHx
- PABHx

RIVERINE

- R2UBH
- R3UBH

United States Department of the Interior
U.S. Fish & Wildlife Service
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401
410/573 4575

Online Certification Letter

Today's date: 2/5/2018

Project: I-95 Northbound Extension

Dear Applicant for online certification:

Thank you for using the U.S. Fish and Wildlife Service (Service) Chesapeake Bay Field Office online project review process. By printing this letter in conjunction with your project review package, you are certifying that you have completed the online project review process for the referenced project in accordance with all instructions provided, using the best available information to reach your conclusions. This letter, and the enclosed project review package, completes the review of your project in accordance with the Endangered Species Act of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884), as amended (ESA).This letter also provides information for your project review under the National Environmental Policy Act of 1969 (P.L. 91-190, 42 U.S.C. 4321-4347, 83 Stat. 852), as amended. A copy of this letter and the project review package must be submitted to this office for this certification to be valid. This letter and the project review package will be maintained in our records.

Based on this information and in accordance with section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.), we certify that except for occasional transient individuals, no federally proposed or listed endangered or threatened species are known to exist within the project area. Therefore, no Biological Assessment or further section 7 consultation with the U.S. Fish and Wildlife Service is required. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

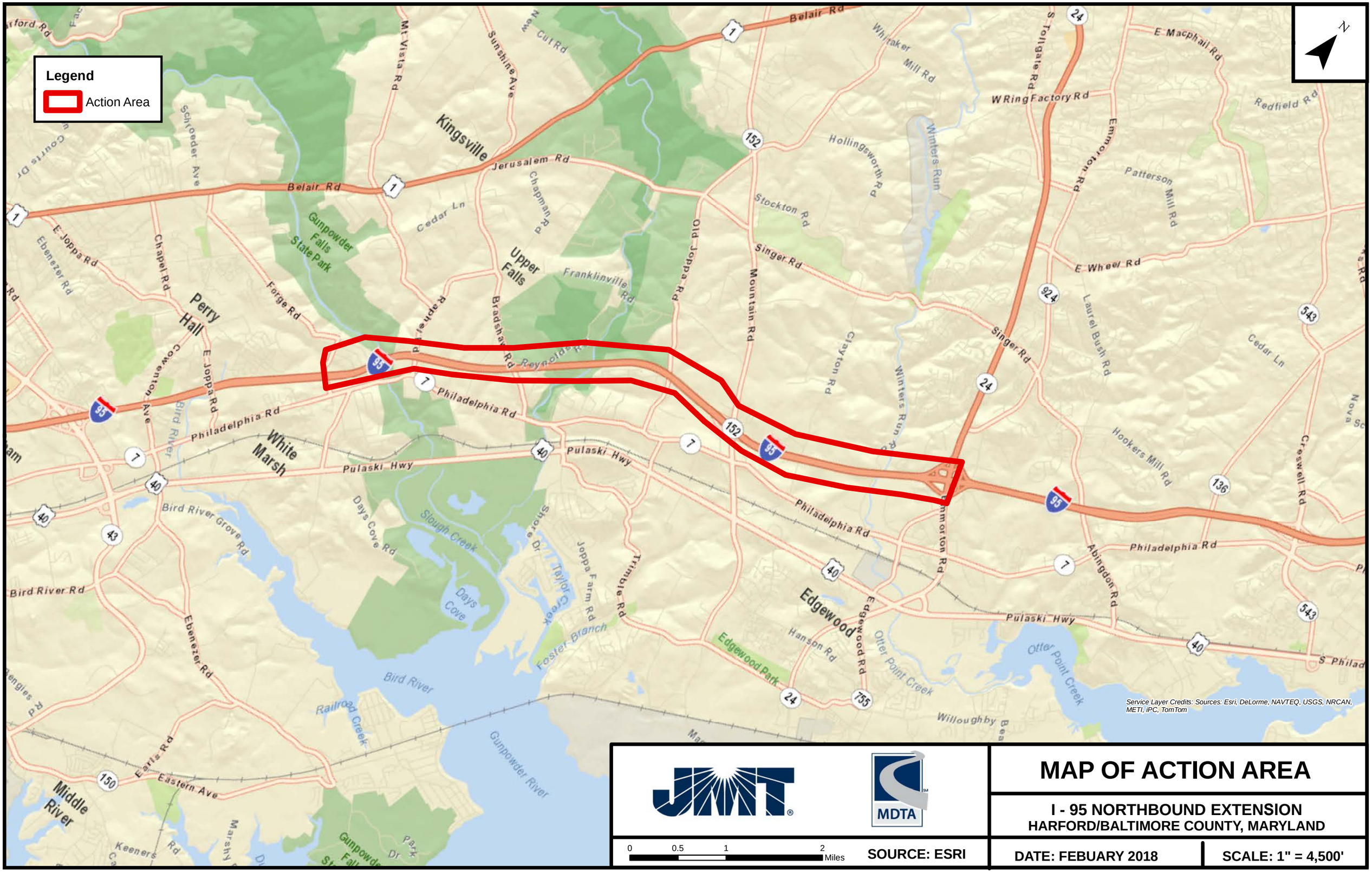
This response relates only to federally protected threatened or endangered species under our jurisdiction. For additional information on threatened or endangered species in Maryland, you should contact the Maryland Wildlife and Heritage Division at (410) 260-8573. For information in Delaware you should contact the Delaware Division of Fish and Wildlife, Wildlife Species Conservation and Research Program at (302) 735-8658. For information in the District of Columbia, you should contact the National Park Service at (202) 339-8309.

