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 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 open strip represents a second, but much smaller community where inundation is extended into the growing season. This area was less than 25% of the entire WAA so weighting was not necessary. This area was also dominated by *Acer saccharinum* but due to high mortality of *Fraxinus pennsylvanica*, increased light penetration enabled the central areas to be dominated by *Hibiscus moschutus*.

20240325 - MDWAM WETLAND SCORING FORM

Total aquatic resources within 1,000 feet of WAA to which wetland connects (minimum size ≥ 0.02 acres): 5 streams 10 wetlands 0 ponds Score: _4	Project/Site ID: Nolands Ferry C&O Canal Park		Assessment Date	s: 11-13-2020
WAA #: 3 Size: 1.3 (acres) Wetland Type (HGM Class): Depression Regional Subtype: 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 sitted in and currently has low impact. Wetland is surrounded by former cropland which has transitioned into Oldfield habital 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. ********** ***********************	Delineation Dates: 11-13-2020 Project Type: ⊠Testing □Linear ⊠Non-Line	ar □Mitigation (□Crea	tion □Restoration □	∃Enhancement)
Rotes: 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. Canadia Context metric - Continum in office review. See figures in section 23.17 for examples.	Evaluators: Plewa, Gaimaro, Ozburn, Neff, Tiralla	Wetland ID/Na	me: WAA3NF1-2 N	IWI: PFO/SS1E
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. LANDSCAPE CORE ELEMENT	WAA #: 3 Size: 1.3 (acres) Wetland Type (HGM Class): Depression	Regi	onal Subtype: none	
has low impact. Weltand 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. Aquatic Context metric - Confirm in office review. See figures in section 2.3.1.1 for examples Describe barriers or alterations that prevent connection:	Ecoregion: □CP ⊠EMP Aerial Photo Date and Source: June 2022 Google	and numerous other goo	ogle and WRR photog	graphy Photos: Yes
Describe barriers or alterations that prevent connection: Sho barriers. Total aqualic resources within 1,000 feet of WAA to which wetland connects (minimum size ≥ 0.02 acres): 5 streams 10 wetlands 0 ponds Score: _4	has low impact. Wetland is surrounded by former cropland which has transitione and significant patches of shrub cover. Numerous spoil piles are located at the b	ed into Oldfield habitat do	ominated by various	grasses and goldenrod
Describe barriers or alterations that prevent connection:	LANDSCAPE CORE	ELEMENT		
Score: _4		mples.		
Buffer - Evaluate to 500 feet from WAA boundary. Confirm in office review and field check. 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 3 5 0.15 3. Low successional forest 1.6 acres 3 5 0.15 3. Low successional of difield 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. 6. Score: 28 HYDROLOGY CORE ELEMENT Water source metric - Identify the dominant water source and degree of natural or unnatural/artificial influence (Confirm in office review for watershed). Natural Source: SPrecipitation Groundwater Goverland flow Goverbank flow/stream discharge Beaver activity Gother: Unnatural/Manipulated Source/Controls: Impoundment Goverbank flow/stream discharge Beaver activity Gother: Unnatural/Manipulated Source/Controls: Development Grigated agriculture Wastewater treatment plant Impoundment Stormwater retention SChange to flow/circulation from roads/dictining Other: Degree of artificial influence/control: Complete High SLow 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 variability and/or recent alteration of the duration, frequency, and magnitude of inundation/saturation. Evaluate the hydroperiod including natural variability and/or recent alteration of the duration, frequency, and magnitude of inundation/saturation. Evaluate the hydroperiod including natural variability and/or recent alteration of the duration frequency and magnitude of inundation/saturation. Evaluate the hydroperiod including natural variability and/or recent alteration of the duration frequency and magnitude of inundati	Describe barriers or alterations that prevent connection:		10 11 1 0 1	No barriers.
Buffer Type/Description – total buffer area ~ 32 acres Score (See Narratives) Percentage Subtotal Mid to late deciduous forest - 16 acres Low to early successional forest 1.6 acres Low to early successional of feet 1.6 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultura	Total aquatic resources within 1,000 feet of WAA to which wetland connects (minimum si	ze ≥ 0.02 acres): 5 stream	s 10 wetlands 0 ponds	Score: _4_
Buffer Type/Description – total buffer area ~ 32 acres Score (See Narratives) Percentage Subtotal Mid to late deciduous forest - 16 acres Low to early successional forest 1.6 acres Low to early successional of feet 1.6 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultural lands) ~ 6.9 acres Low successional - old field habital (reverting agricultura	Buffer – Evaluate to 500 feet from WAA boundary. Confirm in office review and field of	heck. See figures in Section	n 2.3.1.2 for examples	
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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. 6. Score: 2.8 HYDROLOGY CORE ELEMENT Water source metric – Identify the dominant water source 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 Satypical (Sdeficit Surplus) Source: MARF High variation Dow 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: Llogjam Channel migration Other: em 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 Splant morphology Upland species encroachment Plant Community Soil morphology None Change/Alteration of hydroperiod: Due to natural events Dur	Mid to late deciduous forest ~16 acres	4	50	2.0
4. Unmanaged herbaceous rangeland – mixed species –7.7 acres 1 24 0.24 5. 6. Score: 2.8 HYDROLOGY CORE ELEMENT Water source metric – Identify the dominant water source 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 SLow 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 Alteration Sustainable Frates, low carbon storage Direct evidence of alteration: Natural: Logiam 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: Dweltand plant stress Plant morphology Upland species encroachment Plant Community Soil morphology None Change/Alteration High) largely recovered from ditching	Low to early successional forest 1.6 acres	3	5	0.15
Score: 2.8 Sco	3. Low successional - old field habitat (reverting agricultural lands) ~6.9 acres	2	21	0.43
HYDROLOGY CORE ELEMENT Water source metric – Identify the dominant water source 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 naturalvariation: Precipitation: Typical Matypical Matypica		1	24	0.24
HYDROLOGY CORE ELEMENT Water source metric - Identify the dominant water source 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 naturalvariation: Precipitation: Typical Atypical Atypica				
HYDROLOGY CORE ELEMENT Water source metric – Identify the dominant water source 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:	6.			
Water source metric - Identify the dominant water source 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 ☐ atteration frequency, and magnitude of inundation/saturation. Evaluate the hydroperiod including natural variation: Precipitation: ☐ typical ☐ atteration frequency, and magnitude of inundation/saturation. Evaluate the hydroperiod including natural variation: Precipitation: ☐ typical ☐ atteration frequency, and magnitude of inundation/saturation. Evaluate the hydroperiod including natural variation: Precipitation frequency				Score: 2.8
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 Agriculture Sustainable/replicates natural Controlled Comments: historic ditching has a minimal effect on source Score: 3 ###################################	HYDROLOGY CORE	ELEMENT		
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 ### Water Properties Wetland created/restored/enhanced: Sustainable/replicates natural Controlled Comments: historic ditching has a minimal effect on source Score: 3 ### Water Properties Wetland created/restored/enhanced: Sustainable/replicates natural Controlled Comments: historic ditching has a minimal effect on source Score: 3 ### Water Properties Sustainable/replicates natural Controlled Comments: historic ditching has a minimal effect on source Sustainable/replicates natural Controlled Comments: historic ditching has a minimal effect on source Sustainable/replicates natural Controlled Comments: historic ditching has a minimal effect on source Sustainable/replicates natural Controlled Comments: historic ditching Sustainable/replicates natural Controlled Comments: historic ditching Sustainable/replicates natural Controlled Comments: historic ditching Other: a decidence of invaldation/saturation. #### Properties Sustainable/replicates natural Controlled Controlled Comments: historic ditching Other: a decidence of invaldation/saturation. #### Properties Autority Other: a decidence Other: a	, , , , , , , , , , , , , , , , , , ,			or watershed).
Evaluate the hydroperiod including natural variation: Precipitation: \(\text{ \sqrplical} \sqrplical	Unnatural/Manipulated Source/Controls: ☐Impoundment ☐Outfall ☐Irrigation/pumping Watershed/Drainage Area controls: ☐Development ☐Irrigated agriculture ☐Wastewate flow/circulation from roads/ditching ☐Other: ☐Degree of artificial influence/control: ☐Complete ☐High ☒Low ☐None. Wetland c	□Fill □Ditching/Channel er treatment plant □Impou reated/restored/enhanced:	ization □Other Artificia ndment □Stormwater	retention ⊠Change to es natural □Controlled
Evaluate the hydroperiod including natural variation: Precipitation: \(\text{ \sqrplical} \sqrplical	Hydroneriod metric - Determine the natural variability and/or recent alteration of the dur	ration frequency and mag	nitude of inundation/sati	uration
⊠ 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				aration.
Human: □Diversions ⊠Ditches/swales □Levees □Impoundments □Other:	⊠High variation □Low variation Evidence: redox features high in the soil profile, large	deciduous tree species su	ggesting high ET rates	, low carbon storage
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	Human: ☐ Diversions ☒ Ditches/swales ☐ Levees ☐ Impoundments ☐ Other:			
Change/Alteration of hydroperiod: ☐ Due to natural events ☐ Human influences (☐ None ☒ Slight or ☐ High) largely recovered from ditching				
	Change/Alteration of hydroperiod: ☐ Due to natural events ☐ Human influences (☐ None	e ⊠Slight or □High) large		
Degree hydroperiod of wetland created/restored/enhanced replicates natural patterns:	Degree hydroperiod of wetland created/restored/enhanced replicates natural patterns:	changes to budraneriad		
Comments: ash mortality has probably extended the hydroperiod somewhatScore: 2	Comments: ash mortality has probably extended the hydroperiod somewhat	Enanges to flydropenou		Score: 2
Hydrologic flow metric – Movement of water to or from surrounding area and openness to water moving through the WAA (flow and circulation).	, ,	to water moving through the	he WAA (flow and circu	lation).
Flow: Inlets: #	Restrictions: None Levee Berm/dam Diversion Ditch-Side Cast Road w/culverts Other: High flow through: Floodplain Drift deposits Drainage patterns Sediment deposits			

