

## MDWAM EXAMPLE 1.



Figure 1. Example of a depressional wetland in Frederick County (blue polygon). Note the historic ditch that keeps the seasonal inundation at a lower level. The darker blue line illustrates the receiving ditch which is a man altered tributary from past agricultural use.



Figure 2. Illustration of the WAA (light blue), 500' buffer (thick red), and 1000' aquatic context (thin red) polygons. The red markers indicate aquatic resources to which the WAA is connected.





**Figure 3. This is the largest vegetation community in the WAA which is forested. The historic ditch lowers the level of inundation in most of the WAA, but the area remains seasonally saturated. The area is dominated by silver maple (*Acer saccharinum*) with a very sparse understory.**



**Figure 4. A central semi open area represents a second, but much smaller community where inundation is extended into the growing season. This area was also dominated by *Acer saccharinum* but due to high mortality of Green Ash (*Fraxinus pennsylvanica*), increased light penetration has enabled the central areas to be dominated by swamp rose mallow (*Hibiscus moschutos*).**



## October 7, 2025 – MDWAM WETLAND SCORING FORM

Project/Site ID: Nolands Ferry C&O Canal Park \_\_\_\_\_ Assessment Dates: 11-13-2020

Delineation Dates: 11-13-2020 Project Type: ☒ Testing ☐ Linear ☒ Non-Linear ☐ Mitigation (☐ Creation ☐ Restoration ☐ Enhancement)

Evaluators: Plewa, Gaimaro, Ozburn, Neff, Tiralla

Wetland ID/Name: WAA3NF1-2 NWI: PFO/SS1E

WAA #: 3 Size: 1.3 (acres) Wetland Class (HGM): Depression

MDWAM Regional: none

Ecoregion: ☐ CP ☒ EMP Aerial Photo Date and Source: June 2022 Google and numerous other google and WRR photography Photos: Yes

Notes: Depression wetland with two distinct communities, forested perimeter, and herbaceous central area. Historic ditch has silted in and currently has low impact. Wetland is surrounded by former cropland which has transitioned into Oldfield habitat dominated by various grasses and goldenrod and significant patches of shrub cover. Numerous spoil piles are located at the boundaries of the fields and the wetland. These were likely from historic clearing activities. Updated to reflect latest MDWAM data form.

### LANDSCAPE CORE ELEMENT

**Aquatic Context metric** – Confirm in office review. See figures in section 2.3.1.1 for examples.

Describe barriers or alterations that prevent connection: \_\_\_\_\_ ☒ No barriers.  
Total aquatic resources within 1,000 feet of WAA to which wetland connects (minimum size  $\geq 0.02$  acres): 5 streams 10 wetlands 0 ponds  
Score: 4

**Buffer – Evaluate to 500 feet from WAA boundary.** Confirm in office review and field check. A micro delineation of buffer types is unnecessary, users should delineate the major units to provide a qualitative estimate of the buffer community potential. See figures in Section 2.3.1.2 for examples

Buffer Type/Description – total buffer area ~ 32 acres	Score (See Narratives)	Percentage	Subtotal
1. Mid to late deciduous forest ~16 acres	4	50	2.0
2. Low to early successional forest 1.6 acres	3	5	0.15
3. Low successional - old field habitat (reverting agricultural lands) ~6.9 acres	2	21	0.43
4. Unmanaged herbaceous rangeland – mixed species ~7.7 acres	1	24	0.24
5.			
			Score: <b>2.8</b>

### HYDROLOGY CORE ELEMENT

**Water source metric** – Identify the **dominant water sources** and degree of natural or unnatural/artificial influence (Confirm in office review for watershed).

Natural Source: ☒ Precipitation ☐ Groundwater ☐ Overland flow ☐ Overbank flow/stream discharge ☐ Beaver activity ☐ Other: \_\_\_\_\_  
Unnatural/Manipulated Source/Controls: ☐ Impoundment ☐ Outfall ☐ Irrigation/pumping ☐ Fill ☐ Ditching/Channelization ☐ Other Artificial influence or control.  
Watershed/Drainage Area controls: ☐ Development ☐ Irrigated agriculture ☐ Wastewater treatment plant ☐ Impoundment ☐ Stormwater retention ☒ Change to flow/circulation from roads/ditching ☐ Other: \_\_\_\_\_  
Degree of artificial influence/control: ☐ Complete ☐ High ☒ Low ☐ None. Wetland created/restored/enhanced: ☐ Sustainable/replicates natural ☐ Controlled  
Comments: historic ditching has a minimal effect on source \_\_\_\_\_ Score: **3**

**Hydroperiod metric** – Determine the natural variability and/or recent alteration of the duration, frequency, and magnitude of inundation/saturation.

Evaluate the hydroperiod including natural variation: Precipitation: ☐ typical ☒ atypical (☒ deficit ☐ surplus) Source: MARF \_\_\_\_\_  
☒ High variation ☐ Low variation Evidence: redox features high in the soil profile, large deciduous tree species suggesting high ET rates, low carbon storage  
Direct evidence of alteration: Natural: ☐ Logjam ☐ Channel migration ☒ Other: elm ash borer – lowered ET rates \_\_\_\_\_  
Human: ☐ Diversions ☒ Ditches/swales ☐ Levees ☐ Impoundments ☐ Other: \_\_\_\_\_  
Riverine (active floodplain only): ☐ Recent channel in-stability/dis-equilibrium (☐ Degradation or ☐ Aggradation) ☐ Stable Channel \_\_\_\_\_  
Indirect evidence of alteration: ☐ Wetland plant stress ☒ Plant morphology ☐ Upland species encroachment ☒ Plant Community ☐ Soil morphology ☐ None  
Change/Alteration of hydroperiod: ☐ Due to natural events ☐ Human influences (☐ None ☒ Slight or ☐ High) largely recovered from ditching \_\_\_\_\_  
Degree hydroperiod of wetland created/restored/enhanced replicates natural patterns: \_\_\_\_\_  
Lacustrine fringe on human impoundment: ☐ High variability ☐ Low variability ☐ Recent changes to hydroperiod  
Comments: ash mortality has probably extended the hydroperiod somewhat \_\_\_\_\_ Score: **2**

**Hydrologic flow metric** – Movement of water to or from surrounding area and openness to water moving through the WAA (flow and circulation).

Flow: ☐ Inlets: # \_\_\_\_\_ ☒ Outlets: #1 ☐ Signs of water movement to or from WAA: none \_\_\_\_\_  
Restrictions: ☒ None ☐ Levee ☐ Berm/dam ☐ Diversion ☐ Ditch-Side Cast ☐ Road w/culverts ☐ Other: \_\_\_\_\_  
Magnitude of water movement into, through and out of the wetland (check indicators below): ☐ High ☐ Moderate ☐ Low \_\_\_\_\_  
High flow through: ☐ Floodplain ☐ Drift deposits ☐ Drainage patterns ☐ Sediment deposits ☐ Partially buried debris/trunks ☐ Scour ☐ Other: \_\_\_\_\_  
Low flow through: ☒ High landscape position ☒ Stagnant water ☐ Closed contours ☐ Debris dams ☒ Constricted Outlet ☐ Surface Roughness ☐ Other: \_\_\_\_\_  
Comments: this is fill and spill only under extreme conditions \_\_\_\_\_ Score: **1**

**Surface drainage feature metric:** Identify and describe all natural and man-made or man-altered surface drainage features (**SDF**) present within the WAA which potentially impact wetland hydrology and or wetland function and circle impact potential to the WAA (High-Moderate-Low). SDFs are defined as confined features with OHWM and or bed and banks. Indiscrete flow patterns are not considered (e.g., wetland drainage patterns, erosional features, etc.). Provide rationale below or on separate report.

SDF Types present: ☐ None ☐ Stream channel # \_\_\_\_\_ ☒ Ditch/swale # 1 \_\_\_\_\_ ☐ Diversion # \_\_\_\_\_ ☐ Other \_\_\_\_\_

SDF(s) exhibits (circle degree High-Moderate-Low): ☐ channel instability/migration(H-M-L) ☐ active incision/downcutting(H-M-L) ☐ bank instability(H-M-L) ☐ raw unvegetated or vertical banks(H-M-L) ☐ highly erodible materials(H-M-L) ☐ lacks vertical controls(H-M-L) ☐ excessive deposition/bar development(H-M-L) ☐ historic channel alteration(H-M-L) ☒ proximity to WAA that presents potential impact to hydrology(Low) ☐ coarse textured soils(high hydraulic conductivity)

☐ Restrictions associated with SDF cause backwater flooding within WAA: Type: ☐ levee ☐ fill/side cast ☐ culvert/bridge ☐ Other \_\_\_\_\_

Timing: ☐ Recent ( $\leq 5$  years) ☐ Historic

Negative effect to: ☐ flow and circulation within WAA ☐ redirects or confines flows into/through WAA ☐ reduced water table ☒ level of inundation ☐ No Impact

Rationale: it is likely the pool elevation of the depression is somewhat lower than originally. However, it was determined that the ongoing impact is likely minimal.