The U.S. Fish and Wildlife Service also works with other Federal agencies and states to minimize loss of wetlands, reduce impacts to fish and migratory birds, including bald eagles, and restore habitat for wildlife. Information on these conservation issues and how development projects can avoid affecting these resources can be found on our website (www.fws.gov/chesapeakebay)

We appreciate the opportunity to provide information relative to fish and wildlife issues, and thank you for your interest in these resources. If you have any questions or need further assistance, please contact Chesapeake Bay Field Office Threatened and Endangered Species program at (410) 573-4527.

Sincerely,

Genevieve LaRouche
Field Supervisor



MAP OF ACTION AREA

I - 95 NORTHBOUND EXTENSION
HARFORD/BALTIMORE COUNTY, MARYLAND

DATE: FEBUARY 2018

SCALE: 1" = 4,500'

Appendix G – NRI Plan

N

152

24

95

Map Sheet 1

Map Sheet 2

Map Sheet 3

Map Sheet 4

Map Sheet 5

Map Sheet 6

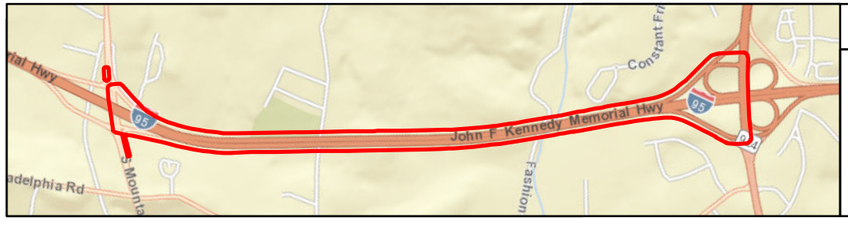
Map Sheet 7

Map Sheet 8

Map Sheet 9

Map Sheet 10

Map Sheet 11



LEGEND

Study Area

Map Sheet

I-95 Lane Widening

from MD 152 to MD 24

Natural Resources Inventory Index Map

Maryland Transportation Authority

RK&K
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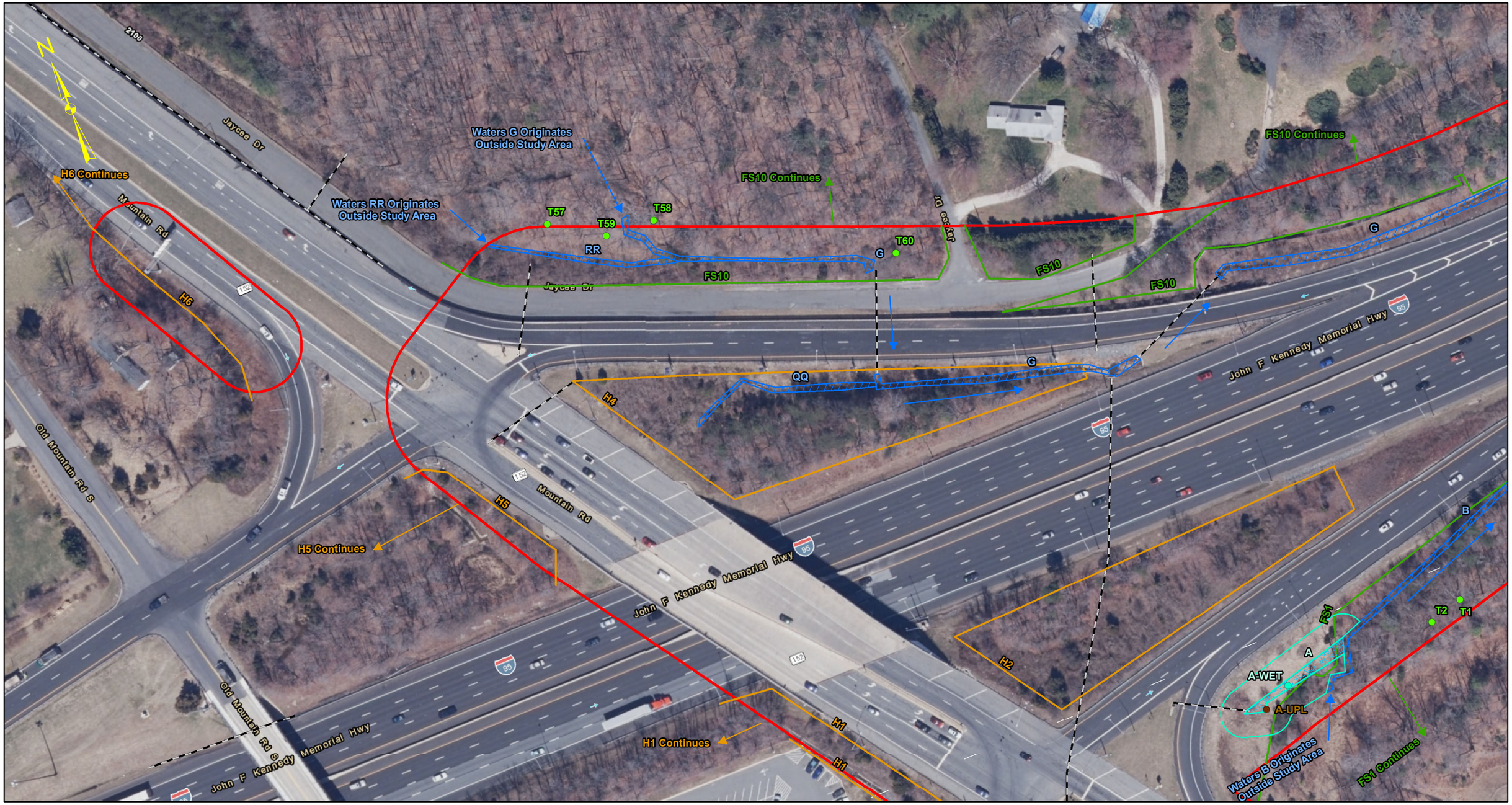
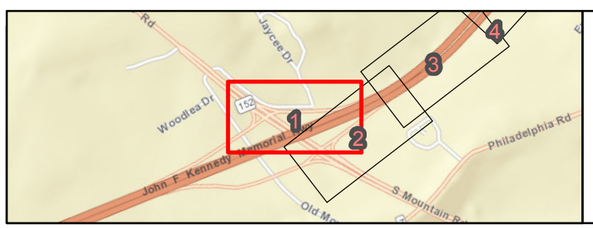
0 500 1,000 2,000

1 inch = 1,000 feet

Index Map





- Inventoried Trees (<30" DBH)
- Specimen Trees (≥30" DBH)
- Upland Data Point
- Wetland Data Point
- Pipes
- Flow Direction
- Forest Stands
- Hedgerows
- Wetlands
- Wetland Buffers
- Waters
- Study Area