Surface drainage feature metric: Identify and describe all natural and man-made or man-altered surface drainage features (SDF, potentially impact wetland hydrology and or wetland function and circle impact potential to the WAA (High-Moderate-Low). SDFs a with OHWM and or bed and banks. Indiscrete flow patterns are not considered (e.g., wetland drainage patterns). Provide rational SDF Types present: \(\text{None} \) \(\text{Stream channel } # \) \(\text{Ditch/swale } # 1 \) \(\text{Diversion } # \) \(\text{Diversion } # \) \(\text{Other} \) \(\text{SDF(s)} \) exhibits (circle degree High-Moderate-Low): \(\text{Channel instability/migration(H-M-L)} \) \(\text{Dactive incision/downcutting(H-M-L)} \) \(\text{unvegetated or vertical banks(H-M-L)} \) \(\text{Dipolity proximity to WAA that presents potential impact to hydrology(Low)} \) \(\text{Pexcessive deposition/historic channel alteration(H-M-L)} \) \(\text{Dipolity proximity to WAA that presents potential impact to hydrology(Low)} \) \(\text{Percent } \) \(\text{Restrictions associated with SDF cause backwater flooding within WAA: Type: \(\text{Dievee} \) \(\text{Fill/side cast } \) \(\text{Culvert/bridge } \) \(\text{Other Timing: } \) \(\text{Recent } \(\leq 5 \) years \) \(\text{Historic} \) \(\text{Negative effect to: } \) \(\text{Flow and circulation within WAA } \) \(\text{Predirects or confines flows into/through WAA } \) \(\text{Preduced water table } \) \(\text{Negative effect to: } \) \(Flow and circulation of the depression is somewhat lower than originally. However, it was determined that the one of the depression is somewhat lower than originally. However, it was determined that the one of the depression is somewhat lower than originally.	re defined a below or on Dank instal bar developr	s confined fi separate repositiv (H-M-L) ment (H-M-L) ion \(\subseteq No In is likely mir	eatures port. □raw) □			
SOILS CORE ELEMENT						
Soil organic carbon storage metric (average multiple sample scores, round to one decimal). See Section 2.2.5.2, for	Sa	mple Score	<i>#</i>			
additional guidance regarding multiple samples.	#1	#2	#3			
Organic Layer(s) ≥2 (combined textures)	5	5	5			
Organic Layer(s) <2" thick (combined textures) in the upper 16" OR, Dark* mineral surface horizon ≥10" thick	4	4	4			
Dark* mineral surface horizon only, ≥4 and <10" thick	3	3	3			
Dark* mineral surface horizon only, ≥1 and <4" thick Mineral surface layer(s) only (any thickness) with matrix value >3 and ≤4 or chroma >2 and ≤3	1	2	1			
Mineral surface layer(s) only (any thickness) with matrix chroma >3 or situations where the surface layer(s) have been removed	0	0	0			
Sample represents % of the WAA	40 %	60 %	%			
Sample score x % of the WAA/community =	0.8	0.6				
*Dark mineral surface-horizons have matrix value ≤3 and chroma ≤2		S	core: 1.4			
Biogeochemical cycling metric: See Section 2.2.5.2, for additional guidance regarding multiple samples.						
Sub-Metric Scores						
Sample # WAA concentrations Microtopography matter cover 1	(round	d to one de ber of sample	c imal) s			
		5	Score: 6.3			
Sedimentation metric – Deposition of excess sediment due to human actions (in the WAA). Confirm in office review for lan	dscape.					
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						
*Lacustrine fringe only: Upper end of impoundment Degrades wetland Contributes to wetland processes Soil modification metric – Physical changes by human activities. Confirm in office review for past.		5	Score: 4			
Son Hourication Hierric - Physical changes by Human activities. Commin in office review for past. Show level of modification or high level of recovery □ High level of modification and low level of recovery □ No detectable modification. Type: □ Agricultural use (□ Plowing □ Discing □ Harrowing) □ Logging □ Mining □ Filling □ Grading □ Dredging □ Off-road vehicultural use (□ Plowing □ Discing □ Harrowing) □ Logging □ Mining □ Filling □ Grading □ Dredging □ Off-road vehicultural use (□ Plowing □ Discing □ Harrowing) □ Logging □ Mining □ Filling □ Grading □ Dredging □ Off-road vehicultural use (□ Plowing □ Discing □ Harrowing) □ Logging □ Mining □ Filling □ Grading □ Dredging □ Off-road vehicultural use (□ Plowing □ Discing □ Harrowing) □ Logging □ Mining □ Filling □ Grading □ Dredging □ Off-road vehicultural use (□ Plowing □ Discing □ Harrowing) □ Logging □ Mining □ Filling □ Grading □ Dredging □ Off-road vehicultural use (□ Plowing □ Discing □ Harrowing) □ Logging □ Mining □ Filling □ Grading □ Dredging □ Off-road vehicultural use (□ Plowing □ Discing □ Harrowing) □ Logging □ Mining □ Filling □ Grading □ Dredging □ Off-road vehicultural use (□ Plowing □ Discing □ Harrowing) □ Logging □ Mining □ Filling □ Grading □ Dredging □ Dredging □ Off-road vehicultural use (□ Plowing □ Discing □ Discing □ Dredging □ Dredg						
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			