**Score: 3**

## SOILS CORE ELEMENT

<b>Soil organic carbon</b> (average multiple sample scores, round to one decimal). See Section 2.2.5.2, for additional guidance regarding multiple samples	<b>Sample Score</b>		
	#1	#2	#3
Total thickness of organic soil and mucky modified layer(s) $\geq 2"$	5	5	5
Total thickness of organic soil and mucky modified layer(s) $< 2"$ , OR Dark (matrix value $\leq 3$ and chroma $\leq 2$ ) mineral surface layer(s) $\geq 10"$ thick	4	4	4
Dark (matrix value $\leq 3$ and chroma $\leq 2$ ) mineral surface layer(s) only, $\geq 4"$ and $< 10"$ thick	3	3	3
Dark (matrix value $\leq 3$ and chroma $\leq 2$ ) mineral surface layer(s) only, $\geq 1"$ and $< 4"$ thick	2	2	2
Mineral surface layer(s) (any thickness) have matrix value and chroma combinations of 4/1, 4/2, 4/3, 4/4, 3/3, or 3/4. No organic soil and mucky modified layer(s) layers within 16"	1	1	1
Mineral surface layer(s) only (any thickness) with matrix values $> 4$ OR chromas $> 4$ . No organic soil and mucky modified layer(s) layers within 16"	0	0	0
Average score of samples (if multiple samples within the WAA)			
Additional point added in any riverine subclasses			
<b>Average of all samples/round to one decimal</b>			<b>Score: 1.4</b>

**Biogeochemical cycling metric:** See Section 2.2.5.2, for additional guidance regarding multiple samples.

<b>Sub-Metric Scores</b>					<b>Use this formula for each sample and average the number of samples (round all scores to one decimal)</b>	
Sample#	Redox Concentrations	Micro Topography	Soil Organic Matter	Herbaceous Cover		
1	4	2	2	3	$[0.75 \times (4 + 2 + 2 + 3)] - 2 = 6.25$ Sample Score 1	6.25
2	4	2	2	3	$[0.75 \times (4 + 2 + 2 + 3)] - 2 = 6.25$ Sample Score 2	6.25
3	-	-	-	-	$[0.75 \times ( \quad + \quad + \quad + \quad )] - 2 = \quad$ Sample Score 3	
Average of all samples						<b>Score: 6.3</b>

**Sedimentation metric – Deposition of excess sediment due to human actions (in the WAA). Confirm in office review for landscape.**

Landscape with stress that could lead to excess sedimentation: ☐ Yes ☒ No  
 Magnitude of recent runoff/flooding events: ☐ High ☐ Low ☒ None  
 Sand deposits: \_\_\_\_% of area \_\_\_\_ average thickness  
 Observation of deposits: ☐ Frequent ☐ Common ☐ Occasional ☐ Infrequent ☐ Rare ☐ None  
 Landscape position: ☒ High ☐ Low  
 Percent of WAA with excess sediment deposition: none  
 Silt/clay deposits: \_\_\_\_% of area \_\_\_\_ average thickness

\*Lacustrine fringe only: ☐ Upper end of impoundment ☐ Degrades wetland ☐ Contributes to wetland processes

**Score: 4**

**Soil modification metric – Physical changes by human activities. Confirm in office review for past.**

☒ Level of modification (low) ☐ Level of recovery (high) ☐ No detectable modifications  
 Type: ☐ Agricultural use (☐ Plowing ☐ Discing ☐ Harrowing) ☐ Logging ☐ Mining ☒ Filling ☐ Grading ☐ Dredging ☐ Off-road vehicles  
☐ Other: \_\_\_\_\_  
 Percent of WAA with soil modification: ☐ Recent \_\_\_\_% ☒ Historic  $< 5\%$  Describe: some historic piles of fill noted likely from land clearing for the adjacent historical agricultural activities. No longer active.  
 Indicators of past modification: ☐ None ☐ Low organic matter ☐ Lack of soil structure ☐ Removal of horizons ☐ Compaction (platy structure) ☐ Ap horizon ☐ Dramatic change in texture/color ☐ Heterogeneous mixture ☐ Recent Alluvium (e.g., legacy sediments) ☐ Stratified layers ☐ Soil subsidence ☒ Fill  
☐ Other \_\_\_\_\_  
 Comments: minimal fill encroachment into the wetland \_\_\_\_\_

**Score: 4**

**PHYSICAL STRUCTURE CORE ELEMENT**

<b>Topographic complexity metric – See figures in Section 2.3.4.1 Record % micro-topography and % of WAA for each elevation gradient. For multiple gradients, multiply the % of micro-topography by the % of the WAA for each gradient and sum the results to find the overall %.</b>	
# Of Elevation gradients present: 2 Evidence of gradients: <input checked="" type="checkbox"/> Plant assemblages <input checked="" type="checkbox"/> Level of saturation/inundation <input type="checkbox"/> Path of water flow <input type="checkbox"/> Slope Micro-topography (surface roughness) of WAA: <input type="checkbox"/> >50% <input checked="" type="checkbox"/> 30-49% <input type="checkbox"/> 10-29% <input type="checkbox"/> <10% Types: <input type="checkbox"/> Depression <input checked="" type="checkbox"/> Pools <input type="checkbox"/> Burrows <input type="checkbox"/> Swales <input checked="" type="checkbox"/> Wind-thrown tree holes <input checked="" type="checkbox"/> Mounds <input type="checkbox"/> Islands <input type="checkbox"/> Variable shorelines <input type="checkbox"/> Partially buried debris <input type="checkbox"/> Debris jams <input checked="" type="checkbox"/> Plant hummocks/roots <input type="checkbox"/> Other: _____	<b>Score: 4</b>
<b>Edge complexity metric – Initiate in office review but adjust based on field observations/delineation. See example figures in Section 2.3.4.2 to evaluate irregularity of wetland boundary and variability in vertical structure. Abutting habitats must border 30% or more of the WAA boundary.</b>	
WAA is: <input checked="" type="checkbox"/> Surrounded by uplands <input type="checkbox"/> In seasonal floodplain <input type="checkbox"/> Abutting other wetland types <input type="checkbox"/> Has edge vertical structure variation (Low) Horizontal variability: <input type="checkbox"/> High <input type="checkbox"/> Moderate <input type="checkbox"/> Low <input checked="" type="checkbox"/> None variability is very minimal _____	<b>Score: 1</b>
<b>Physical habitat richness metric – See definitions and table in Section 2.3.4.3 for habitat types applicable to each wetland type. Located in the WAA or within 25 feet of the WAA boundary.</b>	
<input checked="" type="checkbox"/> Concentric high-water marks <input type="checkbox"/> Secondary channels <input type="checkbox"/> Seasonally inundated swales <input checked="" type="checkbox"/> Un-vegetated pools <input type="checkbox"/> Un-vegetated flats <input type="checkbox"/> Vegetated islands <input type="checkbox"/> Slope with undercut, slump, or overhang <input type="checkbox"/> Rock piles with voids <input checked="" type="checkbox"/> Plant hummocks/vegetated mounds <input type="checkbox"/> Submerged/floating vegetation <input type="checkbox"/> Dense herbaceous cover <input type="checkbox"/> Brambles/thickets <input type="checkbox"/> Mature/late-successional stage of plant community (>24" DBH) <input type="checkbox"/> Drift deposits/organic debris <input type="checkbox"/> Brush piles <input checked="" type="checkbox"/> Fallen logs <input checked="" type="checkbox"/> Stumps/Standing snags <input checked="" type="checkbox"/> Wind-thrown trees <input type="checkbox"/> Tree root cavities <input checked="" type="checkbox"/> Nesting cavities/dens <input type="checkbox"/> Other _____ # of Physical habitat types present (wetland type sensitive - see narrative table): % 7	<b>Score: 4</b>

