APPENDIX G: FIELD DATASHEETS

Waters of the U.S. Data Sheet

Project: 495/270 Managed Lane Study	Feature ID: 19J	Stream Order:
Date: 09/18/18 and 10/12/18	State: Maryland	Photos: 0035-0041 on 9/18/18 4325-4329 on 10/12/18
Crew: MRS/EYG MBS/SJF	County: Montgomery	Last Flag Number: 19J-11

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: large, well-defined channel with abundant flow			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: outside study area	Downstream: outside study area	Adjacent/Abutting: none

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 3'-18'	☒ Silts	☒ Sands	☒ Muck	RB: forest, shrubs
☑ Artificial (man-made)	Depth: 2"-12"	☐ Cobbles	☒ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability: stable	☐ Bedrock	☐ Concrete		
☐ Other:		Side slope: ☒ ≥1:1 ☒ 2:1 ☒ 3:1 ☐ ≤4:1			LB: forest, dense bamboo
Notes: feature culverted under Maplewood Park Dr. & 495					

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: August Year: 2018												
⊗ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	●	○	○	○
○ Light rain	⊗ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet		

Non-tidal tributary has: *(check all that apply; include photos for each & list photo #)*

Bed and Banks	Ordinary High Water Mark		
☒ Yes	☐ Clear, natural line impressed on the bank	☒ Sediment deposition	☒ Sediment sorting
☐ No	☐ Changes in the character of soil	☐ Water staining	☒ Scour
	☐ Shelving	☒ Presence of flood litter/debris	☒ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☐ Leaf litter disturbed	☐ Presence of wrack line	☐ Other:

Tidal tributary has: *(check all that apply; include photos for each & list photo #)*

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: I-495/I-270 MANAGED LANES STUDY	**Feature ID:** 20B	**Stream Order:** 2
Date: 4-11-2018 / **State:** MD	**Photos:** 195-196, 207-208 (outside soundwall)	
Crew: MBS/CCO / **County:** MONTGOMERY	**Last Flag Number:** 7 (centerline)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
( ) TNW (Subject to ebb and flow)	( ) TNW – Perennial (Flowing year round)	(X) 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: NOT FLOWING DURING FIELD INVESTIGATION, HOWEVER WRACK LINE INDICATES HIGH PERIODIC FLOW			( ) Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: 2' PIPE	Downstream: 2' CULVERT UNDER SOUNDWALL + CONTINUES OUTSIDE SOUNDWALL THROUGH 2' PIPE, RIPRAP CHANNEL, INTO ANOTHER 2' PIPE	Adjacent/Abutting: N/A

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
[ ] Natural Channel Shape	Width: 5'	[x] Silts	[ ] Sands	[ ] Muck	RB: HEDGEROW
[ ] Artificial (man-made)	Depth: 3"	[x] Cobbles	[x] Gravel	[x] Other: RIPRAP	
[x] Manipulated (man-altered)	Bank Erosion/stability: MODERATE	[ ] Bedrock	[ ] Concrete		LB: HEDGEROW
[ ] Other:		Side slope: [ ] ≥1:1 [x] 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: MARCH Year: 2018												
(●) No rain	(●) 0-0.5	( )	( )	( )	( )	( )	(●)	( )	( )	( )	( )	( )	( )	( )
( ) Light rain	( ) 0.5-1	-6	-5	-4	-3	-2	-1.45	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		
[x] Yes	[ ] Clear, natural line impressed on the bank	[x] Sediment deposition	[x] Sediment sorting
[ ] No	[ ] Changes in the character of soil	[x] Water staining	[ ] Scour
	[ ] Shelving	[x] Presence of flood litter/debris	[ ] Observed/predicted flow events
	[x] Vegetation matted down, bent, or absent	[ ] Destruction of terrestrial veg.	[ ] Abrupt change in plant community
	[x] Leaf litter disturbed	[x] 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-495/I-270 MANAGED LANES STUDY	**Feature ID:** 20C	**Stream Order:** 3
Date: 4-11-2018 **State:** MD	**Photos:** 200-202	
Crew: MBS/CCO **County:** MONTGOMERY	**Last Flag Number:** 3 (centerline)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	⊗ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: FLOWING WITH SIGNIFICANT AMOUNT OF WATER IN CHANNEL DURING MODERATE DROUGHT CONDITIONS			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 3' PIPE - 1/2 SILTED-IN	Downstream: 4' CULVERT, CONVERGES WITH FEATURE 20D (ANOTHER PERENNIAL CHANNEL)	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'	[x] Silts	[x] Sands	[ ] Muck	RB: SCRUB/SHRUB
[ ] Artificial (man-made)	Depth: 6"	[x] Cobbles	[x] Gravel	[ ] Other:	
[ ] Manipulated (man-altered)	Bank Erosion/stability:	[ ] Bedrock	[ ] Concrete		
[ ] Other:	MODERATE	Side slope: [ ] ≥1:1 [ ] 2:1 [x] 3:1 [ ] ≤4:1			LB: SCRUB/SHRUB
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: MARCH Year: 2018
⊗ No rain	●	0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○
○ Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1.45	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		
[x] Yes	[x] Clear, natural line impressed on the bank	[x] Sediment deposition	[x] Sediment sorting
[ ] No	[x] Changes in the character of soil	[ ] Water staining	[x] Scour
	[x] Shelving	[x] Presence of flood litter/debris	[x] Observed/predicted flow events
	[x] Vegetation matted down, bent, or absent	[ ] Destruction of terrestrial veg.	[ ] Abrupt change in plant community
	[x] Leaf litter disturbed	[x] 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-495/I-270 MANAGED LANES STUDY	**Feature ID:** 20D	**Stream Order:** 3
Date: 4-11-2018 **State:** MD	**Photos:** 197-199	
Crew: MBS/CCO **County:** MONTGOMERY	**Last Flag Number:** 3A83B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ⊗ RPW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: FLOWING AT HIGH RATE DURING MODERATE DROUGHT

Hydrologic Connectivity –	Upstream: CONTINUES OUTSIDE ROW	Downstream: 4' CULVERT, CONVERGES WITH FEATURE 20C (ANOTHER PERENNIAL CHANNEL)	Adjacent/Abutting: N/A

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 5'	☒ Silts	☒ Sands	☐ Muck	RB: HEDGEROW
☐ Artificial (man-made)	Depth: 6"	☐ Cobbles	☒ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☒ Concrete		
☐ Other:	ERODING	Side slope: ☒ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			LB: HEDGEROW

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: MARCH Year: 2018
⊗ No rain	● 0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1.45	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-495/I-270 MANAGED LANES STUDY		**Feature ID:** 20E	**Stream Order:** 2
Date: 4-11-2018	**State:** MD	**Photos:** 203-206	
Crew: MBS/CCO	**County:** MONTGOMERY	**Last Flag Number:** 3 (center line)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	☒ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Describe rational for hydrologic class: NOT FLOWING DURING FIELD INVESTIGATION, BUT CLEAR FLOW LINE ON BANKS INDICATES HIGH PERIODIC FLOW			
Hydrologic Connectivity –	Upstream: 2' PIPE	Downstream: 2' PIPE	Adjacent/Abutting: N/A

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 3'	☒ Silts	☒ Sands	☐ Muck	RB: HEDGEROW (BAMBOO)
☐ Artificial (man-made)	Depth: 2' BANK	☐ Cobbles	☒ Gravel	☒ Other: RIPRAP	
☒ Manipulated (man-altered)	Bank Erosion/stability: STABLE	☐ Bedrock	☐ Concrete		
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			LB: HEDGEROW (BAMBOO)
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: MARCH Year: 2018												
☒ No rain	●	0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○
○ Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1, 45	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-495/I-270 MANAGED LANES STUDY		**Feature ID:** 21B	**Stream Order:**
Date: 4-12-2018	**State:** MD	**Photos:** 0212-0213	
Crew: MBS/SJF	**County:** MONTGOMERY	**Last Flag Number:** N/A	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	⊗ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Large, well-defined channel with constant flow and OHWM			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: 20D	Downstream: 21C	Adjacent/Abutting: N/A

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 10-20'	☒ Silts	☒ Sands	☐ Muck	RB: EMERGENT VEGETATION
☐ Artificial (man-made)	Depth: 6-18"	☐ Cobbles	☐ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☒ Concrete		
☐ Other:	MODERATELY STABLE	Side slope: ☐ ≥1:1 ☒ 2:1 ☒ 3:1 ☐ ≤4:1			LB: FOREST
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI													Month: MARCH Year: 2018
⊗ No rain	●	0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○	
○ Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1.45	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-495/I-270 MANAGED LANES STUDY	**Feature ID:** 21C	**Stream Order:**
Date: 6-6-2018 **State:** MD	**Photos:** 0214 – 17	
Crew: MBS/SJF **County:** MONTGOMERY	**Last Flag Number:** N/A	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
◯ TNW (Subject to ebb and flow)	◯ TNW – Perennial (Flowing year round)	◯ RPW – Seasonal (must flow at least 3 months a year)	◯ Non-RPW draining uplands
	☒ RPW – Perennial (Flowing year round)		◯ Non-RPW erosional feature
			◯ Non-RPW with abutting wetland
			◯ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Large, well-defined channel with constant flow and OHWM			◯ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: 21L, 21B, 21V, 21I, 21M, 21H, 21F, 21G	Downstream: 22AA	Adjacent/Abutting: N/A

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

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 10 – 30'	☒ Silts	☒ Sands	☐ Muck	RB: forest
☐ Artificial (man-made)	Depth: 4 – 12"	☒ Cobbles	☒ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability: RANGE	☐ Bedrock	☒ Concrete		
☐ Other:	STABLE → UNSTABLE	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													Month: MAY Year: 2018
● No rain	◯ 0-0.5	◯	◯	◯	◯	◯	◯	◯	●	◯	◯	◯	◯	◯	
◯ Light rain	● 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
◯ Heavy Rain	◯ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet			

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
☒ Yes	☒ Clear, natural line impressed on the bank	☒ Sediment deposition	☒ Sediment sorting
☐ No	☐ Changes in the character of soil	☒ Water staining	☒ Scour
	☒ Shelving	☒ Presence of flood litter/debris	☒ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☒ Leaf litter disturbed	☒ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:

Notes:

Waters of the U.S. Data Sheet

Project: I-495/I-270 MANAGED LANES STUDY	**Feature ID:** 21D	**Stream Order:** 2
Date: 4-12-2018	**State:** MD	**Photos:** 0218-0219
Crew: MBS/SJF	**County:** MONTGOMERY	**Last Flag Number:** 3 (centerline)

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: NOT FLOWING DURING FIELD INVESTIGATION, BUT WATER LINE + SEDIMENT DEPOSITION INDICATE high periodic flow			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: 2 concrete-lined ephemeral channels	Downstream: 21C (Thomas Branch)	Adjacent/Abutting: N/A

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
[ ] Natural Channel Shape	Width: 1'-3'	[X] Silts	[X] Sands	[ ] Muck	RB: MEADOW GRASSES, scrub/shrub
[ ] Artificial (man-made)	Depth: 6"	[ ] Cobbles	[ ] Gravel	[ ] Other:	
[X] Manipulated (man-altered)	Bank Erosion/stability:	[ ] Bedrock	[X] Concrete		
[ ] Other:	STABLE	Side slope: [ ] ≥1:1 [ ] 2:1 [X] 3:1 [ ] ≤4:1			LB: SCRUB SHRUB, Hedgerow

Notes: IN RIVER RD INTERCHANGE (NE QUADRANT), INNER LOOP I-495; Flows through 3" pipe into NW Quadrant; US portion concrete-lined

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI https://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php												**Month:** MARCH **Year:** 2018
● No rain	● 0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1.45	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		
[X] Yes	[X] Clear, natural line impressed on the bank	[X] Sediment deposition	[ ] Sediment sorting
[ ] No	[ ] Changes in the character of soil	[X] Water staining	[ ] Scour
	[ ] Shelving	[X] Presence of flood litter/debris	[X] Observed/predicted flow events
	[X] Vegetation matted down, bent, or absent	[ ] Destruction of terrestrial veg.	[ ] Abrupt change in plant community
	[X] Leaf litter disturbed	[X] 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-495/I-270 MANAGED LANES STUDY		**Feature ID:** 21F	**Stream Order:** 2
Date: 4-13-2018	**State:** MD	**Photos:** 2540-2541
Crew: MBS/SJF	**County:** MONTGOMERY	**Last Flag Number:** 21F-17a/17b

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
			○ Non-RPW erosional feature
	○ RPW – Perennial (Flowing year round)		○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: NOT FLOWING DURING FIELD VISIT, HOWEVER WATER LINE, SCOUR, & WRACK LINE INDICATE HIGH PERIODIC FLOW			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: CONTINUES OUT OF ROW	Downstream: 21C (Thomas Branch)	Adjacent/Abutting: N/A

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 5-8'	☒ Silts	☒ Sands	☐ Muck	RB: FOREST
☐ Artificial (man-made)	Depth: 8"	☒ Cobbles	☒ Gravel	☒ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete	RIPRAP	
☐ Other:	MODERATE	Side slope: ☒ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			LB: FOREST

Notes: PIPED UNDER SOUNDWALL/I-495 WEST OF BRADLEY BLVD./ EAST OF RIVER RD. — BOTH INFALL & OUTFALL OOP

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI https://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php												Month: MARCH Year: 2018
● No rain	● 0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1.45	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-495/I-270 MANAGED LANES STUDY	**Feature ID:** 216	**Stream Order:** 2
Date: 4-13-2018 / **State:** MD	**Photos:** 2542-2543	
Crew: MBS/STF / **County:** MONTGOMERY	**Last Flag Number:** 3 (centerline)	

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: NOT FLOWING DURING FIELD INVESTIGATION, HOWEVER DAMP SILT DEPOSITED ON BED INDICATES SIGNIFICANT PERIODIC FLOW			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: 18" DIAM. PIPE	Downstream: 21C (Thomas Branch)	Adjacent/Abutting: N/A

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
[ ] Natural Channel Shape	Width: 2-5'	[X] Silts	[ ] Sands	[ ] Muck	RB: FOREST
[ ] Artificial (man-made)	Depth: 3"	[ ] Cobbles	[ ] Gravel	[X] Other: RIPRAP	
[X] Manipulated (man-altered)	Bank Erosion/stability: STABLE	[ ] Bedrock	[X] Concrete		
[ ] Other:		Side slope: [ ] ≥1:1 [ ] 2:1 [X] 3:1 [ ] ≤4:1			LB: FOREST
Notes: EAST OF RIVER RD ON I-495 INNER LOOP					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php												Month: MARCH Year: 2018
● No rain	● 0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1.45	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		
[X] Yes	[ ] Clear, natural line impressed on the bank	[X] Sediment deposition	[X] Sediment sorting
[ ] No	[ ] Changes in the character of soil	[X] Water staining	[ ] Scour
	[ ] Shelving	[X] Presence of flood litter/debris	[X] Observed/predicted flow events
	[ ] Vegetation matted down, bent, or absent	[ ] Destruction of terrestrial veg.	[ ] Abrupt change in plant community
	[ ] Leaf litter disturbed	[X] 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-495/I-270 MANAGED LANES STUDY	**Feature ID:** 21 H	**Stream Order:** 2
Date: 4-13-2018	**State:** MD	**Photos:** 2544-2545
Crew: MBS/STF	**County:** MONTGOMERY	**Last Flag Number:** 21H-6a/6b

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
			⊗ Non-RPW erosional feature
	○ RPW – Perennial (Flowing year round)		○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: NOT FLOWING DURING FIELD INVESTIGATION, HOWEVER WATER LINE + WRACK LINE INDICATE HIGH PERIODIC FLOW			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: CONTINUES OUTSIDE ROW and 21R	Downstream: 21C	Adjacent/Abutting: none

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

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 4'	☒ Silts	☐ Sands	☐ Muck	RB: SCRUB/SHRUB
☐ Artificial (man-made)	Depth: 12"	☒ Cobbles	☒ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability: ERODING	☐ Bedrock	☒ Concrete – PIECES		
☐ Other:		Side slope: ☒ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			LB: SCRUB/SHRUB
Notes: EAST OF RIVER RD. ON I-495 INNERLOOP					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI https://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: MARCH Year: 2018
● No rain	●	0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○	
○ Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1.45	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-495/I-270		**Feature ID:** 21I	**Stream Order:** 3
Date: 4-17-2018	**State:** MD	**Photos:** 2552-2554	
Crew: MBS/CCO	**County:** MONTGOMERY	**Last Flag Number:** 2A+B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	⊗ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: FLOWING RAPIDLY DURING FIELD INVESTIGATION			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: 3' PIPE	Downstream: 21C (Thomas Branch)	Adjacent/Abutting: N/A

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 5-7'	☒ Silts	☒ Sands	☐ Muck	RB: HEDGEROW
☐ Artificial (man-made)	Depth: 3"	☐ Cobbles	☒ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		
☐ Other:	MODERATE	Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			LB: HEDGEROW
Notes: SB I-270					

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI									Month: MARCH	Year: 2018		
●	No rain	●	0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○
○	Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1.45	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-495/I-270 MANAGED LANES STUDY	**Feature ID:** 2J	**Stream Order:** 3
Date: 4-18-2018 / **State:** MD	**Photos:** 2559-2560	
Crew: MKS/SJF / **County:** MONTGOMERY	**Last Flag Number:** 2A8B	

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: WIDE CHANNEL FLOWING RAPIDLY AT TIME OF FIELD INVESTIGATION			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: 10' PIPE CULVERT (21B)	Downstream: 21C (Thomas Branch)	Adjacent/Abutting: N/A

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

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 10-20'	☒ Silts	☒ Sands	☐ Muck	RB: HEDGEROW
☐ Artificial (man-made)	Depth: 2-6"	☐ Cobbles	☒ Gravel	☒ Other: RIPRAP	
☒ Manipulated (man-altered)	Bank Erosion/stability: STABLE	☐ Bedrock	☐ Concrete		LB: HEDGEROW
☐ Other:		Side slope: ☒ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: WEST OF I-270/I-495 INTERCHANGE ON OUTERLOOP I-495

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI													Month: MARCH Year: 2018
● No rain	● 0-0.5	○ -6	○ -5	○ -4	○ -3	○ -2	● -1.45	○ 0	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	
○ Light rain	○ 0.5-1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet			
○ Heavy Rain	○ >1														

http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php

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-495/I-270 MANAGED LANES STUDY	**Feature ID:** 21K	**Stream Order:** 2
Date: 4-18-2018 / **State:** MD	**Photos:** 2561-2562	
Crew: MBS/SJF / **County:** MONTGOMERY	**Last Flag Number:** 2A8B	

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
			○ Non-RPW erosional feature
	○ RPW – Perennial (Flowing year round)		○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: FLOWING DURING FIELD VISIT 48 HRS. POST RAINFALL, MODERATE FLOW RATE, LOW VOLUME			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: 4' PIPE CULVERT (21A)	Downstream: 21C (Thomas Branch)	Adjacent/Abutting: N/A

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

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 1-12'	☒ Silts	☒ Sands	☐ Muck	RB: HEDGEROW
☐ Artificial (man-made)	Depth: 0.5"-1.5'	☒ Cobbles	☒ Gravel	☒ Other: PLACED STONE	
☒ Manipulated (man-altered)	Bank Erosion/stability: MODERATE	☐ Bedrock	☐ Concrete		LB: HEDGEROW
☐ Other:		Side slope: ☒ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: WEST OF BRADLEY BLVD. ON OUTERLOOP I-495					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: MARCH Year: 2018												
● No rain	● 0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1.45	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-495/I-270 MANAGED LANES STUDY	**Feature ID:** 21L	**Stream Order:** 3
Date: 4-18-2018 **State:** MD	**Photos:** 2563-2564, 446-448	
Crew: MBS/SJF **County:** MONTGOMERY	**Last Flag Number:** 2A&B / 5 (E side of highway)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ⊗ RPW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: WATER FLOWING RAPIDLY AT TIME OF FIELD INVESTIGATION			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: 8' PIPE CULVERT	Downstream: 21C (Thomas Branch)	Adjacent/Abutting: N/A

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

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
[ ] Natural Channel Shape	Width: 4-6'	[x] Silts	[x] Sands	[ ] Muck	RB: HERBACEOUS VEG.
[ ] Artificial (man-made)	Depth: 1-8"	[x] Cobbles	[x] Gravel	[x] Other: RIPRAP	
[x] Manipulated (man-altered)	Bank Erosion/stability: STABLE	[ ] Bedrock	[ ] Concrete		
[ ] Other:		Side slope: [ ] ≥1:1 [ ] 2:1 [x] 3:1 [ ] ≤4:1			LB: HERBACEOUS VEG.
Notes: WEST OF BRADLEY BLVD. ON OUTERLOOP I-495					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI												Month: MARCH Year: 2018
● No rain	● 0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1.45	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		
[x] Yes	[x] Clear, natural line impressed on the bank	[x] Sediment deposition	[x] Sediment sorting
[ ] No	[ ] Changes in the character of soil	[x] Water staining	[ ] Scour
	[ ] Shelving	[x] Presence of flood litter/debris	[x] 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-495/I-270 MANAGED LANES STUDY	**Feature ID:** 21M	**Stream Order:** 2
Date: 4-18-2018 / **State:** MD	**Photos:** 2565	
Crew: MBS/SSF / **County:** MONTGOMERY	**Last Flag Number:** 2 (centerline)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: FLOWING SWIFTLY AT TIME OF FIELD INVESTIGATION			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: 2' PIPE	Downstream: 21C (Thomas Branch)	Adjacent/Abutting: N/A