Project/Site ID/No. Nolands Ferry C&O Canal Park WAA 3 Assessment Date:	11-13-2020
PHYSICAL STRUCTURE CORE ELEMENT	
Topographic complexity metric – See figures in Section 2.3.4.1 Record % micro-topography and % of WAA for each elevation gradient.	
# Of Elevation gradients present: 2 Evidence of gradients: \(\times Plant assemblages \(\times Level of saturation / inundation \(\prop Path of water flow \(\prop Slope \)	
Micro-topography (surface roughness) of WAA: \square >50% \boxtimes 30-49% \square 10-29% \square <10%	
$ Types: \ \Box Depression \ \boxtimes Pools \ \Box Burrows \ \Box Swales \ \boxtimes Wind-thrown tree \ holes \ \boxtimes Mounds \ \Box Islands \ \Box Variable \ shorelines \ \Box Partially \ buried \ debt$	oris □Debris
jams ⊠Plant hummocks/roots □Other:	_ Score: 4
Edge complexity metric – Confirm in office review. See example figures in Section 2.3.4.2 to evaluate irregularity of wetland boundary and vertical structure.	d variability in
WAA is: ⊠Surrounded by uplands □In seasonal floodplain □Abutting other wetland types □Has edge vertical structure variation (Low)	
Horizontal variability: □High □Moderate □Low ⊠None variability is very minumal	Score: 1
Physical habitat richness metric – See definitions and table in Section 2.3.4.3 for habitat types applicable to each wetland type. Located within 25 feet of the WAA boundary.	in the WAA or
□ Concentric high-water marks □ Secondary channels □ Seasonally inundated swales □ Un-vegetated pools □ Un-vegetated flats □ Vegetated is □ Vegetated in the state of	slands □Slope
with undercut, slump, or overhang □Rock piles with voids ☑Plant hummocks/vegetated mounds □Submerged/floating vegetation □Dense herl	· ·
□ Brambles/thickets □Mature/late-successional stage of plant community (>24" DBH) □Drift deposits/organic debris □ Brush piles ☒ Fallen log	
Standing snags ⊠Wind-thrown trees □Tree root cavities ⊠Nesting cavities/dens □Other	
# of Physical habitat types present (wetland type sensitive - see narrative table): % 7	Score: 4
BIOTIC STRUCTURE CORE ELEMENT	
Plant strata metric – Use applicable wetland delineation regional supplement and wetland determination data form(s) 4 strata approach.	
Number of plant strata: ⊠≥ 4 □3 □2 □1 □0	Score: 4
Species richness metric – Use data from determination data form(s) to count species with 5% or more relative cover in a stratum. Species counted only once for all observations within the WAA.	s should be
Number of species across all strata and determination data forms (count species once) plus additional significant species (provide rationale for additional significant species).	litional species
outside plots). Plot Species 7 + Additional species (outside sample plots) 0 = Total species richness 7 Rationale for additional species: No	
	Score: 3
Non-native/Invasive Infestation metric – Use data from determination data form(s) and additional observations. See tables in section 2.3. examples.	5.3.2 for
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%	
□ Additional species outside plots are included Rationale:	Score: 4
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).
Degree of horizontal/plan view interspersion: ☐ High ☐ Moderate ☒ Low ☐ None	Score: 2
Herbaceous cover metric – Estimate only herbaceous plant cover for entire WAA.	
Total cover of herbaceous, emergent and submergent plants: □> 75% ⊠51–75% □26–50% □≤ 25%	Score: 3
Vegetation alterations metric – Unnatural (human-caused) stressors. Confirm in office review for past.	
$ \label{thm:linear_property} Type (Check those applicable and circle R for recent or P for past): $$\square$ Disking-plowing R/P $$\square$ Land clearing/leveling R/P $$\square$ Mowing/shredding F/P $$\square$ And clearing/leveling R/P $$\square$ And cle$	
R/P ⊠Logging R/P Cutting Past ☐ Trampling R/P ☐ Herbicide treatment R/P ☐ Herbivory R/P ☒ Disease R/P ☐ Chemical spill R/P ☐ Pollution	
R/P \Boxed Woody debris removal R/P \Boxed Fire R/P \Boxed Other R/P: high mortality from emerald ash borer which has opened up the canopy resulting in	
herbaceous growth. It is likely the canopy will recover but will result in different species composition. The wetland would appear to have recovered	rrom any logging
activity. Percent of WAA with recent vegetation alteration: 40% Severity of alteration: □High ⊠Moderate □Low	
Percent of WAA with past vegetation alteration: 40% 3cverty of alteration: \(\text{Linght \text{\text{Moderate}}}\) \(\text{Low}\)	
□ Alteration to improve wetland (degree of natural community recovery):	

Plant life forms metric - Life forms represent ≥ 5% of WAA.

Total Number of Plant Life Forms: $\square \ge 6 = 4$

Rationale:

□Bryo	phytes (mosses, liverv	vorts, hornworts) 🗆 🤇	Coniferous Tre	ees	☑ Deciduous Broadleaf Trees	□Evergreen Broadleaf Trees	□Ferns	□Grasses ⊠
Herbs	□ Lichens or Fungi	☐Sedges/Rushes	□Shrubs	□Vir	nes □Floating/SAV			

 \boxtimes 4 or 5 = 3 \square 3 = 2 \square 1 or 2 = 1 \square 0=0

Score: 2

Score 3

110103	Elenens of Tungi	□ ocuges/reasites	LIVINGS LITIDATING/3AV	

20240325 - MDWAM WETLAND FINAL SCORING FORM

Project/Site I/	ID: Nolands Ferry C&O Canal Park_			Assessment	Dates: 11	-13-2020	
Delineation D	Dates: 11-13-2020 Project Type: f	⊠Testing □Linea	ar ⊠Non-Line [.]	ear □Mitigation (□Creation □Restoration	ion □Enh	ancement))
Evaluators: P	Plewa, Gaimaro, Ozburn, Neff, Tiralla	ıa		Wetland ID/Name: WAA3NF1-	-2 NWI: P	²FO/SS1E	
VAA #: 3 Size: 1.3 (acres) Wetland Type (HGM Class): Depression Regional Subtype: none							
				e and numerous other google and WRR ph	<u> </u>		os: Yes
	e multiple vegetative communities oc ghted as below.	cur (≥ 25% of the	WAA), perforn	rm an assessment for each community. N	Netric <u>tota</u> l	scores sho	ould
Core		Metric score				ement Sco	
Element	Metric	community or c	data point)	Core Element Score	С	community	'y)
	* Promise	1 2	3	* 11	1	2	3
Landscape	Aquatic context	2 0	+	Sum of metric scores 1 = <u>6.8</u> 2= 3= / 8 x 15	12.75	j J	1
	Buffer Water source	2.8	+	= <u>0.0</u>	12.10		
Hydrology	Water source Hydroperiod	2	+	Sum of metric scores	1	j J	1
Hyurulogy	Hydroperiod Hydrologic flow	1	+	Sum of metric scores 1 = <u>10</u> 2= 3= / 16 x 30	18.75	j J	1
ŀ	Hydrologic flow Surface drainage features	+	+	· ···	1	j J	1
	Surface drainage features Organic carbon storage	3 1.4	+				 '
Soils	- v	+ + + + + + + + + + + + + + + + + + + +	+	Sum of metric scores	1	1	1
Sulis	Biogeochemical cycling Sedimentation	6.3	+	Sum of metric scores $1 = 9 2 = 3 = /23 \times 15$	10.24	j J	1
ļ		4	+	· <u></u> ·	1	j J	1
	Soil modification Topographic complexity	4					<u> </u>
Devicioal	Topographic complexity	· · ·			1	j J	1
Physical Structure	Edge complexity	+		Sum of metric scores 1 = 9 2= 3= / 12 x 20	11.4	j J	1
Jli uotai a	Physical nabitat richness 4 — — — —						
Ī	Plant strata						1
J	Species richness	3		l	1	1	1
Biotic	Non-native/invasive infestation	4		Sum of metric scores	1	j J	1
Structure -	Interspersion	2		1 = <u>21</u> 2= 3= / 28 x 20	15.0	j J	1
J	Herbaceous cover	3			1	j J	1
J	Vegetation alterations	2		l	1	j J	1
	Plant life forms	3					
	Sum of individual c	community core e	element score	res = overall MDWAM wetland score:	68.14		
				Community % of WAA: Partial Core Element Score:		 	+
	Weigh	Lad Cum of core	-loment scor		68		-
Weighted Sum of core element scores = overall MDWAM wetland score:							
☐ Non-tio☐ Areas☐ Delma☐ Peatla	lands (histic epipedon or histosol present)	pecies: Bald cypress, Atla	lantic white cedar,	red spruce, balsam fir, or American larch	0		
☐ Domin ☐ Domin	nts for limited habitats = overall MDWAM wetla inated by native trees greater than 24-inch dia inated by hard mast (i.e., acorns and nuts) pro e wetland tracts or corridors > 20 acres	liameter at breast height			0		
				FIN	AL MDW	VAM SCO	 JRE: 68