**BIOTIC STRUCTURE CORE ELEMENT**

<b>Plant strata metric – Use applicable wetland delineation regional supplement and wetland determination data form(s) 4 strata approach.</b>	
Number of plant strata: <input checked="" type="checkbox"/> ≥ 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> 0 Strata present: <input type="checkbox"/> herbaceous <input type="checkbox"/> shrub/sapling <input type="checkbox"/> tree <input type="checkbox"/> woody vines	<b>Score: 4</b>
<b>Species richness metric – Use data from determination data form(s) to count species with 5% or more relative cover in a stratum. Species should be counted only once for all observations within the WAA.</b>	
Number of species across all strata and determination data forms (count species once) plus additional significant species (provide rationale for additional species outside plots). Plot Species 7 + Additional species (outside sample plots) 0 = Total species richness 7 Rationale for additional species: NA	<b>Score: 3</b>
<b>Non-native/Invasive Infestation metric – Use data from determination data form(s) and additional observations. See tables in section 2.3.5.3.2 for examples.</b>	
Average total relative cover of non-native/invasive species across all strata and determination data forms: <1 % 4 = <1% 3 = 1-10% 2 = 11-25% 1 = 26-50% 0 = 51-100% <input type="checkbox"/> Additional species cover outside plots are included (must be growing in the wetland) Rationale: _____	<b>Score: 4</b>
<b>Interspersion metric – Confirm in office review. Use figure in section 2.3.5.4.2 to determine the degree of interspersion of plant zones (≥ 5% of WAA).</b>	
Degree of horizontal/plan view interspersion: <input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low <input type="checkbox"/> None	<b>Score: 2</b>
<b>Herbaceous cover metric – Estimate only herbaceous plant cover for entire WAA.</b>	
Total cover of herbaceous, emergent and submergent plants: <input type="checkbox"/> > 75% <input checked="" type="checkbox"/> 51–75% <input type="checkbox"/> 26–50% <input type="checkbox"/> ≤ 25%	<b>Score: 3</b>
<b>Vegetation alterations metric – Unnatural (human-caused) stressors. Confirm in office review for past.</b>	
Type (Check those applicable and circle R for recent or P for past): Cropping R/P <input type="checkbox"/> Disking-plowing R/P <input type="checkbox"/> Land clearing/leveling R/P <input type="checkbox"/> Mowing/shredding R/P <input type="checkbox"/> Silviculture R/P <input checked="" type="checkbox"/> Logging R/P Cutting Past <input type="checkbox"/> Trampling R/P <input type="checkbox"/> Herbicide treatment R/P <input type="checkbox"/> Herbivory R/P <input checked="" type="checkbox"/> Disease R/P <input type="checkbox"/> Chemical spill R/P <input type="checkbox"/> Pollution R/P <input type="checkbox"/> Grazing R/P <input type="checkbox"/> Woody debris removal R/P <input type="checkbox"/> Fire R/P <input type="checkbox"/> Other R/P: high mortality from emerald ash borer which has opened up the canopy resulting in the large patch of herbaceous growth. It is likely the canopy will recover but will result in different species composition. The wetland would appear to have recovered from any logging activity. Percent of WAA with recent vegetation alteration: 40% Severity of alteration: <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low Percent of WAA with past vegetation alteration: no estimate % Degree of recovery: <input checked="" type="checkbox"/> Complete <input type="checkbox"/> High <input type="checkbox"/> Moderate <input type="checkbox"/> Low <input type="checkbox"/> Alteration to improve wetland (degree of natural community recovery): _____ Rationale: _____	<b>Score: 2</b>
<b>Plant life forms metric - Life forms represent ≥ 5% of WAA.</b>	
<input type="checkbox"/> Bryophytes (mosses, liverworts, hornworts) <input type="checkbox"/> Coniferous Trees <input checked="" type="checkbox"/> Deciduous Broadleaf Trees <input type="checkbox"/> Evergreen Broadleaf Trees <input type="checkbox"/> Ferns <input type="checkbox"/> Grasses <input checked="" type="checkbox"/> Herbs <input checked="" type="checkbox"/> Lichens or Fungi <input type="checkbox"/> Sedges/Rushes <input type="checkbox"/> Shrubs <input type="checkbox"/> Vines <input type="checkbox"/> Floating/SAV	
Total Number of Plant Life Forms: <input type="checkbox"/> ≥ 6 = 4 <input checked="" type="checkbox"/> 4 or 5 = 3 <input type="checkbox"/> 3 = 2 <input type="checkbox"/> 1 or 2 = 1 <input type="checkbox"/> 0=0	<b>Score: 3</b>

# October 7, 2025 – MDWAM WETLAND FINAL SCORING FORM

Project/Site ID: Nolands Ferry C&O Canal Park \_\_\_\_\_ Assessment Dates: 11-13-2020

Delineation Dates: 11-13-2020 Project Type: ☒Testing ☐Linear ☒Non-Linear ☐Mitigation (☐Creation ☐Restoration ☐Enhancement)

Evaluators: Plewa, Gaimaro, Ozburn, Neff, Tiralla

Wetland ID/Name: WAA3NF1-2 NWI: PFO/SS1E

WAA #: 3 Size: 1.3 (acres) Wetland Class (HGM): Depression

MDWAM Regional Subclass: none

Ecoregion: ☐CP ☒EMP Aerial Photo Date and Source: June 2022 Google and numerous other google and WRR photography Photos: Yes

Notes: Updated to reflect latest MDWAM data form.

Core Element	Metric	Metric score	Core Element Score	Core Element Score
Landscape	Aquatic context	4	Sum of metric scores 6.8 / 8 x 15	12.75
	Buffer	2.8		
Hydrology	Water source	3	Sum of metric scores 10 / 16 x 30	18.75
	Hydroperiod	2		
	Hydrologic flow	1		
	Surface drainage features	3		
Soils	Organic carbon storage	1.4	Sum of metric scores 9 / 23 x 15	10.24
	Biogeochemical cycling	6.3		
	Sedimentation	4		
	Soil modification	4		
Physical Structure	Topographic complexity	4	Sum of metric scores 9 / 12 x 20	11.4
	Edge complexity	1		
	Physical habitat richness	4		
Biotic Structure	Plant strata	4	Sum of metric scores 21 / 28 x 20	15.0
	Species richness	3		
	Non-native/invasive infestation	4		
	Interspersion	2		
	Herbaceous cover	3		
	Vegetation alterations	2		
	Plant life forms	3		
Sum of core element scores = Base MDWAM wetland score:				68.14
Additional points for unique resources = overall MDWAM wetland score x 0.10 if: <input type="checkbox"/> Non-tidal wetlands of special state concern <input type="checkbox"/> Areas with populations (>20%) of the following species: Bald cypress, Atlantic white cedar, red spruce, balsam fir, or American larch <input type="checkbox"/> Delmarva Bay <input type="checkbox"/> Peatlands (histic epipedon or histosol present)				0
Additional points for limited habitats = overall MDWAM wetland score x 0.05 if: <input type="checkbox"/> Dominated by native trees greater than 24-inch diameter at breast height <input type="checkbox"/> Dominated by hard mast (i.e., acorns and nuts) producing native species in the tree strata <input type="checkbox"/> Large wetland tracts or corridors > 20 acres				0
Sum of overall wetland scores plus additional points = total overall MDWAM wetland score (round to whole number)				68

Attach representative site photographs:

Project/Site: MDWAM Field Testing – Nolands Ferry C&O Canal Park	City/County: Frederick	Sampling	Date:11-13-2020
Applicant/Owner: National Park Service	State: MD	Sampling	Point: <b>WAA3-1</b>

Are Vegetation\_\_\_\_, Soil\_\_\_\_, or Hydrology\_\_\_\_naturally problematic? No (If needed, explain any answers in Remarks.)

Hydrophytic Vegetation Present?	Yes X	Is the Sampled Area within a Wetland?	Yes
Hydric Soil Present?	Yes X		
Wetland Hydrology Present?	Yes X		
Remarks: area has experienced precipitation deficit over the past 90 and 365 days. Two heavy precipitation events in the past two weeks. This site has been historically impacted by a drainage ditch. The ditch has silted in somewhat and appears to have low ongoing impact.			