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 1-4'	☐ Silts	☐ Sands	☐ Muck	RB: HEDGEROW
☐ Artificial (man-made)	Depth: 1/2"	☐ Cobbles	☐ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☒ Concrete		
☐ Other:	STABLE	Side slope: ☒ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			LB: HEDGEROW
Notes: WEST OF BRADLEY BLVD. ON OUTERLOOP I-495					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI												Month: MARCH Year: 2018
● No rain	● 0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1.45	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: 1495/1270 Managed Lanes Study City/County: Bethesda /Montgomery Sampling Date: 6/20/18

Applicant/Owner: SHA State: MD Sampling Point: 21P

Investigator(s): MBS/SLG Section, Township, Range: ______

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

Subregion (LRR or MLRA): MLRA 148 Lat: 38.998935 Long: -77.157223 Datum: NAD83

Soil Map Unit Name: Baile silt loam, 0 to 3 percent slopes NWI classification: PFO

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

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

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

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

Hydrophytic Vegetation Present?	Yes ✓	No ______
Hydric Soil Present?	Yes ✓	No ______
Wetland Hydrology Present?	Yes ✓	No ______

Is the Sampled Area within a Wetland? **Yes** ✓ **No** ______

Remarks:
Photos
1881 - 1882 -

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): 12"
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: 28P

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	90	Y	FAC
2.			
3.			
4.			
5.			
6.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		

Sapling Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
6.			
	____ = Total Cover		
50% of total cover: ____	20% of total cover: ____		

Shrub Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1. Lindera benzoin	5	Y	FAC
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		

Herb Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1. Cinna arundinacea	25	Y	FACW
2. Boehmeria cylindrica	10	N	OBL
3. Microstegium vimineum	5	N	FAC
4. Geum canadense	5	N	FACU
5. Carex sp.	5	N	—
6. Fraxinus pensylvanica	15	Y	FACW
7.			
8.			
9.			
10.			
11.			
	65 = Total Cover		
50% of total cover: 33	20% of total cover: 13		

Woody Vine Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1. Vitis riparia	5	Y	FACW
2.			
3.			
4.			
5.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 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: 21P

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/1	60	7.5YR 6/4	40	C	M	SILTY CLAY	
6-10	2.5Y 5/1	50	7.5YR 6/4	50	C	M,PL	CLAY LOAM	
10-16	5YR 8/5	100					SANDY LOAM	

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

Hydric Soil Indicators:

- __ 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 Function-Value Evaluation Form

Total area of wetland 0.02 acre Human made? ____ Is wetland part of a wildlife corridor? ✓ or a "habitat island"? ____

Adjacent land use RESIDENTIAL Distance to nearest roadway or other development 100'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present NO

Is the wetland a separate hydraulic system? NO If not, where does the wetland lie in the drainage basin? MIDDLE

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 21P

Latitude 38.998935 Longitude -77.157223

Prepared by: MES/SLY Date 6-20-18

Wetland Impact:
Type PFO Area 0.02 acre

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓				
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: Mo. Sampling Date: 7/11/18
Applicant/Owner: SHA State: MD Sampling Point: 21Q - WET
Investigator(s): KSH, CAS Section, Township, Range: ______
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 2%
Subregion (LRR or MLRA): 148 Lat: 38.99824700 Long: -77.15714396 Datum: WGS84
Soil Map Unit Name: Baile silt loam, 0 to 3 percent slopes NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ______ (If no, explain in Remarks.)
Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ______
Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ✓ No ______	Is the Sampled Area within a Wetland?	Yes ✓ No ______
Hydric Soil Present? Yes ✓ No ______		
Wetland Hydrology Present? Yes ✓ No ______		

Remarks:

Photos 3114 - 3115

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)

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

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ______
Water Table Present?	Yes ____	No X	Depth (inches): ______
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 3

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: 21Q-WET

Tree Stratum (Plot size: 25')

	Absolute % Cover	Dominant Species?	Indicator Status
1. Ulmus americana	50	Y	FACW
2. Acer rubrum	20	Y	FAC
3. Fraxinus pennsylvanica	5	N	FACW
4. Taxodium distichum	5	N	OBL
5.			
6.			
	80 = Total Cover		

50% of total cover: 40 20% of total cover: 16

Sapling Stratum (Plot size: 20')

	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

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

Shrub Stratum (Plot size: 20')

	Absolute % Cover	Dominant Species?	Indicator Status
1. Lindera benzoin	30	Y	FAC
2. Ulmus americana	10	Y	FACW
3.			
4.			
5.			
6.			
	40 = Total Cover		

50% of total cover: 20 20% of total cover: 8

Herb Stratum (Plot size: 10')

	Absolute % Cover	Dominant Species?	Indicator Status
1. Saururus cernuus	90	Y	OBL
2. Symplocarpus foetidus	20	N	OBL
3. Toxicodendron radicans	5	N	FAC
4. Alliaria petiolata	2	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	117 = Total Cover		

50% of total cover: 58.5 20% of total cover: 23.4

Woody Vine Stratum (Plot size: 20')

	Absolute % Cover	Dominant Species?	Indicator Status
1. Parthenocissus quinquefolia	2	N	FACU
2.			
3.			
4.			
5.			
	2 = Total Cover		

50% of total cover: 1 20% of total cover: 0.4

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation
✓ 2 - Dominance Test is >50%
__ 3 - Prevalence Index is ≤3.0[1]
__ 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.)
Buttressed trees within wetland

SOIL

Sampling Point: 21Q-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 Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5YR 4/2	100					Silt	
2-6	7.5YR 4/2	70	7.5YR 4/6	30	C	M	Silt	
6-9	7.5YR 4/1	60	7.5YR 4/6	40	C	M	↓	
9-14	10YR 5/2	80	7.5YR 5/6	20	C	M	↓	

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

Hydric Soil Indicators:

- __ 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:

Not sampled. non-invasive letters have not been sent

Assumed hydric based on veg & hydrology

*Sampled 11/7/18

Wetland Function-Value Evaluation Form

Total area of wetland 0.07 Acres Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Forest & Roadway Distance to nearest roadway or other development 90'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? 2nd order stream riparian wetland

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 21Q
Latitude 36.99824 Longitude -77.15714
Prepared by: KJH Date 7/11/18
Wetland Impact:
Type______ Area______

Evaluation based on:
Office______ Field ✓

Corps manual wetland delineation completed? Y ✓ N______

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)		Comments
Groundwater Recharge/Discharge	X					
Floodflow Alteration	X					
Fish and Shellfish Habitat		X				
Sediment/Toxicant Retention	X					
Nutrient Removal	X					
Production Export	X					
Sediment/Shoreline Stabilization		X				
Wildlife Habitat	X					
Recreation		X				
Educational/Scientific Value		X				
Uniqueness/Heritage		X				
Visual Quality/Aesthetics		X				
ES Endangered Species Habitat		X				
Other						

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I-495 / I-270 Managed Lanes Study		Feature ID: 21R	Stream Order:
Date: 7/11/18	State: MD	Photos: 3116	
Crew: KDH, CAS	County: Mo.	Last Flag Number: 21R-3A, 3B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
( ) TNW (Subject to ebb and flow)	( ) TNW – Perennial (Flowing year round)	( ) RPW – Seasonal (must flow at least 3 months a year)	(●) Non-RPW draining uplands
	( ) RPW – Perennial (Flowing year round)		(●) Non-RPW erosional feature
			( ) Non-RPW with abutting wetland
			( ) Non-RPW with adjacent wetland
Describe rational for hydrologic class: No Flow during site visit			( ) Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: Uplands	Downstream: 21H	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
[ ] Natural Channel Shape	Width: 3-8'	[X] Silts	[ ] Sands	[ ] Muck	RB: Forest
[X] Artificial (man-made)	Depth: 4-8"	[X] Cobbles	[X] Gravel	[ ] Other:	
[ ] Manipulated (man-altered)	Bank Erosion/stability:	[ ] Bedrock	[ ] Concrete		
[ ] Other:	severe erosion	Side slope: [X] ≥1:1 [ ] 2:1 [ ] 3:1 [ ] ≤4:1			LB: Forest

Notes: Erosion created from golf course drainage pipes.

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: June Year: 2018												
(●) No rain	(●) 0-0.5	( )	( )	( )	( )	( )	( )	( )	(●)	( )	( )	( )	( )	( )
( ) Light rain	( ) 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
( ) Heavy Rain	( ) >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet		

Non-tidal tributary has: *(check all that apply; include photos for each & list photo #)*

Bed and Banks	Ordinary High Water Mark		
[X] Yes	[ ] Clear, natural line impressed on the bank	[ ] Sediment deposition	[ ] Sediment sorting
[ ] No	[ ] Changes in the character of soil	[ ] Water staining	[X] Scour
	[ ] Shelving	[X] Presence of flood litter/debris	[ ] Observed/predicted flow events
	[X] Vegetation matted down, bent, or absent	[ ] Destruction of terrestrial veg.	[ ] Abrupt change in plant community
	[X] Leaf litter disturbed	[X] 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-495/I-270 Managed Lanes Study City/County: Montgomery CO Sampling Date: 9/21/18
Applicant/Owner: SHA State: MD Sampling Point: 21T - WET
Investigator(s): KJH, SLY Section, Township, Range: ____
Landform (hillslope, terrace, etc.): TERRACE Local relief (concave, convex, none): CONVEX Slope (%): 0
Subregion (LRR or MLRA): 148 Lat: 38.99913945 Long: -77.15715071 Datum: WGS84
Soil Map Unit Name: BAILE SILT LOAM, 0 to 3 PERCENT 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 4238-4240

seep wetland at base of hillslope.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

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

Sampling Point: 21T-wet

Tree Stratum (Plot size: 10' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Platanus occidentalis	20	Y	FACW
2. Acer rubrum	30	Y	FAC
3.			
4.			
5.			
6.			
= Total Cover	50		
50% of total cover: 25	20% of total cover: 10		

Sapling Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
= Total Cover			
50% of total cover:	20% of total cover:		

Shrub Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
= Total Cover			
50% of total cover:	20% of total cover:		

Herb Stratum (Plot size: 10' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Persicaria longiseta	5	Y	FAC
2. Euonymus fortunei	15	Y	FACU
3. Pilea pumila	2	N	FACW
4. Rumex crispus	5	Y	FAC
5. Microstegium vimineum	5	Y	FAC
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	32		
50% of total cover: 16	20% of total cover: 6		

Woody Vine Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
= Total Cover			
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 83 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
✓ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 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: 21T-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 %	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5Y 3/2	90	5YR 3/4	10	C	PL,M	clay	
6-13	2.5Y 4/1	60	5YR 4/4	40	C	PL,M	clay loam	
13-20	5Y 5/1	60	5YR 5/6	40	C	PL,M	silty clay	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: ____________

Depth (inches): ____________

Hydric Soil Present? Yes ✓ No ____

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.05 Acres Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? ____

Adjacent land use Forest, Roadway Distance to nearest roadway or other development 60'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? 2nd order stream Riparian zone

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 21T
Latitude 38.9991 Longitude -77.15715
Prepared by: KSH Date 7/19/18
Wetland Impact:
Type ____ Area ____

Evaluation based on:
Office ____ Field ✓
Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X				
Floodflow Alteration		X			
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	X				
Nutrient Removal	X				
Production Export		X			
Sediment/Shoreline Stabilization		X			
Wildlife Habitat	X				
Recreation		X			
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat					
Other					

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 210	**Stream Order:**
Date: 7/20/18	**State:** MD	**Photos:** 449-552	
Crew: KDH, EG	**County:** Mo.	**Last Flag Number:** 21U-4a/4b	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	● RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing in July. 0.5" rain 3 days prior			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: culvert	Downstream: 21B	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
[ ] Natural Channel Shape	Width: 5-15'	[x] Silts	[x] Sands	[ ] Muck	RB: Forest
[ ] Artificial (man-made)	Depth: 3-6"	[x] Cobbles	[x] Gravel	[x] Other:	
[x] Manipulated (man-altered)	Bank Erosion/stability:	[ ] Bedrock	[ ] Concrete	rip-rap	
[ ] Other:	moderate erosion	Side slope: [x] ≥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: June Year: 2018												
● No rain	● 0-0.5	○	○	○	○	○	○	○	●	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet		

Non-tidal tributary has: *(check all that apply; include photos for each & list photo #)*

Bed and Banks	Ordinary High Water Mark		
[x] Yes	[ ] Clear, natural line impressed on the bank	[x] Sediment deposition	[x] Sediment sorting
[ ] No	[ ] Changes in the character of soil	[x] Water staining	[x] Scour
	[x] Shelving	[x] Presence of flood litter/debris	[ ] Observed/predicted flow events
	[x] Vegetation matted down, bent, or absent	[ ] Destruction of terrestrial veg.	[ ] Abrupt change in plant community
	[x] Leaf litter disturbed	[x] 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: J-495/I-270 Managed Lanes Study	Feature ID: 21V	Stream Order:
Date: 7/26/18 — State: MD	Photos: 0457 - 0458	
Crew: KSH, ET — County: Mo.	Last Flag Number: 7a/7b	

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: Completely dry on 7/18 Flowing on 7/27- However, 7" of rain week prior			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: outside study Area	Downstream: 21C (Thomas Branch)	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: Forest
☐ Artificial (man-made)	Depth: 3-6"	☒ Cobbles	☒ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		
☐ Other:	moderate erosion	Side slope: ☒ ≥1:1 ☒ 2:1 ☐ 3:1 ☒ ≤4:1			LB: Forest
Notes:					

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: June Year: 2018												
◉ No rain	○ 0-0.5	○	○	○	○	○	○	○	◉	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	◉ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet		

Non-tidal tributary has: *(check all that apply; include photos for each & list photo #)*

Bed and Banks	Ordinary High Water Mark		
☑ Yes	☐ Clear, natural line impressed on the bank	☑ Sediment deposition	☑ Sediment sorting
☐ No	☐ Changes in the character of soil	☐ Water staining	☑ Scour
	☑ Shelving	☑ Presence of flood litter/debris	☐ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☐ Leaf litter disturbed	☑ Presence of wrack line	☐ Other:

Tidal tributary has: *(check all that apply; include photos for each & list photo #)*

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Waters of the U.S. Data Sheet

Project: I-495/I-270 MANAGED LANES STUDY	**Feature ID:** 22A	**Stream Order:** 3
Date: 4-17-2018 · **State:** MD	**Photos:** 0220-0221	
Crew: MBS/SJF · **County:** MONTGOMERY	**Last Flag Number:** 6 (centerline)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
( ) TNW (Subject to ebb and flow)	( ) TNW – Perennial (Flowing year round)	(X) RPW – Seasonal (must flow at least 3 months a year)	( ) Non-RPW draining uplands
			( ) Non-RPW erosional feature
	( ) RPW – Perennial (Flowing year round)		( ) Non-RPW with abutting wetland
			( ) Non-RPW with adjacent wetland
Describe rational for hydrologic class: FLOWING DURING FIELD INVESTIGATION, UNDER MODERATE DROUGHT CONDITIONS			( ) Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: 3' PIPE & CONCRETE PATH/CHANNEL	Downstream: 3' PIPE	Adjacent/Abutting: N/A

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
[ ] Natural Channel Shape	Width: 3'	[ ] Silts	[ ] Sands	[ ] Muck	RB: HEDGEROW
[X] Artificial (man-made)	Depth: 6"	[ ] Cobbles	[ ] Gravel	[ ] Other:	
[ ] Manipulated (man-altered)	Bank Erosion/stability:	[ ] Bedrock	[X] Concrete		
[ ] Other:	STABLE	Side slope: [ ] ≥1:1 [X] 2:1 [ ] 3:1 [ ] ≤4:1			LB: HEDGEROW
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: APRIL Year: 2018
(X) 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		
[X] Yes	[X] Clear, ~~natural~~ line impressed on the bank	[ ] Sediment deposition	[ ] Sediment sorting
[ ] No	[ ] Changes in the character of soil	[X] Water staining	[ ] Scour
	[ ] Shelving	[X] Presence of flood litter/debris	[X] Observed/predicted flow events
	[X] Vegetation matted down, bent, or absent	[ ] Destruction of terrestrial veg.	[ ] Abrupt change in plant community
	[ ] Leaf litter disturbed	[X] 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-496/270 Managed Lanes Study		**Feature ID:** 22AA	**Stream Order:**
Date: 5/15/2018	**State:** MD	**Photos:** 2753-2754	
Crew: MBS/AGA	**County:** Montgomery	**Last Flag Number:** None (LIDAR data)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	● RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing at time of site visit; wide channel; mapped on DNR/NWI GIS; part of Cabin John Creek			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: outside study area	Downstream: outside study area	Adjacent/Abutting: 22HH; 22DD; 22KK

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 30'	☑ Silts	☑ Sands	☐ Muck	RB: forest
☐ Artificial (man-made)	Depth: 10"	☑ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☑ Bedrock	☐ Concrete		
☐ Other:	Stable	Side slope: ☐ ≥1:1 ☐ 2:1 ☑ 3:1 ☐ ≤4:1			LB: forest
Notes: Cabin John Creek					

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: 2018	
● No rain	○ 0-0.5	○	○	○	○	○	○	○	○	●	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet		

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
☑ Yes	☑ Clear, natural line impressed on the bank	☑ Sediment deposition	☑ Sediment sorting
☐ No	☐ Changes in the character of soil	☐ Water staining	☐ Scour
	☐ Shelving	☑ Presence of flood litter/debris	☑ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☐ Leaf litter disturbed	☑ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Stream Assessment Form (Form 1)

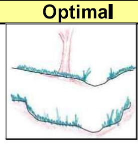
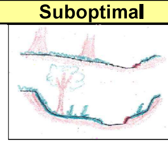
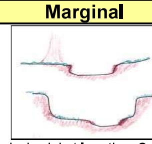
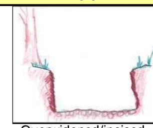
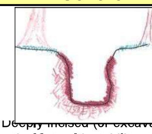
Unified Stream Methodology for use in Virginia

For use in wadeable channels classified as intermittent or perennial

Project #	Project Name	Locality	Cowardin Class.	HUC	Date	SAR #	Impact/SAR length	Impact Factor
	I-495 NEXT	Fairfax	~~SK~~ R3	02070008	8/20/2018	~~SK~~ 22AAA		

Name(s) of Evaluator(s)	Stream Name and Information
Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	unnamed tributary to the Potomac River

1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation)

	Optimal	Suboptimal	Marginal	Poor	Severe	
	Conditional Category					
Channel Condition	 Very little incision or active erosion; 80-100% stable banks. Vegetative surface protection or natural rock, prominent (80-100%). AND/OR Stable point bars/bankfull benches are present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Transient sediment deposition covers less than 10% of bottom.	 Slightly incised, few areas of active erosion or unprotected banks. Majority of banks are stable (60-80%). Vegetative protection or natural rock prominent (60-80%) AND/OR Depositional features contribute to stability. The bankfull and low flow channels are well defined. Stream likely has access to bankfull benches, or newly developed floodplains along portions of the reach. Transient sediment covers 10-40% of the stream bottom.	 Often incised, but less than Severe or Poor. Banks more stable than Severe or Poor due to lower bank slopes. Erosion may be present on 40-60% of both banks. Vegetative protection on 40-60% of banks. Streambanks may be vertical or undercut. AND/OR 40-60% of stream is covered by sediment. Sediment may be temporary/transient, contribute instability. Deposition that contribute to stability, may be forming/present. AND/OR V-shaped channels have vegetative protection on > 40% of the banks and depositional features which contribute to stability.	 Overwidened/incised. Vertically/laterally unstable. Likely to widen further. Majority of both banks are near vertical. Erosion present on 60-80% of banks. Vegetative protection present on 20-40% of banks, and is insufficient to prevent erosion. AND/OR 60-80% of the stream is covered by sediment. Sediment is temporary/transient in nature, and contributing to instability. AND/OR V-shaped channels have vegetative protection is present on > 40% of the banks and stable sediment deposition is absent.	 Deeply incised (or excavated), vertical/lateral instability. Severe incision, flow contained within the banks. Streambed below average rooting depth, majority of banks vertical/undercut. Vegetative protection present on less than 20% of banks, is not preventing erosion. Obvious bank sloughing present. Erosion/raw banks on 80-100%. AND/OR Aggrading channel. Greater than 80% of stream bed is covered by deposition, contributing to instability. Multiple thread channels and/or subterranean flow.	CI
Score	3	2.4	2	1.6	1	1.6
NOTES>>	The majority of the stream banks have significant evidence of erosion.					

2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable)

	Optimal	Suboptimal		Marginal		Poor	
	Conditional Category						
Riparian Buffers	Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas.	**High Suboptimal:** Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	**Low Suboptimal:** Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	**High Marginal:** Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	**Low Marginal:** Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	**High Poor:** Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	**Low Poor:** Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.
		High	Low	High	Low	High	Low
Condition Scores	1.5	1.2	1.1	0.85	0.75	0.6	0.5

NOTES>> The buffer of this stream has mature trees with significant canopy cover and has an un-maintained understory with very dense vegetation

1. Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the descriptors.
2. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you below.
3. Enter the % Riparian Area and Score for each riparian category in the blocks below.

Ensure the sums of % Riparian Blocks equal 100

Right Bank	% Riparian Area>	100%						100%
	Score >	1.1						
Left Bank	% Riparian Area>	100%						100%
	Score >	1.1						

CI= (Sum % RA * Scores*0.01)/2

		CI
Rt Bank CI >	1.10	1.10
Lt Bank CI >	1.10	

3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embededness; shade; undercut banks; root mats; SAV; riffle poole complexes, stable features.