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MDWAM Field Testing – Nolands Fe	erry C&O Canal Park	City/County:	Frederick	Sampling	Date:11-13-2020
Applicant/Owner: National Park Service	State: MD			Sampling	Point:WAA3-1
Investigator(s): Plewa, Gaimaro, Ozburn, Neff, Ti	ralla	Section, Tov	vnship, Range: N/	'A	
Landform (hillslope, terrace, etc.): depression	Local relie	f (concave, convex, no	ne): concave	SI	lope (%): 0
Subregion: LRR: S MLRA: 148 Lat: 39°1					
Soil Map Unit Name: Melvin		_			
Are climatic / hydrologic conditions on the site type					
Are Vegetation, Soil, or Hydrolog	-			s" nrasant? Va	se Y No
Are Vegetation, Soil, or Hydrolog			explain any answe		
SUMMARY OF FINDINGS – Attach s				,	
Command of Findings Attaches	nte map snowing sam			o, important	
Hydrophytic Vegetation Present? Yes 2		Is the Sampled Area			
Hydric Soil Present? Yes >		within a Wetland?	Yes		
Wetland Hydrology Present? Yes X Remarks: area has experienced preci			dava Twa baa		
past two weeks. This site has been his appears to have low ongoing impact.	storically impacted by a	a drainage ditch. T	he ditch has s	ilted in some	what and
HYDROLOGY					
Wetland Hydrology Indicators:			•		of two required)
Primary Indicators (minimum of one is required;	check all that apply)		Surface Soil	Cracks (B6)	
⊠Surface Water (A1)	☐True Aquatic Plants (B1	*	-	getated Concav	re Surface (B8)
⊠High Water Table (A2)	☐ Hydrogen Sulfide Odor		☐ Drainage Pa	` ,	
⊠Saturation (A3)	☐ Oxidized Rhizospheres	-	⊠Moss Trim L		_
⊠Water Marks (B1)	□ Presence of Reduced I	` ,	-	Water Table (C2))
☐ Sediment Deposits (B2)	□ Recent Iron Reduction	` ,	⊠Crayfish Bu	` ,	(20)
□ Drift Deposits (B3)	☐ Thin Muck Surface (C7)			isible on Aerial	0 , (,
□ Algal Mat or Crust (B4)	☐ Other (Explain in Rema	irks)		tressed Plants (D	71)
☐ Iron Deposits (B5) ☑Inundation Visible on Aerial Imagery (B7)			☑Geomorphic ☐Shallow Aqui		
⊠Water-Stained Leaves (B9)				aphic Relief (D4)	
□ Aquatic Fauna (B13)			⊠FAC-Neutra		
Field Observations:			MI AO-Neutra	11031 (D3)	
Surface Water Present? Yes XNo_	Depth (inches): 0-12_				
Water Table Present? Yes_X No_	Depth (inches): 4				
Saturation Present? Yes XNo	Depth (inches): 0	Wetland	Hydrology Pres	ent? Yes	
(includes capillary fringe) Describe Recorded Data (stream gauge, monitor)	pring well, aerial photos, prev	/ious inspections), if ava	ailable:		
FULL RANGE OF GOOGLE AND WRR AERIA		.,,			
Remarks:					
approximately 2 inches of rain within the p	ast 24-28				
hours soil pit located outside of standing v	vater				
The state of the					
Precipitation supporting data: □APT ⊠MARF	□Other				

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

Tree Stratum (Plot size: 30' radius) 1. Acer saccharinum silver maple 2. Quercus palustris pin oak 3. 4. dead Fraxinus pennsylvanica (not quantified) 5. 6. 7. 50% of total cover: 39 Sapling/Shrub Stratum (Plot size:15' radius) 1. unkown 2. 3. dead Fraxinus pennsylvanica (not quantified) 4. 5.	% Cov 60 18 NA 78 20% of	NA	PacW FacW FacW FacW FacW FacW 7 FacW 7	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: 5 Total Number of Dominant Species Across All Strata: 5 Percent of Dominant Species That Are OBL, FACW, or FAC: 100 Prevalence Index worksheet:	_ (B) _ (A/B)		
2. Quercus palustris pin oak 3. 4. <u>dead Fraxinus pennsylvanica (not quantified)</u> 5. 6. 7. 50% of total cover: <u>39</u> Sapling/Shrub Stratum (Plot size:15' radius) 1. <u>unkown</u> 2. 3. <u>dead Fraxinus pennsylvanica (not quantified)</u> 4.	18 NA 78 20% of	NA	FacW FacW Over r: 15.6	That Are OBL, FACW, or FAC: 5 Total Number of Dominant Species Across All Strata: 5 Percent of Dominant Species That Are OBL, FACW, or FAC: 100 Prevalence Index worksheet:	(B) (A/B)		
3	78 20% of	NA		Species Across All Strata: 5 Percent of Dominant Species That Are OBL, FACW, or FAC: 100 Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species x 1 = FACW species FAC species x 2 = X 3 =	_ (A/B)		
4. dead Fraxinus pennsylvanica (not quantified) 5. 6. 7. 50% of total cover: 39 Sapling/Shrub Stratum (Plot size:15' radius) 1. unkown 2. 3. dead Fraxinus pennsylvanica (not quantified) 4	78 20% of	NA		Percent of Dominant Species That Are OBL, FACW, or FAC: 100 Prevalence Index worksheet:	_ (A/B)		
5	78 20% of	_ = Total C f total cove	over r: 15.6	That Are OBL, FACW, or FAC: 100 Prevalence Index worksheet:			
50% of total cover: 39 Sapling/Shrub Stratum (Plot size:15' radius) 1. unkown 2	78 20% of	_ = Total C f total cove no	r: <u>15.6</u>	Total % Cover of: Multiply by: OBL species x 1 = FACW species x 2 = FAC species x 3 =	_		
Sapling/Shrub Stratum (Plot size:15' radius) 1. unkown 2 3. dead Fraxinus pennsylvanica (not quantified) 4	20% of	f total cove	r: <u>15.6</u>	Total % Cover of: Multiply by: OBL species x 1 = FACW species x 2 = FAC species x 3 =			
Sapling/Shrub Stratum (Plot size:15' radius) 1. unkown 2 3. dead Fraxinus pennsylvanica (not quantified) 4	20% of	f total cove	r: <u>15.6</u>	OBL species x 1 = FACW species x 2 = FAC species x 3 =	_		
Sapling/Shrub Stratum (Plot size:15' radius) 1. unkown 2 3. dead Fraxinus pennsylvanica (not quantified) 4		no	?	FACW species x 2 = FAC species x 3 =	_		
unkown dead Fraxinus pennsylvanica (not quantified) 4.		_		FAC species x 3 =			
2		_					
dead Fraxinus pennsylvanica (not quantified) 4.				FACU species x 4 =			
4							
				UPL species x 5 =			
5				Column Totals:(A)	(B)		
	-			Prevalence Index = B/A =			
6				Hydrophytic Vegetation Indicators:			
7				1 - Rapid Test for Hydrophytic Vegetation			
8				X 2 - Dominance Test is >50%			
9				3 - Prevalence Index is ≤3.0¹			
		_ = Total C		4 - Morphological Adaptations ¹ (Provide sup	portina		
50% of total cover:	20% of	f total cove	r:	data in Remarks or on a separate sheet			
Herb Stratum (Plot size: 5' radius)				Problematic Hydrophytic Vegetation¹ (Explain)			
Carex lupulina hop sedge	15	<u>Y</u>	OBL	residinate riyarepriyae vegetation (Expla	,		
2. Persicaria hydropiper marsh pepper	4	<u>Y</u>	OBL	¹ Indicators of hydric soil and wetland hydrology mus			
Saururus cernuum lizards tail	_1		OBL	be present, unless disturbed or problematic.	iiust		
5. Lycopus Americanum water horehound	trace		OBL	Definitions of Four Vegetation Strata:			
6. Persicaria pennsylvanica	trace		FacW				
7. Bohemeria cylindrica false nettle	trace		FacW	Tree – Woody plants, excluding vines, 3 in. (7.6 more in diameter at breast height (DBH), regard	,		
8. Arthraxon hispidus carp grass	trace		Fac	height.	1033 01		
9. Quercus palustris pin oak	trace		FacW	Continue Character Management and Character	- 1		
10. unknown broadleaf				Sapling/Shrub – Woody plants, excluding vines than 3 in. DBH and greater than or equal to 3.2	s, iess 28 ft (1		
11.				m) tall.			
	20	= Total C	over	Herb – All herbaceous (non-woody) plants, regard			
50% of total cover: 10	20% of	- total cover:	4	of size, and woody plants less than 3.28 ft tall.	lialcoo		
Woody Vine Stratum (Plot size: 30' radius)				Woody vine All woody vines greater than 3.29	Q ft in		
Toxicodendron radicans	9	Y	Fac	Woody vine – All woody vines greater than 3.28 height.	3 11 111		
2							
3							
4							
5							
				Hydrophytic Vegetation Present? Yes			
	9 = Total Cover 20% of total cover:						
5576 51 15tal 55751.							
Remarks: (Include photo numbers here or on a separate sh	noot \			<u> </u>			