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)		<input type="checkbox"/> Surface Soil Cracks (B6)
<input checked="" type="checkbox"/> <b>Surface Water (A1)</b>	<input type="checkbox"/> True Aquatic Plants (B14)	<input checked="" type="checkbox"/> <b>Sparsely Vegetated Concave Surface (B8)</b>
<input checked="" type="checkbox"/> <b>High Water Table (A2)</b>	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> <b>Saturation (A3)</b>	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input checked="" type="checkbox"/> <b>Moss Trim Lines (B16)</b>
<input checked="" type="checkbox"/> <b>Water Marks (B1)</b>	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> <b>Crayfish Burrows (C8)</b>
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> <b>Saturation Visible on Aerial Imagery (C9)</b>
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)		<input checked="" type="checkbox"/> <b>Geomorphic Position (D2)</b>
<input checked="" type="checkbox"/> <b>Inundation Visible on Aerial Imagery (B7)</b>		<input type="checkbox"/> Shallow Aquitard (D3)
<input checked="" type="checkbox"/> <b>Water-Stained Leaves (B9)</b>		<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Aquatic Fauna (B13)		<input checked="" type="checkbox"/> <b>FAC-Neutral Test (D5)</b>
<b>Field Observations:</b> Surface Water Present? <b>Yes X</b> ___ No ___ Depth (inches): 0-12 ___ Water Table Present? <b>Yes X</b> ___ No ___ Depth (inches): 4 ___ Saturation Present? <b>Yes X</b> ___ No ___ Depth (inches): 0 ___ (includes capillary fringe)		<b>Wetland Hydrology Present?    Yes</b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
FULL RANGE OF GOOGLE AND WRR AERIAL PHOTOGRAPHY		
Remarks:		
approximately 2 inches of rain within the past 24-28 hours soil pit located outside of standing water		
Precipitation supporting data: <input type="checkbox"/> APT <input checked="" type="checkbox"/> MARF <input type="checkbox"/> Other		

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

 Sampling Point: **WAA3-1**

Tree Stratum (Plot size: 30' radius)				Absolute Dominant Indicator % Cover Species? Status		Dominance Test worksheet:	
1. <u>Acer saccharinum</u> silver maple	60	Y	FacW			Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u>	(A)
2. <u>Quercus palustris</u> pin oak	18	Y	FacW			Total Number of Dominant Species Across All Strata: <u>5</u>	(B)
3. _____						Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u>	(A/B)
4. <u>Fraxinus pennsylvanica</u> (dead – not quantified)	NA	NA	FacW				
5. _____							
6. _____							
7. _____							
				<u>78</u>	= Total Cover		
50% of total cover: <u>39</u>				20% of total cover: <u>15.6</u>			
Sapling/Shrub Stratum (Plot size: 15' radius)				Prevalence Index worksheet:			
1. <u>unknown</u>	1	no	?	Total % Cover of: _____ Multiply by: _____			
2. _____				OBL species _____ x 1 = _____			
3. <u>Fraxinus pennsylvanica</u> (dead – not quantified)				FACW species _____ x 2 = _____			
4. _____				FAC species _____ x 3 = _____			
5. _____				FACU species _____ x 4 = _____			
6. _____				UPL species _____ x 5 = _____			
7. _____				Column Totals: _____ (A) _____ (B)			
8. _____				Prevalence Index = B/A = _____			
9. _____							
				<u>NA</u>	= Total Cover		
50% of total cover: _____				20% of total cover: _____			
Herb Stratum (Plot size: 5' radius)				Hydrophytic Vegetation Indicators:			
1. <u>Carex lupulina</u> hop sedge	15	Y	OBL	___ 1 - Rapid Test for Hydrophytic Vegetation			
2. <u>Persicaria hydropiper</u> marsh pepper	4	Y	OBL	<b>X</b> 2 - Dominance Test is >50%			
3. <u>Saururus cernuum</u> lizards tail	1		OBL	___ 3 - Prevalence Index is ≤3.0 <sup>1</sup>			
5. <u>Lycopus Americanum</u> water horehound	trace		OBL	___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)			
6. <u>Persicaria pennsylvanica</u>	trace		FacW	___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)			
7. <u>Bohemeria cylindrica</u> false nettle	trace		FacW				
8. <u>Arthraxon hispidus</u> carp grass	trace		Fac				
9. <u>Quercus palustris</u> pin oak	trace		FacW				
10. <u>unknown broadleaf</u>	trace		?				
11. _____							
				<u>20</u>	= Total Cover		
50% of total cover: 10				20% of total cover: <u>4</u>			
Woody Vine Stratum (Plot size: 30' radius)				Definitions of Four Vegetation Strata:			
1. <u>Toxicodendron radicans</u>	9	Y	Fac	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.			
2. _____				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.			
3. _____				Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.			
4. _____				Woody vine – All woody vines greater than 3.28 ft in height.			
5. _____							
				<u>9</u>	= Total Cover		
50% of total cover: _____				20% of total cover: _____			
Remarks: (Include photo numbers here or on a separate sheet.)  Morphological adaptations observed on multiple age classes of maples and ashes. High ash mortality   MORPHOLOGICAL PLANT ADAPTATIONS: <input checked="" type="checkbox"/> shallow roots <input checked="" type="checkbox"/> fluted trunks <input checked="" type="checkbox"/> flared/butressed trunks <input type="checkbox"/> elevated root wads/trunks				<b>Hydrophytic Vegetation Present?</b> <span style="float: right;"><b>Yes</b></span>			



## SOIL Nolands Ferry C&O Canal Park

Sampling Point: **WAA3-1**

[illegible]

Project/Site: MDWAM Field Testing – Nolands Ferry C&O Canal Park City/County: Frederick Sampling Date: 11-13-2020

Applicant/Owner: National Park Service State: MD Sampling Point: **WAA3-2**

Investigator(s): Plewa, Gaimaro, Ozburn, Neff, Tiralla \_\_\_\_\_ Section, Township, Range: N/A \_\_\_\_\_

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

Subregion: LRR: S \_\_\_\_\_ MLRA: 148 \_\_\_\_\_ Lat: 39°14'8.43"N \_\_\_\_\_ Long: - 77°27'35.30"W \_\_\_\_\_ Datum: NA \_\_\_\_\_

Soil Map Unit Name: Melvin \_\_\_\_\_ NWI classification: PFO/SS1E \_\_\_\_\_

Are Vegetation\_\_\_\_, Soil\_\_\_\_, or Hydrology\_\_\_\_naturally problematic? No (If needed, explain any answers in Remarks.)

Hydrophytic Vegetation Present?	Yes X	Is the Sampled Area within a Wetland?	Yes
Hydric Soil Present?	Yes X		
Wetland Hydrology Present?	Yes X		
Remarks: area has experienced precipitation deficit over the past 90 and 365 days. Two heavy precipitation events in the past two weeks. This site has been historically impacted by a drainage ditch. The ditch has silted in somewhat and appears to have low ongoing impact.			

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply)		<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6)
<input checked="" type="checkbox"/> <b>Surface Water (A1)</b> <input checked="" type="checkbox"/> <b>High Water Table (A2)</b> <input checked="" type="checkbox"/> <b>Saturation (A3)</b> <input checked="" type="checkbox"/> <b>Water Marks (B1)</b> <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input checked="" type="checkbox"/> <b>Inundation Visible on Aerial Imagery (B7)</b> <input checked="" type="checkbox"/> <b>Water-Stained Leaves (B9)</b> <input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> <b>True Aquatic Plants (B14)</b> <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input checked="" type="checkbox"/> <b>Moss Trim Lines (B16)</b> <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input checked="" type="checkbox"/> <b>Saturation Visible on Aerial Imagery (C9)</b> <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> <b>Geomorphic Position (D2)</b> <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> <b>FAC-Neutral Test (D5)</b>
<b>Field Observations:</b> Surface Water Present? <b>Yes X</b> ____No____Depth (inches): 0-2____ Water Table Present? <b>Yes X</b> ____No____Depth (inches): 4____ Saturation Present? <b>Yes X</b> ____No____Depth (inches): 0____ (includes capillary fringe)		<b>Wetland Hydrology Present?    Yes</b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
FULL RANGE OF GOOGLE AND WRR AERIAL PHOTOGRAPHY		
Remarks:  approximately 2 inches of rain within the past 24-28 hours  soil pit located outside of standing water		
Precipitation supporting data: <input type="checkbox"/> APT <input checked="" type="checkbox"/> MARF <input type="checkbox"/> Other		

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

 Sampling Point: **WAA3-2**

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Acer saccharinum</u> silver maple	45	Y	FacW	
2. <u>many dead Fraxinus pennsylvanica</u> (not quantified)	NA	NA	FacW	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
<div style="display: flex; justify-content: space-between;"> <span>50% of total cover: <u>22.5</u></span> <span>20% of total cover: <u>9</u></span> </div>				
<b>Sapling/Shrub Stratum</b> (Plot size: 15' radius)				
1. <u>none</u>				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
<div style="display: flex; justify-content: space-between;"> <span>50% of total cover: _____</span> <span>20% of total cover: _____</span> </div>				
<b>Herb Stratum</b> (Plot size: 5' radius)				
1. <u>Hibiscus moschutos</u> marsh mallow	60	Y	OBL	
2. <u>Ludwigia palustris</u> water purslane	10		OBL	
3. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<div style="display: flex; justify-content: space-between;"> <span>50% of total cover: 35</span> <span>20% of total cover: <u>14</u></span> </div>				
<b>Woody Vine Stratum</b> (Plot size: 30' radius)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
<div style="display: flex; justify-content: space-between;"> <span>50% of total cover: _____</span> <span>20% of total cover: _____</span> </div>				

**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<sup>1</sup>

☐ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>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**

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

Morphological adaptations observed on multiple age classes of maples and ashes. High ash mortality

Vegetation meets the Rapid Test Indicator. However, plants were quantified to provide data for MDWAM assessment data forms.