Maryland Transportation Authority

RK&K
Responsive People | Creative Solutions

I-95 Lane Widening

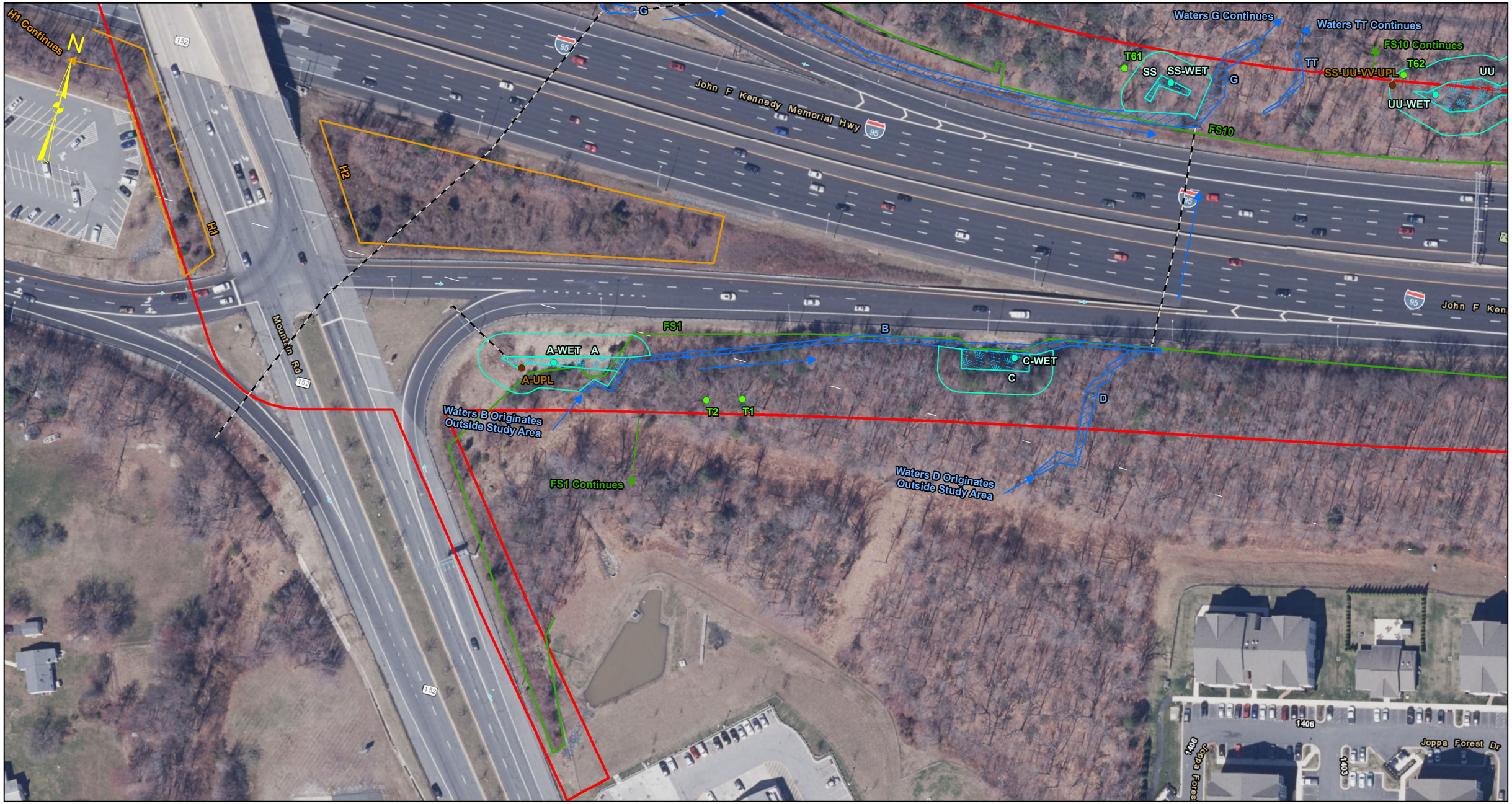
from MD 152 to MD 24

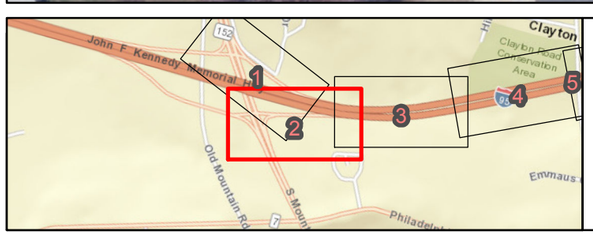
Natural Resources Inventory Map

0 50 100 200

1 inch = 100 feet

Map 1 of 11





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Maryland Transportation Authority