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

MORPHOLOGICAL PLANT ADAPTATIONS: ⊠shallow roots ⊠fluted trunks ⊠ flared/buttressed trunks □elevated root wads/trunks

SOIL Nolands Ferry C&O Canal Park

SOIL Nolands	Ferry C&O C	anal Park	ζ					Sampling Point: WAA3-1
Profile Descript	ion: (Describe to	the depth	needed to docui	ment the ir	ndicato	r or confirn	n the abse	ence of indicators.)
Depth	Matrix	· · · · · · · · · · · · · · · · · · ·		ox Feature		Loc ²	- 	. Domania
	or (moist) % 7.5YR 3/2	o COI	or (moist) 7.5YR 3/4		Type ¹	M/PL Si	<u>Texture</u>	-
								soils saturated throughout
	OYR 4/1		5YR 3/4	20-25		_ <u>M</u> _	SiL	soils saturated throughout
11-15+	7.5YR 4/4	40	10YR 4/2	35	<u>D</u>	M/PL	<u>CL</u>	soils saturated throughout
			_					
						 ·		
								
• • • • • • • • • • • • • • • • • • • •	entration, D=Deple	tion, RM=R	educed Matrix, M	IS=Masked	Sand (Grains.	² Locat	ion: PL=Pore Lining, M=Matrix.
Hydric Soil India								Indicators for Problematic Hydric Soils ³ :
Histosol (A1)			Dark Surface (S		20) (84)	DA 445 44	•	2 cm Muck (A10) (MLRA 147)
Histic Epiped Black Histic			Polyvalue Below Thin Dark Surface				8)	Coast Prairie Redox (A16) (MLRA 147, 148)
Hydrogen St			Loamy Gleyed N		-NA 14	7, 140)		Piedmont Floodplain Soils (F19)
Stratified Lay		X	Depleted Matrix	. ,				(MLRA 136, 147)
	(A10) (LRR N)		Redox Dark Sur					Very Shallow Dark Surface (TF12)
	elow Dark Surfac	e (A11)	Depleted Dark S)			Other (Explain in Remarks)
Thick Dark S		DD 11	Redox Depressi		-40\ (I I	DD N		
Sandy Muc	cky Mineral (S1) (L 17, 148)	.KK N,	Iron-Manganese MLRA 1		-12) (L I	RR N,		
	ed Matrix (S4)		Umbric Surface	-	RA 136	. 122)		³ Indicators of hydrophytic vegetation and
Sandy Redo			Piedmont Flood			-		wetland hydrology must be present,
Stripped Mat			Red Parent Mat			-		unless disturbed or problematic.
Restrictive Laye	er (if observed):							
Type: Clay Lo	oam NA		<u> </u>					
Depth (inches	s):		_				Hydr	ic Soil Present? Yes
Remarks: LRR S	MLRA 148							
Meets two hydric	soil indicators							
ooto tiio iiy aiio	, , , , , , , , , , , , , , , , , , , ,							

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MDWAM Field T	esting – Nolands Fer	ry C&O Canal Park	City/County:	Frederick	Sampling	Date:11-13-2020			
Applicant/Owner: National Pa	ark Service	State: MD	1		Sampling	Point:WAA3-2			
Investigator(s): Plewa, Gaima	aro, Ozburn, Neff, Tira	alla	Section, Tow	nship, Range: N/	Α				
Landform (hillslope, terrace, e									
				Long: - 77°27'35.30"W					
Soil Map Unit Name: Melvin_									
Are climatic / hydrologic cond					Janon: 1 1 0/00 1	_			
· -		-			-"	a V Na			
Are Vegetation, Soil		-				<u> </u>			
Are Vegetation, Soil									
SUMMARY OF FINDI	NGS – Attach si	e map showing sam	npling point location	ons, transects	s, important	features, etc.			
Hydrophytic Vegetation Pres	sent? Yes X								
Hydric Soil Present?	Yes X		Is the Sampled Area within a Wetland?	Yes					
Wetland Hydrology Present	? Yes X		within a wettand:	163					
HYDROLOGY									
Wetland Hydrology Indicat	tore:			Secondary Indi	cators (minimum	n of two required)			
Primary Indicators (minimum		heck all that apply)		☐Surface Soil		r or two required)			
Surface Water (A1)	ir or one is required, e	☑True Aquatic Plants (I	R14)		etated Concave	Surface (B8)			
⊠High Water Table (A2)		☐ Hydrogen Sulfide Odor	•	□ Drainage Pat		Surface (Do)			
Saturation (A3)		☐ Oxidized Rhizospheres		⊠Moss Trim L					
⊠Water Marks (B1)		□ Presence of Reduced I	- · · · · ·		Nater Table (C2)			
☐ Sediment Deposits (B2)		□ Recent Iron Reduction		☐ Crayfish Burr		,			
☐ Drift Deposits (B3)		☐Thin Muck Surface (C7	` ,	-	isible on Aerial	I Imagery (C9)			
☐ Algal Mat or Crust (B4)		☐Other (Explain in Rema	,		ressed Plants (D				
☐ Iron Deposits (B5)			,	⊠Geomorphic	Position (D2)	•			
⊠Inundation Visible on Aer	rial Imagery (B7)			☐Shallow Aqui					
⊠Water-Stained Leaves (B9	9)			□Microtopogra	phic Relief (D4)				
□ Aquatic Fauna (B13)				⊠FAC-N eutral	Test (D5)				
Field Observations:									
Surface Water Present?	Yes X No	Depth (inches): 0-2							
Water Table Present?	Yes <u>X</u> No	Depth (inches): 4							
Saturation Present? (includes capillary fringe)	Yes XNo	Depth (inches): 0	Wetland	Hydrology Pres	ent? Yes				
Describe Recorded Data (st	ream gauge, monitor	ng well, aerial photos, prev	vious inspections), if ava	ilable:		-			
FULL RANGE OF GOOGLE	AND WRR AERIAL	PHOTOGRAPHY							
Remarks:									
approximately 2 inches of ra	ain within the past 24-	28 hours							
soil pit located outside of sta	anding water								
con preriodated edicade or ex-	arianig water								
Precipitation supporting data	a. □ADT ⊠MADE □	∩ther							