Azolla (Mosquito fern) and Lemma were abundant but not included in the herb quantification.

Adventitious roots observed on hibiscus.

MORPHOLOGICAL PLANT ADAPTATIONS: ☒shallow roots ☒fluted trunks ☒flared/butressed trunks ☐elevated root wads/trunks



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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-3	10YR 4/1		10YR 3/4	5	C	M	SiL	soils saturated throughout
3-11	10YR 4/2		2.5YR 3/4	20	C	M	SiL	soils saturated throughout
11-15+	7.5YR 4/4	40	10YR 4/2	30	D	M	CL	moist
			5YR 3/3	10	C	M		
			2.5YR 3/6	20	C	M		

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.<sup>2</sup>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<sup>3</sup>:**

- 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)

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

**Restrictive Layer (if observed):**

Type: Clay Loam \_\_\_\_\_  
 Depth (inches): 11 \_\_\_\_\_

Hydric Soil Present? **Yes**

Remarks: LRR S MLRA 148

Meets two hydric soil indicators

## MDWAM EXAMPLE 2:

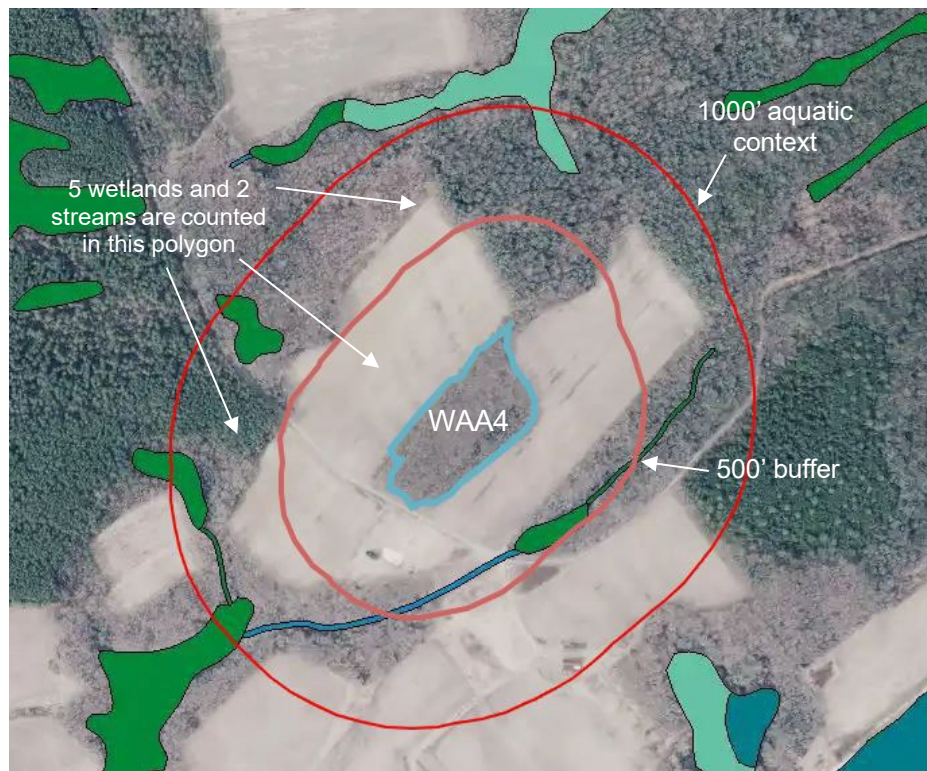


Figure 1. A mineral flat wetland example located Cedar Point State Park in Charles County. This aerial illustrates the WAA (blue polygon), 1000' aquatic context polygon (thin red), and 500' buffer polygon (thick red). There are 5 wetlands and two streams located in this polygon. *Note, field inspection may increase this score if aquatic resources are identified that were undetected from aerial imagery.* This WAA is surrounded by mostly cropland which produces a low score for the buffer metric. Also included are NWI polygons which were used to determine the aquatic context score.

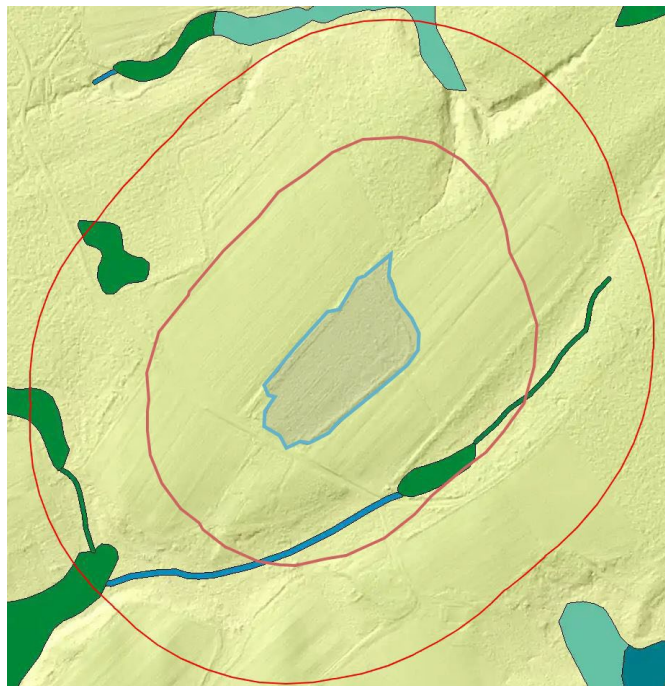


Figure 2. The same area using hill shade LiDAR and NWI mapping.





Figure 3. Photo within WAA4, a mineral flat wetland illustrating a mixed mid to late successional forest with a sparse understory typical of many mineral flats. The area is dominated by *Quercus phellos* and *Q. palustris* with some patches of *Cinna arundinacea* in the background where the light source is greater. This wetland is a remnant patch of forest surrounded by cropland.



Figure 4. Another shot of WAA4 further illustrating the lack of understory vegetation typical of mineral flat wetlands in the Coastal Plain ecoregion. Note the mixture of larger and smaller trees. While this wetland was larger than 5 acres, only one sample point was used due to the homogeneity of the community.



## October 7, 2025 – MDWAM WETLAND SCORING FORM

Project/Site ID: Cedar Point Wildlife Management Area

Assessment /Delineation Date: September 29, 2021

Project Type: ☒ Testing ☐ Linear ☐ Non-Linear ☐ Mitigation (☐ Creation ☐ Restoration ☐ Enhancement) ☐ Other \_\_\_\_\_

Evaluators: Plewa and Gaimaro \_\_\_\_\_ Wetland ID/Name: PFO1E NWI: PFO1E

WAA #: 4 Size: 5.8 (acres) Wetland Class (HGM): Mineral Flat MDWAM Regional Subclass: Mineral Flat

Ecoregion: ☒ CP ☐ EMP Aerial Photo Date and Source: NAIP 2018 Google May 2021 Photos: Yes

Notes: Forested block surrounded by cropland. Updated to reflect latest MDWAM data form.

### LANDSCAPE CORE ELEMENT

**Aquatic Context metric** – Confirm in office review. See figures in section 2.3.1.1 for examples.

Describe barriers or alterations that prevent connection: \_\_\_\_\_ ☒ No barriers.  
Total aquatic resources within 1,000 feet of WAA to which wetland connects (minimum size  $\geq 0.02$  acres): 1 streams 5 wetlands 0 ponds

Score: 3

**Buffer – Evaluate to 500 feet from WAA boundary.** Confirm in office review and field check. A micro delineation of buffer types is unnecessary, users should delineate the major units to provide a qualitative estimate of the buffer community potential. See figures in Section 2.3.1.2 for examples

Buffer Type/Description	Score (See Narratives)	Percentage	Subtotal
1. Mid to mature forest	4	21	0.83
2. Oldfield/low successional	2	6	0.12
3. Herbaceous rangeland	1	5	0.04
4. Cropland	0	66	0.0
5. Gravel road and parking area	0	2	0.0
6.			
			Score: 0.99

### HYDROLOGY CORE ELEMENT

**Water source metric** – Identify the **dominant water sources** and degree of natural or unnatural/artificial influence (Confirm in office review for watershed).