NOTES>> Habitat elements are marginal for the majority of the stream.

	Optimal	Suboptimal	Marginal	Poor	
	Conditional Category				
Instream Habitat/ Available Cover	Habitat elements are typically present in greater than 50% of the reach.	Stable habitat elements are typically present in 30-50% of the reach and are adequate for maintenance of populations.	Stable habitat elements are typically present in 10-30% of the reach and are adequate for maintenance of populations.	Habitat elements listed above are lacking or are unstable. Habitat elements are typically present in less than 10% of the reach.	CI
Score	1.5	1.2	0.9	0.5	0.90

Stream Impact Assessment Form Page 2

Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
	VDOT	Fairfax	R3	0207008	8/20/18	SK		

4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock

NOTES>> The stream has been straightened

	Conditional Category						
	Negligible	Minor		Moderate		Severe	
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	40 - 60% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not recovered.	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not recovered.	Greater than 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines AND/OR 80% of banks shored with gabion, riprap, or cement.	
SCORE	1.5	1.3	1.1	0.9	0.7	0.5	0.50

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number.

THE REACH CONDITION INDEX (RCI) >>	0.82
RCI= (Sum of all CI's)/5	
COMPENSATION REQUIREMENT (CR) >>	0
CR = RCI X LF X IF	

INSERT PHOTOS:

DESCRIBE PROPOSED IMPACT:

Waters of the U.S. Data Sheet

Project: I-495/I-270 MANAGED LANES STUDY		**Feature ID:** 22B **Stream Order:** 1
Date: 4-13-2018	**State:** MD	**Photos:** 2548-2549
Crew: MBS/SJF	**County:** MONTGOMERY	**Last Flag Number:** 3 (centerline)

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
			○ Non-RPW erosional feature
	○ RPW – Perennial (Flowing year round)		○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: 2 EPHEMERAL RIPRAP CHANNELS CONVERGE TO FORM LARGER RIPRAP CHANNEL WITH HIGH LEVEL OF DEBRIS IN WRACK LINE			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: 2 EPHEMERAL RIPRAP CHANNELS	Downstream: 22C	Adjacent/Abutting: N/A

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 3'	☐ Silts	☐ Sands	☐ Muck	RB: HEDGEROW
☐ Artificial (man-made)	Depth: 6"	☐ Cobbles	☐ Gravel	☒ Other: RIPRAP	
☒ Manipulated (man-altered)	Bank Erosion/stability: STABLE	☐ Bedrock	☐ Concrete		
☐ Other:		Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			LB: HEDGEROW
Notes:					

Weather/Precipitation Conditions:

Monthly Drought Condition NCDC Regional PDSI — Month: APRIL Year: 2018

https://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php

During Field Visit	Inches of Rain Within Last Week	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
● No rain	● 0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet		
○ Heavy Rain	○ >1													

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-495 / I-270 Managed Lanes Study	**Feature ID:** 22-BB	**Stream Order:**
Date: 6/15/18	**State:** MD	**Photos:** 2971 - 2972
Crew: KJH, SJF	**County:** Mo.	**Last Flag Number:** NA

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	● Non-RPW draining uplands ● Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: No water in channel weak bed & bank at upstream portion

Hydrologic Connectivity –	Upstream: Mowed Lawn	Downstream: 22-CC	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 1 - 4'	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 0 - 4"	✓ 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: sections of channel filled w/ debris from adjacent land owner

Weather/Precipitation Conditions:

Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php — **Month:** May **Year:** 2018

During Field Visit	Inches of Rain Within Last Week	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
● No rain	○ 0-0.5	○	○	○	○	○	○	○	●	○	○	○	○	○
○ Light rain	● 0.5-1													
○ 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-495 Northern Express Lanes City/County: Fairfax County Sampling Date: 8/16/2018

Applicant/Owner: Virginia Department of Transportation State: VA Sampling Point: ~~DP-SP~~ 22BBB

Investigator(s): Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer Section, Township, Range: ______

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

Subregion (LRR or MLRA): LLRS Lat: 38.961246° Long: -77.186870° Datum: NAD83

Soil Map Unit Name: Glenelg silt loam, 25 to 45 percent slopes NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ______ No X (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:

One of highest years of rainfall on record.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

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): 2"	**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: ~~DP-SP~~ 22BBB

Tree Stratum (Plot size: 30 ft)

	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	45	Y	FAC
2. Linodendron tulipifera	5	N	FACU
3. Fraxinus pennsylvanica	5	N	FACW
4.			
5.			
6.			
	55	= Total Cover	

50% of total cover: 27.5 20% of total cover: 11

Sapling Stratum (Plot size: 30 ft)

	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	35	Y	FACW
2. Acer rubrum	5	N	FAC
3.			
4.			
5.			
6.			
	40	= Total Cover	

50% of total cover: 20 20% of total cover: 8

Shrub Stratum (Plot size: 15 ft)

	Absolute % Cover	Dominant Species?	Indicator Status
1. Lindera benzoin	25	Y	FAC
2.			
3.			
4.			
5.			
6.			
	25	= Total Cover	

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

Herb Stratum (Plot size: 5 ft)

	Absolute % Cover	Dominant Species?	Indicator Status
1. Microstegium vimineum	60	Y	FAC
2. Ligustrum japonicum	5	N	UPL
3. Lonicera japonica	5	N	FACU
4. Acer rubrum	5	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	75	= Total Cover	

50% of total cover: 37.5 20% of total cover: 15

Woody Vine Stratum (Plot size: 30 ft)

	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
	0	= Total Cover	

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	40	x 2 =	80
FAC species	140	x 3 =	420
FACU species	10	x 4 =	40
UPL species	5	x 5 =	25
Column Totals:	195 (A)		565 (B)

Prevalence Index = B/A = 2.9

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[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: ~~DP SP~~ 22BBB

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR4/2	90%	10YR6/6	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-495/I-270 MANAGED LANES STUDY	**Feature ID:** 22C	**Stream Order:** 1
Date: 4-13-2018	**State:** MD	**Photos:** 7546-7547
Crew: MBS/SJF	**County:** MONTGOMERY	**Last Flag Number:** 3 (CENTERLINE)

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: WATER IN CHANNEL NOT FLOWING AT TIME OF INVESTIGATION, BUT HIGH LEVEL OF FLOW DEBRIS			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: 3' PIPE	Downstream: 3' PIPE	Adjacent/Abutting: N/A

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
[ ] Natural Channel Shape	Width: 3'	[ ] Silts	[ ] Sands	[ ] Muck	RB: HEDGEROW
[ ] Artificial (man-made)	Depth: 6"	[ ] Cobbles	[ ] Gravel	[x] Other: RIPRAP	
[x] Manipulated (man-altered)	Bank Erosion/stability: STABLE	[ ] Bedrock	[ ] Concrete		
[ ] Other:		Side slope: [ ] ≥1:1 [x] 2:1 [ ] 3:1 [ ] ≤4:1			LB: HEDGEROW
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: APRIL Year: 2018
● No rain	● 0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet			

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
[x] Yes	[x] Clear, natural line impressed on the bank	[x] Sediment deposition	[ ] Sediment sorting
[ ] No	[ ] Changes in the character of soil	[x] Water staining	[ ] Scour
	[ ] Shelving	[x] Presence of flood litter/debris	[ ] Observed/predicted flow events
	[x] Vegetation matted down, bent, or absent	[ ] Destruction of terrestrial veg.	[ ] Abrupt change in plant community
	[ ] Leaf litter disturbed	[x] 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-495 / I-270 Managed Lanes Study	Feature ID: 22-CC	Stream Order:
Date: 6/15/18	State: MD	Photos: 2973-2974, 2977	
Crew: KDH, SDF	County: Mo.	Last Flag Number: NA	

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
			● Non-RPW erosional feature
	○ RPW – Perennial (Flowing year round)		○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Majority of channel is dry. No hydric soils. 1-4" standing water in portions of channel.			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: Rip rap channel draining uplands	Downstream: 22-DD	Adjacent/Abutting: 22-BB, 22-EE

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: 1-6"	☒ Cobbles	☒ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability: severe/moderate erosion	☐ Bedrock	☒ Concrete		
☐ Other:		Side slope: ☒ ≥1:1 ☐ 2:1 ☐ 3:1 ☒ ≤4:1			LB: Forest
Notes: Weak bed & bank just US & DS of Seven Locks Rd. (Photos 2975, 2976)					

Weather/Precipitation Conditions: Deeply incised at upstream section. 2978

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: 2018
● No rain	○ 0-0.5	○	○	○	○	○	○	○	●	○	○	○	○	○
○ Light rain	● 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet		

Non-tidal tributary has: *(check all that apply; include photos for each & list photo #)*

Bed and Banks	Ordinary High Water Mark		
☒ Yes	☐ Clear, natural line impressed on the bank	☒ Sediment deposition	☒ Sediment sorting
☐ No	☐ Changes in the character of soil	☐ Water staining	☒ Scour
	☐ Shelving	☒ Presence of flood litter/debris	☐ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☒ Leaf litter disturbed	☒ Presence of wrack line	☐ Other:

Tidal tributary has: *(check all that apply; include photos for each & list photo #)*

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: Mont. Co Sampling Date: 1/4/21

Applicant/Owner: MDOT SHA State: MD Sampling Point: 22CC-WET

Investigator(s): DRS, MN, LN Section, Township, Range: ____

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): <1

Subregion (LRR or MLRA): 148 Lat: 38.971677 Long: -77.174974 Datum: NAD83

Soil Map Unit Name: Rock outcrop - Blocktown complex NWI classification: PFO1A/B

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? N Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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:
Depression along C+O Canal Path
Photo

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ✓	No ____	Depth (inches): 0-1/2"	Wetland Hydrology Present? Yes ✓ No ____
Water Table Present?	Yes ✓	No ____	Depth (inches): 1"	
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0"	

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: 22CCL-WET

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	40	✓	FAC
2. Ulmus americana	5		FAC
3. Fraxinus pennsylvanica	20	✓	FACW
4.			
5.			
6.			
7.			
	65 = Total Cover		
50% of total cover: 32.5	20% of total cover: 13		
Sapling/Shrub Stratum (Plot size: 30')			
1. Lindera benzoin	8	✓	FAC
2. Acer negundo	1		FAC
3. Fraxinus pennsylvanica	3		FACW
4. Rosa multiflora	6	✓	FACU
5. Asimina triloba	5	✓	FAC
6.			
7.			
8.			
9.			
	23 = Total Cover		
50% of total cover: 11.5	20% of total cover: 4.6		
Herb Stratum (Plot size: 30')			
1. Microstegium vimineum	70	✓	FAC
2. Cinna arundinacea	30	✓	FACW
3. Boehmeria cylindrica	3		FACW
4. Carex sp	2		—
5. Lonicera japonica	3		FACU
6.			
7.			
8.			
9.			
10.			
11.			
	108 = Total Cover		
50% of total cover: 54	20% of total cover: 21.6		
Woody Vine Stratum (Plot size: 30')			
1. Smilax rotundifolia	3	✓	FAC
2. Lonicera japonica	2	✓	FACU
3.			
4.			
5.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 78 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- __ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- __ 3 - Prevalence Index is ≤3.0[1]
- __ 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 Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes ✓ No ____

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

SOIL

Sampling Point: 22CCL-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 %	Type[1]	Loc[2]	Texture	Remarks
0-3	2.5Y3/2	99	10YR4/4	1	C	M	Sil	
3-7	10YR4/2	92	7.5YR4/4	8	C	M,PL	SiCl	
7-14	10YR4/2	85	10YR4/6	15	C	M	SiC	

[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 Function-Value Evaluation Form

Total area of wetland ~0.15ac Human made? N Is wetland part of a wildlife corridor? yes or a "habitat island"? ____

Adjacent land use Forest Distance to nearest roadway or other development ~15'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? yes. If not, where does the wetland lie in the drainage basin? ____

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 22CCC
Latitude 38.972134 Longitude -77.176950
Prepared by: MN, DKS Date 1/11/21
Wetland Impact:
Type PFO Area —

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation
completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✓	2, 6, 15		Perched hydrology
Floodflow Alteration	✓		2, 3, 5, 6, 9, 18		Isolated system
Fish and Shellfish Habitat		✓	1		
Sediment/Toxicant Retention	✓		3, 4, 7, 9		
Nutrient Removal	✓		3, 5, 7, 8, 9, 10, 11		not likely to be an abundance of excess nutrients in runoff
Production Export	✓		1, 2, 4, 5, 7, 8, 13	✓	Evidence of deer within wetland
Sediment/Shoreline Stabilization		✓	2, 5		
Wildlife Habitat	✓		1, 3, 4, 5, 7, 8, 9, 13, 15, 17	✓	Evidence of wildlife, feces - tracks
Recreation		✓	1, 4, 5, 12		
Educational/Scientific Value		✓	2, 4, 5, 6, 10, 13		
Uniqueness/Heritage	✓		10, 16, 17, 19, 28	✓	Part of Potomac Gorge, along C&O Canal ~~tow~~ path
Visual Quality/Aesthetics		✓	2, 5, 6, 7, 8, 9		
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I-495/I-270 MANAGED LANES STUDY		**Feature ID:** 22D	**Stream Order:** 1
Date: 4-13-2018	**State:** MD	**Photos:** 2550-2551	
Crew: MBS/SJF	**County:** MONTGOMERY	**Last Flag Number:** 2 (centerline)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: FLOWING AT TIME OF FIELD INVESTIGATION IN 6" RIVULET			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: 3' PIPE	Downstream: UNDERGROUND/UNDER CONCRETE LINER TO FEATURE 22E	Adjacent/Abutting: N/A

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: HEDGEROW
[ ] Artificial (man-made)	Depth: 1"	[ ] Cobbles	[ ] Gravel	[ ] Other:	
[x] Manipulated (man-altered)	Bank Erosion/stability: STABLE	[ ] Bedrock	[x] Concrete		LB: FOREST
[ ] Other:		Side slope: [ ] ≥1:1 [x] 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: APRIL Year: 2018
● No rain	● 0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet			

Non-tidal tributary has: *(check all that apply; include photos for each & list photo #)*

Bed and Banks	Ordinary High Water Mark		
[x] Yes	[x] Clear, ~~natural~~ line impressed on the bank	[ ] Sediment deposition	[ ] Sediment sorting
[ ] No	[ ] Changes in the character of soil	[x] Water staining	[ ] Scour
	[ ] Shelving	[x] Presence of flood litter/debris	[x] Observed/predicted flow events
	[ ] Vegetation matted down, bent, or absent	[ ] Destruction of terrestrial veg.	[ ] Abrupt change in plant community
	[ ] Leaf litter disturbed	[x] 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-495/I-270 Managed Lanes Study		Feature ID: 22-DD — Stream Order:
Date: 6/15/18	State: MD.	Photos: 2979 - 2981
Crew: KDH, SDF	County: Mo.	Last Flag Number: NA

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: shallow flowing water originates at culvert outfall			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: culvert outfall	Downstream: 22-AA	Adjacent/Abutting: 22-CC

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 2-8'	☒ Silts	☒ Sands	☐ Muck	RB: Forest
☒ Artificial (man-made)	Depth: 1"-12"	☒ Cobbles	☒ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability: moderate erosion	☐ Bedrock	☒ Concrete		
☐ Other:		Side slope: ☒ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			LB: Forest
Notes: upper segment - concrete lined. downstream segment naturalized					

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: 2018												
● No rain	○ 0-0.5	○	○	○	○	○	○	○	●	○	○	○	○	○
○ Light rain	● 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet		

Non-tidal tributary has: *(check all that apply; include photos for each & list photo #)*

Bed and Banks	Ordinary High Water Mark		
☒ Yes	☒ Clear, natural line impressed on the bank	☒ Sediment deposition	☒ Sediment sorting
☐ No	☐ Changes in the character of soil	☒ Water staining	☒ Scour
	☐ Shelving	☒ Presence of flood litter/debris	☒ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☒ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☒ Leaf litter disturbed	☒ Presence of wrack line	☐ Other:

Tidal tributary has: *(check all that apply; include photos for each & list photo #)*

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

VERIFIED
MBS 4/17/18

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495/I-270 MANAGED LANES STUDY ~~I-495 IRVM Montgomery County~~ City/County: Montgomery Co. Sampling Date: ~~11/18/14~~ 4-17-18
Applicant/Owner: SHA State: MD Sampling Point: ~~OI-B-UPL~~ 22E-UPL
Investigator(s): ~~AT, MN~~ MBS/CCO Section, Township, Range:
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR or MLRA): MLRA 148 Lat: 38.98087 Long: -77.17486 Datum: NAD 83
Soil Map Unit Name: Glenelg silt loam, 3 to 8 % slopes NWI classification: —
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)
Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No
Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ___ No ✓	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:

22E-UPL

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

Sampling Point: 01-B-UPL

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

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

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

Herb Stratum (Plot size: 30' radius)			
1. Setaria faberi	15	✓	UPL
2. Schedonorus pratensis	25	✓	FACU
3. Andropogon virginicus	10	✓	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	50		
50% of total cover: 25 20% of total cover: 10			

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	0	x 3 = 0
FACU species	35	x 4 = 140
UPL species	15	x 5 = 75
Column Totals:	50 (A)	215 (B)

Prevalence Index = B/A = 4.3

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: ~~01-B-UPL~~ 22E-UPL

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	7.5YR 4/4	100	—	—	—	—	Scl	
								Rejected @ 5" by rip rap

[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:

VERIFIED MBS 4/17/2018

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

I-495/I-270 MANAGED LANES STUDY

4/17/2018

Project/Site: ~~I-495 FRVM - Montgomery County~~ City/County: Montgomery Co Sampling Date: ~~11/18/14~~

Applicant/Owner: SHA State: MD Sampling Point: ~~01-B-WET~~ 22E-WET

Investigator(s): ~~AT, MN~~ MBS/CCO Section, Township, Range:

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

Subregion (LRR or MLRA): MLRA 148 Lat: 38.98079 Long: -77.17473 Datum: NAD 83

Soil Map Unit Name: Glenelg silt loam, 3 to 8% slopes NWI classification: PEM1J

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

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

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

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

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

Remarks:

Isolated depression viewed by MDE and USACE

Photo ~~#~~ 2557-2558

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): 1-2"	
Water Table Present?	Yes ____	No ✓	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ____	No ✓	Depth (inches):	Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

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

Sampling Point: ~~G1-B-WET~~ 22E-WET

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
= Total Cover			
50% of total cover: ___ 20% of total cover: ___			
Sapling Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
5.			
6.			
= Total Cover			
50% of total cover: ___ 20% of total cover: ___			
Shrub Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
5.			
6.			
= Total Cover			
50% of total cover: ___ 20% of total cover: ___			
Herb Stratum (Plot size: * irregular)			
1. Panicum virgatum	25	✓	FAC
2. Echinochloa muricata	30	✓	FACW
3. Juncus effusus	10		FACW
4. Schedonorus pratensis	15		FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	80		
50% of total cover: 40 20% of total cover: 16			
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
50% of total cover: ___ 20% of total cover: ___			

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
✓ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 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.)
* Plot follows limits of isolated depression

SOIL

Sampling Point: ~~01-B-WET~~ 22E-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
0-12+	10YR4/2	70	7.5YR4/6	30	C	M	SiCl	w/ gravel

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

Hydric Soil Indicators:

- ___ 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 Function-Value Evaluation Form

Total area of wetland 182 sf Human made? NO Is wetland part of a wildlife corridor? NO or a "habitat island"? YES

Adjacent land use MOWED LAWN - ROW Distance to nearest roadway or other development 35'

Dominant wetland systems present NO Contiguous undeveloped buffer zone present NO

Is the wetland a separate hydraulic system? ✓ If not, where does the wetland lie in the drainage basin? ______

How many tributaries contribute to the wetland? NONE Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 22E-WET
Latitude 38.980805 Longitude -77.174737
Prepared by: MBS Date 4/17/18
Wetland Impact:
Type PEM Area 182 sf

Evaluation based on:
Office ✓ Field ✓
Corps manual wetland delineation completed? Y ✓ N ______

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study	**Feature ID:** 22EE	**Stream Order:**
Date: 6/13/18 — **State:** MD	**Photos:** 2970	
Crew: KJH SJF — **County:** Mo.	**Last Flag Number:** NA	

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 water in channel during site visit Deeply incised channel			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: culvert	Downstream: 22CC	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
[ ] Natural Channel Shape	Width: 4-10'	[x] Silts	[x] Sands	[ ] Muck	RB: Forest
[x] Artificial (man-made)	Depth: 0-4"	[ ] Cobbles	[ ] Gravel	[ ] Other:	
[ ] Manipulated (man-altered)	Bank Erosion/stability:	[ ] Bedrock	[x] Concrete		
[ ] Other:	severe erosion	Side slope: [x] ≥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: 2018												
● No rain	○ 0-0.5	○	○	○	○	○	○	○	●	○	○	○	○	○
○ Light rain	● 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet		

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
[x] Yes	[ ] Clear, natural line impressed on the bank	[x] Sediment deposition	[ ] Sediment sorting
[ ] No	[ ] Changes in the character of soil	[ ] Water staining	[x] Scour
	[ ] Shelving	[x] Presence of flood litter/debris	[ ] Observed/predicted flow events
	[x] Vegetation matted down, bent, or absent	[ ] Destruction of terrestrial veg.	[ ] Abrupt change in plant community
	[x] Leaf litter disturbed	[x] 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:		

VERIFIED 4-18-2018 MBS
(EXTENDED FEATURE)

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

I-495/I-270 MANAGED LANES STUDY

Project/Site: ~~I-495 IRVM-Montgomery County~~ City/County: Montgomery Co. Sampling Date: ~~11/21/14~~ 4-18-2018

Applicant/Owner: SHA State: MD Sampling Point: ~~4-L-WET~~ 22F-WET

Investigator(s): ~~AT, MN, AM~~ MBS/STF Section, Township, Range:

Landform (hillslope, terrace, etc.): ditch Local relief (concave, convex, none): concave Slope (%): 1-2

Subregion (LRR or MLRA): MLRA 148 Lat: 38.98372 Long: -77.15802 Datum: NAD83

Soil Map Unit Name: Codorus silt loam, 0 to 3% slopes, occasionally flooded NWI classification: PEM1A

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

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

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

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

Hydrophytic Vegetation Present?	Yes ✓ No ___	Is the Sampled Area within a Wetland? Yes ✓ No ___
Hydric Soil Present?	Yes ✓ No ___	
Wetland Hydrology Present?	Yes ✓ No ___	

Remarks:

Photo #: ~~AT Looking North~~ 2566-2567

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): 1-4"
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:

22f-WET

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

Sampling Point: ~~01-1 WET~~

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

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

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

Herb Stratum (Plot size: 30' linear)			
1. Echinochloa muricata	10	✓	FACW
2. Ludwigia palustris	15	✓	OBL
3. Ludwigia alternifolia	4		FACW
4. Glechoma hederacea	5		FACU
5. Arthraxon hispidus	12	✓	FAC
6. Panicum dichotomiflorum	4		FACW
7. Juncus effusus	4		FACW
8.			
9.			
10.			
11.			
	54 = Total Cover		
50% of total cover: 27	20% of total cover: 10.8		

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

_✓_ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 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.)