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

4.5 Y Facty That Are OBL, FACW, or FAC: 2 (A) The Are OBL, FACW, or FAC: 2 (A) Total Number of Dominant Species Total Number of Dominant Species Septima/Shrub Stratum (Plot size: 15' radius) Total Cover Supling/Shrub Stratum (Plot size: 15' radius) Total Cover Sapling/Shrub Stratum (Plot size: 15' radius) Total Cover Solving of total cover: 22.5 20% of total cover: 9 FACU species x 4 = UPL, species x 5 = UPL, specie		Absolute Domina		Dominance Test worksheet:	
Z many dead Fraxinus pennsylvanica (not quantified) ANA NA FacW Species Arross All Strate: Percent of Dominant Species That Are OSU, FacW, or FacE 100. (AB) Prevalence Index workshee: That Are OSU, FacW, or FacE 100. (AB) Prevalence Index workshee: Total 15 (cover of: Multiply by: OSU, species x 1 = FACW species x 2 = FACW species x 4 = UPL species x 5 = GOUNDAM SET STATE	Tree Stratum (Plot size: 30' radius)		<u>-</u>		
Saging/Shrub Stratum (Plot size 15 radius) 50% of total cover	-			That Are OBL, FACW, or FAC: 2	(A)
Percent of Dominant Species That Are OBL, FACW, or FAC. 100 (A/B) Frevalence Index worksheet: Total Cover 50% of total cover: 22.5 20% of total cover: 9 1, 1000e					-
Percent of Dominant Species Final Are OBL FACW, or FAC 100 (AB) Final Are OBL FACW, or FACW				Species Across All Strata: 2	(B)
Prevalence Index worksheet: Total S Cover of: Multiply by: Sapling/Shrub Stratum (Plot size-15' radius) 1, none Sapling/Shrub Stratum (Plot size-15' radius) 1, none Sapling/Shrub Stratum (Plot size-15' radius) 1, none Sapling/Shrub Stratum (Plot size-15' radius) Sapling/Shrub Stratum (Plot					
Frevalence Index worksheet: Total Cover 50% of total cover: 22.5 20% of total cover: 9 Sapling/Shrub Stratum (Plot size:15' radius) 1, none 1,				That Are OBL, FACW, or FAC: 100	(A/B)
Total Scover of. Multiply by: Sapling Shub Stratum (Plot size:15' radius) FACU species X 1 = FACW species X 2 = FACW species X 2 = FACW species X 2 = FACW species X 3 = FACW species X 4 = FACW species X 5 = FACW species				Prevalence Index worksheet:	
Sapiling/Shrub Stratum (Plot size:15' radius) 1. none		45 – Total	Cover	Total % Cover of: Multiply by:	
FACW species X 2 = FACW species X 3 = FACW species X 4 = PACW species PACW species X 4 = PACW species PACW species X 4 = PACW species	50% of total cover: 22.5			OBL species x 1 =	
FACU species x 4 = UPL species x 5 = Column Totals; (A) (B) Prevalence Index = BIA = Hydrophytic Vegetation Indicators; 1 - Rapid Test for Hydrophytic Vegetation Indicators; 2 - Vegetation Indicators; 1 - Rapid Test for Hydrophytic Vegetation Indicators; 2 - Vegetation Indicators; 1 - Rapid Test for Hydrophytic Vegetation Indicators; 2 - Vegetation Indicators; 3 - Prevalence Index is \$50% 4 - Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation Function Indicators; 1 - All Merhaceous (non-woody) plants, excluding vines, Iess than 3 in. DBH and greater than or equal to 3.28 ft in height. Woody vine Stratum (Plot size: 30' radius) 1 - Vegetation Function Indicators (Indicator Hydrophytic Vegetation Function Indicator Hydrophytic Vegetation Function Indicator Indicato	Sapling/Shrub Stratum (Plot size:15' radius)			FACW speciesx 2 =	-
UPL species	1. none			FAC species x 3 =	-
UPL species X 5 =	2				
Prevalence Index = B/A =				UPL species x 5 =	•
### Hydrophytic Vegetation Indicators: Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is - S0% 3 - Prevalender is - S0% 4 - Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) Hibiscus moschutus marsh mallow	4			Column Totals:(A)	_ (B)
Hydrophytic Vegetation Indicators: 1. Rapid Test for Hydrophytic Vegetation 2. Ludwidgia palustris water pursiane 1. Hibisous moschutus marsh mailow 2. Ludwidgia palustris water pursiane 3. ————————————————————————————————————	5			Prevalence Index = B/A =	
1. Rapid Test for Hydrophytic Vegetation 2. 2. Dominance Test is >50% 3. Prevalence Index is \$3.0' 3. Prevalence Index is \$3.0' 4. Morphological Adaptations! (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation (Explain) 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. Woody Vine Stratum (Plot size: 30' radius) 1. 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 Present? Yes 1. Rapid Test for Hydrophytic Vegetation 2. 2. 3 4 Morphological Adaptations! (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation? 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. Woody Vine Stratum (Plot size: 30' radius) No. 1	6				-
NA	7				
3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet.) 7 - Yes 8 - Total Cover 20% of total cover: 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet.) 20 - Definitions of hydric soil and wetland hydrology must be present, unless disturbed or problematic. 20 - 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. 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (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. 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations of hydric vegetation * Present* * Problematic Hydrophytic	8				
50% of total cover:	9				
Herb Stratum (Plot size: 5' radius) 1. Hibiscus moschutus marsh mallow 2. Ludwidgia palustris water purslane 3.				4 - Morphological Adaptations¹ (Provide suppo	orting
1. Hibiscus moschutus marsh mallow 2. Ludwidgia palustris water purslane 3.		20% of total co	ver:	data in Remarks or on a separate sheet)	
2. Ludwidgia palustris water purslane 3.	· · · · · · · · · · · · · · · · · · ·	00 V	ODI	Problematic Hydrophytic Vegetation ¹ (Explain)
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, 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 Stratum (Plot size: 30' radius) 1.					ust
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. To = Total Cover 20% of total cover: 14					
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. Woody Vine Stratum (Plot size: 30' radius) Woody Vine Stratum (Plot size: 30' radius) Moody Vine Stratum (Plot size: 30' radius) Moody vine — All woody vines greater than 3.28 ft in height. Woody vine — All woody vines greater than 3.28 ft in height.				Definitions of Four Vegetation Strata:	
8					
Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. TO					ess of
than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. TO					
m) tall. To = Total Cover					
50% of total cover: 35 Woody Vine Stratum (Plot size: 30' radius) 1	11.			I	(.
50% of total cover: 35 Woody Vine Stratum (Plot size: 30' radius) 1		70 = Total	Cover	Herb – All herbaceous (non-woody) plants, regard	lless
Morphological adaptations observed on multiple age classes of maples and ashes. High ash mortality Woody Vine – All woody vines greater than 3.25 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.	50% of total cover: 35				21000
1	Woody Vine Stratum (Plot size: 30' radius)			Woody vine – All woody vines greater than 3.28 t	ft in
A	1				
A	2				
NA	3				
NA = Total Cover 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.					
So% of total cover:20% of total cover: 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.	5				
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.	F00/ of total accord			1 •	
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.	50% of total cover.	20% or total cov	ver	1355	
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.	Remarks: (Include photo numbers here or on a separate sl	neet.)			
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.	Morphological adaptations observed on multiple age classe	es of maples and a	shes. High ash	mortality	
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/buttressed trunks □elevated root wads/trunks		ots ⊠fluted trunks		essed trunks	

Sampling Point: WAA3-2

SOIL Nolands Ferry C&O Canal Park

SOIL Nolar	nds Ferry C&O	Canal P	ark					Sampling Point: <u>WAA3-2</u>
Profile Desc	ription: (Describe	to the de	oth needed to doc	ument the i	ndicator o	r confirn	n the absei	nce of indicators.)
Depth	Matrix	0/		edox Feature		. 2		5
	Color (moist)	%	Color (moist)	<u>%</u>	_Type ¹	Loc ²	Texture	Remarks
0-3	10YR 4/1		10YR 3/4		C M	SiL	0.1	soils saturated throughout
<u>3-11</u>	10YR 4/2		2.5YR 3/4	20	<u> </u>	M	SiL	soils saturated throughout
<u>11-15+</u>	7.5YR 4/4	40	10YR 4/2	30 D	M	CL		moist
			5YR 3/3	10	С	M		
	-		2.5YR 3/6	20		M		
	_	. ———	2.011(0/0					
			-					-
			-					
¹Type: C=C	oncentration, D=Dep	letion RM	M=Reduced Matrix	MS=Masked	d Sand Gra	ins	² Locatio	on: PL=Pore Lining, M=Matrix.
Hydric Soil		notion, rav	- roadood matrix,	WO-Washes	a Garia Gre			ndicators for Problematic Hydric Soils ³ :
Histosol			Dark Surface ((S7)				2 cm Muck (A10) (MLRA 147)
	pipedon (A2)		Polyvalue Beld		S8) (MLRA	A 147, 14		Coast Prairie Redox (A16)
Black Hi			Thin Dark Surf				•	(MLRA 147, 148)
	n Sulfide (A4)		Loamy Gleyed	Matrix (F2)			ı	Piedmont Floodplain Soils (F19)
	d Layers (A5)		X Depleted Mati					(MLRA 136, 147)
	ick (A10) (LRR N)	. (Δ11)	Redox Dark Su	. ,	7\			Very Shallow Dark Surface (TF12)
	Below Dark Surface ark Surface (A12)	(A11)	Depleted Dark Redox Depres)		,	Other (Explain in Remarks)
	Mucky Mineral (S1)	(LRR N.	Iron-Mangane		F12) (LRR	N.		
	A 147, 148)	(=::::,	MLRA		, (,		
	Bleyed Matrix (S4)		Umbric Surfac	e (F13) (ML	RA 136, 1	22)		³ Indicators of hydrophytic vegetation and
Sandy R	edox (S5)		Piedmont Floo			-		wetland hydrology must be present,
	Matrix (S6)		Red Parent Ma	aterial (F21)	(MLRA 12	7, 147)		unless disturbed or problematic.
	_ayer (if observed):							
Type: Cla								
	ches): 11						Hydric	Soil Present? Yes
Remarks: LF	RRS MLRA 148							
Meets two hy	dric 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 too small to detect 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.