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I-95 Lane Widening

from MD 152 to MD 24

Natural Resources Inventory Map

0 50 100 200

1 inch = 100 feet

Map 2 of 11

N

G Continues

G

Waters TT Continues

TT

FS10 Continues

T62

SS-UU-VV-UPL

UU-WET

UU

Waters G Continues

G

VV

VV-WET

FS10 Continues

FS10

Waters E Continues

E

T56

NN

Waters G Originates Outside Study Area

PP-WET

PP

PP-UPL

John F Kennedy Memorial Hwy

John F Kennedy Memorial Hwy

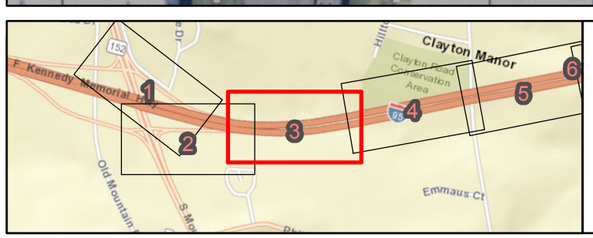
John F Kennedy Memorial Hwy

FS1

E

FS1 Continues

Waters E Originates Outside Study Area



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Maryland Transportation Authority

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I-95 Lane Widening

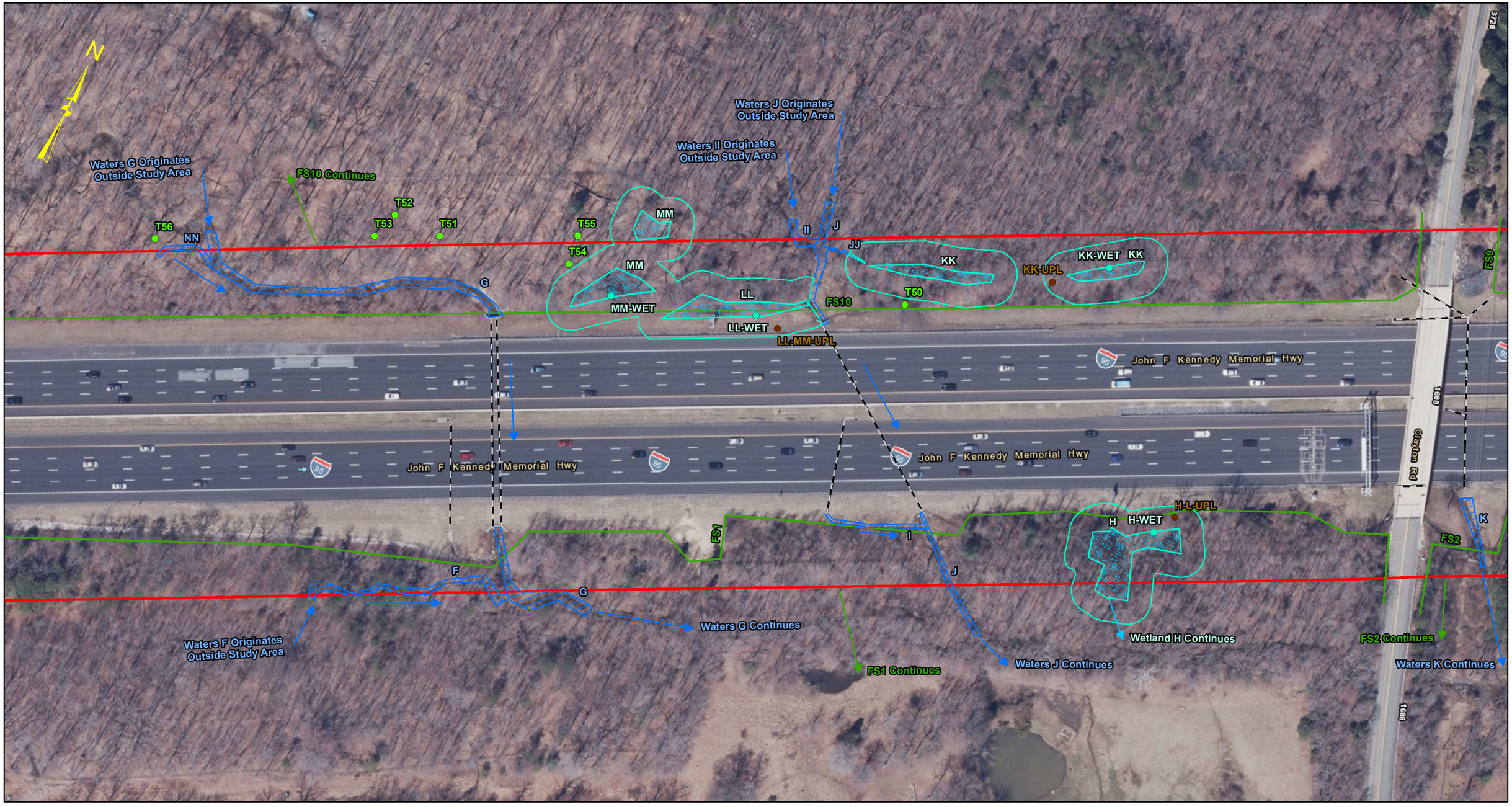
from MD 152 to MD 24

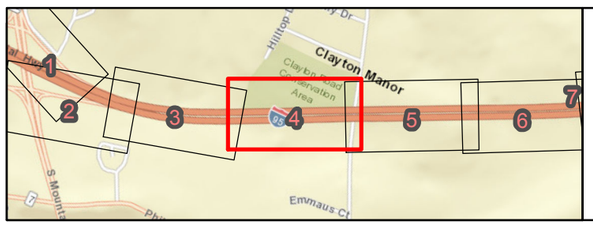
Natural Resources Inventory Map

0 50 100 200

1 inch = 100 feet

Map 3 of 11





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Maryland Transportation Authority

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I-95 Lane Widening

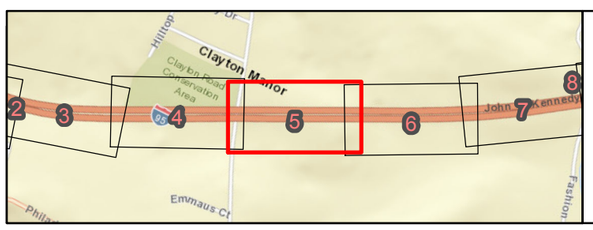
from MD 152 to MD 24

Natural Resources Inventory Map

0 50 100 200

1 inch = 100 feet

Map 4 of 11



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Maryland Transportation Authority