22f-WET

SOIL

Sampling Point: ~~4-L-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 %	Type[1]	Loc[2]	Texture	Remarks
0-1	2.5Y4/3	100	—				Sl	organics + rootlets present
1-4	2.5Y 4/2	40	7.5YR4/6	20	C	M, PL	fscl	
	2.5Y4/3	40						
4-12	2.5Y4/2	85	5YR 4/6	5	C	M	sicl	
			7.5YR4/6	10	C	M		

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

Hydric Soil Indicators:

- ___ 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 Function-Value Evaluation Form

Total area of wetland 0.01 acre Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use ROAD ROW – MOWN GRASS Distance to nearest roadway or other development 35'

Dominant wetland systems present No Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? MIDDLE

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 22f-WET

Latitude 38.983585 Longitude -77.157951

Prepared by: MBS Date 4-18-2018

Wetland Impact:
Type PEM Area 0.01 acre

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study	**Feature ID:** 22 FF	**Stream Order:**
Date: 6/28/18	**State:** MD	**Photos:** 3107 - 3108
Crew: KJH, RL	**County:** Mo.	**Last Flag Number:** NA

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 during site visit			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: sheet flow from culvert	Downstream: outside Study Area flows to perennial Stream	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
[ ] Natural Channel Shape	Width: 3-5'	[X] Silts	[X] Sands	[ ] Muck	RB: Forest
[ ] Artificial (man-made)	Depth: 0-6"	[ ] Cobbles	[X] Gravel	[ ] Other:	
[X] Manipulated (man-altered)	Bank Erosion/stability:	[ ] Bedrock	[ ] Concrete		
[ ] Other:	Moderate erosion	Side slope: [X] ≥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~~ June Year: 2018												
● No rain	○ 0-0.5	○	○	○	○	○	○	○	●	○	○	○	○	○
○ Light rain	● 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet		

Non-tidal tributary has: *(check all that apply; include photos for each & list photo #)*

Bed and Banks	Ordinary High Water Mark		
[X] Yes	[ ] Clear, natural line impressed on the bank	[X] Sediment deposition	[ ] Sediment sorting
[ ] No	[ ] Changes in the character of soil	[ ] Water staining	[X] Scour
	[ ] Shelving	[X] Presence of flood litter/debris	[ ] Observed/predicted flow events
	[X] Vegetation matted down, bent, or absent	[X] Destruction of terrestrial veg.	[ ] Abrupt change in plant community
	[X] Leaf litter disturbed	[X] 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:

VERIFIED MBS 4-18-2018

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

I-495/I-270 MANAGED LANES STUDY

Project/Site: ~~I-495 IRVM - Montgomery County~~ City/County: Montgomery Co. Sampling Date: 11/24/17

Applicant/Owner: SHA State: MD Sampling Point: ~~...~~-UPL 224/226-UPL

Investigator(s): A-T, MN, AM MBS/SJF Section, Township, Range:

Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): none Slope (%): 2-3

Subregion (LRR or MLRA): MLRA 148 Lat: 38.98382 Long: -77.15808 Datum: NAD83

Soil Map Unit Name: Codorus silt loam, 0 to 3% slopes, occasionally flooded NWI classification: ——

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

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

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

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

Hydrophytic Vegetation Present?	Yes ____	No ✓
Hydric Soil Present?	Yes ____	No ✓
Wetland Hydrology Present?	Yes ____	No ✓

Is the Sampled Area within a Wetland? Yes ____ No ✓

Remarks:

Photo 19

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:

22F/22G-UPL

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: ~~01-K/L~~ UPL

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Juniperus virginiana	40	✓	FACU
2. Quercus rubra	25	✓	FACU
3. Acer rubrum	5		FAC
4.			
5.			
6.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		

Sapling Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Juniperus virginiana	5	✓	FACU
2. Acer negundo	15	✓	FAC
3.			
4.			
5.			
6.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		

Shrub Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Lonicera maackii	30	✓	UPL
2. Rosa multiflora	40	✓	FACU
3.			
4.			
5.			
6.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		

Herb Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Allium vineale	5	✓	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Lonicera japonica	50	✓	FACU
2.			
3.			
4.			
5.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 12.5 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	20	x 3 = 60
FACU species	165	x 4 = 660
UPL species	30	x 5 = 150
Column Totals:	215 (A)	870 (B)

Prevalence Index = B/A = 4.05

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.)

22F/22G-UPL

SOIL

Sampling Point: ~~01 E/E~~ UPL

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR4/3	50					Sl	
	10YR5/6	50						
3-12	10YR5/6	100					Sl	w/gravel

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

Hydric Soil Indicators:

- ___ 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:

VERIFIED MBS 4-18-2018

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

I495/I270 MANAGED LANES STUDY

Project/Site: ~~I-495 IR/M Montgomery County~~ City/County: Montgomery Co Sampling Date: ~~11/21/16~~ 4-18-2018

Applicant/Owner: SHA State: MD Sampling Point: ~~21-K-WET~~ 226-WET

Investigator(s): ~~AT, MN, AM~~ MBS/SJF Section, Township, Range:

Landform (hillslope, terrace, etc.): Swale/Seep Local relief (concave, convex, none): Concave Slope (%): 5-6

Subregion (LRR or MLRA): MLRA 148 Lat: 38.98395 Long: -77.15812 Datum: NAD83

Soil Map Unit Name: Codorus silt loam, 0 to 3% slopes, occasionally flooded NWI classification: PFO1C

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

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

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

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

Hydrophytic Vegetation Present?	Yes ✓ No ___	Is the Sampled Area within a Wetland? Yes ✓ No ___
Hydric Soil Present?	Yes ✓ No ___	
Wetland Hydrology Present?	Yes ✓ No ___	

Remarks:
Photos 2568-2569

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): 1-2"

Water Table Present? Yes ✓ No ___ Depth (inches): 6"

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: ~~01-K-WET~~ 22G-WET

Tree Stratum (Plot size: 30' linear)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix nigra	10	✓	OBL
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Sapling Stratum (Plot size: 30' linear)			
1. Fraxinus pennsylvanica	15	✓	FACW
2. Acer rubrum	5	✓	FAC
3.			
4.			
5.			
6.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Shrub Stratum (Plot size: 30' linear)			
1. Rosa multiflora	10	✓	FACU
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Herb Stratum (Plot size: 30' linear)			
1. Juncus effusus	6	✓	FACW
2. Allium vineale	4	✓	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Woody Vine Stratum (Plot size: 30' linear)			
1. Lonicera japonica	5	✓	FACU
2.			
3.			
4.			
5.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 57 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ 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.)

ACRU, QUPA + DIVI in canopy but outside of plot

22G-WET

SOIL

Sampling Point: ~~01-K-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	2.5Y4/2	70	7.5YR4/6	30	C	M,PL	sicl	
3-12	2.5Y4/1	85	5YR 4/6	15	C	M	sicl	w/ coarse fragments

[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 Function-Value Evaluation Form

Total area of wetland 0.02 acre Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use forest Distance to nearest roadway or other development 32'

Dominant wetland systems present No Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? MIDDLE

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 22G-WET

Latitude 38.984088 Longitude -77.158076

Prepared by: MBS Date 4-18-2018

Wetland Impact:
Type PFO Area 0.02 acre

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

I-495/I-270 Managed Lanes Study 6/28/18

Project/Site: ~~I495 IRVM - Montgomery County~~ City/County: Montgomery Co. Sampling Date: ~~4/24/14~~

Applicant/Owner: SHA State: MD Sampling Point: ~~01-O-UPL~~ 2266-UPL

Investigator(s): ~~AT, MN, AM~~ KJH, RL Section, Township, Range:

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

Subregion (LRR or MLRA): MLRA 148 Lat: 38.98282 Long: -77.15709 Datum: NAD83

Soil Map Unit Name: Codorus silt loam, 0 to 3% slopes, occasionally flooded NWI classification: Upland

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

Are Vegetation N, Soil Y, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ✓*

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

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

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

Remarks:
*WSSC access & planting area beyond SHA fence to the east
~~Photo C...~~
~~Disturbed ... from IRVM~~

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: ~~01-0-UPL~~ 22GG-UPL

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

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

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

Herb Stratum (Plot size: 3' radius)			
1. Panicum virgatum (planted)	85	✓	FAC
2. Trifolium repens	5		FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	85	x 3 = 255
FACU species	5	x 4 = 20
UPL species	0	x 5 = 0
Column Totals:	90 (A)	275 (B)

Prevalence Index = B/A = 3.05

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: ~~01-O-UPL~~ 22GG-UPL

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR5/4	100					sl	w/gravel, disturbed

[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:

soils disturbed

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

I-495/I-270 Managed Lanes Study 6/28/18

Project/Site: ~~I-495 IRVM~~ ~~Montgomery County~~ City/County: Montgomery Co Sampling Date: ~~11/24/14~~
Applicant/Owner: SHA State: MD Sampling Point: ~~01-0-WET~~ 22-GG-WBT
Investigator(s): ~~AT, MN, AM~~ KDH, RL Section, Township, Range:
Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): concave Slope (%): 1-2%
Subregion (LRR or MLRA): MLRA148 Lat: 38.9828 Long: -77.15719 Datum: NAD83
Soil Map Unit Name: Codorus silt loam, 0 to 3% slopes, occasionally flooded NWI classification: PEM1C
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)
Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___
Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✓ No ___	Is the Sampled Area within a Wetland? Yes ✓ No ___
Hydric Soil Present?	Yes ✓ No ___	
Wetland Hydrology Present?	Yes ✓ No ___	

Remarks:
- flows to short concrete flume to ~~01-N~~ 222
- WSSC has accessed manholes through this wetland

Southern portion of wetland removed - dry swale - Photo 3111

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:
* covering 10% of plot

22-GG-WET

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

Sampling Point: ~~01-0-WET~~

Tree Stratum (Plot size: 5' x 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	10	✓	FAC
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		

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

Sapling Stratum (Plot size: 5' x 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus palustris	5	✓	FACW
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		

50% of total cover: 2.5 20% of total cover: 1

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

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

Herb Stratum (Plot size: 5' x 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Juncus effusus	40	✓	FACW
2. Echinochloa muricata	5		FACW
3. Bidens frondosa	5		FACW
4. Panicum virgatum (planted)	40	✓	FAC
5. Arthraxon hispidus	5		FAC
6.			
7.			
8.			
9.			
10.			
11.			
	95 = Total Cover		

50% of total cover: 47.5 20% of total cover: 19

Woody Vine Stratum (Plot size: 5' x 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	___ = Total Cover		

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 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.)

22-GG-WET

SOIL

Sampling Point: ~~01-O-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 %	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5YR5/6	100					sicl	most likely from construction
3-12	10YR4/1	90	7.5YR4/6	10	C	M	sicl	

[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)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast 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 Function-Value Evaluation Form

Total area of wetland 0.01 Acres Human made? Y Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use Roadway, Forest Distance to nearest roadway or other development 14'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Roadway Swale just north of Booze Creek

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 22-GG
Latitude 38.9828 Longitude -77.15719
Prepared by: KJH Date 6/28/18
Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office_____ Field X

Corps manual wetland delineation completed? Y X N_____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		X			
Floodflow Alteration		X			
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	X				
Nutrient Removal	X				
Production Export		X			
Sediment/Shoreline Stabilization		X			
Wildlife Habitat	X				
Recreation		X			
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.

I495/I270 MANAGED LANES STUDY

Waters of the U.S. Data Sheet

VERIFIED MBS 4-18-18

Project: ~~I-495 IRVM - Montgomery County~~		**Feature ID:** ~~01-M~~ 22H	**Stream Order:** 1st
Date: ~~11/24/14~~ 4-18-2018	**State:** MD	**Photos:** ~~13~~ 2570-2572
Crew: ~~AT,MN,AM~~ MBS/SJF	**County:** Montgomery	**Last Flag Number:** ~~01-M-02A, 01-M-02B~~ 3 (centerline)

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Describe rational for hydrologic class: ~~1-4in~~ 1-8" of water present in concrete lined channel at time of field visit 3' PIPE			
Hydrologic Connectivity –	Upstream: ~~outside of study area~~	Downstream: ~~W111M~~ 3' PIPE	Adjacent/Abutting: ~~01-K and 01-L~~ 22F & 22G

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: ~~8'~~ 2-4'	☐ Silts	☐ Sands	☐ Muck	RB: forest
☑ Artificial (man-made)	Depth: ~~3'~~ 1-8"	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☑ Concrete		
☐ Other:	none	Side slope: ☐ ≥1:1 ☑ 2:1 ☐ 3:1 ☐ ≤4:1			LB: emergent vegetation/mowed lawn
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: October	Year: 2014
◉ No rain	◉ 0-0.5	Severe Drought: ○ -6 ○ -5 ○ -4	Moderate Drought: ○ -3 ○ -2	Normal: ○ -1 ○ 0 ○ 1
○ Light rain	○ 0.5-1	Moderately Wet: ◉ 2 ○ 3	Severely Wet: ○ 4 ○ 5 ○ 6	
○ Heavy Rain	○ >1			

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-495/I-270 MLS		**Feature ID:** 22HH	**Stream Order:** 1
Date: 5/2/2018	**State:** MD	**Photos:** 2689-2692	
Crew: MBS/AGA	**County:** MONTGOMERY	**Last Flag Number:** 9	

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
			○ Non-RPW erosional feature
	○ RPW – Perennial (Flowing year round)		○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: FLOWING DURING INVESTIGATION SEVERAL DAYS AFTER RAIN – GROUNDWATER INFLUENCE			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: N/A	Downstream: 22N	Adjacent/Abutting: N/A

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
[ ] Natural Channel Shape	Width: 5'	[ ] Silts	[X] Sands	[ ] Muck	RB: Forest
[ ] Artificial (man-made)	Depth: 3-5"	[ ] Cobbles	[X] Gravel	[ ] Other:	
[✓] Manipulated (man-altered)	Bank Erosion/stability: STABLE	[ ] Bedrock	[X] Concrete		LB: Forest
[ ] Other:		Side slope: [ ] ≥1:1 [ ] 2:1 [X] 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: APRIL Year: 2018
● No rain	○ 0-0.5	○ -6 ○ -5 ○ -4 (Severe Drought); ○ -3 ○ -2 (Moderate Drought); ● -1 ○ 0 ○ 1 (Normal); ○ 2 ○ 3 (Moderately Wet); ○ 4 ○ 5 ○ 6 (Severely Wet)
○ Light rain	○ 0.5-1	
○ Heavy Rain	● >1	

Non-tidal tributary has: *(check all that apply; include photos for each & list photo #)*

Bed and Banks	Ordinary High Water Mark		
[X] Yes	[X] Clear, natural line impressed on the bank	[X] Sediment deposition	[ ] Sediment sorting
[ ] No	[ ] Changes in the character of soil	[ ] Water staining	[ ] Scour
	[ ] Shelving	[X] Presence of flood litter/debris	[X] Observed/predicted flow events
	[X] Vegetation matted down, bent, or absent	[ ] Destruction of terrestrial veg.	[ ] Abrupt change in plant community
	[X] 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:

VERIFIED 4/26/2018 MBS/AGA

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

I-495/I-270 MANAGED LANES STUDY

Project/Site: ~~I 495 IRVM Montgomery County~~ City/County: Montgomery Co. Sampling Date: ~~11/20/18~~ 4/26/2018

Applicant/Owner: SHA State: MD Sampling Point: ~~OK 6 WET~~ 22I-WET

Investigator(s): ~~AT, HNT, AM~~ MBS/AGA Section, Township, Range:

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

Subregion (LRR or MLRA): MLRA 148 Lat: 38.97291 Long: -77.18056 Datum: NAD83

Soil Map Unit Name: Chrome and Conowingo soils, 3 to 8 % slopes NWI classification: PFO1E

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

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

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

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

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

Remarks: ~~Photo 15~~ PHOTO #s: 2600-2602

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: * < 1" of surface water in approx. 10 % of plot

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

Sampling Point: ~~01-G-WET~~ 22I-WET

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus bicolor	30	✓	FACW
2. Acer rubrum	60	✓	FAC
3. Ulmus americana	5		FACW
4.			
5.			
6.			
	95 = Total Cover		
50% of total cover: 47.5	20% of total cover: 19		

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

Shrub Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Ligustrum sinense	8	✓	FACU
2. Viburnum prunifolium	20	✓	FACU
3. Rosa multiflora	5		FACU
4.			
5.			
6.			
	33 = Total Cover		
50% of total cover: 16.5	20% of total cover: 6.6		

Herb Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Cinna arundinacea	50	✓	FACW
2. Glyceria sp.	10		N/A
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Lonicera japonica	8	✓	FACU
2. Smilax rotundifolia	5	✓	FAC
3.			
4.			
5.			
	13 = Total Cover		
50% of total cover: 6.5	20% of total cover: 2.6		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 57 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 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: ~~01-6-WET~~ 22I-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
0-5	10YR4/2	40	7.5YR4/4	15	C	M	sicl	
	10YR3/2	45						
5-12	2.5Y5/2	90	7.5YR5/8	10	C	M	sic	

[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 Function-Value Evaluation Form

Total area of wetland 0.47 acre Human made? ______ Is wetland part of a wildlife corridor? YES or a "habitat island"? ______

Adjacent land use ROAD Distance to nearest roadway or other development 40'

Dominant wetland systems present YES - PFO Contiguous undeveloped buffer zone present NO

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? MIDDLE

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 22I

Latitude 38.97286 Longitude -77.180588

Prepared by: MBS Date 4-26-2018

Wetland Impact:
Type PFO Area 0.47 acre

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N ______

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export	✓				
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓				
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: Montgomery Co. Sampling Date: 9/6/18
Applicant/Owner: SHA State: MD Sampling Point: 22II-WET
Investigator(s): KJH, STE Section, Township, Range: ______
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 3
Subregion (LRR or MLRA): MLRA 148 Lat: 38.986814 Long: -77.158950 Datum: NAD83
Soil Map Unit Name: Blocktown channery silt loam, 25 to 45% slopes, rocky 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 0609-0611 Small floodplain depression wetland.
Near Cabin John Creek

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)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

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

Wetland Hydrology Present? Yes X 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: 22II-WET

Tree Stratum (Plot size: 10')	Absolute % Cover	Dominant Species?	Indicator Status
1. Betula nigra	100	Y	FACW
2.			
3.			
4.			
5.			
6.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		

Sapling Stratum (Plot size: 10')	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Shrub Stratum (Plot size: 10')	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	5	Y	FACW
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		

Herb Stratum (Plot size: 10')	Absolute % Cover	Dominant Species?	Indicator Status
1. Microstegium vimineum	5	N	FAC
2. Leersia virginica	70	Y	FACW
3. Persicaria maculosa	2	N	FACW
4. Fallopia japonica	5	N	UPL
5. Ampelopsis brevipedunculata	2	N	UPL
6.			
7.			
8.			
9.			
10.			
11.			
	84 = Total Cover		
50% of total cover: 42	20% of total cover: 16.8		

Woody Vine Stratum (Plot size: 10')	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
✓ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 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: 22II-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 %	Type[1]	Loc[2]	Texture	Remarks
0-15	2.5Y3/2	70	5YR4/6	30	C	M	silt loam	
15-23	10YR4/4	80	2.5Y4/2	20	D	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 Function-Value Evaluation Form

Total area of wetland 0.01 Acres Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest Distance to nearest roadway or other development 120'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? Floodplain

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 22II
Latitude 38.9868 Longitude -77.158950
Prepared by: KJH Date 9/6/18
Wetland Impact:
Type______ Area______

Evaluation based on:
Office______ Field ✓
Corps manual wetland delineation completed? Y ✓ N______

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		X			
Floodflow Alteration	X				Small floodplain depression wetland
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	X				
Nutrient Removal	X				
Production Export	X				
Sediment/Shoreline Stabilization		X			
Wildlife Habitat	X				
Recreation		X			
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.