Natural Source: ☒ Precipitation ☐ Groundwater ☐ Overland flow ☐ Overbank flow/stream discharge ☐ Beaver activity ☐ Other: \_\_\_\_\_  
Unnatural/Manipulated Source/Controls: ☐ Impoundment ☐ Outfall ☐ Irrigation/pumping ☒ Fill ☐ Ditching/Channelization ☐ Other Artificial influence or control.  
Watershed/Drainage Area controls: ☐ Development ☐ Irrigated agriculture ☐ Wastewater treatment plant ☐ Impoundment ☐ Stormwater retention ☐ Change to flow/circulation from roads/ditching ☐ Other: \_\_\_\_\_  
Degree of artificial influence/control: ☐ Complete ☐ High ☒ Low ☐ None. Wetland created/restored/enhanced: ☐ Sustainable/replicates natural ☐ Controlled  
Comments: \_\_\_\_\_

Score: 4

**Hydroperiod metric** – Determine the natural variability and/or recent alteration of the duration, frequency, and magnitude of inundation/saturation.

Evaluate the hydroperiod including natural variation: Precipitation: ☐ typical ☒ atypical (☐ deficit ☒ surplus) Source: \_\_\_\_\_  
☒ High variation ☐ Low variation Evidence: \_\_\_\_\_  
Direct evidence of alteration: Natural: ☐ Logjam ☐ Channel migration ☐ Other: \_\_\_\_\_  
Human: ☐ Diversions ☐ Ditches/swales ☐ Levees ☐ Impoundments ☐ Other: \_\_\_\_\_  
Riverine (active floodplain only): ☐ Recent channel in-stability/dis-equilibrium (☐ Degradation or ☐ Aggradation) ☐ Stable Channel \_\_\_\_\_  
Indirect evidence of alteration: ☐ Wetland plant stress ☐ Plant morphology ☐ Upland species encroachment ☐ Plant Community ☐ Soil morphology ☐ None  
Change/Alteration of hydroperiod: ☐ Due to natural events ☐ Human influences (☒ None ☐ Slight or ☐ High) \_\_\_\_\_  
Degree hydroperiod of wetland created/restored/enhanced replicates natural patterns: \_\_\_\_\_  
Lacustrine fringe on human impoundment: ☐ High variability ☐ Low variability ☐ Recent changes to hydroperiod  
Comments: \_\_\_\_\_

Score: 4

**Hydrologic flow metric** – Movement of water to or from surrounding area and openness to water moving through the WAA (flow and circulation).

Flow: ☐ Inlets: # 0 ☐ Outlets: # 0 ☐ Signs of water movement to or from WAA: none \_\_\_\_\_  
Restrictions: ☐ None ☐ Levee ☐ Berm/dam ☐ Diversion ☐ Ditch-Side Cast ☐ Road w/culverts ☐ Other: \_\_\_\_\_  
Magnitude of water movement into, through and out of the wetland (check indicators below): ☐ High ☐ Moderate ☒ Low  
High flow through: ☐ Floodplain ☐ Drift deposits ☐ Drainage patterns ☐ Sediment deposits ☐ Partially buried debris/trunks ☐ Scour  
☐ Other: \_\_\_\_\_ Low flow through: ☐ High landscape position ☐ Stagnant water ☐ Closed contours ☐ Debris dams  
☐ Constricted Outlet ☐ Surface Roughness ☐ Other: \_\_\_\_\_  
Comments: \_\_\_\_\_

Score: 1

**Surface drainage feature metric:** Identify and describe all natural and man-made or man-altered surface drainage features (SDF) present within the WAA which potentially impact wetland hydrology and or wetland function and circle impact potential to the WAA (High-Moderate-Low). SDFs are defined as confined features with OHWM and or bed and banks. Indiscrete flow patterns are not considered (e.g., wetland drainage patterns, erosional features, etc.). Provide rationale below or on separate report.

SDF Types present: ☐ None ☐ Stream channel # \_\_\_\_\_ ☒ Ditch/swale # 1 ☐ Diversion # \_\_\_\_\_ ☐ Other \_\_\_\_\_

SDF(s) exhibits (circle degree High-Moderate-Low): ☐ channel instability/migration(H-M-L) ☐ active incision/downcutting(H-M-L) ☐ bank instability(H-M-L) ☐ raw unvegetated or vertical banks(H-M-L) ☐ highly erodible materials(H-M-L) ☐ lacks vertical controls(H-M-L) ☐ excessive deposition/bar development(H-M-L) ☐ historic channel alteration(H-M-L) ☐ proximity to WAA that presents potential impact to hydrology(H-M-L) ☐ coarse textured soils(high hydraulic conductivity)

☐ Restrictions associated with SDF cause backwater flooding within WAA: Type: ☐ levee ☐ fill/side cast ☐ culvert/bridge ☐ Other \_\_\_\_\_

Timing: ☐ Recent ( $\leq 5$  years) ☒ Historic

Negative effect to: ☐ flow and circulation within WAA ☐ redirects or confines flows into/through WAA ☐ reduced water table ☐ level of inundation ☒ No Impact

Rationale: minimal effect from ditch as it is located outside of the side cast and does not impound water to any degree

**Score: 3**

## SOILS CORE ELEMENT

<b>Soil organic carbon</b> (average multiple sample scores, round to one decimal). See Section 2.2.5.2, for additional guidance regarding multiple samples	<b>Sample Score</b>		
	#1	#2	#3
Total thickness of organic soil and mucky modified layer(s) $\geq 2"$	5	5	5
Total thickness of organic soil and mucky modified layer(s) $< 2"$ , OR Dark (matrix value $\leq 3$ and chroma $\leq 2$ ) mineral surface layer(s) $\geq 10"$ thick	4	4	4
Dark (matrix value $\leq 3$ and chroma $\leq 2$ ) mineral surface layer(s) only, $\geq 4"$ and $< 10"$ thick	3	3	3
Dark (matrix value $\leq 3$ and chroma $\leq 2$ ) mineral surface layer(s) only, $\geq 1"$ and $< 4"$ thick	2	2	2
Mineral surface layer(s) (any thickness) have matrix value and chroma combinations of 4/1, 4/2, 4/3, 4/4, 3/3, or 3/4. No organic soil and mucky modified layer(s) layers within 16"	1	1	1
Mineral surface layer(s) only (any thickness) with matrix values $> 4$ OR chromas $> 4$ . No organic soil and mucky modified layer(s) layers within 16"	0	0	0
Average score of samples (if multiple samples within the WAA)			
Additional point added in any riverine subclasses			
<b>Average of all samples/round to one decimal</b>			<b>Score: 2</b>

**Biogeochemical cycling metric:** See Section 2.2.5.2, for additional guidance regarding multiple samples.

<b>Sub-Metric Scores</b>					<b>Use this formula for each sample and average the number of samples (round all scores to one decimal)</b>	
Sample#	Redox Concentrations	Micro Topography	Soil Organic Matter	Herbaceous Cover		
1	4	3	2	2	$[0.75 \times (4 + 3 + 2 + 2)] - 2 = 6.25$	Sample Score 1
2	-	-	-	-	$[0.75 \times ( + + + )] - 2 =$	Sample Score 2
3	-	-	-	-	$[0.75 \times ( + + + )] - 2 =$	Sample Score 3
<b>Average of all samples</b>						<b>Score: 6.3</b>

**Sedimentation metric – Deposition of excess sediment due to human actions (in the WAA). Confirm in office review for landscape.**

Landscape with stress that could lead to excess sedimentation: ☐ Yes ☒ No  
 Magnitude of recent runoff/flooding events: ☐ High ☐ Low ☒ None  
☐ Sand deposits: \_\_\_% of area \_\_\_\_\_ average thickness  
☐ Silt/clay deposits: \_\_\_% of area \_\_\_\_\_ average thickness  
 Observation of deposits: ☐ Frequent ☐ Common ☐ Occasional ☐ Infrequent ☐ Rare ☒ None

\*Lacustrine fringe only: ☐ Upper end of impoundment ☐ Degrades wetland ☐ Contributes to wetland processes