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I-95 Lane Widening

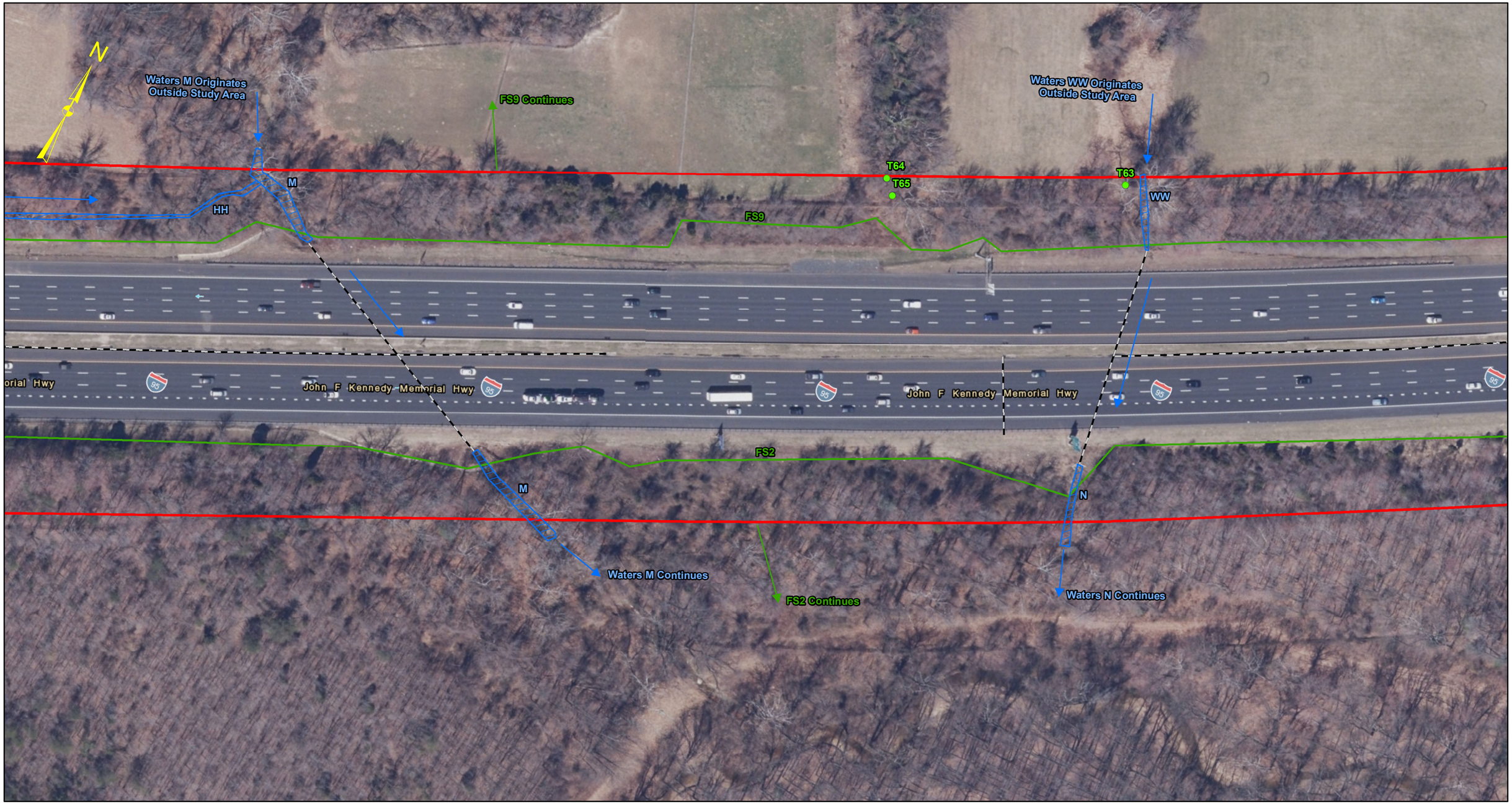
from MD 152 to MD 24

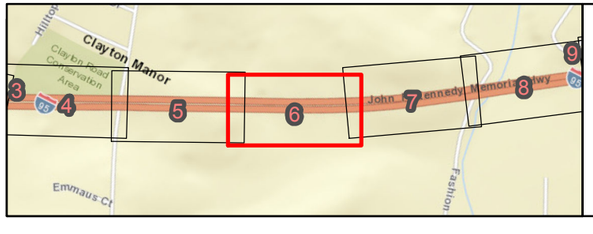
Natural Resources Inventory Map

0 50 100 200

1 inch = 100 feet

Map 5 of 11





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Maryland Transportation Authority

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I-95 Lane Widening

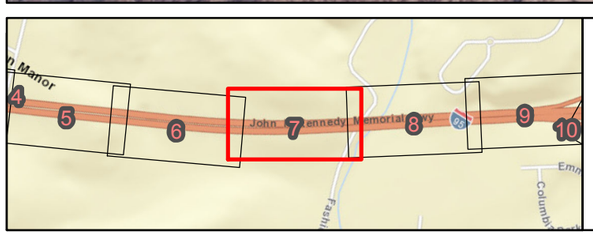
from MD 152 to MD 24

Natural Resources Inventory Map

0 50 100 200

1 inch = 100 feet

Map 6 of 11



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Maryland Transportation Authority