I-495/I-270 MANAGED LANES STUDY **Waters of the U.S. Data Sheet** VERIFIED MBS 4-26-2018

Project: ~~I-495 IRVM – Montgomery County~~		**Feature ID:** ~~01-F~~ 22J	**Stream Order:** 1st
Date: ~~11/20/14~~ 4-26-2018	**State:** MD	**Photos:** ~~14~~ 2603-2604	
Crew: ~~AT,MN,AM~~ MBS/AGA	**County:** Montgomery	**Last Flag Number:** 01-F-03C, 01-F-04D	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Describe rational for hydrologic class: 2-3" of water during field visit			
Hydrologic Connectivity –	Upstream: ~~W125M and 01-G~~ 22K	Downstream: ~~W130M~~ 22I + 22V	Adjacent/Abutting: none

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: ~~4~~ 1-4'	✓ Silts	✓ Sands	☐ Muck	RB: forest, mowed lawn
☐ Artificial (man-made)	Depth: ~~3~~ 1-6"	☒ Cobbles	✓ Gravel	☐ Other:	
✓ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		
☐ Other:	minor erosion	Side slope: ☐ ≥1:1 ☐ 2:1 ✓ 3:1 ☐ ≤4:1			LB: forest, paved road
Notes: flows to pipe					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php												
											Month: October		Year: 2014	
◉ 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-495/I-270 Managed Lanes Study City/County: Montgomery Co. Sampling Date: 9/20/18
Applicant/Owner: SHA State: MD Sampling Point: 22JJ-WET
Investigator(s): KJH, LO Section, Township, Range: ______
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 3
Subregion (LRR or MLRA): MLRA 148 Lat: 38.989758 Long: -77.158894 Datum: NAD83
Soil Map Unit Name: Baile silt loam, 0-3% slopes NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___
Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
Photos 55 & 56
Small seep wetland at top of trapezoidal channel (cabin John)

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): 19
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: 22))-WET

Tree Stratum (Plot size: 5X10)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	90	Y	FAC
2. Fraxinus pennsylvanica	5	N	FACW
3.			
4.			
5.			
6.			
	95 = Total Cover		
50% of total cover: 47.5	20% of total cover: 19		
Sapling Stratum (Plot size: 5X10)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size: 5X10)			
1. Nyssa sylvatica	5	Y	FAC
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Herb Stratum (Plot size: 5X10)			
1. Microstegium vimineum	60	Y	FAC
2. Fraxinus pennsylvanica	5	N	FACW
3. Onoclea sensibilis	2	N	FACW
4. Ampelopsis brevipedunculata	5	N	UPL
5. Lonicera japonica	8	N	FACU
6. Dicanthelium clandestinum	2	N	FAC
7.			
8.			
9.			
10.			
11.			
	82 = Total Cover		
50% of total cover: 41	20% of total cover: 16.4		
Woody Vine Stratum (Plot size: 5X10)			
1. Parthenocissus quinquefolia	2	N	FACU
2.			
3.			
4.			
5.			
	2 = Total Cover		
50% of total cover: 1	20% of total cover: 0.4		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
✓ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 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: 22JJ-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 %	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 3/1	100					Silt loam	organic material mixed in
1-9	2.5Y 4/2	70	5YR 4/6	30	C	M, PL	silty clay	
9-22	5Y 4/2	90	5YR 5/8	10	C	M	clay	

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

Hydric Soil Indicators:

- ___ 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 Function-Value Evaluation Form

Total area of wetland 0.01 Acres Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest Distance to nearest roadway or other development 100'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? Floodplain

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 22 JJ
Latitude 38.9897 Longitude -77.158894
Prepared by: KJH Date 9/20/18
Wetland Impact:
Type____ Area____

Evaluation based on:
Office____ Field ✓

Corps manual wetland delineation completed? Y ✓ N____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X				Small seep wetland adjacent to Cabin John Creek.
Floodflow Alteration		X			
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	X				
Nutrient Removal	X				
Production Export	X				
Sediment/Shoreline Stabilization		X			
Wildlife Habitat	X				
Recreation		X			
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.

VERIFIED 4/26/2018 MBS/AGA

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: ~~Capital Beltway~~ I-495/I-270 MANAGED LANES STUDY	**Date:** ~~8/17/2004~~ 4-26-2018
Project No:	**County:** Montgomery
Applicant/Owner: SHA	**State:** MD
Investigators: ~~WMM/MRS/BCR~~ MBS/AGA	**Plot ID:** ~~W125~~ 22K

Do Normal Circumstances exist on the site?	Yes	No	**Community ID:** PEM (ET 3/18/15)
Is the site significantly disturbed (Atypical Situation)?	Yes	No	**Transect ID:**
Is the area a potential Problem Area? (If needed, explain on the reverse side)	Yes	No	**Field Location:**

VEGETATION (USFWS Region No.1)

Dominant Plant Species (Latin/Common)	Stratum	Indicator	Dominant Plant Species (Latin/Common)	Stratum	Indicator
Polygonum punctatum Dotted smartweed	H	OBL			
Polygonum persicaria Lady's thumb	H	FACW			

Percent Dominant Species that are OBL, FACW, or FAC: (excluding FAC-) 100%	**FAC Neutral:** **Numeric Index:**

Remarks:
PART OF WETLAND PLANTED IN TURFGRASS
PHOTOS 2605-2607

HYDROLOGY

___ Recorded Data (Describe in Remarks):	**Wetland Hydrology Indicators**
___ Stream, Lake or Tide Gauge	Primary Indicators
___ Aerial Photographs	___ Inundated
___ Other	___ Saturated in Upper 12 Inches
X No Recorded Data	___ Water marks
	X Drift Lines
Field Observations	X Sediment Deposits
	___ Drainage patterns in Wetlands
Depth of Surface Water: N/A inches	Secondary Indicators (2 or more required)
	___ Oxidized Root Channels in Upper 12 Inches
Depth to Free Water in Pit: >12 inches	___ Water-Stained Leaves
	___ Local Soil Survey Data
Depth to Saturated Soil: >12 inches	___ FAC-Neutral Test
	___ Other (Explain in Remarks)

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

I-495/I-270 MANAGED LANES STUDY 4-26-2018

Project/Site: ~~Capital Beltway~~ **Project No:** **Applicant/Owner:** **Investigators:** ~~WMM/MRS/BCR~~ MBS/AGA	**Date:** ~~8/17/2004~~ **County:** Montgomery **State:** MD **Plot ID:** ~~W125~~ 22K

SOILS

Map Unit Name (Series and Phase): Elk silt loam, 0 to 3 percent slopes, occasionally flooded
Map Symbol: 43A **Drainage Class:** Well **Mapped Hydric Inclusion?** No
Taxonomy (Subgroup): Ultic Hapludulfs **Field Observations Confirm Mapped Type?** **Yes** **No**

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Co
0-3	B1	2.5Y2.5/1	N/A	N/A	Sandy loam/
3-6	B2	Gley 2 6/5B6	7.5YR 5/2	Many/ distinct	Silty clay/ SA
6-12	B3	Gley 1 6/56Y	7.5YR 5/6	Many/distinct	Clay/ SAB

Hydric Soil Indicators:

- ___ **Histosol**
- ___ **Histic Epipedon**
- ___ **Sulfidic Odor**
- ___ **Aquic Moisture Regime**
- ___ **Reducing Conditions**
- _X_ **Gleyed or Low Chroma Colors**
- ___ **Concretions**
- ___ **High Organic Content in Surface Layer in Sanc**
- ___ **Organic Streaking in Sandy Soils**
- ___ **Listed on Local Hydric Soils List**
- ___ **Listed on National Hydric Soils List**
- ___ **Other (Explain in Remarks)**

Remarks: Vegetated wetland resulting from outflow from drainage swale

WETLAND DETERMINATION

Hydrophytic Vegetation present?	Yes	No	Is the Sampling Point within the Wetland?	Yes	No
Wetland Hydrology Present?	Yes	No			
Hydric Soils Present?	Yes	No			

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.05 acre Human made? NO Is wetland part of a wildlife corridor? YES or a "habitat island"? ______

Adjacent land use ROAD Distance to nearest roadway or other development 100'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present ______

Is the wetland a separate hydraulic system? NO If not, where does the wetland lie in the drainage basin? MIDDLE

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 22K
Latitude 38.972957 Longitude -77.179617
Prepared by: MBS Date 4-26-2018
Wetland Impact:
Type PEM Area 0.05 acre

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N ______

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		Feature ID: 22KK	Stream Order:
Date: 9/20/18	State: MD	Photos: 57-59	
Crew: KSH, LO	County: Mo.	Last Flag Number: NA	

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: Ponded at culvert flowing during site visit.			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: 22H	Downstream: Cabin John Creek (22AA)	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
[ ] Natural Channel Shape	Width: 8-15'	[X] Silts	[X] Sands	[ ] Muck	RB: Forest
[ ] Artificial (man-made)	Depth: 3-15"	[X] Cobbles	[X] Gravel	[ ] Other:	
[X] Manipulated (man-altered)	Bank Erosion/stability: Severe erosion	[ ] Bedrock	[ ] Concrete		
[ ] Other:		Side slope: [X] ≥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: August Year: 2018
● No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	●	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet -		

Non-tidal tributary has: *(check all that apply; include photos for each & list photo #)*

Bed and Banks	Ordinary High Water Mark		
[X] Yes	[ ] Clear, natural line impressed on the bank	[X] Sediment deposition	[X] Sediment sorting
[ ] No	[ ] Changes in the character of soil	[ ] Water staining	[X] Scour
	[X] Shelving	[ ] Presence of flood litter/debris	[ ] Observed/predicted flow events
	[X] 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:		

VERIFIED MBS 4-26-18

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

I-495/I-270 MANAGED LANES STUDY

Project/Site: ~~I-495 IRIM-Montgomery County~~ City/County: Montgomery Co. Sampling Date: ~~11/21/14~~ 4-26-18

Applicant/Owner: SHA State: MD Sampling Point: ~~01-J/G-UPL~~ 22L-UPL

Investigator(s): ~~AT, MN, AM~~ MBS/AGA Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1-2

Subregion (LRR or MLRA): MLRA-148 Lat: 38.97307 Long: -77.18096 Datum: NAD83

Soil Map Unit Name: Travilah silt loam, 3 to 8 % slopes NWI classification:

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

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

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

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

Hydrophytic Vegetation Present? Yes ____ No ✓		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:

22L-UPL

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: ~~01-J/6-UPL~~

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer negundo	30	✓	FAC
2. Fraxinus pennsylvanica	50	✓	FACW
3. Ulmus americana	20		FACW
4. Acer nonum	20		FAC
5.			
6.			
	120 = Total Cover		
50% of total cover: 60	20% of total cover: 24		

Sapling Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer negundo	12	✓	FAC
2.			
3.			
4.			
5.			
6.			
	12 = Total Cover		
50% of total cover: 6	20% of total cover: 2.4		

Shrub Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Ligustrum sinense	20	✓	FACU
2. Rosa multiflora	10	✓	FACU
3. Rubus phoenicolasius	5		FACU
4.			
5.			
6.			
	35 = Total Cover		
50% of total cover: 17.5	20% of total cover: 7		

Herb Stratum (Plot size: 20' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alliaria petiolata	6	✓	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	6 = Total Cover		
50% of total cover: 3	20% of total cover: 1.2		

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Lonicera japonica	60	✓	FACU
2. Hedera helix	10		FACU
3. Celastrus orbiculatus	5		FACU
4. Euonymus fortunei	5		UPL
5.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	70	x 2 = 140
FAC species	62	x 3 = 186
FACU species	116	x 4 = 464
UPL species	5	x 5 = 25
Column Totals:	253 (A)	815 (B)

Prevalence Index = B/A = 3.22

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: ~~01 T/6 UPL~~ 22L-UPL

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR4/3	100					Sil	
4-12	10YR5/4	100					Sl	w/coarse fragments

[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:

Verified MBS/AGA 4-26-2018

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

I-495/I-270 MANAGED LANES STUDY 4-26-2018

Project/Site: ~~I-495 IRVM Montgomery County~~ City/County: Montgomery Co. Sampling Date: ~~11/21/17~~

Applicant/Owner: SHA State: MD Sampling Point: ~~01-J-WET~~ 22L

Investigator(s): ~~AT, MN, AM~~ MBS/AGA Section, Township, Range:

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): 1-2

Subregion (LRR or MLRA): MLRA 148 Lat: 38.97321 Long: -77.18064 Datum: NAD83

Soil Map Unit Name: Tranlah silt loam, 3 to 8% slopes NWI classification: PEM1A

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

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

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

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

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

Remarks:

- Appears to have been previously excavated

~~Photo 10 looking NE~~ PHOTOS 2608-2609

A portion of this wetland is considered a vernal pool. Reviewed on 9/9/2020

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): 1-6"
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: 22L ~~A1-J-WET~~

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

Sapling Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover: ____	20% of total cover: ____		

Shrub Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover: ____	20% of total cover: ____		

Herb Stratum (Plot size: * irregular)	Absolute % Cover	Dominant Species?	Indicator Status
1. Persicaria punctata	3	✓	OBL
2. Cinna arundinacea	6	✓	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	9	= Total Cover	
50% of total cover: 4.5	20% of total cover: 1.8		

Woody Vine Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
50% of total cover: ____	20% of total cover: ____		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 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.)
*Plot is limited to wetland boundary. Wetland is very sparsely vegetated.

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SOIL

Sampling Point: ~~OK~~ ~~T-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 %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR4/1	85	7.5YR4/4	15	C	M	Sicl	
4-8	10YR4/2	80	7.5YR4/6	20	C	M	sicl	
8-12	2.5Y5/4	100					SC	w/gravel

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

Hydric Soil Indicators:

- __ 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 Function-Value Evaluation Form

Total area of wetland 0.02 acre Human made? ___ Is wetland part of a wildlife corridor? YES or a "habitat island"? ___

Adjacent land use ROAD Distance to nearest roadway or other development 100'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present NO

Is the wetland a separate hydraulic system? NO If not, where does the wetland lie in the drainage basin? MIDDLE

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 22L

Latitude 39.973455 Longitude -77.180525

Prepared by: MBS Date 4-26-2018

Wetland Impact:
Type PEM Area 0.02 acre

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N ___

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 495/270 Managed Lanes City/County: Montgomery Sampling Date: 10/3/18
Applicant/Owner: State Highway Administration State: MD Sampling Point: 22LL-wet
Investigator(s): MRS Section, Township, Range:
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): Concave Slope (%): 0-20%
Subregion (LRR or MLRA): MLRA 148 Lat: 38.970302 Long: -77.178380 Datum: NAD83
Soil Map Unit Name: Rock outcrop-Blocktown complex NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [X] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [X] No [ ]
☆ Are Vegetation [ ], Soil [X], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes (X)	No ( )
Hydric Soil Present?	Yes ( )	No ( )
Wetland Hydrology Present?	Yes (X)	No ( )

Is the Sampled Area within a Wetland? Yes [X] No [ ]

Remarks: wetland is a small low pocket on high floodplain/terrace near Bedrock ⇒ hydrology likely perched on bedrock

☆ no soil pit sampled due to limited/non-invasive access to property

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes [X]	No [ ]	Depth (inches): 0-2"
☆ Water Table Present?	Yes [ ]	No [ ]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [X]	No [ ]	Depth (inches): 0"

Wetland Hydrology Present? Yes (X) No ( )

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

Remarks:
photos 0414 - 0419

A portion of this wetland is considered a vernal pool. Reviewed on 9/9/2020

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

Sampling Point: 22K wet

Tree Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Box elder (Acer negundo)	40	Y	FAC
2. American Elm (Ulmus americana)	20	Y	FACW
3.			
4.			
5.			
6.			
	060 = Total Cover		

50% of total cover: ~~0.0~~ 30 20% of total cover: ~~0.0~~ 12

Sapling Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

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

Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Lindera benzoin	10	Y	FAC
2. Acer negundo	10	Y	FAC
3. Lonicera sp.	5	N	NI
4.			
5.			
6.			
	25 = Total Cover		

50% of total cover: ~~0.0~~ 12.5 20% of total cover: ~~0.0~~ 5

Herb Stratum (Plot size: 10' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Persicaria punctata	20	Y	OBL
2. creeping jenny (Lysimachia nummularia)	20	Y	FACW
3. Hibiscus moscheutos	10	N	OBL
4. Persicaria maculosa lady's thumb	5	N	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	055 = Total Cover		

50% of total cover: ~~0.0~~ 27.5 20% of total cover: ~~0.0~~ 11

Woody Vine Stratum (Plot size: 10' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3. None			
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 (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
- [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: 22LL-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

[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:

No soil pit collected on 10/31/18

was unable to collect soil profile because the project did not have invasive access at the time of the site visit

Digging soil pits is considered invasive work.

Wetland Function-Value Evaluation Form

Total area of wetland 0.05Ac Human made? ______ Is wetland part of a wildlife corridor? Yes or a "habitat island"? ______

Adjacent land use forest + Bedrock Distance to nearest roadway or other development 140 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? NO If not, where does the wetland lie in the drainage basin? middle

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 22LL
Latitude 38.970275 Longitude -77.178429
Prepared by: MRJ Date 10/31/18
Wetland Impact:
Type PFO Area 0.05Ac

Evaluation based on:
Office ______ Field ✓
Corps manual wetland delineation completed? Y ✓ N ______

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✓			wetland is small, perched pool of water on bedrock island
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓				minor function as open water pool on bedrock island during portions of the year
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

VERIFIED MBS/AKA 4-26-18

Project: ~~I-495 IRVM - Montgomery County~~		**Feature ID:** ~~01-D~~ 22M — **Stream Order:** 3rd
Date: ~~11/18/14~~ 4-26-2018	**State:** MD	**Photos:** ~~47~~ 2610-2611
Crew: ~~A. Tatone, M. Niehaus~~ MBS/AKA	**County:** Montgomery	**Last Flag Number:** ~~01-D-02A, 01-D-03B~~ LIDAR BOUNDARY

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ◉ RPW – Perennial R3UBH (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Describe rational for hydrologic class: FLOWING RAPIDLY AT HIGH VOLUME & 30' WIDE			
Hydrologic Connectivity –	Upstream: outside of study area	Downstream: Potomac River	Adjacent/Abutting: 01-C

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 30'	✓ Silts	✓ Sands	☐ Muck	RB: forest
☐ Artificial (man-made)	Depth: ~~8'~~ 6" – 1'	✓ Cobbles	✓ Gravel	☐ Other:	
✓ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		
☐ Other:	minor erosion	Side slope: ☐ ≥1:1 ✓ 2:1 ☐ 3:1 ☐ ≤4:1			LB: forest
Notes: Rock Run, flows through culvert					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php								Month: October			Year: 2014	
◉ 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: 495/270 Managed Lane Study		Feature ID: 22MM	Stream Order:
Date: 10/31/18	State: MD	Photos: 0420 - 0421, 0424 - 0426	
Crew: MRS	County: Montgomery	Last Flag Number: not flagged - Potomac River	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	⊗ TNW – Perennial (Flowing year round) L1UBHh	○ 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: feature is Potomac River and large side channel			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: NA	Downstream: NA	Adjacent/Abutting: 22NN, 22OO, 22LL

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: > 400 ft	☑ Silts	☑ Sands	☑ Muck	RB: forest
☐ Artificial (man-made)	Depth: > 10 ft	☑ Cobbles	☑ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☑ Bedrock	☐ Concrete		
☐ Other:	stable to heavily eroding	Side slope: ☑ ≥1:1 ☑ 2:1 ☑ 3:1 ☑ ≤4:1			LB: forest
Notes:					

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: October Year: 2018												
⊗	No rain	○	0-0.5	○	○	○	○	○	○	○	○	○	○	●	○	○
○	Light rain	⊗	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4.13	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:		

I-495/I-270 MANAGED LANES STUDY **Waters of the U.S. Data Sheet** VERIFIED MBS/AGA 4-26-2018

Project: ~~I-495 IRVM - Montgomery County~~		**Feature ID:** ~~01-C~~ 22N	**Stream Order:** 1st
Date: ~~11/18/14~~ 4-26-2018	**State:** MD	**Photos:** ~~18~~ 2612-2613, 2689-2690 (5-2-2018 of intermittent top part)	
Crew: ~~A. Tatone, M. Niehaus~~ MBS/AGA	**County:** Montgomery	**Last Flag Number:** 01-C-20A, 01-C-22B	

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: ~~also ephemeral~~ intermittent portion at top with concrete now identified as 22HH			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: ~~W122M~~ 22HH	Downstream: ~~01-D~~ 22M	Adjacent/Abutting: ~~01-E~~ 22O

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

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 5'	✓ Silts	☐ Sands	☐ Muck	RB: forest
☐ Artificial (man-made)	Depth: ~~3'~~ 3"	✓ Cobbles	✓ Gravel	☐ Other:	
✓ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	✓ Concrete		
☐ Other:	minor erosion	Side slope: ☐ ≥1:1 ✓ 2:1 ☐ 3:1 ☐ ≤4:1			LB: forest
Notes: pipes, rip-rap and concrete present					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php									Month: October		Year: 2014	
◉ 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: 495/270 Managed Lane Study	Feature ID: 22 NN	Stream Order:
Date: 10/31/18	State: MD	Photos: 0427-0435
Crew: MRS	County: Montgomery	Last Flag Number: 22 NN - 8