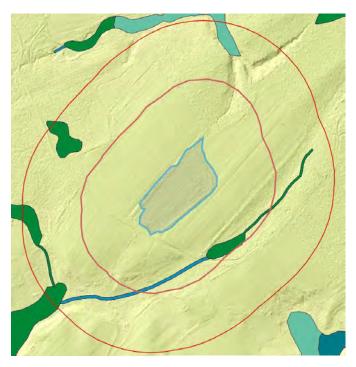


Figure 2. The same area using hill shade LiDAR and NWI mapping.



Figure 3. Photo within WAA4, a mineral flat wetland illustrating a mixed mid to late successional forest with a sparce understory typical of many mineral flats. The area is dominated by *Quercus phellos* and *Q. palustris* with some patches of *Cinna arundinacea* are 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.

20240513 - MDWAM WETLAND SCORING FORM

Project/Site ID: Cedar Point Wildlife Management Area	Assessr	nent /Delineation D	ate: September 29, 2021						
Project Type: ⊠Testing □Linear □Non-Linear □Mitigation (□Creation □	Restoration □Enhancer	ment) □Other							
Evaluators: Plewa and Gaimaro	Wetland ID/Nam	Wetland ID/Name: PFO1E NWI: PFO1E							
WAA #: 4 Size: 5.8 (acres) Wetland Class (HGM): Mineral Flat Regional Subclass: Mineral Flat									
Ecoregion: ⊠CP □EMP Aerial Photo Date and Source: NAIP 2018 Google May 2021									
Notes: Forested block surrounded by cropland.									
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 s	size ≥ 0.02 acres): 1 streams	s 5 wetlands 0 ponds							
Buffer – Evaluate to 500 feet from WAA boundary. Confirm in office review and field	ŭ								
Buffer Type/Description	Score (See Narratives)	Percentage	Subtotal						
Mid to mature forest	4	21	0.83						
Oldfield/low successional	2	6	0.12						
Herbaceous rangeland Cropland	0	5 66	0.04						
Cropland Gravel road and parking area	0	2	0.0						
6.	U	2	0.0						
			Score: 0.99						
HYDROLOGY CORE ELEMENT Water source metric – Identify the dominant water source 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 □ Wastewa flow/circulation from roads/ditching □ Other:	ter treatment plant □Impour	ndment □Stormwate	r retention □ Change to						
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: Utypical Satypical (Udeficit Surplus) Source:									
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:									
Comments:			Score: 4						
Hydrologic flow metric – Movement of water to or from surrounding area and opennes	ss to water moving through th	ne WAA (flow and circ	ulation).						
Restrictions: None Levee Bern/dam Diversion Ditch-Side Cast Road w/culverts Other: High flow through: Floodplain Drift deposits Drainage patterns Sediment deposits Partially buried debris/trunks Scour Other:									
High flow through: □Floodplain □Drift deposits □Drainage patterns □Sediment deposition □Stagnant water □Closed contours □ Comments: □	Debris dams ☐Constricted (

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). Provide rational 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) □ Restrictions associated with SDF cause backwater flooding within WAA: Type: □ levee □ fill/side cast □ culvert/bridge □ Other □ Timing: □ Recent (≤ 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	S CORE ELEM	ENT			
Soil organic	carbon :	storage metric (a	verage multiple sa			mal). See Section 2.2.5.2, for	Sai	mple Score	? #
		garding multiple s					#1	#2	#3
		combined textures		11:00 0 1:			5	5	5
			xtures) in the upper	16" OR, Dark*	mineral surface ho	rizon ≥10" thick	4	4	4
		horizon only, ≥4 a horizon only, ≥1 a					3	3	3
			ess) with matrix valu	ıe >3 and < 4 ∩	r chroma >2 and <	3	1	1	1
						rface layer(s) have been removed	0	0	0
Willioral Salitate	oo layor (by only (any unoun	oss, warmaan on	oma / o or orda	MICHO WHO SE	Sample represents % of the WAA	%	%	%
					Sample s	core x % of the WAA/community =			
*Dark mineral surface-horizons have matrix value ≤3 and chroma ≤2 Score: 2								Score: 2	
Biogeochem	ical cycl	<mark>ling metric:</mark> See S	Section 2.2.5.2, for a	ndditional guida	nce regarding mul	iple samples.			
			Sub-Metric	Scores					
Sample # WAA Concentrations Microtopography Soil organic matter cover 1 4 3 2 2 [0.75 x (4 + 3 + 2 + 2)] - 2 = 6.3 Total Score Redox MT SOM HC (round to one decimal) Use this formula for each sample and average the number of samples									
Score: 6.3									
Sedimentation	on metri	c – Deposition of	excess sediment	due to human	actions (in the W	AA). Confirm in office review for land	dscape.		
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 Landscape position: □High □Low Magnitude of recent runoff/flooding events: □High □Low □None Percent of WAA with excess sediment deposition: 0 □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.									
⊠ Low level of modification or high level of recovery ☐ High level of modification and low level of recovery ☐ 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 Pramatic change in texture/color ☐ Heterogeneous mixture ☐ Percent Alluvium (o.g., loggey sediments) ☐ Stratified layers ☐ Soil subsidence ☐ Fill									
Dramatic change in texture/color ☐ Heterogeneous mixture ☐ Recent Alluvium (e.g., legacy sediments) ☐ Stratified layers ☐ Soil subsidence ☐ Fill ☐ Other ☐ Comments: ☐ Score: 4									Score: 4

R/P \square Woody debris removal R/P \square Fire R/P \square Other R/P: Percent of WAA with recent vegetation alteration: Severity of alteration: □High □Moderate □Low Percent of WAA with past vegetation alteration: 100% Degree of recovery: ⊠Complete ☐ High ☐ Moderate ☐ Low ☐ Alteration to improve wetland (degree of natural community recovery): Rationale: Score: 4 Plant life forms metric - Life forms represent ≥ 5% of WAA. □ Bryophytes (mosses, liverworts, hornworts) □ Coniferous Trees □ Deciduous Broadleaf Trees □ Evergreen Broadleaf Trees □ Ferns □ Grasses □ Herbs □ Lichens or Fungi □ Sedges/Rushes □ Shrubs □ Vines □ Floating/SAV Total Number of Plant Life Forms: $\square \ge 6 = 4$ $\boxtimes 4$ or 5 = 3 $\square 3 = 2$ $\square 1$ or 2 = 1 $\square 0 = 0$ Score 3

20240513 - 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									
WAA #: 4	Size: 5.8 (acres)	Wetland	Class (HG	M): Mineral	Flat Regional Subclass: I	Mineral Fla	ıt		
Ecoregion: ⊠CP □EMP Aerial Photo Date and Source: NAIP 2018 Google May 2021							Photos: Yes		
	multiple vegetative communities o hted as below.	ccur (≥ 25%	6 of the W	AA), perforn	n an assessment for each community. N	letric <u>tota</u> l	scores sho	ould	
Core Element	Metric	Metric score (each community or data point) Core Element Score		Core Element Score (each community)		<i>(</i>)			
Landscape	Aquatic context	3	2	3	Sum of metric scores	7.5		3	
Lanuscape	Buffer	1			4 / 8 x 15	7.5			
	Water source	4			170%10				
Hydrology	Hydroperiod	4			Sum of metric scores	22.5			
riyarology	Hydrologic flow	1			12 / 16 x 30				
	Surface drainage features	3							
	Organic carbon storage	2							
Soils	Biogeochemical cycling	6.3			Sum of metric scores	10.6			
	Sedimentation	4			16 / 23 x 15				
	Soil modification	4							
	Topographic complexity	3							
Physical	Edge complexity	2			Sum of metric scores	13.3			
Structure	Physical habitat richness	3			8 / 12 x 20				
	Plant strata	3							
	Species richness	3							
D' 1'	Non-native/invasive infestation	4							
Biotic Structure	Interspersion	1			Sum of metric scores 20 / 28 x 20	14.3			
Structure	Herbaceous cover	2			20720 X 20	14.5			
	Vegetation alterations	4							
	Plant life forms	3							
	Sum of individual of	community	y core elei	ment score	s = overall MDWAM wetland score: Community % of WAA:	68.2			
	100								
	-	(0.2							
Weighted Sum of core element scores = overall MDWAM wetland score:							68.2		
Additional points for unique resources = overall MDWAM wetland score x 0.10 if: Non-tidal wetlands of special state concern Areas with populations (>20%) of the following species: Bald cypress, Atlantic white cedar, red spruce, balsam fir, or American larch Delmarva Bay wetlands Peatlands (histic epipedon or histosol present) Additional points for limited habitats = overall MDWAM wetland score x 0.05 if:							0		
 □ Dominated (>50%) by native trees greater than 24-inch diameter at breast height □ Dominated (>50%) by hard mast (i.e., acorns and nuts) producing native species in the tree strata □ Large unfragmented wetland tracts and continuous riparian wetland corridors > 20 acres 							0		