**Score: 4**

**Soil modification metric – Physical changes by human activities. Confirm in office review for past.**

☒ Level of modification(low) ☒ Level of recovery (high) ☐ No detectable modifications  
 Type: ☐ Agricultural use (☐ Plowing ☐ Discing ☐ Harrowing) ☒ Logging ☐ Mining ☐ Filling ☐ Grading ☐ Dredging ☐ Off-road vehicles  
☐ Other: \_\_\_\_\_  
 Percent of WAA with soil modification: ☐ Recent \_\_\_% ☒ Historic \_\_\_% Describe: Soil disturbance was likely minimal and limited  
 Indicators of past modification: ☐ None ☐ Low organic matter ☐ Lack of soil structure ☐ Removal of horizons ☐ Compaction (platy structure) ☐ Ap horizon ☐  
 Dramatic change in texture/color ☐ Heterogeneous mixture ☐ Recent Alluvium (e.g., legacy sediments) ☐ Stratified layers ☐ Soil subsidence ☐ Fill  
☐ Other \_\_\_\_\_  
 Comments: \_\_\_\_\_

**Score: 4**

**PHYSICAL STRUCTURE CORE ELEMENT**

<b>Topographic complexity metric – See figures in Section 2.3.4.1 Record % micro-topography and % of WAA for each elevation gradient. For multiple gradients, multiply the % of micro-topography by the % of the WAA for each gradient and sum the results to find the overall %.</b>	
# Of Elevation gradients present: 1 Evidence of gradients: <input type="checkbox"/> Plant assemblages <input type="checkbox"/> Level of saturation/inundation <input type="checkbox"/> Path of water flow <input type="checkbox"/> Slope Micro-topography (surface roughness) of WAA: <input type="checkbox"/> >50% <input checked="" type="checkbox"/> 30-49% <input type="checkbox"/> 10-29% <input type="checkbox"/> <10% Types: <input type="checkbox"/> Depression <input type="checkbox"/> Pools <input type="checkbox"/> Burrows <input type="checkbox"/> Swales <input type="checkbox"/> Wind-thrown tree holes <input type="checkbox"/> Mounds <input type="checkbox"/> Islands <input type="checkbox"/> Variable shorelines <input type="checkbox"/> Partially buried debris <input type="checkbox"/> Debris jams <input type="checkbox"/> Plant hummocks/roots <input type="checkbox"/> Other: _____	<b>Score: 3</b>
<b>Edge complexity metric – Initiate in office review but adjust based on field observations/delineation. See example figures in Section 2.3.4.2 to evaluate irregularity of wetland boundary and variability in vertical structure. Abutting habitats must border 30% or more of the WAA boundary.</b>	
WAA is: <input type="checkbox"/> Surrounded by uplands <input type="checkbox"/> In seasonal floodplain <input type="checkbox"/> Abutting other wetland types <input checked="" type="checkbox"/> Has edge vertical structure variation (Moderate) Horizontal variability: <input type="checkbox"/> High <input type="checkbox"/> Moderate <input type="checkbox"/> Low <input checked="" type="checkbox"/> None _____	<b>Score: 2</b>
<b>Physical habitat richness metric – See definitions and table in Section 2.3.4.3 for habitat types applicable to each wetland type. Located in the WAA or within 25 feet of the WAA boundary.</b>	
<input type="checkbox"/> Concentric high water marks <input type="checkbox"/> Secondary channels <input type="checkbox"/> Seasonally inundated swales <input type="checkbox"/> Un-vegetated pools <input checked="" type="checkbox"/> Un-vegetated flats <input type="checkbox"/> Vegetated islands <input type="checkbox"/> Slope with undercut, slump, or overhang <input type="checkbox"/> Rock piles with voids <input type="checkbox"/> Plant hummocks/vegetated mounds <input type="checkbox"/> Submerged/floating vegetation <input type="checkbox"/> Dense herbaceous cover <input checked="" type="checkbox"/> Brambles/thickets <input type="checkbox"/> Mature/late-successional stage of plant community (>24" DBH) <input type="checkbox"/> Drift deposits/organic debris <input type="checkbox"/> Brush piles <input checked="" type="checkbox"/> Fallen logs <input checked="" type="checkbox"/> Stumps/ Standing snags <input checked="" type="checkbox"/> Wind-thrown trees <input checked="" type="checkbox"/> Tree root cavities <input checked="" type="checkbox"/> Nesting cavities/dens <input type="checkbox"/> Other _____ # of Physical habitat types present (wetland type sensitive - see narrative table): % 7	<b>Score: 3</b>

**BIOTIC STRUCTURE CORE ELEMENT**

<b>Plant strata metric – Use applicable wetland delineation regional supplement and wetland determination data form(s) 4 strata approach.</b>	
Number of plant strata: <input checked="" type="checkbox"/> ≥ 4 <input checked="" type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> 0 Strata present: <input checked="" type="checkbox"/> herbaceous <input checked="" type="checkbox"/> shrub/sapling <input checked="" type="checkbox"/> tree <input type="checkbox"/> woody vines	<b>Score: 3</b>
<b>Species richness metric – Use data from determination data form(s) to count species with 5% or more relative cover in a stratum. Species should be counted only once for all observations within the WAA.</b>	
Number of species across all strata and determination data forms (count species once) plus additional significant species (provide rationale for additional species outside plots). Plot Species 8 + Additional species (outside sample plots) 0 = Total species richness 8 Rationale for additional species: _____	<b>Score: 3</b>
<b>Non-native/Invasive Infestation metric – Use data from determination data form(s) and additional observations. See tables in section 2.3.5.3.2 for examples.</b>	
Average total relative cover of non-native/invasive species across all strata and determination data forms: _____ % <input checked="" type="checkbox"/> 4 = <1% <input type="checkbox"/> 3 = 1-10% <input type="checkbox"/> 2 = 11-25% <input type="checkbox"/> 1 = 26-50% <input type="checkbox"/> 0 = 51-100% <input type="checkbox"/> Additional species cover outside plots are included (must be growing in the wetland) Rationale: _____	<b>Score: 4</b>
<b>Interspersion metric – Confirm in office review. Use figure in section 2.3.5.4.2 to determine the degree of interspersion of plant zones (≥ 5% of WAA).</b>	
Degree of horizontal/plan view interspersion: <input type="checkbox"/> High <input type="checkbox"/> Moderate <input type="checkbox"/> Low <input checked="" type="checkbox"/> None	<b>Score: 1</b>
<b>Herbaceous cover metric – Estimate only herbaceous plant cover for entire WAA.</b>	
Total cover of herbaceous, emergent and submergent plants: <input type="checkbox"/> > 75% <input type="checkbox"/> 51–75% <input checked="" type="checkbox"/> 26–50% <input type="checkbox"/> ≤ 25%	<b>Score: 2</b>
<b>Vegetation alterations metric – Unnatural (human-caused) stressors. Confirm in office review for past.</b>	
Type (Check those applicable and circle R for recent or P for past): <input type="checkbox"/> cropping <input type="checkbox"/> Disking-plowing R/P <input type="checkbox"/> Land clearing/leveling R/P <input type="checkbox"/> Mowing/shredding R/P <input type="checkbox"/> Silviculture R/P <input checked="" type="checkbox"/> Logging R/P <input type="checkbox"/> Cutting R/P <input type="checkbox"/> Trampling R/P <input type="checkbox"/> Herbicide treatment R/P <input type="checkbox"/> Herbivory R/P <input type="checkbox"/> Disease R/P <input type="checkbox"/> Chemical spill R/P <input type="checkbox"/> Pollution R/P <input type="checkbox"/> Grazing R/P <input type="checkbox"/> Woody debris removal R/P <input type="checkbox"/> Fire R/P <input type="checkbox"/> Other R/P: _____ _____ Percent of WAA with recent vegetation alteration: _____ % Severity of alteration: <input type="checkbox"/> High <input type="checkbox"/> Moderate <input type="checkbox"/> Low Percent of WAA with past vegetation alteration: 100% Degree of recovery: <input checked="" type="checkbox"/> Complete <input type="checkbox"/> High <input type="checkbox"/> Moderate <input type="checkbox"/> Low <input type="checkbox"/> Alteration to improve wetland (degree of natural community recovery): _____ Rationale: _____	<b>Score: 4</b>
<b>Plant life forms metric - Life forms represent ≥ 5% of WAA.</b>	
<input type="checkbox"/> Bryophytes (mosses, liverworts, hornworts) <input type="checkbox"/> Coniferous Trees <input checked="" type="checkbox"/> Deciduous Broadleaf Trees <input checked="" type="checkbox"/> Evergreen Broadleaf Trees <input type="checkbox"/> Ferns <input checked="" type="checkbox"/> Grasses <input type="checkbox"/> Herbs <input type="checkbox"/> Lichens or Fungi <input type="checkbox"/> Sedges/Rushes <input type="checkbox"/> Shrubs <input checked="" type="checkbox"/> Vines <input type="checkbox"/> Floating/SAV	
Total Number of Plant Life Forms: <input type="checkbox"/> ≥ 6 = 4 <input checked="" type="checkbox"/> 4 or 5 = 3 <input type="checkbox"/> 3 = 2 <input type="checkbox"/> 1 or 2 = 1 <input type="checkbox"/> 0 = 0	<b>Score 3</b>