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I-95 Lane Widening

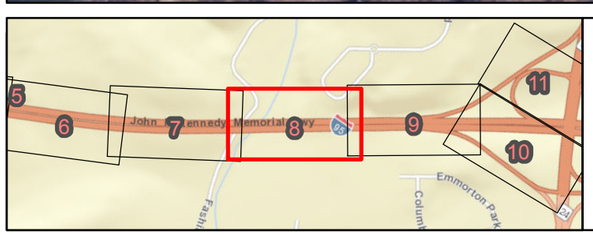
from MD 152 to MD 24

Natural Resources Inventory Map

0 50 100 200

1 inch = 100 feet

Map 7 of 11



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Maryland Transportation Authority

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I-95 Lane Widening

from MD 152 to MD 24

Natural Resources Inventory Map

0 50 100 200

1 inch = 100 feet

Map 8 of 11

N

FS8 Continues

Waters EE Originates Outside Study Area

EE

REF2

FS8

Y

FS6

Y

T33

John F Kennedy Memorial Hwy

John F Kennedy Memorial Hwy

John F Kennedy Memorial

95

S

S-WET

S-X-UPL

X

X-WET

V

FS4

FS4 Continues

T14

FS4

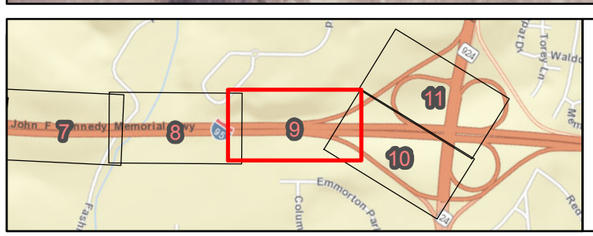
T10

T12

T11

FS3

FS3



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Maryland Transportation Authority

RK&K

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I-95 Lane Widening

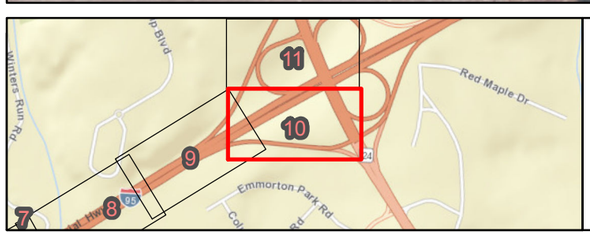
from MD 152 to MD 24

Natural Resources Inventory Map

0 50 100 200

1 inch = 100 feet

Map 9 of 11



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Maryland Transportation Authority

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I-95 Lane Widening

from MD 152 to MD 24

Natural Resources Inventory Map

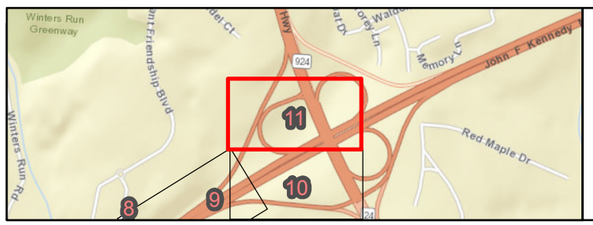
0 50 100 200

1 inch = 100 feet

Map 10 of 11

N

T29
REF1
T23
FS5
T24
T25
T26
T27
T28
T22
OO
FS7 Continues
FS7
AA
AA-WET
Y
T21
T17
T18
T20
T15
T16
T19
FS6
Z-AA-UPL
Z
Z-WET
T30
T32
Vietnam Vets Memorial Hwy
Waters Y Originates Outside Study Area
John F Kenne



- Inventoried Trees (<30" DBH)
- Specimen Trees (≥30" DBH)
- Upland Data Point
- Wetland Data Point
- Pipes
- Flow Direction
- Forest Stands
- Hedgerows
- Wetlands
- Wetland Buffers
- Waters
- Study Area

Maryland Transportation Authority

RK&K
Responsive People | Creative Solutions

I-95 Lane Widening

from MD 152 to MD 24

Natural Resources Inventory Map

0 50 100 200

1 inch = 100 feet

Map 11 of 11