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year) R4SB	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: standing water but not flowing. feature drains wetland 2200 into Potomac River			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: wetland 2200	Downstream: Potomac River 22MM	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 8-10 ft	☑ Silts	☑ Sands	☑ Muck	RB: forest
☐ Artificial (man-made)	Depth: 0 - 0.5 ft	☐ Cobbles	☑ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		
☐ Other:	moderate erosion	Side slope: ☑ ≥1:1 ☑ 2:1 ☐ 3:1 ☐ ≤4:1			LB: area under highway bridge
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: October Year: 2018												
⊗ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	●	○	○
○ Light rain	⊗ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4.13	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:		

VERIFIED MBS/AGA 5-2-18

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

I-495/I-270 MANAGED LANES STUDY

Project/Site: ~~I-495 IRVM- Montgomery County~~ City/County: Montgomery Co. Sampling Date: 11/18/14 220

Applicant/Owner: SHA State: MD Sampling Point: ~~01-E-UPL~~ UPL

Investigator(s): ~~AT, MN~~ MBS/AGA Section, Township, Range:

Landform (hillslope, terrace, etc.): flood plain Local relief (concave, convex, none): ——— Slope (%): 0

Subregion (LRR or MLRA): MLRA 148 Lat: 38.97480 Long: -77.17996 Datum: NAD 83

Soil Map Unit Name: Travilah silt loam, 3 to 8 % slopes NWI classification: ———

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

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

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

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

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

Remarks:
area is becoming increasingly wet

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:

220-UPL

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

Sampling Point: 01-F-UPL

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus strobus	70	✓	FACU
2. Acer rubrum	20	✓	FAC
3.			
4.			
5.			
6.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		

Sapling Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	10	✓	FAC
2. Acer negundo	5	✓	FAC
3. Quercus rubra	5	✓	FACU
4.			
5.			
6.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		

Shrub Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Rosa multiflora	5	✓	FACU
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		

Herb Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Microstegium vimineum	40	✓	FAC
2. Duchesnea indica	5		FACU
3. Cinna arundinacea	5		FACW
4. Toxicodendron radicans	5		FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	55 = Total Cover		
50% of total cover: 27.5	20% of total cover: 11		

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Lonicera japonica	40	✓	FACU
2. Vitis sp.	15		N/A
3. Toxicodendron radicans	8		FAC
4.			
5.			
	63 = Total Cover		
50% of total cover: 31.5	20% of total cover: 12.6		

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	5	x 2 = 10
FAC species	88	x 3 = 264
FACU species	125	x 4 = 500
UPL species	0	x 5 = 0
Column Totals:	218 (A)	774 (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 ✓

220-UPL

SOIL

Sampling Point: ~~01-E-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	10YR4/2	95	7.5YR4/6	5	C	PL	sicl	
1-12	2.5Y5/3	95	10YR4/6	5	C	M	fscl	

[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:

VERIFIED MBS/AGA 5-2-2018

(UPDATED VEG)

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

I-495/I-270 MANAGED LANES STUDY 4-26-2018

Project/Site: ~~I-495 ICVM - Montgomery County~~ City/County: Montgomery Co. Sampling Date: ~~11/18/14~~

Applicant/Owner: SHA State: MD Sampling Point: ~~01-E-WET~~ 220

Investigator(s): ~~AT, HN~~ MBS/AGA Section, Township, Range:

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

Subregion (LRR or MLRA): MLRA148 Lat: 38.97474 Long: -77.18019 Datum: NAD 83

Soil Map Unit Name: Travilah silt loam, 3 to 8% slopes NWI classification: PFO1E

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

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

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

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

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

Remarks:
PHOTOS 2686-2688

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:
* <1" of standing water in approximately 20% of plot

220

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

Sampling Point: ~~01-E-WET~~

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Platanus occidentalis	20	✓	FACW
2. Acer negundo	30	✓	FAC
3.			
4.			
5.			
6.			
	50 = Total Cover		

50% of total cover: 25 20% of total cover: 10

Sapling Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer negundo	5	✓	FAC
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		

50% of total cover: 2.5 20% of total cover: 1

Shrub Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. ~~Lindera benzoin~~	~~15~~	~~✓~~	~~FAC~~
2.			
3.			
4.			
5.			
6.			
	~~15~~ = Total Cover		

50% of total cover: ~~7.5~~ 20% of total cover: ~~3~~

Herb Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Cinna arundinacea	40	✓	FACW
2. Symphyotrichum pilosum	5		FAC
3. Persicaria maculosa	5		FACW
4. Dichanthelium clandestinum	~~3~~ 30	✓	FAC
5. Equisetum fluviatile	20	✓	OBL
6. Lonicera japonica	5		FACU
7.			
8.			
9.			
10.			
11.			
	50 100 ~~55~~ = Total Cover		

50% of total cover: ~~27.5~~ 20% of total cover: 20 ~~11~~

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. ~~Smilax rotundifolia~~	~~5~~		~~FAC~~
2. ~~Toxicodendron radicans~~	~~15~~	~~✓~~	~~FAC~~
3. ~~Lonicera japonica~~	~~7~~	~~✓~~	~~FACU~~
4.			
5.			
	~~27~~ = Total Cover		

50% of total cover: ~~13.5~~ 20% of total cover: ~~5.4~~

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation
✓ 2 - Dominance Test is >50%
__ 3 - Prevalence Index is ≤3.0[1]
__ 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: ~~01-E-WET~~ 220

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR3/1	95	7.5YR3/4	5	C	PL	sil	w/ organics
4-12	10YR4/1	80	7.5YR4/6	20	C	PL	fscl	"

[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 Function-Value Evaluation Form

Total area of wetland 0.44 acre Human made? No Is wetland part of a wildlife corridor? ______ or a "habitat island"? ______

Adjacent land use ROAD/RESIDENTIAL Distance to nearest roadway or other development 100'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present NO

Is the wetland a separate hydraulic system? NO If not, where does the wetland lie in the drainage basin? MIDDLE

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 220

Latitude 38.974594 Longitude -77.180507

Prepared by: MBS Date 5-2-2018

Wetland Impact:
Type PFO Area 0.44 acre

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N ______

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export	✓				
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓				
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 495/270 Managed Lanes City/County: Montgomery Sampling Date: 10/31/18

Applicant/Owner: SHA State: MD Sampling Point: 2200-wet

Investigator(s): MRS Section, Township, Range: ______

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 0-5%

Subregion (LRR or MLRA): MLRA 148 Lat: 38.971083 Long: -77.180070 Datum: NAD83

Soil Map Unit Name: Rock outcrop-Blocktown complex NWI classification: PFO1B

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

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

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

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

Hydrophytic Vegetation Present?	Yes [X]	No [ ]
Hydric Soil Present?	Yes [ ]	No [ ]
Wetland Hydrology Present?	Yes [X]	No [ ]

Is the Sampled Area within a Wetland? Yes [X] No [ ]

Remarks:
Photos 0436-0441

* soils not sampled because did not have invasive access to property

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes [X]	No [ ]	Depth (inches): 0-2"
Water Table Present?	Yes [X]	No [ ]	Depth (inches): 0"
Saturation Present? (includes capillary fringe)	Yes [X]	No [ ]	Depth (inches): 0"

Wetland Hydrology Present? Yes (X) No ( )

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

Remarks:
natural drainage way in middle of wetland full of water and iron oxide floccula[te]

feature is primarily herbaceous vegetation with from 0-50% tree canopy cover → higher along edges

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

Sampling Point: 2200

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Sycamore Platanus occidentalis	20	Y	FACW
2. Box elder Acer negundo	20	Y	FAC
3.			
4.			
5.			
6.			
	~~0~~ 40 = Total Cover		

50% of total cover: ~~0.0~~ 20 20% of total cover: ~~0.0~~ 8

Sapling Stratum (Plot size: 30' radius)			
1. None			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

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

Shrub Stratum (Plot size: 30' radius)			
1. None			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

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

Herb Stratum (Plot size: 20' radius)			
1. Reed canary grass Phalaris arundinacea	80	Y	FACW
2. Mile a minute Persicaria perfoliata	10	N	FAC
3. Lizards tail Saururus cernuus	20	N	OBL
4. Persicaria pensylvanica	10	N	FACW
5. Boehmeria cylindrica	10	N	FACW
6.			
7.			
8.			
9.			
10.			
11.			
	~~0~~ 130 = Total Cover		

50% of total cover: ~~0.0~~ 65 20% of total cover: ~~0.0~~ 26

Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
3. None			
4.			
5.			
	0 = Total Cover		

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (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: 2200-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

[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:

Soil not sampled on 10/31/18 because project did not have invasive access to the property

-> Note area is very wet with iron flocculate deposits in surface water

Soils were not collected due to the assumed wetland's proximity to an archaeology site.

Wetland Function-Value Evaluation Form

Total area of wetland >0.5 Ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? ______

Adjacent land use forest Distance to nearest roadway or other development 50 ft

Dominant wetland systems present PEM/PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Middle

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 22 00
Latitude 38.971063 Longitude -77.180070
Prepared by: MRS Date 10/31/18
Wetland Impact:
Type PFO Area >0.5 Ac
Evaluation based on:
Office ______ Field ✓
Corps manual wetland delineation completed? Y ✓ N ______

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✓	13		
Floodflow Alteration		✓	5, 6, 9, 18		
Fish and Shellfish Habitat		✓	1		
Sediment/Toxicant Retention		✓	4, 5, 9,		
Nutrient Removal	✓		1, 3, 5-7, 8, 9, 10, 11	✓	Dense vegetation but watershed is primarily small and forested → low sediment load,
Production Export	✓		1, 2, 4, 5, 7, 8, 12, 14	✓	
Sediment/Shoreline Stabilization		✓	2, 3,		
Wildlife Habitat	✓		3, 4, 8, 13, 15, 18, 21,	✓	
Recreation		✓	1, 5, 12		
Educational/Scientific Value		✓	5, 6,		
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓	4, 5, 8.		
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I-495/I-270 MANAGED LANES STUDY	**Feature ID:** 22P	**Stream Order:** 1
Date: 4-26-2018	**State:** MD	**Photos:** 2614-2615
Crew: MBS/AGA	**County:** MONTGOMERY	**Last Flag Number:** 2 (centerline)

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: FLOWING SLOWLY AFTER ~0.25" RAIN PREVIOUS DAY, ~3" STANDING WATER IN MUCH OF CHANNEL			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: 3' PIPE	Downstream: 22-N	Adjacent/Abutting: 22O

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
[X] Natural Channel Shape	Width: 3'	[X] Silts	[X] Sands	[ ] Muck	RB: forest
[ ] Artificial (man-made)	Depth: 3"	[ ] Cobbles	[ ] Gravel	[ ] Other:	
[ ] Manipulated (man-altered)	Bank Erosion/stability:	[ ] Bedrock	[ ] Concrete		
[ ] Other:	MODERATE EROSION	Side slope: [X] ≥1:1 [ ] 2:1 [ ] 3:1 [ ] ≤4:1			LB: forest
Notes: flocculated iron within channel					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI https://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: MARCH Year: 2018
● No rain	● 0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1.45	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		
[X] Yes	[X] Clear, natural line impressed on the bank	[X] Sediment deposition	[ ] Sediment sorting
[ ] No	[ ] Changes in the character of soil	[X] Water staining	[X] Scour
	[X] Shelving	[ ] Presence of flood litter/debris	[X] 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:

Verified 10/31/18
MRS

feature
22 PP
10/31/18

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

495/270 Manage Lane Study

Project/Site: ~~I-495 / RUM - Montgomery County~~ City/County: Montgomery County Sampling Date: ~~10/08/15~~
Applicant/Owner: SHA State: MD Sampling Point: ~~01-P-WET~~
Investigator(s): ~~HN, EJ, BF~~ MRS Section, Township, Range: ______
Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): Concave Slope (%): 3
Subregion (LRR or MLRA): MLRA 148 Lat: 38.971908 Long: -77.179497 Datum: NAD 83
Soil Map Unit Name: Elksilt loam, 0-3% slopes NWI classification: PFO1A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)
Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___
Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ✓ No ___	Is the Sampled Area within a Wetland?	Yes ✓ No ___
Hydric Soil Present? Yes ✓ No ___		
Wetland Hydrology Present? Yes ✓ No ___		

Remarks:
~~Photo #1 facing south~~
"photos 0445-0446 from 10/31/18

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___
Water Table Present? Yes ✓ No ~~✓~~ Depth (inches): 0-0.5"
Saturation Present? (includes capillary fringe) Yes ✓ No ~~✓~~ Depth (inches): 2"

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:
~~Small swale depression located at the base of the sloped roadway embankment culvert likely contributes to hydrology, dry @ time of site visit~~.
feature wetter in 2018 than when visited/delineated in 2015

22 PP

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

Sampling Point: ~~[illegible]~~

Tree Stratum (Plot size: irregular*)

	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. None			
3.			
4.			
5.			
6.			
= Total Cover			

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

Sapling Stratum (Plot size: irregular*)

	Absolute % Cover	Dominant Species?	Indicator Status
1. Ulmus americana	5	✓	FACW
2.			
3.			
4.			
5.			
6.			
= Total Cover	5		

50% of total cover: 2.5 20% of total cover: 1

Shrub Stratum (Plot size: irregular*)

	Absolute % Cover	Dominant Species?	Indicator Status
1. Lonicera maackii	5	✓	UPL
2.			
3.			
4.			
5.			
6.			
= Total Cover	5		

50% of total cover: 2.5 20% of total cover: 1

Herb Stratum (Plot size: irregular*)

	Absolute % Cover	Dominant Species?	Indicator Status
1. Persicaria hydropiperoides	60	✓	OBL
2. Fraxinus pennsylvanica	5		FACW
3. Lonicera japonica	10		FACU
4. Lonicera maackii	8		UPL
5. Symphyotrichum pilosum	3		FAC
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	86		

50% of total cover: 43 20% of total cover: 17.2

Woody Vine Stratum (Plot size: irregular*)

	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. None			
3.			
4.			
5.			
= Total Cover			

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 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.)
*Plot follows limits of swale *Approximately 75% aerial coverage from surrounding tree canopy, only one sapling w/in plot.

Verified 10/31/18
mrj

22 PP

SOIL Sampling Point: ~~[illegible]~~ 22 PP

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5Y 3/2	95	7.5YR 4/4	5	C	M	Silo	
6-10	10YR 4/2	45	7.5YR 4/4	10	C	M	Silo	w/ coarse fragments
	10YR 4/3	45						
10-12	2.5Y 5/4	50					Silo	fill material
	7.5YR 5/6	50					Silo	fill material

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ✓ No ___

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.01 AC Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"?

Adjacent land use Forest, roadway Distance to nearest roadway or other development 50 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin?

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 22PP

Latitude 38.9719 Longitude -77.179505

Prepared by: MRS Date 10/31/18

Wetland Impact:
Type PFO Area 0.01 AC

Evaluation based on:
Office ___ Field ✓

Corps manual wetland delineation completed? Y ✓ N ___

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				may receive GW seepage from highway embankment
Floodflow Alteration		✓			very limited drainage area
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

I-495/I-270 MANAGED LANES STUDY **Waters of the U.S. Data Sheet** VERIFIED MBS/AGA 4-26-18

Project: ~~I-495 IRVM - Montgomery County~~		**Feature ID:** ~~01-I~~ 22Q	**Stream Order:** 1st
Date: ~~11/20/14~~ 4-26-2018	**State:** MD	**Photos:** ~~18~~ 2616-2620	
Crew: ~~AT,MN,AM~~ MBS/AGA	**County:** Montgomery	**Last Flag Number:** ~~01-I-09A, 01-I-09B~~ 20A&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: greater than 1 ft of water in channel			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: ~~01-H~~ 22R	Downstream: outside of study area	Adjacent/Abutting: ~~01-H~~ 22R

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

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 4'	☑ Silts	☑ Sands	☐ Muck	RB: forest
☐ Artificial (man-made)	Depth: 2'	☐ Cobbles	☐ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		
☐ Other:	moderate erosion	Side slope: ☑ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			LB: forest
Notes: flows to and from concrete pipes					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php									Month: october		Year: 2014	
⦿ 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: 495/270 Managed Lanes		**Feature ID:** 22QQ / **Stream Order:**
Date: 10/31/18	**State:** MD	**Photos:** 0447 - 0451
Crew: MRS	**County:** Montgomery	**Last Flag Number:** 22QQ-5

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
TNW (Subject to ebb and flow)	TNW – Perennial (Flowing year round)	X RPW – Seasonal (must flow at least 3 months a year)	Non-RPW draining uplands
			Non-RPW erosional feature
	RPW – Perennial (Flowing year round)		Non-RPW with abutting wetland
			Non-RPW with adjacent wetland
Describe rational for hydrologic class: observed surface water, barely/not flowing but full of iron oxide flocculate = GW discharge?			Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: None	Downstream: 22MM = Potomac River = side channel	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate						Vegetation Cover Type (MBSS)
X	Natural Channel Shape	Width: 2' - 6'		Silts	X	Sands	X Muck	RB: Forest
	Artificial (man-made)	Depth: 0.0 - 0.1'		Cobbles		Gravel	Other:	
	Manipulated (man-altered)	Bank Erosion/stability:		Bedrock		Concrete		
	Other:	moderate erosion	Side slope: X ≥1:1 X 2:1 ☐ 3:1 ☐ ≤4:1					LB: Forest

Notes: Feature is naturally eroded channel from SW outfall

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: October Year: 2018												
✓	No rain		0-0.5											X		
	Light rain	X	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4.13	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	X	Clear, natural line impressed on the bank		Sediment deposition		Sediment sorting
	No		Changes in the character of soil	X	Water staining	X	Scour
			Shelving		Presence of flood litter/debris	X	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:

VERIFIED MBS 4-26-18

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

I-495/I-270 MANAGED LANES STUDY

Project/Site: ~~I-495 IRVM Montgomery County~~ City/County: Montgomery Co. Sampling Date: 4-26-18

Applicant/Owner: SHA State: MD Sampling Point: 22R-UPL

Investigator(s): ~~AT, MN, AM~~ MBS/AGA Section, Township, Range:

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): convex Slope (%): 3-4

Subregion (LRR or MLRA): MLRA 148 Lat: 38.97392 Long: -77.17586 Datum: NAD 83

Soil Map Unit Name: Watchung silty clay, 0 to 3% slopes NWI classification:

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

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

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

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

Hydrophytic Vegetation Present?	Yes ___ No ✓	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:

22R-UPL

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

Sampling Point: ~~61-H-UPL~~

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipifera	70	✓	FACU
2. Acer rubrum	5		FAC
3. Quercus falcata	10		FACU
4.			
5.			
6.			
	85 = Total Cover		

50% of total cover: 42.5 20% of total cover: 17

Sapling Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Carpinus caroliniana	5	✓	FAC
2. Asimina triloba	5	✓	FAC
3.			
4.			
5.			
6.			
	10 = Total Cover		

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

Shrub Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Ilex opaca	10	✓	FACU
2. Rubus phoenicolasius	15	✓	FACU
3. Rosa multiflora	15	✓	FACU
4.			
5.			
6.			
	40 = Total Cover		

50% of total cover: 20 20% of total cover: 8

Herb Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Duchesnea indica	10	✓	FACU
2. Polystichum acrostichoides	8	✓	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	18 = Total Cover		

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

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Lonicera japonica	15	✓	FACU
2. Smilax rotundifolia	5	✓	FAC
3. Hedera helix	5	✓	FACU
4.			
5.			
	25 = Total Cover		

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

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 11 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 27 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	20	x 3 = 60
FACU species	158	x 4 = 632
UPL species	0	x 5 = 0
Column Totals:	178 (A)	692 (B)

Prevalence Index = B/A = 3.89

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.)

22R-UPL

SOIL

Sampling Point: ~~2-H-UPL~~

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/3	98	10YR 4/6	2	C	M	sicl	
6-12	10YR 4/4	50	7.5YR 4/4	5	C	M	fscl	
	10YR 4/6	45						

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? Yes ______ No ✓

Remarks:

VERIFIED MBS/AGA 4-26-18
EXTENDED SHAPE

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

I-495/I-270 MANAGED LANES STUDY 4-26-2018

Project/Site: ~~I-495 FEVM-Montgomery County~~ City/County: Montgomery Co. Sampling Date: ~~4/20/18~~
Applicant/Owner: SHA State: MD Sampling Point: ~~B-II-WET~~ 22R
Investigator(s): ~~AT, MA, AM~~ MBS/AGA Section, Township, Range:
Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): 0-1
Subregion (LRR or MLRA): MLRA 148 Lat: 38.97356 Long: -77.17452 Datum: NAD83
Soil Map Unit Name: Watchung silty clay loam, 0 to 3% slopes NWI classification: PFO1E
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)
Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No
Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
PHOTOS 2621-2624
• Separated feature into PEM/PFO (PEM is 22Y).