FINAL MDWAM SCORE: 68

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: MDWAM Field Testing – Cedar Point WMACity/C	County: CharlesSampling Date: 29 Sept 202
Applicant/Owner: MD DNR	State: MDSampling Point: WAA 4
Investigator(s): Plewa, GaimaroSection	on, Township, Range:NA
Landform (hillslope, terrace, etc.):interfluve/flatLocal	relief (concave, convex, none):noneSlope (%): 0-2
Subregion LRR: S MLRA: 149ALat: 38.4373	ong:-77.0699Datum: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 Hydrologysignificantly distu	urbed? no Are "Normal Circumstances" present? Yes
Are Vegetation, Soil, or Hydrologynaturally problem	
SUMMARY OF FINDINGS – Attach site map showing sam	
Hydrophytic Vegetation Present? Yes	In the Complet Area
Hydric Soil Present? Yes	Is the Sampled Area within a Wetland? Yes
Wetland Hydrology Present? Yes Remarks: precipitation deficit (MARF)	Within a Wethand: 165
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply) Surface Water (A1) Aquatic Fauna (B13)	Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) Aduatic Fauria (B13) Marl Deposits (B15) (LR	
Saturation (A3) Hydrogen Sulfide Odor (i i i i i i i i i i i i i i i i i i i
☐ Water Marks (B1) ☐ Oxidized Rhizospheres a	· ' — · · · · · H
Sediment Deposits (B2)	on (C4) Crayfish Burrows (C8)
Drift Deposits (B3)	· · ·
(C9)Algal Mat or Crust (B4)	Geomorphic Position (D2)
Iron Deposits (B5) Uher (Explain in Remark	
Inundation Visible on Aerial Imagery (B7) X Water-Stained Leaves (B9)	FAC-Neutral Test (D5) Sphagnum moss (D8) (LRR T, U)
Field Observations:	Spriagrum moss (D6) (EKK 1, 0)
Surface Water Present? No Depth (inches):	
Water Table Present? No Depth (inches):	
Saturation Present? No Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? Yes
Describe Recorded Data (stream gauge, monitoring well, aerial photos, proposition of FULL RANGE OF GOOGLE AND WATERSHED RESOURCES FUNCTION PHOTOGRAPHY	evious inspections), if available: REGISTRY AERIAL
Remarks: precipitation deficit (MARF)	
Precipitation supporting data: □APT ⊠MARF □Other	

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

		te Dominan		Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: 30' radius)		er Species		Number of Dominant Species
1. Quercus palustris		-		That Are OBL, FACW, or FAC:6 (A)
2. Quercus phellos	25	yes	_ FacW	Total Number of Dominant
Nyssa sylvatica	15		_ Fac	Species Across All Strata:6 (B)
4. Acer rubrum	11		_ Fac	Percent of Dominant Species
5. Liquidambar styraciflua	6		_ Fac	That Are OBL, FACW, or FAC: 100 (A/B)
6				
7				Prevalence Index worksheet:
8				Total % Cover of: Multiply by:
		_ = Total C		OBL species x 1 =
50% of total cover: 42	20% o	f total cover	: 16.8_	FACW speciesx 2 =
Sapling/Shrub Stratum (Plot size: 15' radius)			_	FAC species x 3 =
1. Ilex opaca	7	ves	Fac	FACU speciesx 4 =
2. Acer rubrum_		-	Fac	UPL species x 5 =
3. Nyssa sylvatica		-		Column Totals:(A)(B)
4				Prevalence Index = B/A =
5				Hydrophytic Vegetation Indicators:
6				
7				X 2 - Dominance Test is >50%
8			_	- 3 - Prevalence Index is ≤3.0¹
	13	_ = Total C	over	Problematic Hydrophytic Vegetation¹ (Explain)
50% of total cover: 6.5	20% o	f total cove	: 2.6	
Herb Stratum (Plot size: 5'radius)				¹ Indicators of hydric soil and wetland hydrology must
Chasmanthium arundinacea	30	yes	Fac	be present, unless disturbed or problematic.
2. Smilax rotundifolia	15	yes	Fac	Definitions of Four Vegetation Strata:
3.				Tree Woody plants evaluding vince 2 in (7.6 cm) or
4.				 Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
5.				height.
6.				Sanling/Shrub Woody plants evaluding vines loss
				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
7				•
8				 Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
9			_	or size, and woody plants less than 3.20 it tall.
10	-			Woody vine – All woody vines greater than 3.28 ft in
11				height.
12				
	45	_ = Total C	over	
50% of total cover: 22.5	20% (of total cove	r: 9	
Woody Vine Stratum (Plot size: 30' radius)				
1				
2				
3				
4				
5				- Hydrophytic
		= Total C		Vegetation
50% of total cover:				Present? Yes
Remarks: (If observed, list morphological adaptations below		i total covel	•	•
Tremains. (II observed, list morphological adaptations belo	w).			
MORPHOLOGICAL PLANT ADAPTATIONS: ⊠shallow roo	oto ⊠£liviti	od trunka 🗀	florod/b	receed trunks. Deloyated root wada/trunks
INICINI LICEOGICAL PLANT ADAPTATIONS. ASIAIIOW FO	ກວ ⊠IIUI€	รน แนกเหรื │	ı ııaı cu/Dulti	resseu truriks ∟etevateu ruut Waus/trufiKS

Sampling Point: WAA 4

SOIL Sampling Point: WAA 4

Profile Desc	cription: (Describe	to the dept	h needed to docum	ent the i	ndicator	or confirm	the absence of ind	icators.)
Depth	Matrix (assist)		Redo	x Feature		12	T	Demode
	Color (moist)	% C	Color (moist)	%	_Type ¹	Loc ²	Texture	Remarks
0-2	10YR 3/1						SiL	
2-5	10YR 5/2		10YR 5/6	20	С	<u>M</u>	SiL	
5-15+	10 YR 6/1		10YR 5/6	_ 5	<u>C</u>	<u>M</u>	SiCL_	
			7.5 YR 4/6	20	С	M		
Hydric Soil Histosol Histic Ep Black Hi Hydroge Stratified Organic 5 cm Mu Muck Pr 1 cm Mu Depleted Thick Da Coast P Sandy M Sandy M Sandy G Stripped Dark Su Restrictive II Depth (inc	Indicators: (Applie (A1) Indicators: (Applie (A1) Indicators: (Applie (A2) Indicator (A2) Indicator (A3) Indicator (A3) Indicator (A4) Indicator (A5) Indicator (A6) Indicator (A6) Indicator (A6) Indicator (A10) Indicator (cable to all L P, T, U) .RR P, T, U) U) cce (A11) (MLRA 1504 (LRR O, S) S, T, U)	Redox Depre Marl (F10) (L Depleted Ocl Iron-Mangan Umbric Surfa Delta Ochric Reduced Ver Piedmont Flo	vise note elow Surfa rface (SS y Minera eld Matrix rix (F3) Surface (rk Surface essions (I RR U) hric (F11 ese Mas ace (F13) (F17) (M tic (F18) podplain S	ed.) ace (S8) (b) (LRR S I (F1) (LR (F2) F6) e (F7) F8) (MLRA ses (F12) (LRR P, LRA 151 (MLRA 1 Soils (F19)	(LRR S, T, I , T, U) :R O) (LRR O, P T, U)) 50A, 150B)	Indicators for F U) 1 cm Muck (A 2 cm Muck Reduced V Piedmont F Anomalous (MLRA 1! Red Parent Very Shallo Other (Exp	(A10) (LRR S) Pertic (F18) (outside MLRA 150A,B) Floodplain Soils (F19) (LRR P, S, T) Es Bright Loamy Soils (F20) 53B) Material (TF2) W Dark Surface (TF12) Iain in Remarks) S of hydrophytic vegetation and hydrology must be present, disturbed or problematic.