# October 7, 2025 – MDWAM WETLAND FINAL SCORING FORM

Project/Site ID: Cedar Point Wildlife Management Area

Assessment /Delineation Date: September 29, 2021

Project Type: ☒ Testing ☐ Linear ☐ Non-Linear ☐ Mitigation (☐ Creation ☐ Restoration ☐ Enhancement) ☐ Other \_\_\_\_\_

Evaluators: Plewa and Gaimaro \_\_\_\_\_ Wetland ID/Name: PFO1E NWI: PFO1E

WAA #: 4 Size: 5.8 (acres) Wetland Class (HGM): Mineral Flat MDWAM Regional Subclass: Mineral Flat

Ecoregion: ☒ CP ☐ EMP Aerial Photo Date and Source: NAIP 2018 Google May 2021 Photos: Yes

Notes: Forested block surrounded by cropland. Updated to reflect latest MDWAM data form.

Core Element	Metric	Metric score	Calculate Core Element Score	Core Element Score
Landscape	Aquatic context	3	Sum of metric scores 4 / 8 x 15	7.5
	Buffer	1		
Hydrology	Water source	4	Sum of metric scores 12 / 16 x 30	22.5
	Hydroperiod	4		
	Hydrologic flow	1		
	Surface drainage features	3		
Soils	Organic carbon storage	2	Sum of metric scores 16 / 23 x 15	10.6
	Biogeochemical cycling	6.3		
	Sedimentation	4		
	Soil modification	4		
Physical Structure	Topographic complexity	3	Sum of metric scores 8 / 12 x 20	13.3
	Edge complexity	2		
	Physical habitat richness	3		
Biotic Structure	Plant strata	3	Sum of metric scores 20 / 28 x 20	14.3
	Species richness	3		
	Non-native/invasive infestation	4		
	Interspersion	1		
	Herbaceous cover	2		
	Vegetation alterations	4		
	Plant life forms	3		
Sum of core element scores = Base MDWAM wetland score				68.2
Additional points for unique resources = overall MDWAM wetland score x 0.10 if: <input type="checkbox"/> Non-tidal wetlands of special state concern <input type="checkbox"/> Areas with populations (>20%) of the following species: Bald cypress, Atlantic white cedar, red spruce, balsam fir, or American larch <input type="checkbox"/> Delmarva Bay wetlands <input type="checkbox"/> Peatlands (histic epipedon or histosol present)				0
Additional points for limited habitats = overall MDWAM wetland score x 0.05 if: <input type="checkbox"/> Dominated (>50%) by native trees greater than 24-inch diameter at breast height <input type="checkbox"/> Dominated (>50%) by hard mast (i.e., acorns and nuts) producing native species in the tree strata <input type="checkbox"/> Large unfragmented wetland tracts and continuous riparian wetland corridors > 20 acres				0
Sum of overall wetland scores plus additional points = total overall MDWAM wetland score (round to whole number)				68

Attach representative site photographs:

## WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: MDWAM Field Testing – Cedar Point WMA \_\_\_\_\_ City/County: Charles \_\_\_\_\_ Sampling Date: 29 Sept 2021

Applicant/Owner: MD DNR \_\_\_\_\_ State: MD \_\_\_\_\_ Sampling Point: WAA 4 \_\_\_\_\_

Investigator(s): Plewa, Gaimaro \_\_\_\_\_ Section, Township, Range: NA \_\_\_\_\_

Landform (hillslope, terrace, etc.): interfluvial/flat \_\_\_\_\_ Local relief (concave, convex, none): none \_\_\_\_\_ Slope (%): 0-2

Subregion LRR: S \_\_\_\_\_ MLRA: 149A \_\_\_\_\_ Lat: 38.4373 Long: -77.0699 \_\_\_\_\_ Datum: NA \_\_\_\_\_

Soil Map Unit Name: Lenni and Quindocqua \_\_\_\_\_ NWI classification: none \_\_\_\_\_

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

Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? no Are "Normal Circumstances" present? Yes

Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? no (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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	<b>Is the Sampled Area within a Wetland? Yes</b>
Remarks: precipitation deficit (MARF)	

### HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one is required; check all that apply)</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <input type="checkbox"/> Surface Water (A1)  <input type="checkbox"/> High Water Table (A2)  <input type="checkbox"/> Saturation (A3)  <input type="checkbox"/> Water Marks (B1)  <input type="checkbox"/> Sediment Deposits (B2)  <input type="checkbox"/> Drift Deposits (B3)  <input type="checkbox"/> (C9) Algal Mat or Crust (B4)  <input type="checkbox"/> Iron Deposits (B5)  <input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)  <input checked="" type="checkbox"/> Water-Stained Leaves (B9)                         </div> <div style="width: 48%;"> <input type="checkbox"/> Aquatic Fauna (B13)  <input type="checkbox"/> Marl Deposits (B15) (LRR U)  <input type="checkbox"/> Hydrogen Sulfide Odor (C1)  <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)  <input type="checkbox"/> Presence of Reduced Iron (C4)  <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)  <input type="checkbox"/> Thin Muck Surface (C7)  <input type="checkbox"/> Other (Explain in Remarks)                         </div> </div>
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**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: WAA 4

Tree Stratum (Plot size: 30' radius)				Absolute Dominant Indicator % Cover Species? Status	
1. <i>Quercus palustris</i> _____	37_	yes_	FacW		
2. <i>Quercus phellos</i> _____	25_	yes_	FacW		
3. <i>Nyssa sylvatica</i> _____	15_		Fac		
4. <i>Acer rubrum</i> _____	11_		Fac		
5. <i>Liquidambar styraciflua</i> _____	6_		Fac		
6. _____					
7. _____					
8. _____					
84 = Total Cover					
50% of total cover: 42				20% of total cover: 16.8	
Sapling/Shrub Stratum (Plot size: 15' radius)					
1. <i>Ilex opaca</i> _____	7_	yes	Fac		
2. <i>Acer rubrum</i> _____	4_	yes	Fac		
3. <i>Nyssa sylvatica</i> _____	2_		Fac		
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
13 = Total Cover					
50% of total cover: 6.5				20% of total cover: 2.6	
Herb Stratum (Plot size: 5' radius)					
1. <i>Chasmanthium arundinacea</i> _____	30	yes	Fac		
2. <i>Smilax rotundifolia</i> _____	15	yes	Fac		
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
12. _____					
45 = Total Cover					
50% of total cover: 22.5				20% of total cover: 9	
Woody Vine Stratum (Plot size: 30' radius)					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
NA = Total Cover					
50% of total cover: _____				20% of total cover: _____	
Remarks: (If observed, list morphological adaptations below).					
MORPHOLOGICAL PLANT ADAPTATIONS: <input checked="" type="checkbox"/> shallow roots <input checked="" type="checkbox"/> fluted trunks <input type="checkbox"/> flared/butressed trunks <input type="checkbox"/> elevated root wads/trunks					

**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<sup>1</sup>  
☐ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

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

**Definitions of Four Vegetation Strata:**  
  
**Tree** – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  
  
**Sapling/Shrub** – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (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.

<b>Hydrophytic Vegetation Present?</b>	<b>Yes</b>
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## SOIL

Sampling Point: WAA 4**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features			Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>			
0-2	10YR 3/1						SiL	
2-5	10YR 5/2		10YR 5/6	20	C	M	SiL	
5-15+	10 YR 6/1		10YR 5/6	5	C	M	SiCL	
			7.5 YR 4/6	20	C	M		

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.<sup>2</sup>Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Mucky Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)

- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.**Restrictive Layer (if observed):**

Type: NA

Depth (inches): \_\_\_\_\_

**Hydric Soil Present? Yes**

Remarks: LRR – S / MLRA 149A