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): 2-4"
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:
* 2-4 in of water present in approx. 25% of plot

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

Sampling Point: ~~OHH WET~~ 22R

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	50	✓	FAC
2. Platanus occidentalis	40	✓	FACW
3.			
4.			
5.			
6.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		

Sapling Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Asimina triloba	5	✓	FAC
2. Nyssa sylvatica	8	✓	FAC
3.			
4.			
5.			
6.			
	13 = Total Cover		
50% of total cover: 6.5	20% of total cover: 2.6		

Shrub Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Asimina triloba	15	✓	FAC
2.			
3.			
4.			
5.			
6.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3		

Herb Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Dichanthelium clandestinum	12		FAC
2. Microstegium vimineum	45	✓	FAC
3. Cinna arundinacea	20	✓	FACW
4. Symphyotrichum pilosum	5		FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	82 = Total Cover		
50% of total cover: 41	20% of total cover: 16.4		

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Lonicera japonica	15	✓	FACU
2. Smilax rotundifolia	3		FAC
3.			
4.			
5.			
	18 = Total Cover		
50% of total cover: 9	20% of total cover: 3.6		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 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 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- __ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- __ 3 - Prevalence Index is ≤3.0[1]
- __ 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: ~~OFH-WET~~ 22R

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	2.5Y3/2	60	7.5YR5/8	5	C	PL	sicl	many rootlets
	10YR3/2	35						
2-8	2.5Y3/1	85	7.5YR4/6	15	C	PL, M	sicl	
8-12	5Y4/2	80	7.5YR4/4	20	C	M	sicl	

[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 Function-Value Evaluation Form

Total area of wetland 0.3ac Human made?_____ Is wetland part of a wildlife corridor? Y or a "habitat island"?_____

Adjacent land use ROADWAY Distance to nearest roadway or other development 50 ft.

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present YES

Is the wetland a separate hydraulic system? NO If not, where does the wetland lie in the drainage basin? MIDDLE

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 22R
Latitude 38.973539 Longitude -77.174689
Prepared by: MBS Date 4-26-2018
Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office ✓ Field ✓
Corps manual wetland delineation completed? Y ✓ N_____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓				
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study	Feature ID: 22RR	Stream Order:
Date: 9/6/18	State: MD	Photos: 0607-0608
Crew: KSH, SSF	County: Mo,	Last Flag Number: NA

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ● RPW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Describe rational for hydrologic class: Flowing during site visit. Fish			
Hydrologic Connectivity –	Upstream: outside study Area	Downstream: Cabin John Creek	Adjacent/Abutting: None

22AA

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
[x] Natural Channel Shape	Width: 6-15'	[x] Silts	[x] Sands	[ ] Muck	RB: Forest
[ ] Artificial (man-made)	Depth: 2-10"	[x] Cobbles	[x] Gravel	[ ] Other:	
[ ] Manipulated (man-altered)	Bank Erosion/stability:	[ ] Bedrock	[ ] Concrete		LB: Forest
[ ] Other:	Severe erosion	Side slope: [x] ≥1:1 [x] 2:1 [ ] 3:1 [ ] ≤4:1			
Notes:					

Weather/Precipitation Conditions:

Monthly Drought Condition
NCDC Regional PDSI
http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php
Month: August Year: 2018

During Field Visit	Inches of Rain Within Last Week	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
● No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	●	○	○
○ Light rain	● 0.5-1													
○ 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		
[x] Yes	[ ] Clear, natural line impressed on the bank	[x] Sediment deposition	[x] Sediment sorting
[ ] No	[ ] Changes in the character of soil	[x] Water staining	[x] Scour
	[x] Shelving	[x] Presence of flood litter/debris	[ ] Observed/predicted flow events
	[x] Vegetation matted down, bent, or absent	[x] 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-495/I-270 MANAGED LANES STUDY	**Feature ID:** 225	**Stream Order:** 1
Date: 5-2-2018 / **State:** MD	**Photos:** 2681-2685	
Crew: MBS/AGA / **County:** MONTGOMERY	**Last Flag Number:** 9 (centerline)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	☒ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: FLOWING DURING FIELD INVESTIGATION, SEVERAL DAYS AFTER RAIN			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: 1' PIPE	Downstream: 22M	Adjacent/Abutting: N/A

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 1-7'	☒ Silts	☒ Sands	☐ Muck	RB: FOREST
☐ Artificial (man-made)	Depth: 6"	☒ Cobbles	☒ Gravel	☒ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete	LAYERED STONE SLABS	
☐ Other:	STABLE	Side slope: ☒ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			LB: FOREST
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI https://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php												Month: APRIL Year: 2018
● No rain	○ 0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet		

Non-tidal tributary has: *(check all that apply; include photos for each & list photo #)*

Bed and Banks	Ordinary High Water Mark		
☒ Yes	☒ Clear, natural line impressed on the bank	☒ Sediment deposition	☐ Sediment sorting
☐ No	☒ Changes in the character of soil	☒ Water staining	☒ Scour
	☒ Shelving	☒ Presence of flood litter/debris	☒ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☐ Leaf litter disturbed	☒ Presence of wrack line	☐ Other:

Tidal tributary has: *(check all that apply; include photos for each & list photo #)*

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

Stream Assessment Form (Form 1)

Unified Stream Methodology for use in Virginia

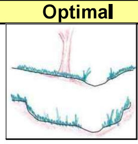
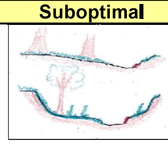
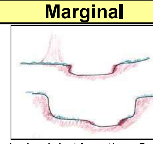
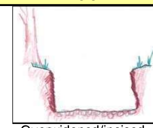
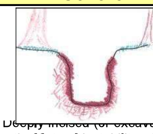
For use in wadeable channels classified as intermittent or perennial

Project #	Project Name	Locality	Cowardin Class.	HUC	Date	SAR #	Impact/SAR length	Impact Factor
	I-495 NEXT	Fairfax	R3	02070008	8/20/2018	~~CC/CD~~22SS		

Name(s) of Evaluator(s)	Stream Name and Information
Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	unnamed tributary to the Potomac

1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation)

Conditional Category

	Optimal	Suboptimal	Marginal	Poor	Severe	
						
Channel Condition	Very little incision or active erosion; 80-100% stable banks. Vegetative surface protection or natural rock, prominent (80-100%). AND/OR Stable point bars/bankfull benches are present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Transient sediment deposition covers less than 10% of bottom.	Slightly incised, few areas of active erosion or unprotected banks. Majority of banks are stable (60-80%). Vegetative protection or natural rock prominent (60-80%) AND/OR Depositional features contribute to stability. The bankfull and low flow channels are well defined. Stream likely has access to bankfull benches, or newly developed floodplains along portions of the reach. Transient sediment covers 10-40% of the stream bottom.	Often incised, but less than Severe or Poor. Banks more stable than Severe or Poor due to lower bank slopes. Erosion may be present on 40-60% of both banks. Vegetative protection on 40-60% of banks. Streambanks may be vertical or undercut. AND/OR 40-60% of stream is covered by sediment. Sediment may be temporary/transient, contribute instability. Deposition that contribute to stability, may be forming/present. AND/OR V-shaped channels have vegetative protection on > 40% of the banks and depositional features which contribute to stability.	Overwidened/incised. Vertically/laterally unstable. Likely to widen further. Majority of both banks are near vertical. Erosion present on 60-80% of banks. Vegetative protection present on 20-40% of banks, and is insufficient to prevent erosion. AND/OR 60-80% of the stream is covered by sediment. Sediment is temporary/transient in nature, and contributing to instability. AND/OR V-shaped channels have vegetative protection is present on > 40% of the banks and stable sediment deposition is absent.	Deeply incised (or excavated), vertical/lateral instability. Severe incision, flow contained within the banks. Streambed below average rooting depth, majority of banks vertical/undercut. Vegetative protection present on less than 20% of banks, is not preventing erosion. Obvious bank sloughing present. Erosion/raw banks on 80-100%. AND/OR Aggrading channel. Greater than 80% of stream bed is covered by deposition, contributing to instability. Multiple thread channels and/or subterranean flow.	CI
Score	3	2.4	2	1.6	1	1.6

NOTES>> Banks are significantly incised throught with evidence of erosion.

2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable)

Conditional Category

	Optimal	Suboptimal		Marginal		Poor	
Riparian Buffers	Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas.	**High Suboptimal:** Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	**Low Suboptimal:** Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	**High Marginal:** Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	**Low Marginal:** Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	**High Poor:** Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	**Low Poor:** Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.
		High	Low	High	Low	High	Low
Condition Scores	1.5	1.2	1.1	0.85	0.75	0.6	0.5

NOTES>> The buffer is has significant areas of disturbance on the left bank including houses and lawns. The right bank has more natural features but still has lawns which intersect.

1. Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the descriptors.
2. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you below.
3. Enter the % Riparian Area and Score for each riparian category in the blocks below.

Ensure the sums of % Riparian Blocks equal 100

Right Bank	% Riparian Area>	80%	20%					100%
	Score >	1.5	0.6					
Left Bank	% Riparian Area>	90%	10%					100%
	Score >	1.5	0.6					

CI= (Sum % RA * Scores*0.01)/2

		CI
Rt Bank CI >	1.32	
Lt Bank CI >	1.41	1.37

3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embededness; shade; undercut banks; root mats; SAV; riffle poole complexes, stable features.

NOTES>> Habitat elements are present in the majority of the stream.

Conditional Category

	Optimal	Suboptimal	Marginal	Poor	CI
Instream Habitat/ Available Cover	Habitat elements are typically present in greater than 50% of the reach.	Stable habitat elements are typically present in 30-50% of the reach and are adequate for maintenance of populations.	Stable habitat elements are typically present in 10-30% of the reach and are adequate for maintenance of populations.	Habitat elements listed above are lacking or are unstable. Habitat elements are typically present in less than 10% of the reach.	
Score	1.5	1.2	0.9	0.5	1.50

Stream Impact Assessment Form Page 2

Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
	VDOT	Fairfax	R3	0207008	8/20/18	CC/CD		

4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock

	Conditional Category					
	Negligible	Minor		Moderate		Severe
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	40 - 60% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not recovered.	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not recovered.	Greater than 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines AND/OR 80% of banks shored with gabion, riprap, or cement.
SCORE	1.5	1.3	1.1	0.9	0.7	0.5

NOTES>> alteration/straightening has occurred on a small section of this stream

1.30

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number.

THE REACH CONDITION INDEX (RCI) >>	**1.15**
RCI= (Sum of all CI's)/5	
COMPENSATION REQUIREMENT (CR) >>	**0**
CR = RCI X LF X IF	

INSERT PHOTOS:

DESCRIBE PROPOSED IMPACT:

Waters of the U.S. Data Sheet

Project: I-495/I-270 MANAGED LANES STUDY		Feature ID: 22T	Stream Order: 1
Date: 5-2-2018	State: MD	Photos: 2693-2696	
Crew: MBS/AGA	County: MONTGOMERY	Last Flag Number: N/A	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: FLOWING RAPIDLY ~4 DAYS AFTER RAINFALL			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: 22U	Downstream: 22HH	Adjacent/Abutting: N/A

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 3-6'	☒ Silts	☒ Sands	☐ Muck	RB: FORESTED
☐ Artificial (man-made)	Depth: 3"	☒ Cobbles	☐ Gravel	☒ Other: RIPRAP	
☒ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☒ Concrete		LB: FORESTED
☐ Other:	STABLE	Side slope: ☐ ≥1:1 ☐ 2:1 ☒ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI https://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: APRIL Year: 2018												
● No rain	○ 0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet		

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
☒ Yes	☐ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	☒ Water staining	☐ Scour
	☐ Shelving	☒ Presence of flood litter/debris	☒ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☐ Leaf litter disturbed	☐ Presence of wrack line	☐ Other:

Tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

High Tide Line	Mean High Water Mark indicated by:	Chemical Characteristics
☐ Oil or scum line along shore objects	☐ Survey to available datum	☐ Water is clear
☐ Fine shell or debris deposits (foreshore)	☐ Physical markings	☐ Water is discolored
☐ Physical markings/characteristics	☐ Vegetation lines/changes in types	☐ Oily film
☐ Tidal gauges		☐ Other:
Notes:		

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: I-495 Northern Express Lanes City/County: Fairfax County Sampling Date: 8/16/2018

Applicant/Owner: Virginia Department of Transportation State: VA Sampling Point: ~~DP-DC~~ 22TT

Investigator(s): Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer Section, Township, Range: ______

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

Subregion (LRR or MLRA): LRR S Lat: 38.9630 Long: -77.1741 Datum: NAD83

Soil Map Unit Name: Codorus and Hatboro soils, 0 to 2 percent slopes, occasionally flooded NWI classification: PFO

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

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

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

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

Hydrophytic Vegetation Present?	Yes (•)	No ( )
Hydric Soil Present?	Yes (•)	No ( )
Wetland Hydrology Present?	Yes (•)	No ( )

Is the Sampled Area within a Wetland? **Yes** (•) **No** ( )

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ( )	No (•)	Depth (inches):
Water Table Present?	Yes ( )	No (•)	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes (•)	No ( )	Depth (inches): 4"

Wetland Hydrology Present? **Yes** X **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: DP-DC

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	40	✓	FAC
2. Fraxinus pennsylvanica	10		FACW
3. Platanus occidentalis	5		FACW
4. Liriodendron tulipifera	5		FACU
5.			
6.			
7.			
	60 = Total Cover		

Sapling Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	25	✓	FACW
2. Acer rubrum	5		FAC
3.			
4.			
5.			
6.			
7.			
	30 = Total Cover		

Shrub Stratum (Plot size: 15)	Absolute % Cover	Dominant Species?	Indicator Status
1. Lindera benzoin	15	✓	FAC
2. Fraxinus pennsylvanica	5		FACW
3.			
4.			
5.			
6.			
7.			
	5 = Total Cover		

Herb Stratum (Plot size: 5)	Absolute % Cover	Dominant Species?	Indicator Status
1. Microstegium vimineum	75	✓	FAC
2. Osmundastrum cinnamomeum	5		FACW
3. Ligustrum japonicum	5		UPL
4. Lonicera japonica	5		FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 = Total Cover		

Woody Vine Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	50	x 2 = 100
FAC species	135	x 3 = 405
FACU species	10	x 4 = 40
UPL species	10	x 5 = 50
Column Totals:	205 (A)	595 (B)

Prevalence Index = B/A = 2.9

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[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: DP-DC

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR3/2	80	10YR4/6	20	C	M	SL	silt loam
		0%		0%				
		0%		0%				
		0%		0%				
		0%		0%				
		0%		0%				
		0%		0%				
		0%		0%				
		0%		0%				
		0%		0%				

[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)**

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)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: ______

Depth (inches): ______

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

Remarks:

VERIFIED MBS/AGA
5-2-2018

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

I-495/I-270 MANAGED LANES STUDY

Project/Site: ~~Capital Beltway~~	**Date:** ~~8/17/2004~~ 5-2-2018
Project No:	**County:** Montgomery
Applicant/Owner: SHA	**State:** MD
Investigators: ~~WMM/MRS/BCR~~ MBS/AGA	**Plot ID:** ~~W-121 UPL~~ 22U UPL

Do Normal Circumstances exist on the site?	Yes	No	**Community ID:** Upland ET 3/18/15
Is the site significantly disturbed (Atypical Situation)?	Yes	No	**Transect ID:**
Is the area a potential Problem Area? (If needed, explain on the reverse side)	Yes	No	**Field Location:**

VEGETATION (USFWS Region No.1)

Dominant Plant Species (Latin/Common)	Stratum	Indicator	Dominant Plant Species (Latin/Common)	Stratum	Indicator
Juniperus virginiana Eastern Red cedar	S	FACU			
Liriodendron tulipifera Tulip tree	OS	FACU			
Rosa multiflora Multiflora rose	S	FACU			
Toxicodendron radicans Poison Ivy	WV	FAC			
Lonicera japonica Japanese honeysuckle	WV	FAC-			
Parthenocissus quinquefolia Virginia creeper	WV	FACU			
Cercis Canadensis Eastern redbud	S	FACU-			

Percent Dominant Species that are OBL, FACW, or FAC: (excluding FAC-) 15%

FAC Neutral:
Numeric Index:

Remarks:

HYDROLOGY

__ Recorded Data (Describe in Remarks):
- ___ Stream, Lake or Tide Gauge
- ___ Aerial Photographs
- ___ Other

X No Recorded Data

Field Observations

Depth of Surface Water: N/A inches

Depth to Free Water in Pit: >10 inches

Depth to Saturated Soil: >10 inches

Wetland Hydrology Indicators

Primary Indicators
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage patterns in Wetlands

Secondary Indicators (2 or more required)
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

I-495/I-270 MANAGED LANES STUDY 5-2-2018

Project/Site: ~~Capital Beltway~~ **Project No:** **Applicant/Owner:** **Investigators:** WMM/MRS/BCR	**Date:** ~~8/17/2004~~ **County:** Montgomery **State:** MD ET 3/18/15 **Plot ID:** ~~W121-UPL~~ 724-UPL

SOILS

Map Unit Name (Series and Phase): Travilah silt loam, 3 to 8 percent slopes
Map Symbol: 37B **Drainage Class:** Somewhat poorly **Mapped Hydric Inclusion?** No
Taxonomy (Subgroup): Aquic Hapludulfs **Field Observations Confirm Mapped Type?** **Yes** No

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-2	B1	10YR4/4	N/A	N/A	loam
2-10	B2	10YR5/6	N/A	N/A	Loamy sand

Hydric Soil Indicators:
- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation present?	Yes	No	Is the Sampling Point within the Wetland? Yes **No**
Wetland Hydrology Present?	Yes	No	
Hydric Soils Present?	Yes	No	

Remarks:

VERIFIED MBS/AGA
5-2-2018

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

I-495/I-270 MANAGED LANES STUDY

Project/Site: ~~Capital Beltway~~
Project No: 103-087
Applicant/Owner: SHA
Investigators: ~~WMM/MRS/BCR~~ MBS/AGA

Date: ~~8/17/2004~~ 5-2-2018
County: Montgomery
State: MD
Plot ID: ~~W-12T~~ 22U

	Yes	No
Do Normal Circumstances exist on the site?	Yes	No
Is the site significantly disturbed (Atypical Situation)?	Yes	No
Is the area a potential Problem Area?	Yes	No

(If needed, explain on the reverse side)

Community ID: PFO
Transect ID:
Field Location:

ET 3/18/15

VEGETATION (USFWS Region No.1)

Dominant Plant Species (Latin/Common)	Stratum	Indicator	Dominant Plant Species (Latin/Common)	Stratum	Indicator
Acer rubrum / Red maple	OS/S	FAC			
Salix nigra / Black willow	OS	FACW+			
Ulmus rubra / Slippery elm	OS	FAC			
Acer negundo / Boxelder	OS	FAC+			

Percent Dominant Species that are OBL, FACW, or FAC: (excluding FAC-) 100%

FAC Neutral:
Numeric Index:

Remarks:
PHOTOS 2697-2699

HYDROLOGY

__ **Recorded Data (Describe in Remarks):**
___ **Stream, Lake or Tide Gauge**
___ **Aerial Photographs**
___ **Other**
X **No Recorded Data**

Field Observations

Depth of Surface Water: 0-6 inches

Depth to Free Water in Pit: 0 inches

Depth to Saturated Soil: 0 inches

Wetland Hydrology Indicators
Primary Indicators
X **Inundated**
X **Saturated in Upper 12 Inches**
___ **Water marks**
___ **Drift Lines**
___ **Sediment Deposits**
___ **Drainage patterns in Wetlands**
Secondary Indicators (2 or more required)
___ **Oxidized Root Channels in Upper 12 Inches**
X **Water-Stained Leaves**
___ **Local Soil Survey Data**
X **FAC-Neutral Test**
___ **Other (Explain in Remarks)**

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

I-495/I-270 MANAGED LANES STUDY   5-2-2018

Project/Site: ~~Capital Beltway~~	**Date:** ~~8/17/2004~~
Project No: 103-087	**County:** Montgomery
Applicant/Owner:	**State:** MD
Investigators: ~~WMM/MRS/BCR~~ MBS/AGA	**Plot ID:** ~~W-12T~~ 22U

SOILS

Map Unit Name (Series and Phase): Travilah silt loam, 3 to 8 percent slopes
Map Symbol: 37B **Drainage Class:** Somewhat poorly **Mapped Hydric Inclusion?** No
Taxonomy (Subgroup): Aquic hapludulfs **Field Observations Confirm Mapped Type?** **Yes** **No**

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-12		5Y3/1	2.5Y5/3	Faint	Silty clay loam

Hydric Soil Indicators:

___ **Histosol**
___ **Histic Epipedon**
___ **Sulfidic Odor**
___ **Aquic Moisture Regime**
_X_ **Reducing Conditions**
_X_ **Gleyed or Low Chroma Colors**
___ **Concretions**
___ **High Organic Content in Surface Layer in Sandy Soils**
___ **Organic Streaking in Sandy Soils**
___ **Listed on Local Hydric Soils List**
___ **Listed on National Hydric Soils List**
___ **Other (Explain in Remarks)**

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation present?	Yes	No	Is the Sampling Point within the Wetland?	Yes	No
Wetland Hydrology Present?	Yes	No			
Hydric Soils Present?	Yes	No			

Remarks: Depressional area with standing water up to 6”

Wetland Function-Value Evaluation Form

Total area of wetland 0.02 acre Human made? No Is wetland part of a wildlife corridor? ✓ or a "habitat island"? ____

Adjacent land use ROAD/RESIDENTIAL Distance to nearest roadway or other development 50'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present ____

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? TOP

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 22U

Latitude 38.975211 Longitude -77.178032

Prepared by: MBS Date 5-2-2018

Wetland Impact:
Type PFO Area 0.02 acre

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export	✓				
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓				
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Stream Assessment Form (Form 1)

Unified Stream Methodology for use in Virginia

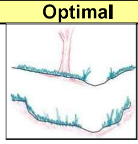
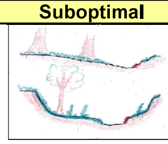
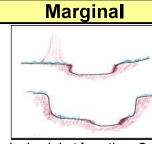
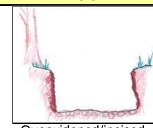
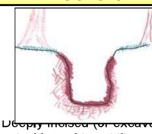
For use in wadeable channels classified as intermittent or perennial

Project #	Project Name	Locality	Cowardin Class.	HUC	Date	SAR #	Impact/SAR length	Impact Factor
	I-495 NEXT	Fairfax	R3	02070008	8/20/2018	~~DF~~ 22UU		

Name(s) of Evaluator(s)	Stream Name and Information
Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	unnamed tributary to the Potomac

1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation)

Conditional Category

	Optimal	Suboptimal	Marginal	Poor	Severe	
						
Channel Condition	Very little incision or active erosion; 80-100% stable banks. Vegetative surface protection or natural rock, prominent (80-100%). AND/OR Stable point bars/bankfull benches are present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Transient sediment deposition covers less than 10% of bottom.	Slightly incised, few areas of active erosion or unprotected banks. Majority of banks are stable (60-80%). Vegetative protection or natural rock prominent (60-80%) AND/OR Depositional features contribute to stability. The bankfull and low flow channels are well defined. Stream likely has access to bankfull benches, or newly developed floodplains along portions of the reach. Transient sediment covers 10-40% of the stream bottom.	Often incised, but less than Severe or Poor. Banks more stable than Severe or Poor due to lower bank slopes. Erosion may be present on 40-60% of both banks. Vegetative protection on 40-60% of banks. Streambanks may be vertical or undercut. AND/OR 40-60% of stream is covered by sediment. Sediment may be temporary/transient, contribute instability. Deposition that contribute to stability, may be forming/present. AND/OR V-shaped channels have vegetative protection on > 40% of the banks and depositional features which contribute to stability.	Overwidened/incised. Vertically/laterally unstable. Likely to widen further. Majority of both banks are near vertical. Erosion present on 60-80% of banks. Vegetative protection present on 20-40% of banks, and is insufficient to prevent erosion. AND/OR 60-80% of the stream is covered by sediment. Sediment is temporary/transient in nature, and contributing to instability. AND/OR V-shaped channels have vegetative protection is present on > 40% of the banks and stable sediment deposition is absent.	Deeply incised (or excavated), vertical/lateral instability. Severe incision, flow contained within the banks. Streambed below average rooting depth, majority of banks vertical/undercut. Vegetative protection present on less than 20% of banks, is not preventing erosion. Obvious bank sloughing present. Erosion/raw banks on 80-100%. AND/OR Aggrading channel. Greater than 80% of stream bed is covered by deposition, contributing to instability. Multiple thread channels and/or subterranean flow.	CI
Score	3	2.4	2	1.6	1	1.6
NOTES>>	Banks are significantly incised throught with evidence of erosion.					

2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable)

Conditional Category

	Optimal	Suboptimal		Marginal		Poor	
Riparian Buffers	Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas.	**High Suboptimal:** Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	**Low Suboptimal:** Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	**High Marginal:** Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	**Low Marginal:** Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	**High Poor:** Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	**Low Poor:** Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.
		High	Low	High	Low	High	Low
Condition Scores	1.5	1.2	1.1	0.85	0.75	0.6	0.5

NOTES>> Both sides of the stream are wetland/floodplain mosaic. The right bank has I-495 which runs through it while the left bank has a home and yard.

1. Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the descriptors.
2. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you below.
3. Enter the % Riparian Area and Score for each riparian category in the blocks below.

Ensure the sums of % Riparian Blocks equal 100

Right Bank	% Riparian Area>	30%	70%					100%
	Score >	1.5	0.5					
Left Bank	% Riparian Area>	90%	10%					100%
	Score >	1.5	0.6					

CI= (Sum % RA * Scores*0.01)/2

		CI
Rt Bank CI >	0.80	
Lt Bank CI >	1.41	1.11

3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embededness; shade; undercut banks; root mats; SAV; riffle poole complexes, stable features.

NOTES>> Habitat elements are not present, the majority of the channel has been riprapped

Conditional Category

	Optimal	Suboptimal	Marginal	Poor	CI
Instream Habitat/ Available Cover	Habitat elements are typically present in greater than 50% of the reach.	Stable habitat elements are typically present in 30-50% of the reach and are adequate for maintenance of populations.	Stable habitat elements are typically present in 10-30% of the reach and are adequate for maintenance of populations.	Habitat elements listed above are lacking or are unstable. Habitat elements are typically present in less than 10% of the reach.	
Score	1.5	1.2	0.9	0.5	0.50

Stream Impact Assessment Form Page 2

Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
	VDOT	Fairfax	R4	0207008	8/20/18	DE		

4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock

NOTES>> The majority of the channel has been altered through straightening and riprap

	Conditional Category					
	Negligible	Minor		Moderate		Severe
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	40 - 60% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not recovered.	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not recovered.	Greater than 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines AND/OR 80% of banks shored with gabion, riprap, or cement.
SCORE	1.5	1.3	1.1	0.9	0.7	0.5

0.50

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number.

THE REACH CONDITION INDEX (RCI) >>	0.74
RCI= (Sum of all CI's)/5	
COMPENSATION REQUIREMENT (CR) >>	0
CR = RCI X LF X IF	

INSERT PHOTOS:

DESCRIBE PROPOSED IMPACT:

Waters of the U.S. Data Sheet

Project: I-495/I-270 MANAGED LANES STUDY		**Feature ID:** 22V	**Stream Order:** 1
Date: 5-9-2018	**State:** MD	**Photos:** 2733-2735	
Crew: MBS/SJF	**County:** MONTGOMERY	**Last Flag Number:** 12	

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) R4	○ 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 W/ CHANNEL, WRACK LINE AND SCOUR INDICATE PERIODIC HIGH FLOW			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: 22J	Downstream: ROADSIDE SWALE/18" RPE (outside study area)	Adjacent/Abutting: N/A

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

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
[X] Natural Channel Shape	Width: 1–4'	[X] Silts	[X] Sands	[ ] Muck	RB: HEDGEROW/ RIPRAP
[ ] Artificial (man-made)	Depth: 6"	[X] Cobbles	[X] Gravel	[ ] Other:	
[X] Manipulated (man-altered)	Bank Erosion/stability: ERODED	[ ] Bedrock	[ ] Concrete		
[ ] Other:		Side slope: [X] ≥1:1 [X] 2:1 [ ] 3:1 [ ] ≤4:1			LB: "
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI													Month: APRIL Year: 2018
● No rain	○ 0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○	
○ Light rain	● 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet			

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
[X] Yes	[X] Clear, natural line impressed on the bank	[X] Sediment deposition	[ ] Sediment sorting
[ ] No	[X] Changes in the character of soil	[X] Water staining	[X] Scour
	[X] Shelving	[X] Presence of flood litter/debris	[ ] Observed/predicted flow events
	[X] Vegetation matted down, bent, or absent	[ ] Destruction of terrestrial veg.	[ ] Abrupt change in plant community
	[X] Leaf litter disturbed	[X] 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:

Ephemeral Stream Assessment Form (Form 1a)

Unified Stream Methodology for use in Virginia

For use in ephemeral streams

Project #	Project Name	Locality	Cowardin Class.	HUC	Date	SAR #	Impact/SAR length	Impact Factor
	I-495 NEXT	Fairfax	EPH - R6	02070008	8/20/2018	~~DJ~~ 22VV		

Name(s) of Evaluator(s)	Stream Name and Information
Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	unnamed tributary to the Potomac

2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable)

	Conditional Category						
	Optimal	Suboptimal		Marginal		Poor	
Riparian Buffers	Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover and an non-maintained understory. Wetlands areas.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with >30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.
		High	Low	High	Low	High	Low
Condition Scores	1.5	1.2	1.1	0.85	0.75	0.6	0.5

NOTES>> Both sides of the stream are wetland/floodplain mosaic.

1. Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the descriptors.
2. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you below.
3. Enter the % Riparian Area and Score for each riparian category in the blocks below.

Ensure the sums of % Riparian Blocks equal 100

Right Bank	% Riparian Area>	100%						100%
	Score >	1.5						
Left Bank	% Riparian Area>	100%						100%
	Score >	1.5						

CI= (Sum % RA * Scores*0.01)/2

		CI
Rt Bank CI >	1.50	
Lt Bank CI >	1.50	1.50

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number.

THE REACH CONDITION INDEX (RCI) >> 0.75

RCI= (Riparian CI)/2

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:

151

DESCRIBE PROPOSED IMPACT:

Verified 10/31/18 MRS

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: ~~Capital Beltway~~ I-495/I-270 MANAGED LANES STUDY	**Date:** ~~8/24/04~~ 10/31/18
Project No: 103-087	**County:** Montgomery
Applicant/Owner: SHA	**State:** MD
Investigators: ~~WMM/DAL~~ ~~MBS~~ MRS	**Plot ID:** ~~W-132, DP#1~~ 22W-WET

Do Normal Circumstances exist on the site?	Yes	No	**Community ID:** PEM 1Yx
Is the site significantly disturbed (Atypical Situation)?	Yes	No	**Transect ID:**
Is the area a potential Problem Area? (If needed, explain on the reverse side)	Yes	No	**Field Location:**

VEGETATION (USFWS Region No.1)

Dominant Plant Species (Latin/Common)	Stratum	Indicator	Dominant Plant Species (Latin/Common)	Stratum	Indicator
Sagittaria latifolia / Broad-leaf Arrowhead	Herb	OBL			
Cyperus strigosus / Straw-color flatsedge	Herb	FACW			
Typha augustifolia / Narrow-leaf cattail	Herb	OBL			
Potamogeton epihydrus / Ribbonleaf pondweed	Herb	OBL			

Percent Dominant Species that are OBL, FACW, or FAC: (excluding FAC-) 100%

FAC Neutral: Yes
Numeric Index:

Remarks:
Emergent marsh in C&O Canal Photos 0404-0413

HYDROLOGY

___ **Recorded Data (Describe in Remarks):**
- ___ **Stream, Lake or Tide Gauge**
- ___ **Aerial Photographs**
- ___ **Other**

___ **No Recorded Data**

Field Observations

Depth of Surface Water: N/A inches

Depth to Free Water in Pit: 8 inches

Depth to Saturated Soil: 0 inches

Wetland Hydrology Indicators

Primary Indicators
- ___ **Inundated**
- X **Saturated in Upper 12 Inches**
- X **Water marks**
- ___ **Drift Lines**
- X **Sediment Deposits**
- ___ **Drainage patterns in Wetlands**

Secondary Indicators (2 or more required)
- ___ **Oxidized Root Channels in Upper 12 Inches**
- X **Water-Stained Leaves**
- ___ **Local Soil Survey Data**
- X **FAC-Neutral Test**
- ___ **Other (Explain in Remarks)**

Remarks:

Wet Form™

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: ~~Capital Beltway~~ **Project No:** ~~103-087~~ **Applicant/Owner: SHA** **Investigators:** ~~WMM/DAL~~ MRS	**Date:** ~~8/24/04~~ 12/31/15 **County:** Montgomery **State:** MD **Plot ID:** ~~W-132, DP#1~~ 22W-WET

SOILS

Map Unit Name (Series and Phase): Elk silt loam, 0-3% slopes, occasionally flooded
Map Symbol: 43A **Drainage Class:** Well **Mapped Hydric Inclusion?** No
Taxonomy (Subgroup): Ultic Hapludulfs **Field Observations Confirm Mapped Type?** **Yes** **No**

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-8		5Y4/1	N/A	None	Silty clay
8-12+		5Y3/1	N/A	None	Silty clay

Hydric Soil Indicators:

___ **Histosol**
___ **Histic Epipedon**
___ **Sulfidic Odor**
___ **Aquic Moisture Regime**
___ **Reducing Conditions**
___ **Gleyed or Low Chroma Colors**
___ **Concretions**
___ **High Organic Content in Surface Layer in Sandy Soils**
___ **Organic Streaking in Sandy Soils**
___ **Listed on Local Hydric Soils List**
___ **Listed on National Hydric Soils List**
___ **Other (Explain in Remarks)**

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation present?	Yes	No	Is the Sampling Point within the Wetland?	Yes	No
Wetland Hydrology Present?	Yes	No			
Hydric Soils Present?	Yes	No			

Remarks:

Wet Form™

Wetland Function-Value Evaluation Form

Total area of wetland >1.66 Ac Human made? Yes Is wetland part of a wildlife corridor? yes or a "habitat island"? ______

Adjacent land use forest, tow path Distance to nearest roadway or other development 0-150 ft

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present yes

Is the wetland a separate hydraulic system? no If not, where does the wetland lie in the drainage basin? Middle

How many tributaries contribute to the wetland? Several* Wildlife & vegetation diversity/abundance (see attached list)

* outside study area

Wetland I.D. 22W - C+O Canal

Latitude 38.97241 Longitude -77.178513

Prepared by: MRS Date 10/31/15

Wetland Impact:
Type PEM Area >0.60 Ac

Evaluation based on:
Office ______ Field ✓

Corps manual wetland delineation completed? Y ✓ N ______

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓		2, 7, 15, 8, 13		
Floodflow Alteration	✓		3, 4, 5, 6, 7, 8, 9, 10, 13, 15	✓	
Fish and Shellfish Habitat		✓	4, 7		
Sediment/Toxicant Retention	✓		1, 2, 3, 4, 5, 8,		
Nutrient Removal	✓		3, 4, 5, 6, 7, 8, 9, 10, 11		
Production Export	✓		1, 2, 4, 7, 5, 8, 9, 12, 14		
Sediment/Shoreline Stabilization		✓	3, 15		
Wildlife Habitat	✓		3, 4, 5, 6, 7, 8, 9, 13, 14, 19, 20, 21,	✓	
Recreation	✓		1, 4, 6, 9, 12		
Educational/Scientific Value		✓	5		
Uniqueness/Heritage	✓		12, 13, 16, 17, 19, 21, 22, 23, 29	✓	C+O Canal
Visual Quality/Aesthetics		✓	2, 3, 5, 7, 8, 9, 12		
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Ephemeral Stream Assessment Form (Form 1a)

Unified Stream Methodology for use in Virginia

For use in ephemeral streams

Project #	Project Name	Locality	Cowardin Class.	HUC	Date	SAR #	Impact/SAR length	Impact Factor
	I-495 NEXT	Fairfax	INT R4SB/ EPH R6	02070008	8/20/2018	~~DK/DL~~ 22WW/22XX		

Name(s) of Evaluator(s)	Stream Name and Information
Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	unnamed tributary to the Potomac

2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable)

	Conditional Category						
	Optimal	Suboptimal		Marginal		Poor	
Riparian Buffers	Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover and an non-maintained understory. Wetlands areas.	**High Suboptimal:** Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	**Low Suboptimal:** Riparian areas with tree stratum (dbh > 3 inches) present, with >30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	**High Marginal:** Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	**Low Marginal:** Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	**High Poor:** Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	**Low Poor:** Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.
		High	Low	High	Low	High	Low
Condition Scores	1.5	1.2	1.1	0.85	0.75	0.6	0.5

NOTES>> Both sides of the stream are wetland/floodplain mosaic.

1. Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the descriptors.
2. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you below.
3. Enter the % Riparian Area and Score for each riparian category in the blocks below.

Ensure the sums of % Riparian Blocks equal 100

Right Bank	% Riparian Area>	100%						100%	
	Score >	1.5							
Left Bank	% Riparian Area>	100%						100%	
	Score >	1.5							

CI= (Sum % RA * Scores*0.01)/2

		CI
Rt Bank CI >	1.50	
Lt Bank CI >	1.50	1.50

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number.

THE REACH CONDITION INDEX (RCI) >>	0.75

RCI= (Riparian CI)/2

COMPENSATION REQUIREMENT (CR) >>	0

CR = RCI X LF X IF

INSERT PHOTOS:

DESCRIBE PROPOSED IMPACT:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495/I-270 MANAGED LANES STUDY City/County: MONTGOMERY Sampling Date: 5-09-18
Applicant/Owner: SHA State: MD Sampling Point: 22X-WET
Investigator(s): MJBS/SJF Section, Township, Range: POTOMAC
Landform (hillslope, terrace, etc.): BOWL Local relief (concave, convex, none): CONCAVE Slope (%): 3
Subregion (LRR or MLRA): MLRA Lat: 38.974275 Long: -77.177721 Datum: NAD83
Soil Map Unit Name: Watchung, Travilah, Elk 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:
In floodplain of 22Q. Photos 2740-2742

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ___ No ✓	Depth (inches): ___	
Water Table Present?	Yes ✓ No ___	Depth (inches): 8"	
Saturation Present? (includes capillary fringe)	Yes ✓ No ___	Depth (inches): 2"	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: ZZX-WET

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	100	Y	FAC
2.			
3.			
4.			
5.			
6.			
= Total Cover	100		
50% of total cover: 50	20% of total cover: 20		

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

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

Herb Stratum (Plot size: 10'X20')			
1. Juncus effusus	10	N	OBL
2. Cinna arundinacea	20	Y	FACW
3. Carex sp.	10	N	N/A
4. Toxicodendron radicans	40	Y	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	80		
50% of total cover: 40	20% of total cover: 16		

Woody Vine Stratum (Plot size:)			
1. Celastrus orbiculatus	5	Y	FACU
2.			
3.			
4.			
5.			
= Total Cover	5		
50% of total cover: 2.5	20% of total cover: 1		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 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: 22X-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 %	Type[1]	Loc[2]	Texture	Remarks
0-8	Gley2 5/5B	60	2.5YR 3/6	40	C	M	clay	
8-15	Gley2 5/5B	20	5YR 4/6	15	C	PL	sandy clay	
	5Y 5/1	65						

[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)**
- X 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 X No ___

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.02 Human made? No Is wetland part of a wildlife corridor?_____ or a "habitat island"? ✓

Adjacent land use AC ROADWAY Distance to nearest roadway or other development 90 ft.

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? UPPER

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 22X

Latitude_____ Longitude_____

Prepared by: MBS Date 5-9-18

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N_____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓				
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495/I-270 MANAGED LANES STUDY City/County: MONTGOMERY Sampling Date: 5-9-2018
Applicant/Owner: SHA State: MD Sampling Point: 22Y-WET
Investigator(s): MBS/SJF Section, Township, Range: POTOMAC
Landform (hillslope, terrace, etc.): ____ Local relief (concave, convex, none): None Slope (%): 3
Subregion (LRR or MLRA): MLRA 148 Lat: 38.974208 Long: -77.177566 Datum: NAD83
Soil Map Unit Name: Watchung, Travilah, Elk 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:
Photos 2743-2744 Drains to waters feature 22Q.
PFO portion is 22R.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ✓ No ____ Depth (inches): 3"
Water Table Present? Yes ✓ No ____ Depth (inches): 12"
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: 224-WET

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:	20% of total cover:		

Sapling Stratum (Plot size: 10' x 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Green ash (Fraxinus pennsylvanica)	5	Y	FACW
2. River birch (Betula nigra)	5	Y	FACW
3.			
4.			
5.			
6.			
	10	= Total Cover	
50% of total cover: 5	20% of total cover: 2		

Shrub Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:	20% of total cover:		

Herb Stratum (Plot size: 10' x 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Juncus effusus	20	Y	OBL
2. Dichanthelium clandestinum	15	Y	FACW
3. Cinna arundinacea	20	Y	FACW
4. Microstegium vimineum	15	Y	FAC
5. Carex sp.	10	N	N/A
6.			
7.			
8.			
9.			
10.			
11.			
	80	= Total Cover	
50% of total cover: 40	20% of total cover: 16		

Woody Vine Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
		= Total Cover	
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 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: 224-W6+

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	Gley 1 5/10Y	85	5YR 4/4	15	C	M/PL	silty clay loam	
12-18	5YR 2.5/1	100					silty 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)**
- X 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 X **No** ___

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.04 Human made? NO Is wetland part of a wildlife corridor? ________ or a "habitat island"? ✓

Adjacent land use ROADWAY Distance to nearest roadway or other development ~100ft

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present YES

Is the wetland a separate hydraulic system? NO If not, where does the wetland lie in the drainage basin? UPPER

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 224
Latitude ________ Longitude ________
Prepared by: MBS Date 5-9-18
Wetland Impact:
Type ________ Area ________

Evaluation based on:
Office ✓ Field ✓
Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✓			
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓				
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

I-495/I-270 MANAGED LANES STUDY **Waters of the U.S. Data Sheet** VERIFIED 5-9-2018 MBS/SJF

Project: ~~I-495 IRVM – Montgomery County~~		**Feature ID:** ~~01-N-~~ 22Z	**Stream Order:** 3rd
Date: ~~11/24/14~~ 5/9/2019	**State:** MD	**Photos:** ~~10~~ 2745-2746	
Crew: ~~AT,MN,AM~~ MBS/SJF	**County:** Montgomery	**Last Flag Number:** ~~01-N-08A, 01-N-07B~~ LIDAR	

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: 6-12in of water in stream at time of field visit			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: outside of study area	Downstream: ~~W111M~~ 22AA	Adjacent/Abutting: ~~01-0~~ 22GG

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

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 40'	☐ Silts	☑ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 6'	☑ Cobbles	☑ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete	rip-rap	
☐ Other:	moderate erosion	Side slope: ☐ ≥1:1 ☑ 2:1 ☐ 3:1 ☐ ≤4:1			LB: Forest
Notes: stream name is Booze Creek, flows through culvert, lined with rip-rap, ~~plantings along bank~~					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php												
											Month: October		Year: 2014	
◉ 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:		